

Jotun Protects Property

Coatings Organiser

January 2011

NAME	UPDATED
Alkyd Topcoat	ISSUED 28 FEBRUARY 2011
Alkydprimer	ISSUED 26 NOVEMBER 2010
Aluflex	ISSUED 26 NOVEMBER 2010
Aluminium Paint H.R.	ISSUED 26 NOVEMBER 2010
Balloxy HB Light	ISSUED 26 NOVEMBER 2010
Baltoflake	ISSUED 26 NOVEMBER 2010
Baltoflake S2000	ISSUED 26 NOVEMBER 2010
Barrier	ISSUED 26 NOVEMBER 2010
Barrier 77	ISSUED 26 NOVEMBER 2010
Barrier 80	ISSUED 26 NOVEMBER 2010
Barrier 90	ISSUED 26 NOVEMBER 2010
Barrier ZEP	ISSUED 26 NOVEMBER 2010
Chemflake Special	ISSUED 26 NOVEMBER 2010
CQ Primer	ISSUED 26 NOVEMBER 2010
CQ Topcoat	ISSUED 26 NOVEMBER 2010
Epoxy HR	ISSUED 26 NOVEMBER 2010
Futura AS	ISSUED 26 NOVEMBER 2010
Hardtop AS	ISSUED 26 NOVEMBER 2010
Hardtop AS Alu	ISSUED 26 NOVEMBER 2010
Hardtop AS Clear	ISSUED 26 NOVEMBER 2010
Hardtop CA	ISSUED 26 NOVEMBER 2010
Hardtop F10	ISSUED 26 NOVEMBER 2010
Hardtop Flexi	ISSUED 26 NOVEMBER 2010
Hardtop HB	ISSUED 26 NOVEMBER 2010
Hardtop Optima	ISSUED 26 NOVEMBER 2010
Hardtop Optima Alu	ISSUED 26 NOVEMBER 2010
Hardtop XP	ISSUED 26 NOVEMBER 2010
Jota Armour	ISSUED 26 NOVEMBER 2010
Jotacoat Tiecoat	ISSUED 26 NOVEMBER 2010
Jotacote BT	ISSUED 26 NOVEMBER 2010
Jotacote HF002	ISSUED 26 NOVEMBER 2010
Jotacote Universal	ISSUED 26 NOVEMBER 2010
Jotacote Universal 60	ISSUED 26 NOVEMBER 2010
Jotacote Universal 80	ISSUED 9 MARCH 2011
Jota-Etch Two-Pack	ISSUED 26 NOVEMBER 2010
Jotafloor Coating	ISSUED 26 NOVEMBER 2010
Jotafloor Glass Flake	ISSUED 26 NOVEMBER 2010
Jotafloor Sealer	ISSUED 26 NOVEMBER 2010
Jotafloor SF Primer	ISSUED 26 NOVEMBER 2010
Jotafloor Topcoat	ISSUED 26 NOVEMBER 2010

Jotaguard 400.....ISSUED 26 NOVEMBER 2010
Jotamastic 80.....ISSUED 26 NOVEMBER 2010
Jotamastic 87.....ISSUED 26 NOVEMBER 2010
Jotamastic 87 Aluminium.....ISSUED 26 NOVEMBER 2010
Jotamastic 87 GF.....ISSUED 26 NOVEMBER 2010
Jotamastic SF.....ISSUED 26 NOVEMBER 2010
Jotamastic Smart Pack.....ISSUED 26 NOVEMBER 2010
Jotaprime 500.....ISSUED 9 MARCH 2011
Jotaprime Mastic.....ISSUED 26 NOVEMBER 2010
Jotatemp 650.....ISSUED 26 NOVEMBER 2010
Jotun Anti-skid.....ISSUED 26 NOVEMBER 2010
Jotun Inhibitive Oil.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 2.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 3.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 4.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 7.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 10.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 17.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 23.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 25.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 26.....ISSUED 26 NOVEMBER 2010
Jotun Thinner No. 28.....ISSUED 26 NOVEMBER 2010
Mammut Topcoat.....ISSUED 26 NOVEMBER 2010
Marathon.....ISSUED 26 NOVEMBER 2010
Marathon IQ.....ISSUED 26 NOVEMBER 2010
Marathon XHB.....ISSUED 26 NOVEMBER 2010
Marine Emulsion White.....ISSUED 26 NOVEMBER 2010
Muki CZ.....ISSUED 26 NOVEMBER 2010
Muki EPS.....ISSUED 26 NOVEMBER 2010
Muki Z 2001.....ISSUED 26 NOVEMBER 2010
Muki Z 2008.....ISSUED 26 NOVEMBER 2010
Penguard Classic MIO.....ISSUED 26 NOVEMBER 2010
Penguard Clear Sealer.....ISSUED 26 NOVEMBER 2010
Penguard Express.....ISSUED 29 NOVEMBER 2010
Penguard Express MIO.....ISSUED 26 NOVEMBER 2010
Penguard Express ZP.....ISSUED 26 NOVEMBER 2010
Penguard FC.....ISSUED 26 NOVEMBER 2010
Penguard FNY.....ISSUED 26 NOVEMBER 2010
Penguard FSG.....ISSUED 26 NOVEMBER 2010
Penguard HB.....ISSUED 29 NOVEMBER 2010
Penguard HB II.....ISSUED 26 NOVEMBER 2010
Penguard Midcoat.....ISSUED 26 NOVEMBER 2010
Penguard Midcoat MIO.....ISSUED 26 NOVEMBER 2010
Penguard Primer.....ISSUED 26 NOVEMBER 2010
Penguard Primer SEA.....ISSUED 26 NOVEMBER 2010

Penguard Special.....ISSUED 22 MARCH 2011
Penguard Tie Coat 100.....ISSUED 26 NOVEMBER 2010
Penguard Topcoat.....ISSUED 26 NOVEMBER 2010
Pilot II.....ISSUED 26 NOVEMBER 2010
Pilot QD Primer.....ISSUED 26 NOVEMBER 2010
Pioner Topcoat.....ISSUED 26 NOVEMBER 2010
Primastic.....ISSUED 26 NOVEMBER 2010
Primastic Universal.....ISSUED 9 MARCH 2011
Resist 18 WF.....ISSUED 26 NOVEMBER 2010
Resist 78.....ISSUED 26 NOVEMBER 2010
Resist 86.....ISSUED 26 NOVEMBER 2010
Resist GTI.....ISSUED 26 NOVEMBER 2010
Safeguard Plus.....ISSUED 26 NOVEMBER 2010
Safeguard TF KS.....ISSUED 26 NOVEMBER 2010
Safeguard Universal ES.....ISSUED 26 NOVEMBER 2010
SeaForce 15.....ISSUED 26 NOVEMBER 2010
SeaForce 30.....ISSUED 26 NOVEMBER 2010
SeaForce 60.....ISSUED 26 NOVEMBER 2010
SeaForce 90.....ISSUED 26 NOVEMBER 2010
SeaLion Repulse.....ISSUED 26 NOVEMBER 2010
SeaLion Tiecoat.....ISSUED 26 NOVEMBER 2010
SeaMate.....ISSUED 18 JANUARY 2011
SeaQuantum Classic.....ISSUED 15 APRIL 2011
SeaQuantum Plus.....ISSUED 26 NOVEMBER 2010
SeaQuantum Plus S.....ISSUED 1 DECEMBER 2010
SeaQuantum Static.....ISSUED 26 NOVEMBER 2010
SeaQuantum Ultra.....ISSUED 26 NOVEMBER 2010
SeaQuantum X200.....ISSUED 17 FEBRUARY 2011
Se-lett.....ISSUED 26 NOVEMBER 2010
Solvalitt.....ISSUED 26 NOVEMBER 2010
Solvalitt Midtherm.....ISSUED 26 NOVEMBER 2010
Spontan Varnish.....ISSUED 26 NOVEMBER 2010
Steelmaster 60/120.....ISSUED 26 NOVEMBER 2010
Steelmaster 60WB.....ISSUED 29 NOVEMBER 2010
Tankguard 412.....ISSUED 6 APRIL 2011
Tankguard AST.....ISSUED 26 NOVEMBER 2010
Tankguard CPC.....ISSUED 26 NOVEMBER 2010
Tankguard DW.....ISSUED 6 APRIL 2011
Tankguard HB.....ISSUED 6 APRIL 2011
Tankguard SF.....ISSUED 26 NOVEMBER 2010
Tankguard Special Primer and Mid-coat.....ISSUED 26 NOVEMBER 2010
Tankguard Special Topcoat.....ISSUED 26 NOVEMBER 2010
Tankguard Special Ultra.....ISSUED 26 NOVEMBER 2010
Tankguard Storage.....ISSUED 26 NOVEMBER 2010
Tankguard Zinc.....ISSUED 1 MARCH 2011

Vinyguard Silvergrey 88.....ISSUED 26 NOVEMBER 2010
WaterFine Acrylic Primer.....ISSUED 26 NOVEMBER 2010
WaterFine Primer.....ISSUED 26 NOVEMBER 2010
WaterFine Topcoat.....ISSUED 26 NOVEMBER 2010

Technical Data
Alkyd Topcoat

Jotun Protects Property

Product description
Alkyd Topcoat is an alkyd based topcoat for both exterior and interior use. This product is part of a complete system which has a low flame spread certificate.

Recommended use
Alkyd topcoat in a traditional alkyd system is suitable for steel and woodwork. The product has good weather stability and colour stability.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	40	30
Film thickness, wet (µm)	45	90	70
Theoretical spreading rate (m^2/l)	22	11	14,7

Comments
Hong Kong rules: Category of paints - Marine maintenance coatings; VOC 435 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.13;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	White, Std 38, Std 49, Std 137 and Black
Solids (vol %)*	44 ± 2
Flash point	36ºC ± 2 (Setaflash)
VOC	3,63 lbs/gal (435 gms/ltr) USA-EPA Method 24 410 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Good
Water resistance	Limited
Abrasion resistance	Fair
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.021")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	4 h	3 h	1 h
Through dry	25 h	14 h	7 h	3 h
Dry to recoat, minimum	36 h	18 h	16 h	12 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Alkydprimer or Pilot Primer	2 x 40 µm	(Dry Film Thickness)
Alkyd Topcoat	**1 x 30 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage, an extra coat may be necessary.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 28 FEBRUARY 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Alkydprimer

Jotun Protects Property

Product description

Alkydprimer is an alkyd based primer. This product is certified not to spread surface flames, IMO FTPC Part 5 (IMO Res. A.653(16)) / IMO FTPC Annex2 Item 2.2.

Recommended use

As a primer for steel and aluminium structures as part of a suitable alkyd system. Alkydprimer is resistant to dry heat up to 120°C. Can be used as a flat topcoat if needed.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	50	40
Film thickness, wet (µm)	60	95	75
Theoretical spreading rate (m²/l)	17,3	10,4	13

Physical properties

Colour	Black, Grey, Light grey, Red, White
Solids (vol %)*	52 ± 2
Flash point	36ºC ± 2 (Setaflash)
VOC	400 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Marine maintenance coatings; VOC 419 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.28 kg/ltr; Both VOC and Specific gravity values provided are typical values, and will vary according to colour chosen.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
For aluminium substrates, thorough washing and sweeping with a nonmetallic blast medium is required.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi).
Nozzle tip	0.38-0.53 mm (0.015-0.021").
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	4 h	3,5 h	2,5 h	1 h
Through dry	28 h	22 h	6 h	4 h
Dry to recoat, minimum	28 h	22 h	16 h	10 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Alkydprimer	**2 x 40 µm**	**(Dry Film Thickness)**
Pilot II	2 x 40 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 litre container or 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Aluflex

Product description
Aluflex is an aluminium pigmented paint based on a flexible penetrating alkyd oil.

Recommended use
For use in cargo holds and on areas where a thorough pretreatment cannot be carried out. Aluflex penetrates porous surfaces.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	50	25
Film thickness, wet (µm)	50	120	60
Theoretical spreading rate (m^2/l)	20	8	16

Physical properties

Colour	Aluminium
Solids (vol %)*	40 ± 2
Flash point	38ºC ± 2 (Setaflash)
VOC	438 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Fair
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Remove heavy rust scale.

Coated surfaces
If applied on top of old coating systems (i.e. epoxy or polyurethane), it may be necessary to abrade the surface.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.021").
Spray angle	60 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	2 h	2 h	1 h	1 h
Through dry	20 h	10 h	8 h	2 h
Dry to recoat, minimum	12 h	9 h	6 h	4 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Aluflex	**1 x 25 µm**	**(Dry Film Thickness)**	**Touch-up**
Aluflex	**1 x 35 µm**	**(Dry Film Thickness)**	**Full coat**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Aluminium Paint H.R.

Jotun Protects Property

Product description
Aluminium Paint H.R. is a heat resistant paint, based on an airdrying, styrene modified oil.

Recommended use
On steel items exposed to temperatures up to 250°C, e.g. exhaust pipes, engine parts etc. Can be used as an exterior aluminium finish usually within an alkyd system.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	30	25
Film thickness, wet (µm)	45	65	55
Theoretical spreading rate (m²/l)	22,5	15	18

Physical properties

Colour	Aluminium
Solids (vol %)*	45 ± 2
Flash point	42ºC ± 2 (Setaflash)
VOC	480 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Aluminium sheen
Abrasion resistance	Fair
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.38 - 0.46 mm (0.015 - 0.018").
Spray angle	40 - 60°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	1/2 h	1/2 h	1/2 h	1/4 h
Through dry	18 h	14 h	10 h	8 h
Dry to recoat, minimum	24 h	12 h	8 h	6 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Aluminium Paint H.R. **2 x 25 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 litre container.

Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Balloxy HB Light

Jotun Protects Property

Product description
Balloxy HB Light is a two pack surface tolerant high solids polyamine cured epoxy mastic coating for use at temperatures between -5ºC and 40ºC. Available with different hardeners for varying substrate temperatures, Standard (Std) and Wintergrade (WG).

Recommended use
Balloxy HB Light is intended for use in water ballast tanks, on steel behind insulation, in cofferdams and areas with condensation and where blast cleaning may not be possible and on hydrojetted surface still being moist. Balloxy HB Light is also available in a Lumi version and is intended as the first coat in water ballast tanks, utilising luminous pigments to aid application and inspection.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Balloxy HB Light".

Film thickness and spreading rate

Std Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	125	300	160
Film thickness, wet (µm)	150	365	190
Theoretical spreading rate (m²/l)	6,6	2,7	5,1

WG Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	125	300	160
Film thickness, wet (µm)	175	420	225
Theoretical spreading rate (m²/l)	5,7	2,4	4,4

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 300 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.40 (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Beige, Green
Solids (vol %)*	82 ± 2 Std Comp. B 71 ± 2 WG Comp. B
Flash point	**Std Comp. B** 35ºC ± 2 (Setaflash) **WG Comp. B** 35ºC ± 2 (Setaflash)
VOC	**Std Comp. B** 2,5 lbs/gal (300 gms/ltr) USA-EPA Method 24 150 gms/ltr UK-PG6/23(97). Appendix 3 **WG Comp. B** 2,5 lbs/gal (300 gms/ltr) USA-EPA Method 24 240 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance. In case of hydrojetting the flash rust degree shall not exceed moderate in SSPC and NACE standards for water prepared surfaces.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (-5°C in WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying.

Hydrojetting of steel surface makes a wet surface. The surrounding air must have a relative humidity not exceeding 85 %. Before painting the surface shall not be glossy with moisture, but can have a patchy appearance.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	**Std Comp. B** 5:1 **WG Comp. B** 3:1
Mixing	5 parts Comp. A (Base) to be thoroughly mixed with 1 part Balloxy HB Light, Std Comp. B (Curing agent). 3 parts Comp. A (Base) to be thoroughly mixed with 1 part Balloxy HB Light, WG Comp. B (Curing agent).
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B** 2 hours (Reduced at higher temp.) **WG Comp. B** 1½ hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.79 mm (0.021 - 0.031").
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	24 h	10 h	4 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	24 h	10 h	4 h
Dry to recoat, maximum [1]			

WG Comp. B					
Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	24 h	18 h	12 h	6 h	2,5 h
Through dry	48 h	26 h	18 h	12 h	5 h
Cured	21 d	14 d	7 d	3 d	2 d
Dry to recoat, minimum	48 h	26 h	18 h	12 h	5 h
Dry to recoat, maximum	-	-	-	-	-

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Balloxy HB Light **2 x 160 µm (Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

18 litre unit: 15 litres Comp. A in a 20 litre container and 3 litres Balloxy HB Light, Std Comp. B in a 3 litre container.
20 litre unit: 15 litres Comp. A in a 20 litre container and 5 litres Balloxy HB Light, WG Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Baltoflake

Product description
Baltoflake is a quick curing, high build, abrasion resistant glass flake reinforced polyester coating, that gives long time corrosion protection.

Recommended use
Steel structures in general and in particular items subject to extreme mechanical wear. May also be used for protection of aluminium and concrete (special designed systems). Baltoflake can be applied as a non-skid coating system for walkways, escape routes and deck areas.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	600	1500	750
Film thickness, wet (µm)	625	1560	780
Theoretical spreading rate (m^2/l)	1,6	0,64	1,28

Comments
The practical spreading rate may vary from the theoretical dependent upon film thickness and the ambient temperature, ventilation/wind during the application.
Hong Kong rules: Category of paints - Other vessel coatings; VOC 80 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.25 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
APAS approved to specification 2917, 2917F, 2917P and 2917S.

Physical properties

Colour	Limited number
Solids (vol %)*	96 ± 2
Flash point	34ºC ± 2 (Setaflash)
VOC	75 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semiflat
Gloss retention	Very good
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Limited
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Blast cleaning to Sa 2½. (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve a coarse surface of Grade Medium G (50-85µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use normal airless spray or two-comp. airless spray equipment
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	See separate table.
Pot life (23°C)	45 - 55 minutes (Reduced at higher temp.)
Thinner	Styrene. If needed max. 5% styrene.
Cleaner	Jotun Thinner No. 17 or Jotun Thinner No. 27
Guiding data airless spray	
Pressure at nozzle	15-25 MPa (150-250 kp/cm² 2100-4000 psi)
Ratio/Capacity:	>45:1, min. 12 l per minute. Slow moving piston.
Nozzle tip	0.69 - 1.09 mm (0.027 - 0.043").
Spray angle	40 - 80°
Filter	To be removed
Ratio/Capacity:	
Note	For further details please see separate "Working Manual".

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	3 h	2 h	2 h
Through dry	5 h	2 h	2 h
Cured	4 d	2 d	1 d
Dry to recoat, minimum	5 h	2 h	2 h
Dry to recoat, maximum [1]	20 h	12 h	12 h

1. The surface should be dry and free from any contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Baltoflake	**1 x 750 - 1000 µm**	**(Dry Film Thickness)**
or		
Baltoflake	**2 x 600 - 750 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Mixing Ratio Table:

Choose peroxide and, if necessary, inhibitor or accelerator according to the table below. Inhibitor or accelerator (if used) must be thoroughly mixed with Baltoflake before adding the required amount of peroxide. Mechanical agitation for one minute or more.

Temperature	Addition	Notes
10-15ºC	Norpol Accelerator 9802P/S: 2 vol% (320 ml to 16 l) Norpol Peroxide 1: 2 vol% (320 ml to 16 l)	Temperature applies to the temperature of the steel. Paint temperature: 15-20ºC.
15-20ºC	Norpol Peroxide 1: 2 vol% (320 ml to 16 l)	
20-25ºC	Norpol Peroxide 1: 1.25 vol% (200 ml to 16 l)	Temperature of steel and paint.
25-35ºC	Norpol Inhibitor 9851: 1.25 vol% (200 ml to 16 l) Norpol Peroxide 1: 1.25 vol% (200 ml to 16 l)	Temperature applies to the temperature of the paint. Steel temperature above 25ºC.
35-40ºC	Norpol Inhibitor 9851: 2,5 vol % (400 ml to 16 l) Norpol Peroxide 1: 1.25 vol% (200 ml to 16 l)	

Note: Check temperature of pump during application. Friction in piston may cause increase in temperature. If this should happen, keep pump going to get heated Baltoflake out as quick as possible.
If the temperature is ranging near the max. temperature in a zone, it is recommended to reduce the content of peroxide/accelerator respectively, or to increase the content of inhibitor.
Approved alternatives to Norpol Peroxide 1 can be used. Please contact your local Jotun office.

Warning: Accelerator and peroxide must never be mixed directly together.

Storage

The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.
SHELF LIFE: 6 months, at 23°C, subject to re-inspection therafter. Shelf life very much depends on tempeature. Lower temperatures (if possible below freezing point) will lengthen the shelf life considerably, while high temperature may lead to gelling in the tin.
Accelerator and peroxide must be kept in their original containers. No other materials shall be stored in the same room as peroxides.
Always consult your local/national authorities for storing peroxides!

Handling

Handle peroxide with care. Avoid that it comes in contact with flameable substances. Accelerator and peroxide must never be mixed directly together. Before handling, see safety data sheet for accelerator and peroxide.

Packing size

20 litre unit: 16 litres in a 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Baltoflake S2000

Product description
Baltoflake S2000 is a quick curing, high build, abrasion resistant, glass flake reinforced polyester coating that gives long time corrosion protection.

Recommended use
Steel structures in general and items subject to extreme mechanical wear in particular. May also be used for protection of aluminium and concrete (special designed systems).

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	500	1000	750
Film thickness, wet (µm)	520	1040	780
Theoretical spreading rate (m^2/l)	1,9	0,9	1,3

Comments
The practical spreading rate may vary from the theoretical dependent upon film thickness and the ambient temperature, ventilation/wind during the application.

Physical properties

Colour	Limited number
Solids (vol %)*	96 ± 2
Flash point	34ºC ± 2 (Setaflash)
VOC	75 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semiflat
Gloss retention	Very good
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Limited
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Blast cleaning to Sa 2½. (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve a coarse surface of Grade Medium G (50-85µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use normal airless spray or two-comp. airless spray equipment
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	See separate table.
Pot life (23°C)	45 - 55 minutes (Reduced at higher temp.)
Thinner	If needed max. 5% styrene.
Cleaner	Jotun Thinner No. 17 or Jotun Thinner No. 27
Guiding data airless spray	
Pressure at nozzle	15 - 25 MPa (150-250 kp/cm², 2100-4000 psi.).
Ratio/Capacity:	>45:1, min. 12 l per minute. Slow moving piston.
Nozzle tip	0.69 - 1.97 mm (0.027 - 0.038").
Spray angle	40 - 80°
Filter	To be removed
Note	For further details please see separate "Working Manual".

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	3 h	2 h	2 h
Through dry	5 h	2 h	2 h
Cured	4 d	2 d	1 d
Dry to recoat, minimum	5 h	2 h	2 h
Dry to recoat, maximum [1]	10 h	6 h	6 h

1. The surface should be dry and free from any contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Over Sa 2½:

Baltoflake S2000 **1-2 x 750 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Mixing Ratio Table:

Choose peroxide and, if necessary, inhibitor or accelerator according to the table below. Inhibitor or accelerator (if used) must be thoroughly mixed with Baltoflake S2000 before adding the required amount of Norpol Peroxide. Mechanical agitation for one minute or more.

Temperature	Addition	Notes
10-15ºC	Norpol Accelerator 9802P/S: 2 vol% (320 ml to 16 l) Norpol Peroxide 1: 2 vol% (320 ml to 16 l)	Temperature applies to the temperature of the steel. Paint temperature: 15-20ºC.
15-20ºC	Norpol Peroxide 1: 2 vol% (320 ml to 16 l)	
20-25ºC	Norpol Peroxide 1: 1.25 vol% (200 ml to 16 l)	Temperature of steel and paint.
25-35ºC	Norpol Inhibitor 9851: 1.25 vol% (200 ml to 16 l) Norpol Peroxide 1: 1.25 vol% (200 ml to 16 l)	Temperature applies to the temperature of the paint. Steel temperature above 25ºC.
35-40ºC	Norpol Inhibitor 9851: 2,5 vol %(400 ml to 16 l) Norpol Peroxide 1: 1.25 vol% (200 ml to 16 l)	

Note: Check temperature of pump during application. Friction in piston may cause increase in temperature. If this should happen, keep pump going to get heated Baltoflake S2000 out as quick as possible.

If the temperature is ranging near the max. temperature in a zone, it is recommended to reduce the content of peroxide/accelerator respectively, or to increase the content of inhibitor.
Approved alternatives to Norpol Peroxide 1 can be used. Please contact your local Jotun office.

Warning: Accelerator and peroxide must never be mixed directly together.

Storage

The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.
SHELF LIFE: 6 months, at 23°C, subject to re-inspection therafter. Shelf life very much depends on tempeature. Lower temperatures (if possible below freezing point) will lengthen the shelf life considerably, while high temperature may lead to gelling in the tin.
Accelerator and peroxide must be kept in their original containers. No other materials shall be stored in the same room as peroxides.
Always consult your local/national authorities for storing peroxides!

Handling

Handle peroxide with care. Avoid that it comes in contact with flameable substances. Accelerator and peroxide must never be mixed directly together. Before handling, see safety data sheet for accelerator and peroxide.

Packing size

20 litre unit: 16 litres in a 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Barrier

Product description
Barrier is a two-pack zinc rich epoxy primer with a high content of zinc that complies with the compositional requirements for SSPC Paint 20 level 2 and ISO 12944. Can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
As a zinc rich primer on blast cleaned steel. Barrier is used in combination with advanced coating systems to further improve protection against corrosion.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	25	90	40
Film thickness, wet (µm)	45	170	75
Theoretical spreading rate (m^2/l)	21,2	5,9	13,3

Comments
In a systems of DFT of max. 90 µm, the drying time will increase.

Approvals
Australian APAS approved to specification 2916.

Physical properties

Colour	Grey
Solids (vol %)*	53 ± 2
Flash point	27ºC ± 2 (Setaflash)
VOC	415 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501-1:2007) or for maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12). Roughness: using abrasives suitable to achieve minimum grade Fine (ISO 8503-2).

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3:1
Mixing	Mix 3 part Comp. A (base) thoroughly with 1 part Barrier/Barrier 77, Comp. B (curing agent) ½ hour prior to use.
Pot life (23°C)	24 hours. (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa min (150 kp/cm², 2100 psi.).
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.021").
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	50 min	20 min	10 min	4 min
Through dry	3 h	2 h	1,5 h	40 min
Cured	10 d	7 d	5 d	2 d
Dry to recoat, minimum [1]	3 h	2 h	1,5 h	40 min
Dry to recoat, maximum [1,2]				

1. Recommended data given for recoating with coatings normally specified on top of zinc epoxy coatings.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier **1 x 25 - 75 µm** **(Dry Film Thickness)**
Subsequent coating(s) by choice e.g.: epoxy, acrylic or vinyl.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

4 litre unit: 3 litres Comp. A (base) in a 5 litre container and 1 litre Barrier/Barrier 77, Comp. B (curing agent) in a 1 litre container.
or
9 litre unit: 6.75 litres Comp. A (base) in a 10 litre container and 2.25 litres Barrier/Barrier 77, Comp. B (curing agent) in a 3 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Barrier 77

Product description
Barrier 77 is a two-pack zinc rich epoxy primer that complies with the compositional requirements for SSPC Paint 20 level 2. Can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
As a zinc rich primer on blast cleaned steel. Barrier 77 is used in combination with advanced coating systems to further improve protection against corrosion.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	25	75	50
Film thickness, wet (µm)	45	140	95
Theoretical spreading rate (m²/l)	21,2	7,1	10,6

Physical properties

Colour	Grey
Solids (vol %)*	53 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	400 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501-1:2007) or for maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12). Roughness: using abrasives suitable to achieve minimum grade Fine (ISO 8503-2).

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3 part Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Mixing	½ hour prior to use.
Pot life (23°C)	24 hours (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa min (150 kp/cm², 2100 psi.).
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.021").
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	50 min	20 min	10 min	4 min
Through dry	3 h	2 h	1,5 h	40 min
Cured	10 d	7 d	5 d	2 d
Dry to recoat, minimum [1]	3 h	2 h	1,5 h	40 min
Dry to recoat, maximum [1,2]				

1. Recommended data given for recoating with coatings normally specified on top of zinc epoxy coatings.
1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier 77 **1 x 25 - 75 µm** **(Dry Film Thickness)**

Subsequent coating(s) by choice e.g.: Epoxy, Acrylic or Vinyl.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

9 litre unit: 6.75 litres Comp. A (base) in a 10 litre container and 2.25 litres Comp. B (curing agent) in a 3 litre container.

Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Barrier 80

Product description
Barrier 80 is a two-pack zinc rich epoxy primer with a high content of zinc that complies with the compositional requirements for SSPC Paint 20 level 2 and ISO 12944. Can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
As a zinc rich primer on blast cleaned steel. Barrier 80 is used in combination with advanced coating systems to further improve protection against corrosion.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	90	50
Film thickness, wet (µm)	65	150	80
Theoretical spreading rate (m²/l)	15,3	6,8	12,2

Comments
In a systems of DFT of max. 90 µm, the drying time will increase. To achieve a uniform, closed film at dry film thickness below 40 microns it will be necessary to thin Barrier 80 with Jotun Thinner No. 17.

Physical properties

Colour	Grey
Solids (vol %)*	61 ± 2
Flash point	27ºC ± 2 (Setaflash)
VOC	365 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501-1:2007) or for maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12). Roughness: using abrasives suitable to achieve minimum grade Fine (ISO 8503-2).

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3:1
Mixing	Mix 3 part Comp. A (base) thoroughly with 1 part Barrier 80, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	12 hours. (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa min (150 kp/cm², 2100 psi.).
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.021").
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	50 min	20 min	10 min	4 min
Through dry	3 h	2 h	1,5 h	40 min
Cured	10 d	7 d	5 d	2 d
Dry to recoat, minimum [1]	3 h	2 h	1,5 h	40 min
Dry to recoat, maximum [1,2]				

1. Recommended data given for recoating with coatings normally specified on top of zinc epoxy coatings.
1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier 80 **1 x 40 - 75 µm** **(Dry Film Thickness)**
Subsequent coating(s) by choice e.g.: epoxy, acrylic or vinyl.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigments from settling.

Packing size

4 litre unit: 3 litres Comp. A (base) in a 5 litre container and 1 litre Barrier 80, Comp. B (curing agent) in a 1 litre container.
or
9 litre unit: 6.75 litres Comp. A (base) in a 10 litre container and 2.25 litres Barrier 80, Comp. B (curing agent) in a 3 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Barrier 90

Product description
Barrier 90 is a two-pack zinc rich epoxy primer with a high content of zinc. Complies with the compositional requirements for SSPC Paint 20 level 1, BS 4652 and BS 5493, and AS/NZS 3750.9.1994. This product can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
As a primer on blast cleaned steel. Barrier 90 is used in combination with most advanced coating systems to further improve protection against corrosion.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	25	90	40
Film thickness, wet (µm)	45	170	75
Theoretical spreading rate (m^2/l)	21,2	5,9	13,3

Comments
When the maximum Dry Film Thickness is applied the Drying time will increase.

Physical properties

Colour	Grey
Solids (vol %)*	53 ± 2
Flash point	27ºC ± 2 (Setaflash)
VOC	370 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501-1:2007) or for maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12). Roughness: using abrasives suitable to achieve minimum grade Fine (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	6:1
Mixing	6 part Comp. A (base) to be mixed thoroughly with 1 part Barrier 90, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	24 hours. (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa min (150 kp/cm², 2100 psi.).
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.021").
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	50 min	20 min	10 min	4 min
Through dry	3 h	2 h	1.5 h	40 min
Cured	10 d	7 d	5 d	2 d
Dry to recoat, minimum [1]	3 h	2 h	1.5 h	40 min
Dry to recoat, maximum [1,2]				

1. Recommended data given for recoating with coatings normally specified on top of zinc epoxy coatings.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier 90 **1 x 25 - 75 µm** **(Dry Film Thickness)**

Subsequent coating(s) by choice e.g.: epoxy, acrylic or vinyl.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

8.75 litre unit: 7.5 litres comp. A (base) in a 10 litre container and 1.25 litres Barrier 90, Comp. B (curing agent) in a 3 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Barrier ZEP

Product description
Barrier ZEP is a two-pack zinc epoxy primer. This product can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
As zinc primer on blast cleaned steel. Barrier ZEP is used in combination with advanced coating system to further improve protection against corrosion.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	90	50
Film thickness, wet (µm)	74	167	93
Theoretical spreading rate (m²/l)	13,5	6	10,8

Physical properties

Colour	Grey
Solids (vol %)*	54 ± 2
Flash point	27ºC ± 2 (Setaflash)
VOC	394 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Good
Solvent resistance	Fair
Chemical resistance	Fair
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501-1:2007) or for maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12). Roughness: using abrasives suitable to achieve minimum grade Fine (ISO 8503-2).

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	8:1
Mixing	8 parts Comp. A (base) to be thoroughly mixed to 1 part Barrier ZEP, Comp. B (curing agent)
Pot life (23°C)	4 hours
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.38-0.53 mm (0.015-0.021")
Spray angle	40-80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	50 min	20 min	10 min	6 min
Through dry	16 h	8 h	4 h	2 h
Cured	10 d	7 d	5 d	2 d
Dry to recoat, minimum [1]	16 h	8 h	4 h	2 h
Dry to recoat, maximum [1,2]				

1. Recommended data given for recoating with coatings normally specified on top of zinc epoxy coatings.
1. The surface should be free from zinc salts and other contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier ZEP **1 x 50 microns** **(Dry Film Thickness)**
Subsequent coating(s) by choice e.g.: epoxy or acrylic
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

9 litre unit: 8 litres Comp. A (base) in a 10 litre container and 1 litre Barrier ZEP, Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Chemflake Special

Product description
Chemflake Special is a high build glass flake reinforced vinyl ester coating, specially designed for high temperature service.

Recommended use
Steel in aggressive environments. For maximum corrosion and chemical protection also in high temperature environment. May also be used for protection of aluminium and concrete (special designed systems).

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	600	1000	750
Film thickness, wet (µm)	625	1050	780
Theoretical spreading rate (m^2/l)	1,6	0,96	1,28

Comments
The practical spreading rate may vary from the theoretical dependent upon film thickness and the ambient temperature, ventilation/wind during the application.

Physical properties

Colour	Red, White
Solids (vol %)*	96 ± 2
Flash point	34ºC ± 2 (Setaflash)
VOC	36 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semiflat
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Limited

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: use suitable abrasives to achieve Grade Coarse G (75 - 130 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 15°C and at least 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use normal airless spray or two-comp. airless spray equipment
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)

Choose quantity of peroxide, accelerator and inhibitor according to the table below. Inhibitor and accelerator must be thoroughly mixed with Chemflake Special before adding the required amount of peroxide. Mechanical agitation for one minute or more.

Note:
Check temperature of pump during application. Friction in piston may cause increase in temperature. If this should happen, get the Chemflake Special out as quickly as possible.
If the temperature is ranging near the max. temperature in a zone, it is recommended to reduce the content of peroxide/accelerator respectively, or to increase the content of inhibitor.

Approved alternatives to Norpol Peroxide can be used. Please contact Jotun, Technical Service Department.

Warning:
Accelerator 9802 and peroxide must never be mixed directly together.
Be sure that steel temperature is equal or higher than paint temperature.

Steel and paint temperature:

40º C ----------
0.2 vol% (30 ml) NORPOL Inhibitor 9853
1.4 vol% (225 ml) NORPOL Accelerator 9802
0.6 vol% (100 ml) NORPOL Accelerator 9826
2.2 vol% (350 ml) NORPOL Peroxide 1 or 11

35º C ----------
1.40 vol% (225 ml) NORPOL Accelerator 9802
0.6 vol% (100 ml) NORPOL Accelerator 9826
2.2 vol% (350 ml) NORPOL Peroxide 1 or 11

30º C ----------
1.75 vol% (280 ml) NORPOL Accelerator 9802
0.6 vol% (100 ml) NORPOL Accelerator 9826
2.2 vol% (350 ml) NORPOL Peroxide 1 or 11

25º C ----------
2.0 vol% (320 ml) NORPOL Accelerator 9802
0.6 vol% (100 ml) NORPOL Accelerator 9826
2.5 vol% (400 ml) NORPOL Peroxide 1 or 11

20º C ----------
2.25 vol% (360 ml) NORPOL Accelerator 9802
0.6 vol% (100 ml) NORPOL Accelerator 9826
2.5 vol% (400 ml) NORPOL Peroxide 1 or 11

15º C ----------

Pot life (23°C)

35 - 45 minutes.

Thinner

Styrene. Max 5% Styrene.

Cleaner

Jotun Thinner No. 17/23/27.

Guiding data airless spray

Pressure at nozzle

15 - 25 MPa (150-280 kp/cm², 2100-4000 psi.).

Ratio/Capacity:

> 45:1. Min. 12 l per minute. Slow moving piston.

Nozzle tip

0.86 - 1.14 mm (0.034 - 0.045”).

Spray angle

40 - 80°

Filter

To be removed.

Note

For further details please see separate "Working Manual".

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**15°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	8 h	4 h	2 h
Cured	8 d	4 d	2 d
Dry to recoat, minimum	8 h	4 h	2 h
Dry to recoat, maximum [1]	36 h	24 h	12 h

1. The surface should be dry and free from any contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

On steel:

Chemflake Special **2 x 750 µm** **(Dry Film Thickness)**

Holiday detector after last coat: NACE RPO 188-88. (400 volt per 100 µm)

Other systems may be specified, depending on area of use

Storage

The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.
SHELF LIFE: 4 months, at 23°C, subject to re-inspection therafter. Shelf life very much depends on tempeature. Lower temperatures (if possible below freezing point) will lengthen the shelf life considerably, while high temperature may lead to gelling in the tin.
Accelerator and peroxide must be kept in their original containers. No other materials shall be stored in the same room as peroxides.
Always consult your local/national authorities for storing peroxides!

Handling

Handle peroxide with care. Avoid that it comes in contact with flameable substances. Accelerator and peroxide must never be mixed directly together. Before handling, see safety data sheet for accelerator and peroxide.

Packing size

20 litre unit: 16 litres in a 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
CQ Primer

Jotun Protects Property

Product description

CQ Primer is a two-pack high quality urethane modified resin based primer, with good chemical resistance and has excellent adhesion property with wooden surfaces. It is semi-pigmented wood varnish with very good penetration, long lasting and fast drying.

Recommended use

CQ Primer is suitable for new or previously painted wooden surfaces on containers. May be applied at low temperature.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	40	30
Film thickness, wet (µm)	60	115	85
Theoretical spreading rate (m²/l)	17,5	8,8	11,7

Physical properties

Colour	Dark brown
Solids (vol %)*	35 ± 2
Flash point	16.5ºC ± 2 (Setaflash)
VOC	576 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

The substrate must be sound, clean, dry, free from dust, oil, grease and laitance etc. All traces of release agents must be removed. On chalky and dusty surfaces, all loose material must be removed by stiff bristle brushing.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended.
Roller	Recommended.

Application data

Mixing ratio (volume)	3:1
Mixing	3 parts CQ Primer Comp. A (base) to be mixed thoroughly with 1 part CQ Primer, Comp. B (curing agent).
Thinner/Cleaner	Jotun Thinner No. 10
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.46 mm (0.013-0.018").
Spray angle	45-60°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	30 min	15 min	5 min
Through dry	40 min	30 min	15 min
Dry to recoat, minimum	30 min	30 min	10 min
Dry to recoat, maximum [1,2]			

1. Recommended data given for recoating with the same generic type of paint.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

CQ Primer	**2 * 30 um**	**(Dry film thickness)**
CQ Topcoat	1 *30 um	(Dry film thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

China
20 litre unit: 15 litres CQ Primer Comp. A in a 20 litre container and 5 litres CQ Primer Comp. B in a 5 litre container.

Korea
18 litre unit: 13.5 litres CQ Primer Comp. A in a 18 litre container and 4.5 litres CQ Primer Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
CQ Topcoat

Product description
CQ Topcoat is a two-pack high gloss, high performance polyurethane clear coat with excellent gloss retention.

Recommended use
As clear coat over a polyurethane system, where a durable high gloss finish is required.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	40	30
Film thickness, wet (µm)	65	135	100
Theoretical spreading rate (m²/l)	15	7,5	10

Physical properties

Colour	Clear
Solids (vol %)*	30 ± 2
Flash point	18.5ºC ± 2 (Setaflash)
VOC	645 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

The substrate must be sound, clean, dry, free from dust, oil, grease and laitance etc. All traces of release agents must be removed. On chalky and dusty surfaces, all loose material must be removed by stiff bristle brushing.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended.
Roller	Recommended.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts CQ Topcoat Comp. A (base) to be mixed thoroughly with 1 part CQ Topcoat, Comp. B (curing agent).
Thinner/Cleaner	Jotun Thinner No. 10
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.46 mm (0.013-0.018").
Spray angle	45-60°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	50 min	25 min	10 min
Through dry	1 h	30 min	15 min
Dry to recoat, minimum	30 min	20 min	10 min
Dry to recoat, maximum [1,2]			

1. Recommended data given for recoating with the same generic type of paint.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

CQ Primer	2 × 30 µm	(Dry film thickness)
CQr Topcoat	**1 × 30 µm**	**(Dry film thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

China
20 litre unit: 16 litres CQ Topcoat Comp. A in a 20 litre container and 4 litres CQ Topcoat Comp. B in a 5 litre container.

Korea
18 litre unit: 14.4 litres CQ Topcoat Comp. A in a 18 litre container and 3.6 litres CQ Topcoat Comp. B in a 4 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Epoxy HR

Jotun Protects Property

Product description
Epoxy HR is a two-component, high solid phenolic epoxy coating with high heat resistance.

Recommended use
Corrosion protection for external areas of pipes and other steelwork exposed to high temperatures (up to 200ºC). Also suitable for application to hot substrates (up to 150ºC). Note that Epoxy HR may change colour at elevated temperatures.

Epoxy HR is also suitable for prevention of corrosion under insulation up to 200ºC, please contact Jotun for details of acceptable conditions.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	200	125
Film thickness, wet (µm)	160	320	200
Theoretical spreading rate (m²/l)	6,3	3,2	5

Physical properties

Colour	Aluminium, Light Grey
Solids (vol %)*	63 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	310 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Fair

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007) and a roughness between 35 - 50 microns. Improved surface treatment (blast cleaning to Sa 2½) will improve the performance.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	6,5:1
Mixing	6,5 parts Comp. A (base) to be mixed thoroughly with 1 part Epoxy HR, Comp. B (curing agent)
Induction time	20 minutes.
Pot life (23°C)	4 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 23
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	10°C	15°C	23°C	40°C	100°C
Surface dry	16 h	12 h	4 h	2 h	0,5 h
Through dry	26 h	20 h	10 h	4 h	1 h
Cured	21 d	14 d	7 d	3 d	1 d
Dry to recoat, minimum	26 h	20 h	10 h	4 h	1 h
Dry to recoat, maximum [1]	21 d	14 d	7 d	3 d	1 d

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Epoxy HR **2 x 125 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16.3 litres Comp. A (base) in a 20 litre container and 2.5 litres Epoxy HR, Comp. B (curing agent) in a 3 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Futura AS

Product description
Futura AS is a two-pack polyurethane topcoat with excellent gloss and colour retention. No maximum overcoating interval.

Recommended use
As topcoat over an epoxy/epoxymastic system where a glossy finish is required. Cures at low temperatures.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	50	40
Film thickness, wet (µm)	65	105	85
Theoretical spreading rate (m²/l)	15,7	9,4	11,8

Physical properties

Colour	Available in white and colours tinted from Multicolor Industry tinting system (MCI) base 1-2-3 as well as a limited number of std. marine colours.
Solids (vol %)*	47 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	430 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Very good
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 0°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	9 parts of Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Pot life (23°C)	4 hours (Reduced at higher temperature).
Thinner/Cleaner	Jotun Thinner No. 10 For hot climate and need of slower evaporation, use Jotun Thinner No. 25.
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33 - 0.46 mm (0.013 - 0.018").
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.
Note	Depending on working condition, temperature, application equipment etc., it may be necessary to adjust the viscosity by adding from 0 up to 10% Jotun Thinner No. 10. For hot climate and need of slower evaporation, use Jotun Thinner No. 25.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	0°C	5°C	10°C	23°C	40°C
Surface dry	4 h	2 h	1 h	0,5 h	0,5 h
Through dry	20 h	10 h	6 h	3 h	1,5 h
Cured	20 d	15 d	10 d	5 d	2 d
Dry to recoat, minimum	12 h	10 h	6 h	3 h	1,5 h
Dry to recoat, maximum [1]					

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87	1 x 250 µm	(Dry Film Thickness)
Futura AS	**1 x 40 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 18 litres Comp A (base) in a 20 litre container and 2 litres Comp B (hardener) in a 3 litre container
or
5 litre unit: 4.5 litres Comp A (base) in a 5 litre container and 0.5 litre Comp B (hardener) in a 1 litre container.

Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop AS

Product description
Hardtop AS is a two-pack polyurethane topcoat with excellent gloss and colour retention. Hardtop AS bases are intermediates and need to be processed before use.

Recommended use
As topcoat over an epoxy/epoxy mastic system where a durable, high gloss finish is required in aggressive atmospheric exposure. Cures at low temperatures.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	60	50
Film thickness, wet (µm)	80	120	100
Theoretical spreading rate (m²/l)	12,5	8,3	10

Approvals
Australian APAS approved to specification 2911.

Physical properties

Colour	According to colour card and Multicolor tinting system (MCI)
Solids (vol %)*	50 ± 2
Flash point	26ºC ± 2 (Setaflash)
VOC	415 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Excellent
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 0°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts of Comp. A (base) to be mixed thoroughly with 1 part Hardtop AS/HB, Comp. B (curing agent).
Pot life (23°C)	4 hours (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 10
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.46 mm (0.013-0.018").
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	0°C	5°C	10°C	23°C	40°C
Surface dry	8 h	4 h	2 h	1 h	0,5 h
Through dry	40 h	30 h	16 h	8 h	4 h
Cured	20 d	15 d	10 d	5 d	2 d
Dry to recoat, minimum	24 h	18 h	10 h	5 h	2,5 h
Dry to recoat, maximum [1]					

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.
2. Early exposure to condensation (high humidity, low temperature) may cause colour and/or gloss variations.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87	2 x 150 µm	(Dry Film Thickness)
Hardtop AS	**1 x 50 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A in a 20 litre container and 4 litres Hardtop AS/HB Comp. B in a 5 litre container.
or
5 litre unit: 4 litres Comp. A in a 5 litre container and 1 litre Hardtop AS/HB Comp. B in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop AS Alu

Product description
Hardtop AS Alu is a two-pack polyurethane topcoat with excellent gloss and colour retention.

Recommended use
As topcoat over an epoxy/epoxymastic system where a durable, semigloss finish is required in aggressive atmospheric exposure.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	60	50
Film thickness, wet (µm)	90	135	115
Theoretical spreading rate (m²/l)	11	7,4	8,8

Physical properties

Colour	RAL 9006
Solids (vol %)*	44 ± 2
Flash point	27ºC ± 2 (Setaflash)
VOC	490 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Very good
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts of Comp. A (base) to be mixed thoroughly with 1 part Hardtop AS/HB, Comp. B (curing agent).
Pot life (23°C)	4 hours (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 10
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.38 mm (0.013-0.015").
Spray angle	40-80°
Filter	Check to ensure that filters are clean.
Note	Important: Colour and gloss information: It is not possible to produce this colour to fully match RAL 9006. A slight variation from what is depicted in RAL colour cards is to be expected. Aluminium finish will also vary in colour and gloss depending on application method, DFT and temperature/humidity during application. This aluminium finish gives a matter aspect than that of traditional polyurethane colours, but a high gloss finish can be obtained by applying a polyurethane clear coat. Application of a clear coat may also lead to a slight variation of the aluminium colour shade originally achieved by application of Hardtop AS Aluminium on it'sown. Brush application may deliver gloss/color difference from application with spray.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	2 h	1,5 h	1 h	0,5 h
Through dry	8 h	6 h	4 h	3 h
Cured	20 d	15 d	7 d	3 d
Dry to recoat, minimum	24 h	12 h	7 h	3 h
Dry to recoat, maximum [1]				

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87	2 x 150 µm	(Dry Film Thickness)
Hardtop AS Alu	**1 x 50 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Hardtop AS/HB, Comp. B (curing agent) in a 5 litre container.

or

5 litre unit: 4 litres Comp. A (base) in a 5 litre container and 1 litre Hardtop AS/HB, Comp. B. (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop AS Clear

Product description
Hardtop AS Clear is a two-pack high gloss, high performance polyurethane clearcoat with excellent gloss retention.

Recommended use
As clear coat over a polyurethane system, metallic finishes or an epoxy/epoxy mastic system, where a durable, high gloss finish is required in aggressive environment.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	15	50	25
Film thickness, wet (µm)	25	75	50
Theoretical spreading rate (m²/l)	28,6	12,3	17,2

Physical properties

Colour	Colourless
Solids (vol %)*	43 ± 2
Flash point	26ºC ± 2 (Setaflash)
VOC	426 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Excellent
Water resistance	Very good
Abrasion resistance	Very good
Flexibility	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	Use 2 mm nap foam rollers or 5 mm nap natural hair rollers.

Application data

Mixing ratio (volume)	3:1
Mixing	3 parts Comp. A (base) to be mixed thoroughly with 1 part Hardtop AS/HB, Comp B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	3 hours (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 10 Airless spray: Should not be thinned. Conventional spray: 5 - 10% thinning is recommended. Roller application: 5% thinning is recommended to provide better flow and air release.
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.46 mm (0.013-0.018").
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	4 h	4 h	1,5 h	1 h
Through dry	12 h	8 h	2 h	2 h
Cured	21 d	14 d	7 d	4 d
Dry to recoat, minimum	12 h	8 h	2 h	2 h
Dry to recoat, maximum [1]				

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87	2 x 150 µm	(Dry Film Thickness)
Any polyurethane TC	1 x 50 µm	(Dry Film Thickness)
Hardtop AS Clear	**1 x 25 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litre unit: 12 litres Comp. A (base) in a 20 litre container and 4 litres Hardtop AS/HB, Comp. B (curing agent) in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Hardtop CA

Product description
Hardtop CA is a two-pack acrylic, isocyanate free topcoat with good gloss and colour retention.

Recommended use
As topcoat over an epoxy primer where a durable, high gloss finish is required in aggressive atmospheric exposure.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	60	125	75
Film thickness, wet (µm)	100	210	125
Theoretical spreading rate (m^2/l)	10	4,8	8

Physical properties

Colour	According to colour card and Multicolor tinting system (MCI)
Solids (vol %)*	60 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	340 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Good
Water resistance	Very good
Abrasion resistance	Good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Excellent

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas.

Application data

Mixing ratio (volume)	9:1
Mixing	9 parts of Comp. A (base) to be mixed thoroughly with 1 part Hardtop CA, Comp. B (curing agent).
Pot life (23°C)	4 hours (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 7 or Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.46 mm (0.013-0.018").
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	6 h	4 h	2,5 h	2 h
Through dry	72 h	36 h	5 h	5 h
Cured	28 d	14 d	12 d	3 d
Dry to recoat, minimum	72 h	36 h	5 h	5 h
Dry to recoat, maximum [1]				

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier	1 x 75 µm	(Dry Film Thickness)
Jotacote Universal	1 x 150 µm	(Dry Film Thickness)
Hardtop CA	**1 x 75 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 18 litres Comp. A (base) in a 20 litre container and 2 litres Hardtop CA, Comp. B (curing agent) in a 3 litre container.
5 litre unit: 4,5 litres Comp. A (base) in a 5 litre container and 0,5 litres Hardtop CA, Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop F10

Product description
Hardtop F10 is a two-pack, fluoro polymer topcoat with outstanding gloss and colour retention, and in compliance with the requirements of TB/T 1527-2004 and HG/T 3792-2005.

Recommended use
As topcoat over an epoxy / epoxy mastic system, where long term aesthetic performance is required in aggressive atmospheric exposure. Over-coating on polyurethane topcoat is also possible.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	25	35	30
Film thickness, wet (µm)	65	90	75
Theoretical spreading rate (m²/l)	16	11,4	13,3

Physical properties

Colour	According to Multicolour Tinting System (MCI)
Solids (vol %)*	40 ± 2
Flash point	26ºC ± 2 (Setaflash)
VOC	528 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Excellent
Water resistance	Very good
Abrasion resistance	Very good
Chemical resistance	Very good
Flexibility	Excellent

*Measured according to ISO 3233:1998 (E)

Fluoro content (%): = 25

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	17:1
Mixing	17 parts of Comp. A (base) to be mixed thoroughly with 1 part of Hardtop F10, Comp. B (curing agent) with a mechanical stirrer with continuous stirring for at least 2 minutes.
Pot life (23°C)	5 hours (Reduced at higher temperature)
Thinner/Cleaner	Jotun Thinner No. 10
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.33-0.38 mm (0.013-0.015")
Spray angle	40-80º
Filter	Check to ensure that filters are clean.
Note	General recommendation for hot work on fluoro containing materials is to remove minimum ten centimeters of material around the hot work area.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	2 h	1 h	30 min	30 min
Through dry	28 h	14 h	7 h	3.5 h
Cured	15 d	10 d	5 d	2 d
Dry to recoat, minimum	28 h	14 h	7 h	3.5 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination or chalking, and if necessary, sufficiently roughened prior to application of the subsequent coat.
2. Early exposure to condensation (high humidity, low temperature) may cause colour and/or gloss variations.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier 77	1 x 50 µm	(Dry Film Thickness)
Penguard Express	1 x 150 µm	(Dry Film Thickness)
Hardtop F10	**2 x 30 µm**	**(Dry Film Thickness)**

Barrier 77	1 x 50 µm	(Dry Film Thickness)
Penguard Express	1 x 150 µm	(Dry Film Thickness)
Hardtop XP	1 x 60 µm	(Dry Film Thickness)
Hardtop F10	**1 x 30 µm**	**(Dry Film Thickness)**

Jotacote Universal and Jotamastic 87 can also be used as primer.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 17,0 litres Hardtop F10 Comp. A in a 20 litre container and 1 litre Hardtop F10 Comp. B in a 1 litre container

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop Flexi

Product description
Hardtop Flexi is a two component, high solid, flexible polyurethane coating with good gloss and colour retention. Hardtop Flexi bases are intermediates and need to be processed before use.

Recommended use
Hardtop Flexi can be used as a single coat system in atmospheric corrosivity classes C2 and C3. Can also be used as a topcoat in classes C2 - C4 and C5-I and C5-M on various primers and as maintenance coating on old paint surfaces. Hardtop Flexi has a good impact resistance and painted objects can be stacked after short drying time.

The product have built in good corrosion protection and is also suitable as a single product system for maintenance application when both corrosion protection and topcoat performance are desired.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	150	80
Film thickness, wet (µm)	80	230	125
Theoretical spreading rate (m^2/l)	13	4,3	8,2

Physical properties

Colour	According to color card and Multicolor tinting system (MCI)
Solids (vol %)*	64 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	2,8 lbs/gal (336 gms/ltr) USA-EPA Method 24 310 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Good
Water resistance	Very good
Abrasion resistance	Very good
Chemical resistance	Good
Flexibility	Excellent

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged shopprimer. Corroded and damaged areas to be blast cleaned to min. Sa 2½ (ISO 8501-1:2007).

Coated surfaces
If applied on top of old coating systems (i.e. epoxy or polyurethane), it may be necessary to abrade the surface.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 part comp. A (base) to be mixed thoroughly with 1 part Hardtop Flexi, Comp. B (curing agent)
Pot life (23°C)	1 hour (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 10
Guiding data airless spray	
Pressure at nozzle	15 MPa min (150 kp/cm², 2100 psi).
Nozzle tip	0,28 - 0,38 mm (0,011 - 0,017").
Spray angle	40-80º
Filter	Check to ensure that filters are clean.
Note	Depending on working condition, temperature, application equipment etc., it may be necessary to adjust the viscosity by adding from 0 up to 10% Jotun Thinner No. 10. Jotun Thinner No. 26 is supplied and used in USA due to legislation.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	6 h	3 h	1,5 h	1 h
Through dry	16 h	8 h	4 h	2 h
Cured	15 d	10 d	7 d	4 d
Dry to recoat, minimum	12 h	6 h	3 h	1,5 h
Dry to recoat, maximum [1]				

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

As a primer/DTM in atmospheric corrosivity classes C2 and C3, ref. ISO 12944.

Hardtop Flexi	**1 x 80 µm**	**(Dry Film Thickness)**

As a topcoat in atmospheric corrosivity classes C2 - C4, ref. ISO 12944.

Penguard Express	1 x 125 µm	(Dry Film Thickness)
Hardtop Flexi	**1 x 80 µm**	**(Dry Film Thickness)**

As a topcoat in corrosivity classes C5-I and C5-M, ref. ISO 12944.

Jotacote Universal	2 x 100 µm	(Dry Film Thickness)
Hardtop Flexi	**1 x 80 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A in a 20 litre container and 4 litres Hardtop Flexi Comp. B in a 5 litre container
4 litres Comp. A in a 5 litre container and 1 litres Hardtop Flexi Comp. B in a 1 litre container

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop HB

Product description
Hardtop HB is a two-pack semigloss polyurethane topcoat with excellent colour retention.

Recommended use
As topcoat over an epoxy/epoxymastic system where a durable, high grade finish is required in aggressive atmospheric exposure. Cures at low temperatures.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	60	100	80
Film thickness, wet (µm)	120	200	160
Theoretical spreading rate (m²/l)	8,3	5	6,3

Physical properties

Colour	Available in white and colours tinted from Multicolor Industry tinting system (MCI)
Solids (vol %)*	50 ± 2
Flash point	26ºC ± 2 (Setaflash)
VOC	418 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Excellent
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 0°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4 parts of Comp. A (base) to be mixed thoroughly with 1 part Hardtop AS/HB, Comp. B (curing agent).
Pot life (23°C)	4 hours (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 10
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.46-0.58 mm (0.018-0.023").
Spray angle	40-80° C
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	0°C	5°C	10°C	23°C	40°C
Surface dry	16 h	8 h	4 h	2 h	1 h
Through dry	50 h	35 h	20 h	10 h	5 h
Cured	20 d	15 d	10 d	5 d	2 d
Dry to recoat, minimum	30 h	21 h	12 h	6 h	3 h
Dry to recoat, maximum [1]					

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87	1 x 250 µm	(Dry Film Thickness)
Hardtop HB	**1 x 80 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A in a 20 litre container and 4 litres Hardtop AS/HB, Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN

Technical Data
Hardtop Optima

Product description
Hardtop Optima is a two-pack polysiloxane topcoat with excellent gloss and colour retention.

Recommended use
As topcoat over an epoxy system where a durable, high grade finish is required in aggressive atmospheric exposure.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	60	100	75
Film thickness, wet (µm)	80	130	100
Theoretical spreading rate (m²/l)	12,7	7,6	10,1

Physical properties

Colour	Available in white and colours tinted from Multicolor Industry tinting system (MCI)
Solids (vol %)*	76 ± 2
Flash point	30ºC ± 2 (Setaflash)
VOC	215 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Excellent
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts of Comp. A (base) to be mixed thoroughly with 1 part Hardtop Optima, Comp. B (curing agent).
Pot life (23°C)	6 hours (Reduced at higher temp.).
Thinner	Jotun Thinner No. 7/17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.46 mm (0.013-0.018").
Spray angle	40-80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	10 h	5 h	3 h	2 h
Through dry	12 h	7 h	4 h	3 h
Cured	15 d	10 d	5 d	3 d
Dry to recoat, minimum	12 h	7 h	4 h	3 h
Dry to recoat, maximum [1,2]				

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.
2. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 86 or Barrier	1 x 75 µm	(Dry Film Thickness)
Jotamastic Plus	1 x 250 µm	(Dry Film Thickness)
Hardtop Optima	**1 x 75 µm**	**(Dry Film Thickness)**
Barrier 80	1 x 75 µm	(Dry Film Thickness)
Jotacote Universal	1 x 130 µm	(Dry Film Thickness)
Hardtop Optima	**1 x 75 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Other systems may be specified, depending on area of use

Storage

The product must be stored above 0°C and in accordance with national regulations, subject to re-inspection thereafter. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A in a 20 litre container and 4 litres Hardtop Optima, Comp. B in a 5 litre container.
or
5 litre unit: 4 litres Comp. A in a 5 litre container and 1 litre Hardtop Optima, Comp. B in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop Optima Alu

Product description
Hardtop Optima Alu is a two-pack polysiloxane topcoat with excellent gloss and colour retention which provides a light and brilliant aluminium finish (close to RAL 9006), suitable for protection of steel structure where a metallic finish effect is expected.

Recommended use
To be used as a topcoat over an epoxy system where a durable, high grade finish is required in aggressive atmospheric exposure.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	65	100	75
Film thickness, wet (µm)	90	135	110
Theoretical spreading rate (m²/l)	11,4	7,4	9,3

Physical properties

Colour	RAL 9006
Solids (vol %)*	74 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	232 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Aluminium sheen
Gloss retention	Very good
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Other	Variation of metallic effects may occur with different application methods or techniques.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts of Hardtop Optima Alu Comp. A (base) to be mixed thoroughly with 1 part Hardtop Optima, Comp. B (curing agent).
Pot life (23°C)	6 hours (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 7 or 17
Cleaner	For brush and roller application up to 5% thinning might be required to improve float and finish.
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.33-0.46 mm (0.013-0.018").
Spray angle	40-80º
Filter	Check to ensure that filters are clean.
Note	This product might give some variations in darkness and "sparkle" depending on application method, DFT applied, equipment used. Start or end application where potential overlapping zones is not that visible since variations in colour/gloss/sparkle will appear. Be careful not to apply not higher DFT than specified. Any sagging will give darker, highly visible stripes.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	10 h	5 h	3 h	2 h
Through dry	12 h	7 h	4 h	3 h
Cured	15 d	10 d	5 d	3 d
Dry to recoat, minimum	12 h	7 h	4 h	3 h
Dry to recoat, maximum [1]	48 h	36 h	24 h	12 h

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 86 or Barrier	1 x 75 µm	(Dry Film Thickness)
Jotamastic Plus	1 x 250 µm	(Dry Film Thickness)
Hardtop Optima Alu	**1 x 75 µm**	**(Dry Film Thickness)**
Barrier 80	1 x 75 µm	(Dry Film Thickness)
Jotacote Universal	1 x 130 µm	(Dry Film Thickness)
Hardtop Optima Alu	**1 x 75 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored above 0°C and in accordance with national regulations, subject to re-inspection thereafter. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A in a 20 litre container and 4 litres Hardtop Optima, Comp. B in a 5 litre container.
or
5 litre unit: 4 litres Comp. A in a 5 litre container and 1 litre Hardtop Optima, Comp. B in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Hardtop XP

Product description
A two-pack high solid, aliphatic polyurethane topcoat with excellent gloss and colour retention. Hardtop XP bases are intermediates and need to be processed before use.

Recommended use
As a glossy topcoat over most epoxy systems where a durable, weather-resistant finish is required in a wide range of aggressive atmospheres.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	100	60
Film thickness, wet (µm)	65	160	95
Theoretical spreading rate (m²/l)	15,8	6,3	10,5

Physical properties

Colour	According to colour card and Multicolor tinting system (MCI)
Solids (vol %)*	63 ± 2
Flash point	30ºC ± 2 (Setaflash)
VOC	2,8 lbs/gal (336 gms/ltr) USA-EPA Method 24 320 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Excellent
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Good
Flexibility	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 0°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	10:1
Mixing	10 parts Hardtop XP Comp. A (Base) to be mixed thoroughly with 1 part Hardtop XP, Comp. B (Curing agent) by powered mechanical equipment. Mix complete units only, do not part mixing of this product.
Pot life (23°C)	1,5 hours
Thinner/Cleaner	Jotun Thinner No. 10/26
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.28-0.38 mm (0.011-0.017")
Spray angle	40-80º
Filter	Check to ensure that filters are clean.
Note	Jotun Thinner No. 26 is supplied and used in USA due to legislation.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	16 h	6 h	3,5 h	2 h
Through dry	24 h	14 h	7 h	4 h
Cured	21 d	14 d	7 d	3 d
Dry to recoat, minimum	24 h	14 h	7 h	4 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination or chalking prior to application of the subsequent coat.
2. Early exposure to condensation (high humidity, low temperature) may cause colour and/or gloss variations.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote Universal	1 x 150 µm	(Dry Film Thickness)
Hardtop XP	**1 x 60 µm**	**(Dry Film Thickness)**
Jotamastic 87	1 x 150 µm	(Dry Film Thickness)
Hardtop XP	**1 x 60 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 18,2 litres Comp. A in a 20 litre container and 1,8 litres Hardtop XP Comp. B (curing agent) in a 3 litre container or
5 litre unit: 4,55 litres Comp. A in a 5 litre container and 0.45 litre Hardtop XP Comp. B (curing agent) in a 1 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jota Armour

Product description
Jota Armour is a three-pack, abrasion-resistant, high solids epoxy-based coating formulated to be applied in high film thickness for durability, wear resistant and anti-slip properties under dry, wet and oily conditions. The third component consists of selected blend of abrasion-resistant fused, aluminium oxides. The product is sold as kits and two kits are available, one with standard (Std) curing agent, and one with wintergrade (WG) curing agent.

Recommended use
For severe dry, wet and oily conditions requiring durability, wear resistance, anti-slip properties, such as flight decks, military applications, extreme environments. Approved to U.K. Defence Standard 80-134 for the Royal Navy. One-coat, high build application over anti-corrosive primer.

Film thickness and spreading rate

Std Comp. B:	**Minimum**	**Maximum**	**Typical**
Film thickness, dry (µm)	750	3000	1000
Film thickness, wet (µm)	830	3330	1100
Theoretical spreading rate (m²/l)	1,2	0,3	0,9

WG Comp. B:	**Minimum**	**Maximum**	**Typical**
Film thickness, dry (µm)	750	3000	1000
Film thickness, wet (µm)	890	3570	1190
Theoretical spreading rate (m²/l)	1,1	0,28	0,85

Comments
* anti-slip roughness profile of coating limits accuracy on film thickness measurements.
Approximate spreading rate for 1000 µm dry film is 10 m²/Kit from practical testing

Hong Kong rules: Category of paints - Other vessel coatings; VOC 160 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.43 (A+B); 3,92(C)
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Grey 38, Green 137, BS 640
Solids (vol %)*	90 ± 2 Std Comp. B 84 ± 2 WG Comp. B
Flash point	**Std Comp. B:** 35ºC ± 2 (Setaflash) **WG Comp. B:** 31ºC ± 2 (Setaflash)
VOC	**Std Comp.B** 70 gms/ltr UK-PG6/23(97). Appendix 3 **WG Comp. B** 100 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (0°C in CC/WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Gravity Feed Hopper Gun or other suitable equipment. Consult Jotun for additional information, as required.

Application data

Mixing ratio (volume)	**Std Comp. B** 6 parts Comp. A (base) to be mixed thoroughly with 1 part Jota Armour, Std Comp. B (curing agent) + Comp. C (graded aggregate) **WG Comp. B** 4 parts Comp. A (base) to be mixed thoroughly with 1 part Jota Armour, WG Comp. B (curing agent) + Comp. C (graded aggregate)
Mixing	10 min. prior to use
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B** 2 hours (reduced at higher temperatures) **WG Comp. B** 1 hour (reduced at higher temperatures)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	Air pressure supply 4.0-4.5 bar
Nozzle tip	8 mm
Spray angle	45°
Filter	Remove filters.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B:				
Substrate temperature		**10°C**	**23°C**	**40°C**
Surface dry		8 h	5 h	3 h
Through dry		24 h	14 h	6 h
Cured		14 d	7 d	2 d
Dry to recoat, minimum		28 h	14 h	6 h
WG Comp. B:				
Substrate temperature	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	22 h	14 h	8 h	3 h
Through dry	32 h	24 h	24 h	8 h
Cured	28 d	14 d	14 d	4 d
Dry to recoat, minimum	32 h	24 h	24 h	8 h
Dry to recoat, maximum				

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87 Alu	1-2 x 150 µm	(Dry Film Thickness)
Jota Armour	**1 x 1000 µm**	**(Dry Film Thickness)**
or		
Jota Armour	**1 x 3000 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use and during application.

Packing size

9,0 litre set: 4,0 litres Comp. A and 0,7 litre Jota Armour, Std Comp. B and 14 kg Comp. C (graded aggregate) packed in 20 litre mixing pail.
9,3 litre set: 4,0 litres Comp. A and 1,0 litre Jota Armour, WG Comp. B and 14 kg Comp. C (graded aggregate) packed in 20 litre mixing pail.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotacoat Tiecoat

Product description
Jotacoat tiecoat is a two-pack corrosion preventing epoxy tie coat. It has a good adhesion and a good compatibility with top coat paint.

Recommended use
Steel work in general, usually used in combination with an epoxy and polyurethane system.

Film thickness and spreading rate

Std Comp.B	Minimum	Maximum	Typical
Film thickness, dry (µm)	70	125	100
Film thickness, wet (µm)	108	193	154
Theoretical spreading rate (m²/l)	9,3	5,2	6,5

WG Comp.B	Minimum	Maximum	Typical
Film thickness, dry (µm)	70	125	100
Film thickness, wet (µm)	108	193	154
Theoretical spreading rate (m²/l)	9,3	5,2	6,5

Physical properties

Colour	Grey, Cream
Solids (vol %)*	65 ± 2
Flash point	**Std Comp.B** 27ºC ± 2 (Setaflash) **WG Comp.B** 27ºC ± 2 (Setaflash)
Gloss	Flat
Water resistance	Good
Abrasion resistance	Good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until cured. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	5:1
Mixing	5 parts Comp. A (base) to be mixed thoroughly with 1 part Jotacoat Tiecoat, Std Comp. B (curing agent). 5 parts Comp. A(base) to be mixed thoroughly with 1 part Jotacoat Tiecoat, WG Comp. B (curing agent).
Pot life (23°C)	5 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm2, 2100 psi)
Spray angle	0.53-0.78 mm (0.021-0.031")
Filter	40-80º
Note	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp.B					
Substrate temperature			**10°C**	**23°C**	**40°C**
Surface dry			6 h	3 h	1 h
Through dry			24 h	18 h	10 h
Dry to recoat, minimum			24 h	18 h	10 h
WG Comp.B					
Substrate temperature	**-10°C**	**-5°C**	**0°C**	**10°C**	**23°C**
Surface dry	48 h	20 h	10 h	4 h	2,5 h
Through dry	72 h	48 h	36 h	16 h	10 h
Dry to recoat, minimum	96 h	48 h	24 h	16 h	10 h
Dry to recoat, maximum					

1 In case of multi-coat application, drying times will be influenced by the number in sequence and by the total thickness of previous coat applied - reference is made to the corresponding system datasheet.
2 Recommended data given for recoating with the same generic type of paint.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote Universal	1 x 125µm	(Dry Film Thickness)
Jotacoat Tiecoat	**1 x 100µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

15 litre unit: 12.5 litres Jotacoat Tiecoat Comp. A in a 18 litre container and 2.5 litres Jotacoat Tiecoat, Std Comp. B (curing agent) in a 4 litre container.
15 litre unit: 12.5 litres Jotacoat Tiecoat Comp. A in a 18 litre container and 2.5 litres Jotacoat Tiecoat, WG Comp. B (curing agent) in a 4 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotacote BT

Product description
Jotacote BT is a two-pack, abrasion resistant, high solid polyamine cured epoxy based coating.

Recommended use
Jotacote BT is intended for use in water ballast tanks. It is specifically designed for use in newbuilding situations and gives excellent corrosion protection both in salt and fresh water.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotacote BT".

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	125	250	160
Film thickness, wet (µm)	175	350	220
Theoretical spreading rate (m^2/l)	5,7	2,9	4,5

Comments
* For DFTs below 150 µm thinner should be used.
Hong Kong rules: Category of paints - Other vessel coatings; VOC 260 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.34 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Aluminium, Aluminium red tone, Beige, Grey
Solids (vol %)*	72 ± 2
Flash point	35ºC ± 2 (Setaflash)
VOC	2,17 lbs/gal (260 gms/ltr) USA-EPA Method 24 240 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum -5°C and minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to strain until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3:1
Mixing	3 parts Comp. A (base) to be mixed thoroughly with 1 part Jotacote BT, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	1½ hours (reduced at higher temperatures)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.43-0.79 mm (0.017-0.031")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-5°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	20 h	14 h	5 h	2,5 h	1 h
Through dry [1]	48 h	30 h	10 h	5 h	2 h
Cured		21 d	10 d	7 d	3 d
Dry to recoat, minimum [2]	24 h	18 h	7 h	4 h	2 h
Dry to recoat, maximum [3]	14 d	14 d	10 d	7 d	3 d

Substrate temperature	**5°C**
Surface dry	8 h
Through dry [1]	16 h
Cured	14 d
Dry to recoat, minimum [2]	10 h
Dry to recoat, maximum [3]	12 d

1. The earliest it is possible to exert mechanical strain on the coating, i.e. walk on to recoat.

2. The earliest time for recoating with the same generic type of paint. Note that the paint film is not hard at this time and can not withstand mechanical strain.
1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote BT **2 x 160 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 15 litres Comp. A in a 20 litre container and 5 litres Jotacote BT, Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotacote HF002

Product description
Jotacote HF002 is a two-pack, abrasion resistant, high solids polyamine cured, pure epoxy primer/finish with 9% Aluminium content in the dry film. Jotacote HF002 is fast drying and may be applied in high film thickness.

Recommended use
Jotacote HF002 is specifically designed for use in newbuilding situations. To be used on steel alone or in combination with other coatings. If a cosmetic finish is required, it should be used together with a topcoat. Gives excellent corrosion protection both in salt and fresh water.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotacote HF002".

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	125	200	150
Film thickness, wet (µm)	205	330	245
Theoretical spreading rate (m^2/l)	4,9	3,1	4,1

Approvals
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Aluminium, Bronze, Light Bronze
Solids (vol %)*	61 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	2,83 lbs/gal (339 gms/ltr) USA-EPA Method 24 305 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum -5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray or conventional spray
Brush	Use a suitable brush. Care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	2,5:1
Mixing	2,5 parts Comp. A (base) to be mixed thoroughly with 1 part Jotacote HF002, Comp. B (curing agent)
Pot life (23°C)	2 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi)
Nozzle tip	0.53 - 0.79mm (0.021-0.031")
Spray angle	40-80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	6 h	5 h	4 h	3 h	1 h
Through dry [1]	14 h	10 h	8 h	7 h	5 h
Cured		21 d	14 d	10 d	7 d
Dry to recoat, minimum	14 h	10 h	8 h	7 h	5 h
Dry to recoat, maximum [2]	14 d	14 d	14 d	14 d	14 d

Substrate temperature	**40°C**
Surface dry	0,5 h
Through dry [1]	3 h
Cured	3 d
Dry to recoat, minimum	3 h
Dry to recoat, maximum [2]	14 d

1. The earliest time that it is possible to exert mechanical strain on the coating, i.e. walk on to recoat.
2. The surface should be free from chalking and contamination prior to application. Best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat is cured. If this is exceeded it may be necessary to roughen the surface.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

For above water:

Jotacote HF002 **1 x 125µm** **(Dry Film Thickness)**

Penguard FC/HBII	1 x 125µm	(Dry Film Thickness)

For under water:

Jotacote HF002	**1 x 150µm**	**(Dry Film Thickness)**
Safeguard Plus	1 x 125µm	(Dry Film Thickness)

For water ballast tanks:

Jotacote HF002	**2 x 160µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

Standard
17,5 litre unit: 12,5 litres Comp. A in a 20 litre container and 5 litres Jotacote HF002, Comp. B in a 5 litre container.

Korea
15 litre unit: 10.71 litres Comp. A in a 18 litre container and 4,29 litres Jotacote HF002, Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotacote Universal

Product description
Jotacote Universal is a two-pack, abrasion resistant, high solids polyamine cured pure epoxy based primer/finish coat which may be applied in high film thickness.

Recommended use
A universal primer specifically designed for use in newbuilding situations. To be used on steel alone or in combination with various systems. If a cosmetic finish is required, it should be used together with a topcoat. Gives excellent corrosion protection both in salt and fresh water. Jotacote Universal Aluminium Lumi is intended as first coat in water ballast tanks and utilises luminous pigments to aid application and inspection.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotacote Universal".

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	300	160
Film thickness, wet (µm)	105	415	220
Theoretical spreading rate (m^2/l)	9,6	2,4	4,5

Comments
For DFTs below 150 µm thinner should be used.

Approvals
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Aluminium and aluminium red toned, Aluminium Lumi, Buff, Grey, Red
Solids (vol %)*	72 ± 2
Flash point	35ºC ± 2 (Setaflash)
VOC	2,17 lbs/gal (260 gms/ltr) USA-EPA Method 24 240 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Other vessel coatings; VOC 260 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.33 kg/ltr (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until cured. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3:1
Mixing	3 parts Comp. A (base) to be mixed thoroughly with 1 part Jotacote Universal, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	1½ hours (reduced at higher temperatures)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.43-0.79 mm (0.017-0.031")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	36 h	14 h	5 h	2,5 h	1 h
Through dry [1]	4 d	30 h	10 h	5 h	2 h
Cured		21 d	10 d	7 d	3 d
Dry to recoat, minimum [2]	42 h	18 h	7 h	4 h	2 h
Dry to recoat, maximum [3]					

Substrate temperature	**-5°C**	**5°C**
Surface dry	20 h	8 h
Through dry [1]	48 h	16 h
Cured		14 d
Dry to recoat, minimum [2]	24 h	10 h
Dry to recoat, maximum [3]		

1. The earliest time that it is possible to exert mechanical strain on the coating, i.e. walk on to recoat.

2. The earliest time for recoating with the same generic type of paint. Note that the paint film is not hard at this time and can not withstand mechanical strain.
3. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Above water

Jotacote Universal	**2 x 125 µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

For water ballast tanks

Jotacote Universal	**2 x 160 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 15 litres Jotacote Universal Comp. A in a 20 litre container and 5 litres Jotacote Universal, Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotacote Universal 60

Product description
Jotacote Universal 60 is a two-pack, polyamide cured universal primer based on epoxy resin with high molecular weight. Gives excellent physical properties such as toughness, flexibility, abrasion resistance and adhesion and has excellent resistance to water and cathodic disbondment.

Recommended use
As a general purpose primer to protect steel structures. To be used on steel alone or in combination with various systems. If a cosmetic finish is required, it should be used together with a topcoat. Jotacote Universal 60 has good adhesion to a wide range of metals, including aluminium, galvanised and stainless steel. It is suitable for both water ballast tanks and crude oil tanks.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotacote Universal 60".

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	200	150
Film thickness, wet (µm)	165	335	250
Theoretical spreading rate (m^2/l)	6	3	4

Approvals
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Grey, Red , White
Solids (vol %)*	60 ± 2
Flash point	21ºC ± 2 (Setaflash)
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
For aluminium, galvanized and stainless steel, the surface must be clean and dry. Contact your local Jotun office for further details.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4,4:1
Mixing	4,4 parts Comp. A (base) to be mixed thoroughly with 1 part Jotacote Universal 60, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	5 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Nozzle tip	0.53-0.69 mm (0.021-0.027")
Spray angle	40-80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	8 h	6 h	4 h	2 h
Through dry	24 h	18 h	10 h	6 h
Cured	14 d	10 d	7 d	3 d
Dry to recoat, minimum	24 h	18 h	10 h	6 h
Dry to recoat, maximum [1,]				

1 Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

For above water

Jotacote Universal 60	**1 x 125 µm**	**(Dry Film Thickness)**
Penguard FC/HBII	1 x 125 µm	(Dry Film Thickness)

For under water (hull)

Jotacote Universal 60	**2 x 150 µm**	**(Dry Film Thickness)**
Safeguard Plus	1 x 100 µm	(Dry Film Thickness)

For under water (water ballast tanks)

Jotacote Universal 60	**2 x 160 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

Standard:
20 litre unit: 16,3 litres Comp. A in a 20 litre container and 3,7 litres Jotacote Universal 60, Comp. B in a 5 litre container.

Korea
15 litre unit: 12,2 litres Comp. A in a 18 litre container and 2,8 litres Jotacote Universal 60, Comp. B in a 4 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotacote Universal 80

Product description
Jotacote Universal 80 is a two-pack, abrasion resistant, high solids polyamine cured pure epoxy based coating for use on newbuildings.

Recommended use
A universal primer specifically designed for use in newbuilding situations. To be used on steel alone or in combination with various systems. If a cosmetic finish is required, it should be used together with a topcoat. Gives excellent corrosion protection both in salt and fresh water.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotacote Universal 80".

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	300	160
Film thickness, wet (µm)	95	375	200
Theoretical spreading rate (m^2/l)	10,7	2,7	5

Comments
For DFTs below 150 µm thinner should be used.

Approvals
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Aluminium, Aluminium Red toned, Bronze
Solids (vol %)*	80 ± 2
Flash point	35ºC ± 2 (Setaflash)
VOC	1,7 lbs/gal (200 gms/ltr) USA-EPA Method 24 186 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Other vessel coatings; VOC 201.6 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.48 (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until cured. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3:1
Mixing	3 parts Comp. A (base) to be mixed thoroughly with 1 part Jotacote Universal 80, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	2 hours (reduced at higher temperatures)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.53-0.69 mm (0.019-0.031")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	18 h	6 h	4 h	2 h	1 h
Through dry [1]	72 h	18 h	9 h	4 h	3 h
Cured		21 d	12 d	10 d	7 d
Dry to recoat, minimum [2]	42 h	15 h	7 h	3 h	1,5 h
Dry to recoat, maximum [3]	14 d	14 d	14 d	14 d	10 d

Substrate temperature	**-5°C**	**5°C**
Surface dry	8 h	5 h
Through dry [1]	29 h	14 h
Cured		14 d
Dry to recoat, minimum [2]	23 h	10 h
Dry to recoat, maximum [3]	14 d	14 d

1. The earliest time that it is possible to exert mechanical strain on the coating, i.e. walk on dry to recoat.

1. The earliest time for recoating with the same generic type of paint. Note that the paint film is not hard at this time and can not withstand mechanical strain.
2. Overcoating by Jotacote Universal 80 for severe (tough mechanical or immersed) exposure.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote Universal 80 **2 x 160 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

Corporate Standard
20 litre unit: 15 litres Comp. A in a 20 litre container and 5 litres Jotacote Universal 80, Comp. B in a 5 litre container.

Korean standard
15 litre unit: 11.25 litres Comp. A in a 18 litre container and 3.75 litres Jotacote Universal 80, Comp. B in a 4 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 9 MARCH 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jota-Etch Two-Pack

Product description
Jota-Etch Two-Pack is a two-pack, epoxy modified etch primer containing phosphoric acid.

Recommended use
Direct application over aluminium, galvanized steel, mild steel and stainless steel. Act as etch medium for subsequent coats. Application over submerged structures is forbidden.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	5	15	10
Film thickness, wet (µm)	25	75	50
Theoretical spreading rate (m²/l)	40	13,3	20

Physical properties

Colour	Yellow (transparent)
Solids (vol %)*	20 ± 2
Flash point	<10ºC ± 2
Gloss	Flat
Flexibility	Excellent

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Other surfaces
For aluminium and galvanized surface; degreasing, light abrading or sand sweeping.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas.

Application data

Mixing ratio (volume)	24 parts Comp. A to be mixed thoroughly with 1 part Comp. B
Pot life (23°C)	3-4 weeks
Thinner/Cleaner	Jotun Thinner No. 4
Note	1. Mix thoroughly prior to application. 2. It is recommended to thin the paint with an equal volume of Jotun Thinner no. 4 (1:1 by volume) when using conventional spray.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**23°C**	**40°C**
Surface dry	5 min	1 min
Through dry	60 min	40 min
Dry to recoat, minimum	4 h	3 h
Dry to recoat, maximum	30 d	30 d

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jota-Etch Two-Pack 1 X 10 microns (Dry film thickness)
Subsequent coating(s) by choice, e.g. alkyd, epoxy and polyurethane.
For typical coating systems and variation of film thickness, please consult Jotun.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

4.8 l Comp. A, 0.2 l Comp. B
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotafloor Coating

Product description
Jotafloor Coating is a high performance, self smoothing, solvent free, seamless epoxy coating capable of being applied at varying thicknesses to suit the final use of the floor. Jotafloor Coating offers excellent chemical, abrasion and impact resistance.

Recommended use
Jotafloor Coating has a wide range of application uses ranging from light industrial areas to floors requiring long lasting protection from abrasion and heavy loads. Typical areas include:

- Warehouses
- Garages
- Dairies
- Factories
- Laboratories
- Aircraft hangers
- Plant rooms
- Food manufacturing plants

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	200	500	300
Film thickness, wet (µm)	200	500	300
Theoretical spreading rate (m^2/l)	5	2	3,3

Physical properties

Colour	Available in a range of attractive colours. See Jotafloor Colour card.
Solids (vol %)*	98 ± 2
Flash point	>100ºC (Setaflash)
VOC	20 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent Check chemical resistance values in Jotafloor chemical resistance chart.

*Measured according to ISO 3233:1998 (E)

Surface preparation

All concrete damaged by exposure to chemicals, contaminated by any substance or unsound in any way, shall be removed to expose sound concrete.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
Concrete surface preparation by using dust free captive blasting units, grinding equipment, sand blasting or high pressure water jetting is critical to achieving the right surface profile prior to paint application. Contact your local Jotun office for more information.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The moisture content in the concrete should not exceed 4 % (by weight). The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Brush	Stiff nylon brush
Roller	Recommended
Other	It is very important to pierce the coating with a spiked roller, after achieving the desired thickness, to avoid air bubbles.

Application data

Mixing ratio (volume)	2:1
Mixing	2 parts Comp. A (base) to be mixed thoroughly with 1 part Jotafloor Coating, Comp. B (curing agent). NO PART MIXING. Use a slow speed drill and mixing paddle. Pour the full contents of the mixed material onto the floor immediately after mixing is completed.
Pot life (23°C)	Jotafloor Coating Comp. B (20) 10 min. (30 min. after poured on to the floor). Jotafloor Coating Comp. B (40) 20 min. (45 min. after poured on to the floor).
Thinner/Cleaner	Jotun Thinner No. 17
Note	This product should be applied by a trained specialist. Jotun can offer a list of Licensed Applicators on request to your local Jotun office.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Curing agent Comp. B (20):			
Substrate temperature	**15°C**	**23°C**	**40°C**
Surface dry	6 h	3 h	2 h
Through dry	24 h	15 h	6 h
Cured	10 d	7 d	3 d
Dry to recoat, minimum	24 h	15 h	6 h
Dry to recoat, maximum [1]	72 h	48 h	30 h

Curing agent Comp. B (40):			
Substrate temperature	**15°C**	**23°C**	**40°C**
Surface dry	8 h	5 h	2 h
Through dry	32 h	20 h	8 h
Cured	12 d	9 d	3 d
Dry to recoat, minimum	32 h	20 h	8 h
Dry to recoat, maximum [1]	96 h	72 h	36 h

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotafloor Sealer	1 x 50 µm	(Dry Film Thickness)
Jotafloor Coating	**1 x 300 µm**	**(Dry Film Thickness)**
or		
Jotafloor Solvent Free Primer	1 - 2 x 100 µm	(Dry Film Thickness)
Jotafloor Coating	**1 x 300 - 500 µm**	**(Dry Film Thickness)**

Note: Thickness of the finished system will vary depending on use of the finished floor. Consult your local Jotun Office for advice.

Other systems may be specified, depending on area of use

Test Certificates

Determination of Compressive Strength - ASTM C579
Determination of Tensile Strength - ASTM C307
Determination of Flexural Strength - ASTM C580
Determination of Bond strength to host concrete - BS 1881 : Part 207
Determination of Crack Bridgeability - ASTM C884
Determination of Rapid Chloride Permeability - AASHTO T277
Determination of Water Permeability - DIN 1048
Determination of Acid or Alkali Reaction - ASTM D543
Determination of Water or Salt Spray Test - N.F.C. Standard
Determination of Impact Resistance - ISO 6272
Determination of Shore 'A' hardness - ASTM D2240
Determination of Taber Abrasion (1,000 Cycles) - ASTM D4060
Determination of Toxicity - BS 6920
Determination of Flame Spread - ASTM D1360
Determination of ease of decontamination - BS4247 Part 1:1987
Determination of resistance to aviation fuel - ASTM D543 : 1987

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

13 litres Comp. A (base) in a 20 litre container and 6,5 litres Jotafloor Coating, Comp. B (B20 or B40) in a 10 litre container
and
3,2 litres Comp. A (base) in a 5 litre container and 1,6 litres Jotafloor Coating, Comp B (B20 or B40) in a 3 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Jotafloor Glass Flake

Product description
A two pack, high solids epoxy reinforced with glass flakes that constitutes the protective layer of the Jotafloor Traffic Deck System. Offers all round protection against substances likely to assist in steel corrosion within a concrete substrate and provides excellent resistance to impact and abrasion and the stresses found in car parks/traffic decks subject to heavy vehicular traffic.

Recommended use
For use in conjunction with Jotafloor products comprising the Jotafloor Traffic Deck System. Can be spray, brush or roller applied in two or three coats depending on the volume of traffic expected. This product can also be used independently of the Jotafloor Traffic Deck System. A wide range of colours are available. Typical areas include:

- Underground car parks
- Ramps
- External traffic deck
- Concrete balconies
- Parking bays
- Pedestrian walkways

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	300	500	300
Film thickness, wet (µm)	375	625	375
Theoretical spreading rate (m^2/l)	2,66	1,6	2,66

Physical properties

Colour	Limited number
Solids (vol %)*	80 ± 2
Flash point	30ºC ± 2 (Setaflash)
VOC	110 gms/ltr UK-PG6/23(97). Appendix 3
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All concrete damaged by exposure to chemicals, contaminated by any substance or unsound in any way, shall be removed to expose sound concrete.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
Concrete surface preparation by using dust free captive blasting units, grinding equipment, sand blasting or high pressure water jetting is critical to achieving the right surface profile prior to paint application. Please contact your local Jotun office for more information.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The moisture content in the concrete should not exceed 4 % (by weight). The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Roller	May be used for small areas.

Application data

Mixing ratio (volume)	3:1
Mixing	3 parts Comp. A (base) to be thoroughly mixed with 1 part Jotafloor GF, Comp. B (curing agent). We strongly recommended no part mixing.
Pot life (23°C)	1 hour (reduced at higher temperatures)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.63 - 1.09 mm (0.025-0.043")
Spray angle	65 - 80°
Filter	Filters to be removed prior to spraying.
Note	This product should be applied by a trained specialist. Jotun can offer a list of Licensed Applicators on request to your local Jotun office.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	14 h	5,5 h	2,5 h
Through dry	48 h	12 h	5 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	32 h	12 h	5 h
Dry to recoat, maximum [1]	5 d	3 d	2 d

1. Recommended data given for product prior to application of Jotafloor Non Slip Aggregate and subsequent over coating with Jotafloor Polyurethane Finish.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotafloor Sealer	1 x 40 µm	(Dry Film Thickness)
Jotafloor Glass Flake	**1 x 300 µm**	**(Dry Film Thickness)**
Jotafloor Non Slip Aggregate		(Available in various sizes)
Jotafloor PU Topcoat	2 x 70 µm	(Dry Film Thickness)
Jotafloor Damp Bond	1 x 100 µm	(Dry Film Thickness)
Jotafloor Glass Flake	**1 x 300 µm**	**(Dry Film Thickness)**
Jotafloor Non Slip Aggregate		(Available in various sizes)
Jotafloor PU Topcoat	2 x 70 µm	(Dry Film Thickness)

Jotafloor SF Primer	1 x 150 µm	(Dry Film Thickness)
Jotafloor Glass Flake	**1 x 400 µm**	**(Dry Film Thickness)**
Jotafloor Non Slip Aggregate		(Available in various sizes)
Jotafloor PU Topcoat	3 x 70 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Test Certificates

Determination of Shore 'A' hardness - ASTM D2240
Determination of resistance to aviation fuel - ASTM D543 : 1987

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition.Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 15 litres Comp. A (base) in a 20 litre container and 5 litres Jotafloor GF, Comp. B (curing agent) in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotafloor Sealer

Product description
Jotafloor Sealer is a transparent two-pack epoxy sealer/primer exhibiting excellent penetration properties to ensure good adhesion between Jotafloor products and most masonry surfaces.

Recommended use
As a sealer/primer for subsequent Jotafloor products or for use independently as a dust binder for concrete floors.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	50	40
Film thickness, wet (µm)	80	130	100
Theoretical spreading rate (m^2/l)	12,5	7,7	10

Comments
Substrate porosity and profile will affect practical coverage rates.

Physical properties

Colour	Clear
Solids (vol %)*	40 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	515 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Water resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent Check chemical resistance values in Jotafloor chemical resistance chart.
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All concrete damaged by exposure to chemicals, contaminated by any substance or unsound in any way, shall be removed to expose sound concrete.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
Concrete surface preparation by using dust free captive blasting units, grinding equipment, sand blasting or high pressure water jetting is critical to achieving the right surface profile prior to paint application. Contact your local Jotun office for more information.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The moisture content in the concrete should not exceed 4 % (by weight). The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Jotafloor Sealer, Comp. B (curing agent). NO PART MIXING.
Induction time	30 minutes.
Pot life (23°C)	8 hours (reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi)
Nozzle tip	0.46 - 0.58 mm (0.018-0.023")
Spray angle	40-80°
Filter	Check to ensure that filters are clean

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	2 h	1 h	0.5 h
Through dry	14 h	6,5 h	3 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	8 h	4 h	1,5 h

1. The surface should be free from chalking and contamination prior to application. Best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat has cured.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

As dust binder:

Jotafloor Sealer	**Nominal**	

For coloured finish:

Jotafloor Sealer	**1 x 40 µm**	**(Dry Film Thickness)**
Jotafloor Topcoat	2 x 50 µm	(Dry Film Thickness)
or		
Jotafloor Sealer	**1 - 2 x 40 µm**	**(Dry Film Thickness)**
Jotafloor Coating	1 x 300 µm	(Dry Film Thickness)
or		
Jotafloor Sealer	**1 - 2 x 40 µm**	**(Dry Film Thickness)**
Jotafloor SL Universal	1 x 2000 - 4000 µm	(Dry Film Thickness)

Note: Thickness of the finished system will vary depending on use of the finished floor. Consult your local Jotun Office for advice.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition.Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Jotafloor Sealer, Comp. B (curing agent) in a 5 litre container.
or
4 litres Comp. A (base) in a 5 litre container and 1 litres Jotafloor Sealer, Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotafloor SF Primer

Product description
Jotafloor SF Primer is a transparent two-pack epoxy primer exhibiting excellent penetration properties to ensure good adhesion between Jotafloor products and host masonry surfaces.

Recommended use
Primer/sealer on concrete masonry, normally under Jotafloor Topcoat, Jotafloor SL Universal and Jotafloor Coating.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	200	100
Film thickness, wet (µm)	50	200	100
Theoretical spreading rate (m²/l)	20	5	10

Physical properties

Colour	Transparent
Solids (vol %)*	98 ±
Flash point	> 100ºC (Setaflash)
VOC	1 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent Check chemical resistance values in Jotafloor chemical resistance chart.

*Measured according to ISO 3233:1998 (E)

Surface preparation

All concrete damaged by exposure to chemicals, contaminated by any substance or unsound in any way, shall be removed to expose sound concrete.

Other surfaces
Concrete surface preparation by using dust free captive blasting units, grinding equipment, sand blasting or high pressure water jetting is critical to achieving the right surface profile prior to paint application. Contact your local Jotun office for more information.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The moisture content in the concrete should not exceed 4 % (by weight). The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Brush	Recommended
Roller	Recommended

Application data

Mixing ratio (volume)	2:1
Mixing	2 parts Comp. A (base) to be mixed thoroughly with 1 part Jotafloor SF Primer, Comp. B (curing agent). NO PART MIXING
Pot life (23°C)	Jotafloor SF Primer Comp. B (20) 10 min. (30 min. after poured on to the floor). Jotafloor SF Primer Comp. B (40) 20 min. (45 min. after poured on to the floor).
Thinner/Cleaner	Jotun Thinner No. 17

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**15°C**	**23°C**	**40°C**
Surface dry	7 h	5 h	3 h
Through dry	25 h	16 h	9 h
Cured	10 d	7 d	4 d
Dry to recoat, minimum	24 h	15 h	6 h
Dry to recoat, maximum [1]	72 h	48 h	30 h

Curing agent comp. B (40):			
Substrate temperature	**15°C**	**23°C**	**40°C**
Surface dry	12 h	10 h	6 h
Through dry	42 h	30 h	18 h
Cured	12 d	9 d	3 d
Dry to recoat, minimum	32 h	24 h	10 h
Dry to recoat, maximum [1]	96 h	72 h	36 h

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun Paints for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotafloor SF Primer	**1 - 2 x 100 µm**	**(Dry Film Thickness)**
Jotafloor SL Universal	1 x 2000 µm	(Dry Film Thickness)
or		
Jotafloor SF Primer	**1 - 2 x 100 µm**	**(Dry Film Thickness)**
Jotafloor Topcoat	1 - 2 x 50 µm	(Dry Film Thickness)

Note: Thickness of the finished system will vary depending on use of the finished floor. Consult your local Jotun Office for advice.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition.Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

13 litres Comp. A (base) in a 20 litre container and 6,5 litres Jotafloor SF Primer, Comp. B (curing agent) in a 10 litre container.
or
3,33 litres Comp. A (base) in a 5 litre container and 1,67 litres Jotafloor SF Primer, Comp. B (curing agent) in a 3 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotafloor Topcoat

Product description
Jotafloor Topcoat is a two-pack epoxy floor coating offering good chemical resistance, durability and available in a variety of colours. May also be used as a final coating on Jotafloor Screed.

Recommended use
Areas requiring a dust free, hard wearing and aesthetically pleasing floor coating such as:

- Warehouses
- Garages
- Workshops
- Production areas

Excellent adhesion to primed concrete, mortar, screed and a limited number of other surfaces make Jotafloor Topcoat ideal for many uses in light to medium industrial areas.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	60	50
Film thickness, wet (µm)	80	120	100
Theoretical spreading rate (m^2/l)	12,5	8,3	10

Physical properties

Colour	Available in Jotun Multicolor tinting system.
Solids (vol %)*	50 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	448 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent Check chemical resistance values on Jotun chemical resistance chart.
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All concrete damaged by exposure to chemicals, contaminated by any substance or unsound in any way, shall be removed to expose sound concrete.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
Concrete surface preparation by using dust free captive blasting units, grinding equipment, sand blasting or high pressure water jetting is critical to achieving the right surface profile prior to paint application. Contact your local Jotun office for more information.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The moisture content in the concrete should not exceed 4 % (by weight). The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Jotafloor TC, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	8 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi)
Nozzle tip	0.46 - 0.58 mm (0.018-0.023")
Spray angle	40 - 80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Normal hardener			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	2,5 h	1,5 h	0,5 h
Through dry	14 h	6,5 h	3 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum [1]	14 h	7 h	3 h

1. The surface should be free from chalking and contamination prior to application. Best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat has cured. If this is exceeded it may be necessary to roughen the surface.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotafloor Sealer	1 x 40 µm	(Dry Film Thickness)
Jotafloor Topcoat	**1 - 2 x 50 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Test Certificates

Determination of Bond strength to host concrete - BS 1881 : Part 207
Determination of Crack Bridgeability - ASTM C884

Determination of Rapid Chloride Permeability - AASHTO T277
Determination of Water Permeability - DIN 1048
Determination of Acid or Alkali Reaction - ASTM D543
Determination of Weather or Salt Spray Test - N.F.C. Standard
Determination of Impact Resistance - ISO 6272
Determination of Shore 'A' hardness - ASTM D2240
Determination of Taber Abrasion (1,000 Cycles) - ASTM D4060
Determination of Toxicity - BS 6920
Determination of Flame Spread - ASTM D1360

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition.Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A in a 20 litre container and 4 litres Jotafloor TC, Comp. B (curing agent) in a 5 litre container.
4 litres Comp. A in a 5 litre container and 1 litre Jotafloor TC, Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotaguard 400

Product description
Jotaguard 400 is a solvent-free, two-pack epoxy pipe coating.

Recommended use
Jotaguard 400 is designed for use for friction reduction in gas pipes.

For details see the "Application procedure for internal pipe coating - Jotaguard 400"

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	120	100
Film thickness, wet (µm)	80	120	100
Theoretical spreading rate (m^2/l)	12,5	8,3	10

Comments
When used for pipe coating at raised temperature it is recommended to aim for an average DFT between 80 - 100 microns DFT above the profile of the steel.

Approvals
1. API Recommended Practice 5L2 (modified)
2. ISO 15741 (modified)

Physical properties

Colour	Red
Solids (vol %)*	98 ± 2
Flash point	>100ºC (Setaflash)
VOC	0,83 lbs/gal (100 gms/ltr) USA-EPA Method 24 40 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Fine-Medium G (20 - 40 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

This coating specification demands strictly controlled conditions to achieve satisfactory results at recommended film thickness.
The temperature of the steel substrate should be minimum 35°C and maximum 45°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The coating should be preheated to achieve a temperature between 35°C and 45°C at nozzle.

Application methods

Spray	Use airless spray.

Application data

Mixing ratio (volume)	2:1
Mixing	2 parts Comp. A (base) to be mixed thoroughly with 1 part Jotaguard 400, Comp. B (curing agent).
Pot life (23°C)	1 hour (reduced at higher temperature). 20 min at 35°C
Cleaner	Use Jotun Thinner No. 17 for cleaning equipment after application.
Guiding data airless spray	
Pressure at nozzle	40 - 60 MPa (5800 - 8700 p.s.i.)
Nozzle tip	0.46 mm - 0.69 mm (0.018” - 0.027”)
Spray angle	60° - 120°
Filter	Filters should be removed, both in the pump and the spray gun, due to the viscosity of the paint. Should, however, air bubbles in the paint be a problem a coarse filter may be employed. If used, check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:
* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**40°C**
Surface dry	1.5 h
Through dry	4 h
Cured	4 d
Dry to recoat, minimum	4 h
Dry to recoat, maximum	18 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotaguard 400 **1 x 80 -100 microns** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

10 litres Comp. A (Base) in a 20 litre container and 5 litres Jotaguard 400, Comp. B (curing agent) in a 5 litre container. Also available on special order in 1000 litre IBC containers, please contact Jotun for further information

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotamastic 80

Product description
Jotamastic 80 is a two-pack, surface-tolerant, high solids epoxy mastic coating which can be applied in low film thickness. Available with different hardeners for varying substrate temperatures, Standard (Std) and Wintergrade (WG).

Recommended use
Anticorrosive coating for steel structures above and below water (aluminium versions for use below water), also on steel where blast cleaning may not be possible or desired.

Film thickness and spreading rate

Std Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	200	100
Film thickness, wet (µm)	95	250	125
Theoretical spreading rate (m²/l)	10,6	4	8

WG Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	200	100
Film thickness, wet (µm)	105	280	140
Theoretical spreading rate (m²/l)	9,6	3,6	7,2

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 200 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.53 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Aluminium, Aluminium Red toned, Grey, Red, Green, Off-white, Black
Solids (vol %)*	80 ± 2 Std Comp. B 72 ± 2 WG Comp. B
Flash point	**Std Comp. B:** 35ºC ± 2 (Setaflash) **WG Comp. B:** 31ºC ± 2 (Setaflash)
VOC	**Std Comp. B** 145 gms/ltr UK-PG6/23(97). Appendix 3 **WG Comp. B** 210 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance. In case of hydrojetting the flash rust degree shall not exceed moderate in SSPC and NACE standards for water prepared surfaces.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (-5°C in WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying.

Hydrojetting of steel surface makes a wet surface. The surrounding air must have a relative humidity not exceeding 85 %. Before painting the surface shall not be glossy with moisture, but can have a patchy appearance.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	**Std Comp. B:** 7:1 **WG Comp. B:** 4:1
Mixing	7 parts by volume Comp. A (Base) to 1 part Jotamastic 80, Std Comp B (curing agent) 4 parts by volume Comp. A (Base) to 1 part Jotamastic 80, WG Comp B (curing agent)
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B:** 2 hours **WG Comp. B:** 1 hour
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0,43 - 0,58 mm (0,017 - 0,023")
Spray angle	40 - 80°
Filter	Check to ensure that the filters are clean
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components. Due to local legislation, the standard hardener may be supplied as either STD or SD versions.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	24 h	10 h	4 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	24 h	10 h	4 h
Dry to recoat, maximum [1]			

WG Comp. B					
Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	24 h	18 h	12 h	6 h	2,5 h
Through dry	48 h	26 h	18 h	12 h	5 h
Cured	21 d	14 d	7 d	3 d	2 d
Dry to recoat, minimum	48 h	26 h	18 h	12 h	5 h
Dry to recoat, maximum [1]					

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.
2. At temperatures below 15 °C, it is recommended to use WG Comp. B due to potential drops in temperatures during the curing process.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Above water

Jotamastic 80	**2 x 100 µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Submerged

Jotamastic 80 Aluminium	**2 x 150 µm**	**(Dry Film Thickness)**
or		
Jotamastic 80 Aluminium	**1 x 200 µm**	**(Dry Film Thickness)**
Safeguard Universal ES	1 x 100 µm	(Dry Film Thickness)
and antifouling as required		

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 2.3 litres Jotamastic 80, Std Comp. B (curing agent) in a 3 litre container
and
16 litres Comp. A (base) in a 20 litre container and 4 litres Jotamastic 80, WG Comp B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotamastic 87

Jotun Protects Property

Product description
Jotamastic 87 is a two-pack surface tolerant, abrasion resistant, high solids, polyamine cured epoxy mastic coating which may be applied in high film thickness. Available with different hardeners for varying substrate temperatures, Standard (Std) and Wintergrade (WG). This product is a part of a complete system which is certified not to spread flames.

Recommended use
Steel where blast cleaning may not be possible and on hydrojetted surfaces still being moist where gloss and colour retention is of minor importance. Can be used alone or in combination with various systems of primers and topcoats. Gives excellent corrosion protection both in salt and fresh water. If exposed to sunlight chalking may occur.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotamastic 87".

Film thickness and spreading rate

Std Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	300	200
Film thickness, wet (µm)	180	365	245
Theoretical spreading rate (m^2/l)	5,5	2,7	4,1

WG Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	250	200
Film thickness, wet (µm)	200	340	270
Theoretical spreading rate (m^2/l)	4,9	3	3,7

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 270 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.43 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
APAS approved to specification 0156/2, 2973, 2973F, 2976 and 2977.
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Limited number
Solids (vol %)*	82 ± 2 Std Comp. B 74 ± 2 WG Comp. B
Flash point	**Std Comp. B:** 35ºC ± 2 (Setaflash) **WG Comp. B:** 31ºC ± 2 (Setaflash)
VOC	**Std Comp. B** 1,8 lbs/gal (216 gms/ltr) USA-EPA Method 24 150 gms/ltr UK-PG6/23(97). Appendix 3 **WG Comp. B** 2,1 lbs/gal (250 gms/ltr) USA-EPA Method 24 210 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance. In case of hydrojetting the flash rust degree shall not exceed moderate in SSPC and NACE standards for water prepared surfaces.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (-5°C in WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying.

Hydrojetting of steel surface makes a wet surface. The surrounding air must have a relative humidity not exceeding 85 %. Before painting the surface shall not be glossy with moisture, but can have a patchy appearance.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	**Std Comp. B:** 6:1 **WG Comp. B:** 4:1
Mixing	6 parts Comp. A (base) to be mixed thoroughly with 1 part Jotamastic 87, Std Comp. B (curing agent). 4 parts Comp. A (base) to be mixed thoroughly with 1 part Jotamastic 87, WG Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B:** 2 hours **WG Comp. B:** 1 hour
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.58-0.79 mm (0.023-0.031")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	24 h	10 h	4 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	24 h	10 h	4 h
Dry to recoat, maximum [1]			

WG Comp. B					
Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	24 h	18 h	12 h	6 h	2.5 h
Through dry	48 h	26 h	18 h	12 h	5 h
Cured	21 d	14 d	7 d	3 d	2 d
Dry to recoat, minimum	48 h	26 h	18 h	12 h	5 h
Dry to recoat, maximum [1]					

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87	**2 x 200 µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

18,7 litre unit: 16 litres Comp. A in a 20 litre container and 2.7 litres Jotamastic 87, Std Comp. B in a 3 litre container.
20 litre unit: 16 litres Comp. A in a 20 litre container and 4 litres Jotamastic 87, WG Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Jotamastic 87 Aluminium

Jotun Protects Property

Product description
Jotamastic 87 Aluminium is a two-pack surface tolerant, abrasion resistant, high solids polyamine cured epoxy mastic coating which may be applied in high film thickness. Available with different hardeners for varying substrate temperatures, Standard (Std) and Wintergrade (WG). This product is a part of a complete system which is certified not to spread flames.

Recommended use
Steel where blast cleaning may not be possible, and on hydrojetted surfaces still being moist where gloss retention is of minor importance. Can be used alone or in combination with various systems of primers and topcoats. Gives excellent corrosion protection both in salt and fresh water. If exposed to sunlight chalking may occur.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotamastic 87".

Film thickness and spreading rate

Std Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	300	200
Film thickness, wet (µm)	170	345	230
Theoretical spreading rate (m^2/l)	5,8	2,9	4,4

WG Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	250	200
Film thickness, wet (µm)	195	325	260
Theoretical spreading rate (m^2/l)	5,1	3,1	3,9

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 250 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.43 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
APAS approved to specification 2973, 2973F and 2977.
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Aluminium, Aluminium Red toned
Solids (vol %)*	87 ± 2 Std Comp. B 77 ± 2 WG Comp. B
Flash point	**Std Comp. B:** 40ºC ± 2 (Setaflash) **WG Comp. B:** 31ºC ± 2 (Setaflash)
VOC	**Std Comp. B** 2,09 lbs/gal (250 gms/ltr) USA-EPA Method 24 110 gms/ltr UK-PG6/23(97). Appendix 3 **WG Comp. B** 180 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance. In case of hydrojetting the flash rust degree shall not exceed moderate in SSPC and NACE standards for water prepared surfaces.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (-5°C in WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying.

Hydrojetting of steel surface makes a wet surface. The surrounding air must have a relative humidity not exceeding 85 %. Before painting the surface shall not be glossy with moisture, but can have a patchy appearance.

Application methods

Spray	Use airless spray (thin 10%)
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	**Std Comp. B:** 5,5:1 **WG Comp. B:** 3,7:1
Mixing	5.5 parts Comp. A (base) to be mixed thoroughly with 1 part Jotamastic 87, Std Comp. B (curing agent) 3.7 parts Comp. A (base) to be mixed thoroughly with 1 part Jotamastic 87, WG comp. B (curing agent)
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B:** 1½ hours **WG Comp. B:** 1 hour
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.53 - 0.79 mm (0.021-0.031")
Spray angle	65-80°
Filter	Check to ensure that filters are clean.
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	24 h	10 h	4 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	24 h	10 h	4 h
Dry to recoat, maximum [1]			

WG Comp. B					
Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	24 h	18 h	12 h	6 h	2,5 h
Through dry	48 h	26 h	18 h	12 h	5 h
Cured	21 d	14 d	7 d	3 d	2 d
Dry to recoat, minimum	48 h	26 h	18 h	12 h	5 h
Dry to recoat, maximum [1]					

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87 Aluminium	**1 x 200 µm**	**(Dry Film Thickness)**
Jotamastic 87	1 x 200 µm	(Dry Film Thickness)
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

17,4 litre unit: 14,7 litres Comp. A in a 20 litre container and 2.7 litres Jotamastic 87, Std Comp. B in a 3 litre container.
18,7 litre unit: 14,7 litres Comp. A in a 20 litre container and 4 litres Jotamastic 87, WG Comp. B in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotamastic 87 GF

Jotun Protects Property

Product description

Jotamastic 87 GF is a two-pack surface tolerant, glass flake reinforced, abrasion resistant, high solids epoxy mastic coating which may be applied in high film thickness. Available with different hardeners for varying substrate temperatures, Standard (Std) and Wintergrade (WG). This product is a part of a complete system which is certified not to spread flames.

Recommended use

Steel where blast cleaning may not be possible and on hydrojetted surfaces still being moist where gloss and colour retention is of minor importance. Can be used alone or in combination with various systems of primers and topcoats. Gives excellent corrosion protection both in salt and fresh water. If exposed to sunlight chalking may occur. Glass Flakes improve abrasion resistance and general wear and tear characteristics.

Film thickness and spreading rate

Std Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	200	350	250
Film thickness, wet (µm)	250	440	315
Theoretical spreading rate (m^2/l)	4	2,3	3,2

WG Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	200	300	250
Film thickness, wet (µm)	285	430	360
Theoretical spreading rate (m^2/l)	3,5	2,3	2,8

Comments

Hong Kong rules: Category of paints - Other vessel coatings; VOC 250 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.41 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Grey, Red, White
Solids (vol %)*	80 ± 2 Std Comp.B 70 ± 2 WG Comp.B
Flash point	**Std Comp. B:** 35ºC ± 2 (Setaflash) **WG Comp. B:** 31ºC ± 2 (Setaflash)
VOC	2,09 lbs/gal (250 gms/ltr) USA-EPA Method 24 170 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance. In case of hydrojetting the flash rust degree shall not exceed moderate in SSPC and NACE standards for water prepared surfaces.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (-5°C in WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying.

Hydrojetting of steel surface makes a wet surface. The surrounding air must have a relative humidity not exceeding 85 %. Before painting the surface shall not be glossy with moisture, but can have a patchy appearance.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	**Std Comp. B:** 6:1 **WG Comp. B:** 4:1
Mixing	6 parts Comp. A (base) to be mixed thoroughly with 1 part Jotamastic 87, Std Comp. B (curing agent). 4 parts Comp. A (base) to be mixed thoroughly with 1 part Jotamastic 87, WG Comp. B. (curing agent).
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B:** 10C: 4 hours, 23C: 2 hours, 40C: 1 hour **WG Comp. B:** 1 hour
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.63 - 1.09 mm (0.025-0.043")
Spray angle	40 - 80°
Filter	Filters to be removed prior to spraying.
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	24 h	10 h	4 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	24 h	10 h	4 h
Dry to recoat, maximum [1]	-	-	-

WG Comp. B					
Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	24 h	18 h	12 h	6 h	2,5 h
Through dry	48 h	26 h	18 h	12 h	5 h
Cured	21 d	14 d	7 d	3 d	2 d
Dry to recoat, minimum	48 h	26 h	18 h	12 h	5 h
Dry to recoat, maximum [1]					

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87 GF	**2 x 250 µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 2.7 litres Jotamastic 87, Std Comp. B (curing agent) in a 3 litre container.
16 litres Comp. A (base) in a 20 litre container and 4 litres Jotamastic 87, WG Comp. B (curing agent) in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotamastic SF

Product description
Jotamastic SF is a two-pack, surface tolerant, abrasion resistant, solvent free polyamine cured epoxy mastic coating for various substrates. This product is a part of a complete system which is certified not to spread flames.

Recommended use
For steel where blast cleaning may not be possible and for hydrojetted surfaces. Can be used alone or in combination with various systems of primers and topcoats. Gives excellent edge coverage, and excellent corrosion protection both in salt and fresh water. If exposed to sunlight chalking may occur.

For application in water ballast tanks at newbuilding stage in accordance with PSPC (IMO Res. MSC 82/W), see the "Application procedure for water ballast tanks - Jotamastic SF".

For other areas or special application conditions, please see "Jotamastic SF Application Procedure".

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	300	200
Film thickness, wet (µm)	150	300	200
Theoretical spreading rate (m^2/l)	6,7	3,3	5

Approvals
B1 classification by Det Norske Veritas (DNV) for water ballast tanks.

Physical properties

Colour	Aluminium, Aluminium red tone, Grey, Off-white, Red
Solids (vol %)*	99 ± 2
Flash point	**Colored version:** >100ºC **Aluminium version:** 84ºC
VOC	**Coloured version:** 45 gms/ltr UK-PG6/23(97). Appendix 3 **Aluminium version:** 65 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Flexibility	Good

*Theoretically calculated

Please note that during the curing process some shrinkage may occur, which is accounted for in the spreading rates shown above.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power and/or hand tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance.

Shopprimed steel
Clean, dry and undamaged approved shopprimer. Damaged shopprimer and welds to be blast-cleaned to Sa 2½ (ISO 8501-1:2007).The retained shopprimer shall be cleaned by sweep blasting, high-pressure water washing or equivalent method.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 15°C and at least 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray with high pressure ratio (min. 60:1).
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3:1
Mixing	3 parts Comp. A (base) to be mixed thoroughly with 1 part Jotamastic SF, Comp. B (curing agent).
Pot life (23°C)	60 min. (Reduced at higher temp.).
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	20 MPa (200 kp/cm², 2800 psi).
Nozzle tip	0.019-0.025" (0.48-0.64 mm).
Spray angle	40-80º
Filter	Check to ensure that filters are clean.
Note	* It is of vital importance that the nozzle and other parts of the spraying equipment are cleaned properly directly after the work is done due to the short pot life. If a pail is used under the spray pump and new paint poured into it, this pail must be changed every one hour. * The hoses should be of good quality and not longer than necessary. * The temperature of base and curing agent is recommended to be 18ºC or higher when the paint is mixed.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**15°C**	**23°C**	**40°C**
Surface dry	15 h	10 h	5 h
Through dry	27 h	16 h	6 h
Cured		14 d	7 d
Dry to recoat, minimum	27 h	16 h	6 h
Dry to recoat, maximum [1]			

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic SF **2 x 200 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

15 litres Comp. A (base) in a 20 litres container and 5 litres Jotamastic SF, Comp. B (curing agent) in a 5 litres container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotamastic Smart Pack

Product description
Jotamastic Smart Pack is a two-pack surface tolerant high solids epoxy mastic coating which is provided in 1:1 mixing ratio for easy mixing and reduced wastage. Jotamastic Smart Pack is designed to be applied by brush or roller.

Recommended use
Anticorrosive touch-up coating for steel structures where small repairs are required and spray application is not practical. Jotamastic Smart Pack is suitable for areas with lower quality surface preparation and extended durability is expected. It is recommended to use brush for the first coat.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	120	80
Film thickness, wet (µm)	68	163	110
Theoretical spreading rate (m^2/l)	14,7	6,1	9,2

Comments
Film thickness above is typical for what is achieved by one coat of brush or roller application.
Hong Kong rules: Category of paints - Other vessel coatings; VOC 300(AL)/280(color) gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.37 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Aluminium, Black, Buff, Green, Grey, Red
Solids (vol %)*	72 ± 2 Aluminium 75 ± 2 Black, Buff, Grey, Green, Red
Flash point	33ºC ± 2 (Setaflash)
VOC	**Aluminium** 2,51 lbs/gal (300 gms/ltr) USA-EPA Method 24 240 gms/ltr UK-PG6/23(97). Appendix 3 **Colours** 2,34 lbs/gal (280 gms/ltr) USA-EPA Method 24 230 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance. In case of hydrojetting the flash rust degree shall not exceed moderate in SSPC and NACE standards for water prepared surfaces.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 0°C and minimum 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. With forced ventilation, avoid heated air at first as this may cause surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Hydrojetting of steel surface makes a wet surface. The surrounding air must have a relative humidity not exceeding 85 %. Before painting the surface shall not be glossy with moisture, but can have a patchy apperance.

Application methods

Spray	Airless spray can be used.
Brush	Use a round brush. Care must be taken to achieve the spreading rate.
Roller	Use of a foam roller will provide the best finish results.

Application data

Mixing ratio (volume)	1:1
Mixing	1 parts by volume Comp. A (Base) to be mixed thoroughly with 1 part by volume Jotamastic Smart Pack, Comp. B (Curing agent). Mix well and allow to stand (10 min. including mixing).
Pot life (23°C)	1½ hours
Thinner/Cleaner	Jotun Thinner No. 17
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	12 h	7 h	4 h	2 h
Through dry	20 h	14 h	7 h	3 h
Cured	14 d	10 d	7 d	3 d
Dry to recoat, minimum	20 h	14 h	7 h	3 h
Dry to recoat, maximum [1]				

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic Smart Pack 3 coats with roller
or
Jotamastic Smart Pack 2-3 coats with brush

Followed by surrounding topcoat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

10 litre unit: 5 litres Comp. A (base) in a 5 litre container and 5 litres Jotamastic Smart Pack, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotaprime 500

Jotun Protects Property

Product description
Jotaprime 500 is a two-pack polyamine cured epoxy-based primer for non-immersed areas.

Recommended use
An epoxy-based primer for newbuilding situations as well as for maintenance. To be used on steel alone or in combinations with other coatings. Jotaprime 500 is only intended for non-immersed areas.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	200	150
Film thickness, wet (µm)	140	280	210
Theoretical spreading rate (m²/l)	7,1	3,55	4,73

Comments
For DFTs below 150 µm, thinner should be used.

Physical properties

Colour	Grey and Red
Solids (vol %)*	71 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	2,34 lbs/gal (280 gms/ltr) USA-EPA Method 24 245 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Good
Abrasion resistance	Good
Solvent resistance	Good
Chemical resistance	Fair
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Other vessel coatings; VOC 280 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.45 kg/ltr (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Old existing coating systems can be overlapped, but feathering of edges should be carried out. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum -5°C and minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to strain until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Jotaprime 500, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	1½ hours (Reduced at higher temperature)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa min (150 kp/cm², 2100 psi.)
Nozzle tip	0.43-0.79 mm (0.017-0.031").
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-5°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	20 h	14 h	4 h	2 h	1 h
Through dry	48 h	30 h	10 h	4 h	2 h
Cured		21 d	10 d	7 d	3 d
Dry to recoat, minimum	48 h	30 h	10 h	4 h	2 h
Dry to recoat, maximum [1]					

Substrate temperature	**5°C**
Surface dry	6 h
Through dry	16 h
Cured	14 d
Dry to recoat, minimum	16 h
Dry to recoat, maximum [1]	

1 Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Above water:

Jotaprime 500	**2 x 125 µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Jotaprime 500, Comp. A (base) in a 20 litre container and 4 litre Jotaprime 500, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 9 MARCH 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotaprime Mastic

Jotun Protects Property

Product description
Jotaprime Mastic is a two-pack, surface tolerant epoxy mastic coating.

Recommended use
Anticorrosive primer for steel structure above water. Jotaprime Mastic is suitable for on-board maintenance where blast cleaning may not be possible and extended durability is not required.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	60	125	100
Film thickness, wet (µm)	105	220	175
Theoretical spreading rate (m²/l)	9,5	4,6	5,5

Physical properties

Colour	Grey, Red, Green, Black
Solids (vol %)*	57 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	3,67 lbs/gal (440 gms/ltr) USA-EPA Method 24 370 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Good
Abrasion resistance	Good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	7:1
Mixing	7 parts Comp. A (base) to be mixed thoroughly with 1 part Jotaprime Mastic, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	6 hours (Reduced at higher temperature)
Thinner/Cleaner	Jotun Thinner No. 17

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	10°C	23°C	40°C
Surface dry	5 h	2,5 h	1 h
Through dry	16 h	8 h	3,5 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	16 h	8 h	4,5 h
Dry to recoat, maximum [1]			

1 Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotaprime Mastic	**2 x 100 microns**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 microns	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

17,5 litres Comp. A (base) in a 20 litre container and 2,5 litre Jotaprime Mastic, Comp. B (curing agent) in a 3 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Jotatemp 650

Product description
Jotatemp 650 is a high-build, one-component Inert Multipolymeric Matrix coating designed to provide corrosion protection of structures exposed to extreme high and/or extreme low temperatures.

Recommended use
Corrosion protection of insulated and none-insulated carbon steel and stainless steel with dry operating surface temperatures that can range from cryogenic to above 650ºC (intermittent 720ºC) including cyclic services in temperatures between -185ºC and 540ºC. Jotatemp 650 can be applied on hot substrates (up to 260ºC). Especially suited for preventing corrosion under insulation during construction and shut down/low temperature periods.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	150	125
Film thickness, wet (µm)	205	305	255
Theoretical spreading rate (m²/l)	4,9	3,3	3,9

Physical properties

Colour	Black and Grey
Solids (vol %)*	49 ± 2
Flash point	18ºC ± 2 (Setaflash)
VOC	3,5 lbs/gal (424 gms/ltr) USA-EPA Method 24 453 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Good
Solvent resistance	Fair
Chemical resistance	Fair
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007) and a roughness between 35 - 50 microns. Improved surface treatment (blast cleaning to Sa 2½) will improve the performance.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.38-0.53 mm (0.015-0.021")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**15°C**	**23°C**	**40°C**	**100°C**
Surface dry	8-10 h	6 h	2 h	2 h	0,5 h
Through dry [2]	24 h	24 h	6 h	6 h	1 h
Dry to recoat, minimum [1]	24 h	24 h	6 h	4 h	1 h

1. The surface should be free from chalking and contamination prior to application.
2. Exposure to extreme temperature, below 0°C and above 260°C, should be avoided before the coating is through dry.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotatemp 650	**2 x 125 µm**	**(Dry Film Thickness)**

Optional system:

Jotatemp 650	**3 x 125 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 litre unit.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Anti-skid

Product description
Jotun Anti-Skid is aluminium oxide grains, intended to be spread into the last coat in a non-skid system. Available in extra coarse, coarse, medium and fine particle sizes.

Recommended use
For use on decks, floors, gangways and other areas where additional friction properties are required. The spreading is to take place in the wet film during application.

Recommended quantity
Fine particle size (180 - 250 µm) for coatings applied in 50 to 150 µm DFT, such as topcoats.
The recommended usage is 1,5 - 2,0 kg per 10 litres of paint

Medium particle size (400 - 600 µm) for coatings applied in 150 to 400 µm DFT, such as Jotamastic products and thick film topcoats.
The recommended usage is 2,5 - 3,3 kg per 10 litres of paint

Coarse particle size (700 - 1000 µm) for coatings applied in 400 to 1500 µm DFT, such as Baltoflake products.
The recommended usage is 3,0 - 4,0 kg per 10 litres of paint

Extra Coarse particle size (1200 - 1600 µm) for coatings applied in 400 to 1500 µm DFT, such as Baltoflake products.
The recommended usage is 3,5 - 4,0 kg per 10 litres of paint

If a more rough surface is required, the quantity may be increased.

Physical properties

Colour	Dark
Solids (vol %)*	100 ±
Flash point	N.A.

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Other vessel coatings; Exempt compound - N/A; Specific gravity: 3.92 kg/ltr (Coarse); 3.92 kg/ltr (Fine); 3.92 kg/ltr (Medium); 3.92 kg/ltr (Extra Coarse). Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation
Coated surfaces
According to specifications for the chosen topcoat.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Storage
The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
Jotun Anti-Skid extra coarse, coarse and medium in 25 kg in a bag
Jotun Anti-Skid Fine in 3 kg in a 3 litre container.

Health and safety
Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Inhibitive Oil

Product description
Jotun Inhibitive Oil is a clear varnish based on petroleum resin.

Recommended use
As temporary protection primer for lubricating oil tanks and fuel oil tanks, especially protecting of interior tanks during vessel construction.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	30	25
Film thickness, wet (µm)	40	60	50
Theoretical spreading rate (m^2/l)	25	16,7	20

Comments
Hong Kong rules: Category of paints - R&M thermoplastic coatings; VOC 411 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 0.95;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Clear
Solids (vol %)*	50 ± 2
Flash point	38ºC ± 2 (Setaflash)
VOC	418 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy

*Measured according to ISO 3233:1998 (E)

Surface preparation

The surface must be clean and dry. Surface contamination is to be removed by detergents and fresh water cleaning.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended
Roller	Recommended

Application data

Mixing ratio (volume)	Single pack
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.38-0.53 mm (0.011-0.015")
Spray angle	40-80º

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry [1]	30 min	20 min	10 min	5 min
Through dry [2]	3.5 h	3 h	2 h	1.5 h
Dry to recoat, minimum	3.5 h	3 h	2 h	1.5 h
Dry to recoat, maximum [3]				

1. Evaluated according to BS 3900 Part C2.
1. Evaluated according to BS 3900 Part C3.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotun Inhibitive Oil	**1 x 25 microns**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 litre and 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 2

Product description
Solvent thinner.

Recommended use
General purpose thinner for most conventional alkyd or oil based paints. Consult the technical data sheet for the actual Jotun product.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	39ºC ± 2 (Setaflash)
VOC	6,51 lbs/gal (782 gms/ltr) USA-EPA Method 24 780 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 3

Product description
Solvent thinner.

Recommended use
A fast evaporating thinner for Muki EPS and Epoxy Holding Primer.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	8ºC ± 2 (Setaflash)
VOC	840 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored in accordance with national regulations. Preferred storage conditions are to keep the container in a dry space provided with adequate ventilation at room temperature (15-25ºC). The containers should be sealed tightly.
Note: Low flash point.

Handling
Handle with care.

Packing size
10 ltrs
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 4

Product description
Solvent thinner.

Recommended use
Thinner for zinc ethyl silicate paints.
Cleaner for equipment that has been used with waterborne products.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	12ºC ± 2 (Setaflash)
VOC	6,5 lbs/gal (780 gms/ltr) USA-EPA Method 24 780 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored in accordance with national regulations. Preferred storage conditions are to keep the container in a dry space provided with adequate ventilation at room temperature (15-25ºC). The containers should be sealed tightly.
Note: Low flash point.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 7

Product description
Solvent thinner.

Recommended use
General purpose thinner for acrylic and chlorinated rubber paints and antifouling compositions.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	25ºC ± 2 (Setaflash)
VOC	7,26 lbs/gal (871 gms/ltr) USA-EPA Method 24 870 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 10

Product description
Solvent thinner.

Recommended use
Thinner for polyurethane or similar paint products.

NOTE: Not for use with zinc silicates.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ±
Flash point	25ºC ± 2 (Setaflash)
VOC	7,25 lbs/gal (870 gms/ltr) USA-EPA Method 24 870 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 17

Product description
Solvent thinner.

Recommended use
Thinner for epoxies and similar paint products.

NOTE: Not for use with Tankguard products.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	25ºC ± 2 (Setaflash)
VOC	7,13 lbs/gal (856 gms/ltr) USA-EPA Method 24 850 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 23

Product description
Solvent thinner.

Recommended use
Thinner for Tankguard products and other epoxies.
General cleaner for all epoxy products.
Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	25ºC ± 2 (Setaflash)
VOC	7,25 lbs/gal (870 gms/ltr) USA-EPA Method 24 870 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 25

Product description
Solvent thinner.

Recommended use
Thinner for Zinc ethyl silicate paints.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	30ºC ± 2 (Setaflash)
VOC	7,67 lbs/gal (920 gms/ltr) USA-EPA Method 24 920 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 26

Product description
Solvent thinner.

Recommended use
A fast evaporating thinner for Jotaproof Topcoat and Hardtop PSO.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	27ºC ± 2 (Setaflash)
VOC	7,34 lbs/gal (881 gms/ltr) USA-EPA Method 24 880 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container or 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Jotun Thinner No. 28

Product description
Solvent cleaner.

Recommended use
Solvent cleaner to flush through the equipment prior to application of epoxy coatings in potable water tanks.

Consult the technical data sheet for the actual Jotun product.

Physical properties

Colour	Clear
Solids (vol %)*	0 ± 0
Flash point	13ºC ± 2 (Setaflash)
VOC	850 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Storage
The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling
Handle with care.

Packing size
5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Mammut Topcoat

Product description
Mammut Topcoat is a high build urethane alkyd based topcoat. This product is part of a complete system which is certified not to spread surface flames.

Recommended use
As topcoat over Mammut Primer or other alkyd based primers on steel structures for general marine and industrial purposes, exterior and interior.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	100	80
Film thickness, wet (µm)	100	200	160
Theoretical spreading rate (m²/l)	10	5	6,3

Physical properties

Colour	Grey 38, White, White BT
Solids (vol %)*	50 ± 2
Flash point	36ºC ± 2 (Setaflash)
VOC	400 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Good
Water resistance	Fair
Abrasion resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation
Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46 - 0.69 mm (0.018 - 0.027")
Spray angle	65-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	3 h	2 h	1 h	0,5 h
Through dry	20 h	9 h	4 h	2 h
Dry to recoat, minimum	36 h	12 h	8 h	5 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Mammut Primer	1 x 80 µm	(Dry Film Thickness)
Mammut Topcoat	**1 x 80 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Marathon

Product description
Marathon is a high solids, two-pack epoxy coating reinforced with glass flakes.

Recommended use
Steel and concrete structures subject to aggressive exposure, both atmospheric and mechanical. Offers extremely good protection against corrosion and has outstanding abrasion resistance. Proved records for use in high pressure vessels.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	200	400	250
Film thickness, wet (µm)	250	500	310
Theoretical spreading rate (m^2/l)	4	2	3,2

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 210 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.26 kg/ltr (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
APAS approved to specification 0213.

Physical properties

Colour	Limited number
Solids (vol %)*	80 ± 2
Flash point	30ºC ± 2 (Setaflash)
VOC	1,75 lbs/gal (210 gms/ltr) USA-EPA Method 24 110 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good
Compatibility with cathodic protection	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3 parts Comp. A (base) to be mixed thoroughly with 1 part Marathon, Comp. B (curing agent)
Pot life (23°C)	1 hour (reduced at higher temperatures)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.63 - 1.09 mm (0.025-0.043")
Spray angle	65 - 80°
Filter	Filters to be removed prior to spraying.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	14 h	5,5 h	3 h
Through dry	32 h	12 h	6 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	32 h	12 h	6 h
Dry to recoat, maximum [1]	5 d	3 d	2 d

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

On Sa 2½ :

Marathon	**300 µm + 200 µm**	**(Dry Film Thickness)**

For extended corrosion protection, on Sa 2½ :

Barrier	1 x 25 µm *	(Dry Film Thickness)
Marathon	**300 µm + 200 µm**	**(Dry Film Thickness)**

For aggressive chemical exposure, on Sa 2½ :

Tankguard HB	1 x 50 µm	(Dry Film Thickness)
Marathon	**300 µm + 200 µm**	**(Dry Film Thickness)**

* It is important that Barrier is applied with DFT 25 µm, and therefore Barrier must be thinned 25-40 %.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 15 litres Comp. A (base) in a 20 litre container and 5 litres Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Marathon IQ

Product description
Marathon IQ is a practically solvent free, abrasion resistant, two-pack epoxy coating.

Recommended use
Steel subject to exstreme mechanical exposure - such as underwater areas of ice going vessels including ice breakers.
Certificate: Ice Class: Recognised low friction surface coating (LR).

Film thickness and spreading rate

	Minimum	Maximum	Typical	For ice resistance
Film thickness, dry (µm)	250	700	300	500
Film thickness, wet (µm)	250	700	300	500
Theoretical spreading rate (m²/l)	3,9	1,6	3,3	2,0

Physical properties

Colour	Red
Solids (vol %)*	98 ± 2
Flash point	55ºC
VOC	30 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Fair
Compatibility with cathodic protection	Excellent

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: use suitable abrasives to achieve Grade Coarse G (85 - 130 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Two-comp. heated airless spray. If permitted, thin 10%, to use normal airless spray (However, the abrasion resistance may be reduced. No thinning accepted when used for ice resistance)
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	2 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Pot life (23°C)	30 minutes (Reduced at higher temperatures).
Thinner/Cleaner	Jotun Thinner No. 17, max 10%.
Guiding data airless spray	
Pressure at nozzle	20 MPa (200 kp/cm², 2800 psi.).
Nozzle tip	0.63-1.09 mm (0.025-0.045")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.
Note	Thinning will prolong the drying and curing times.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	10°C	23°C	40°C
Surface dry	6 h	3 h	2 h
Through dry	20 h	10 h	4 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	20 h	10 h	4 h
Dry to recoat, maximum [1]	5 d	3 d	2 d

1 The paint has to be applied in one coat. If the paint film is too thin, roughening of the surface by blasting to Grade Coarse G is needed.
2. The surface should be dry and free from any contamination prior to application. If the maximum dry to recoat time is exceeded, please contact your local Jotun office for more information.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

For corrosion protection, on Sa 2½:
Marathon IQ **1-2 x 300 µm** **(Dry Film Thickness)**

For maximum ice resistance, on Sa 2½:
Marathon IQ **1 x 500 µm** **(Dry Film Thickness)**

If overcoated with antifouling, a tie-coat is recommended
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

10 litres Comp. A (base) in a 20 litre container and 5 litres Comp. B (curing agent) in a 5 litre container
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Marathon XHB

Product description
Marathon XHB is a high solids, low VOC, high build, two-pack epoxy coating reinforced with glass flakes.

Recommended use
A high build, high solids coatings for steel subject to aggresive atmospheric or mechanical exposure. Offers extremely good protection against corrosion and has outstanding abrasion resistance.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	400	1000	600
Film thickness, wet (µm)	420	1040	625
Theoretical spreading rate (m²/l)	2,4	0,96	1,6

Physical properties

Colour	Limited number
Solids (vol %)*	96 ± 2
Flash point	40ºC ± 2 (Setaflash)
VOC	50 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Fair
Water resistance	Excellent
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Fair
Compatibility with cathodic protection	Excellent

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	2:1
Mixing	2 parts Comp. A (base) to be mixed thoroughly with 1 part Marathon XHB, Comp. B (curing agent)
Pot life (23°C)	45 minutes (reduced at higher temperatures)
Thinner/Cleaner	Jotun Thinner No. 17(max 10%)
Guiding data airless spray	
Pressure at nozzle	20 MPa (200 kp/cm², 2800 psi)
Nozzle tip	0.63 - 1.09 mm (0.025-0.043")
Spray angle	40 - 80°
Filter	Filters to be removed prior to spraying.
Note	Thinning will prolong the drying & curing times

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	10°C	23°C	40°C
Surface dry	8 h	4 h	2 h
Through dry	20 h	10 h	4 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	20 h	10 h	4 h
Dry to recoat, maximum [1]	5 d	3 d	2 d

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

On Sa 2½ :

Marathon XHB	**1-2 X 600 µm**	**(Dry Film Thickness)**

For max mechanical strength, on Sa 2½ :

Marathon XHB	**1 X 1000 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

15 litre unit: 10 litres Comp. A (base) in a 20 litre container and 5 litres Marathon XHB, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Marine Emulsion White

Jotun Protects Property

Product description
Marine Emulsion White is an economy matt emulsion paint based on a modified acrylic binder.

Recommended use
For use on interior surfaces, i.e. concrete, masonry surfaces and soft board surfaces.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	40	35
Film thickness, wet (µm)	83	111	97
Theoretical spreading rate (m²/l)	12	9	10

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 22.73 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.50;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	White
Solids (vol %)*	36 ± 1
Flash point	Nonflammable

*Measured according to ISO 3233:1998 (E)

Surface preparation

The substrate must be sound, clean, dry, free from dust, oil, grease and laitance etc. All traces of release agents must be removed. On chalky and dusty surfaces, all loose material must be removed by stiff bristle brushing.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

Apply at a temperature between 10°C and 35°C.The temperature of the substrate should be minimum 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended
Roller	Recommended

Application data

Mixing ratio (volume)	Single pack
Mixing	The paint is ready to use after proper stirring. If thinning is required, water may be added up to a maximum of 10%.
Thinner/Cleaner	Water

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity 70%

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	2 h	1 h	0.5 h
Through dry	8 h	6 h	4 h
Dry to recoat, minimum [1]	4 h	2 h	1 h
Dry to recoat, maximum [2,3]			

1. Recommended data given for recoating with the same generic type of paint.
2. In case of multi-coat application, drying times will be influenced by the number and sequence and by the total thickness of previous coats applied – reference is made to the corresponding system data sheet.
3. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Interior
Marine Emulsion White **2 coats**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Muki CZ

Product description
Muki CZ is a two-pack, ceramic zinc ethyl silicate primer. Designed for temperatures up to 800 degrees C providing excellent resistance to damage caused by welding (backburning) and cutting. Muki CZ will utilize high productivity in connection with advanced welding technology (MIG/ MAG/ G-FCAW) and is very good in corrosion protection of steel during normal storage and fabrication.

Recommended use
To be used:
1. As a preconstruction primer on blast cleaned steel surfaces in automatic shoppriming plants to protect steel during transport, storage and production.
1. As an heat resistant corrosion protective primer for steel in low corrosive areas.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	15	35
Film thickness, wet (µm)	55	125
Theoretical spreading rate (m²/l)	18,7	8

Comments
Dry film thickness measured on a smooth test panel.

Physical properties

Colour	Dark grey
Solids (vol %)*	28 ± 2
Flash point	14ºC ± 2 (Setaflash)
VOC	600 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent within pH range 6-10
Flexibility	Limited

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium S/G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Relative humidity in the air should not exceed 85% prior to application. Recommended steel temperature: 30-40°C.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for touch-up purposes.

Application data

Mixing ratio (volume)	10:6
Mixing	10 parts by volume Comp. A (Silicate solution) to be thoroughly mixed with 6 parts by volume Muki CZ, Comp. B (Zinc paste).
Pot life (23°C)	24 hours. (Reduced at higher temperatures).
Thinner/Cleaner	Jotun Thinner No. 4/25 (No. 4 - Fast Evaporation) - (No. 25 - Slow evaporation).
Guiding data airless spray	
Pressure at nozzle	5-7 MPa (50 - 70 kp/cm², 700 - 900 psi.).
Nozzle tip	0.38 - 0.58 mm (0.015 - 0.023").
Spray angle	40 - 95°

Note

* Proper routines for cleaning and maintenance of the priming unit are necessary to achieve high productivity and uniform quality. Before start of work and after finishing with Muki CZ, it is recommended to circulate Jotun Thinner No. 4 or No. 25 through the entire spraying equipment for some minutes. During application it is necessary to use a mechanical stirrer.

* The Comp. B (Zinc paste) must be stirred continuously while the Comp. A (Silicate solution) is added.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity at 80 %

Substrate temperature	**23°C**	**40°C**
Surface dry	1-3 min	20-40 sec
Through dry	3-5 min	1-2 min
Cured [1]	2 d	1 d
Dry to recoat, minimum [2]	2 d	1 d
Dry to recoat, maximum [3]		

1. Curing time to be verified by MEK-test (ASTM D 4752-87).
1. Recommended data given for recoating with coatings normally specified on top of shop-primers.
2. The substrate should be free from zinc salts and other contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

As preconstruction primer:
Muki CZ **1 x 15 - 20 µm** **(Dry Film Thickness - measured on a smooth test panel).**

As an heat resistant primer:
Muki CZ **1 x 30 - 35 µm** **(Dry Film Thickness)**

Undamaged primer can be overcoated with a choice of systems based on epoxy, vinyl or chlorinated rubber resins.

Other systems may be specified, depending on area of use

Storage

The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

SHELF LIFE: 6 months at room temperature for Comp. A. Handle with care. Stir well before Use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

20 litre unit: 10 litres Comp. A (Silicate solution) in a 10 litre container and 6 litres Muki CZ, Comp. B (Zinc paste) in a 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Muki EPS

Product description
Muki EPS is a two-pack epoxy based quick drying primer.

Recommended use
1. As a preconstruction primer on blast cleaned steel surfaces in automatic shoppriming plants to protect steel during transport, storage and production.
1. As an Epoxy primer for application in automatic shoppriming plants as a primer in paint system for corrosion classes, ISO 12944 C2 to C4.
2. As a Holding primer for temporary protection of blast cleaned steel surfaces.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	15	50	20
Film thickness, wet (µm)	60	200	80
Theoretical spreading rate (m^2/l)	16,7	5	12,5

Comments
See Typical paint system for recommendations.

Physical properties

Colour	Grey, Red
Solids (vol %)*	25 ± 2
Flash point	-5ºC ± 2 (Setaflash)
VOC	610 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium S/G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. For application in shopprimer plants the recommended steel temperature is 30-40°C.

Application methods

Spray	Use airless spray. Conventional spray recommended for touch-up purposes.
Brush	Recommended for touch-up purposes.

Application data

Mixing ratio (volume)	18 parts Comp. A (base) to be mixed thoroughly with 0.5 part Comp. B (curing agent).
Pot life (23°C)	24-36 hours (Reduced at higher temp.)
Thinner	Jotun Thinner No. 17/3 (For use in shopprimer plants use Jotun Thinner No. 3 for fast evaporation and Jotun Thinner No. 17 for slow evaporation).
Guiding data airless spray	
Pressure at nozzle	10-15 MPa (100-150 kp/cm², 1500-2100 psi).
Nozzle tip	0.38-0.53 mm (0.015-0.021").
Spray angle	40-95º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

In shopprimer plants:				
Substrate temperature			**23°C**	**40°C**
Surface dry			1-3 min	20-40 sec
Through dry			4 min	1-2 min
Cured			7 d	3 d
Dry to recoat, minimum			7 h	3 h
Dry to recoat, maximum [1]				
As Holding Primer				
Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	15 min	10 min	1-3 min	0,3-0,6 min
Through dry	20 min	15 min	4 min	1-2 min
Cured	21 d	14 d	7 d	3 d
Dry to recoat, minimum	15 h	10 h	7 h	3 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

As preconstruction primer:
Muki EPS **1 x 20-30 µm** **(Dry Film Thickness - measured on a smooth test panel).**

As an epoxy primer in paint system for corrosion classes ISO 12944 C2-C4:
Muki EPS **1 x 25-40 µm** **(Dry Film Thickness - measured on a smooth test panel).**

As holding primer
Muki EPS **1 x 20 µm** **(Dry Film Thickness).**

Normally overcoated with a choice of systems based on acrylics, vinyls, epoxy resins or polyurethans.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

18.5 litre unit: 18.0 litres Comp. A (base) in a 20 litre container and 0.5 litre Comp. B. (curing agent) in a 1 litre container. Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Muki Z 2001

Product description
Muki Z 2001 is a two-pack, modified low zinc ethyl silicate shopprimer. Designed to utilize optimum productivity in connection with advanced welding technology (MIG/ MAG/G-FCAW) giving reduced weld defects/backburning. Muki Z 2001 is good in corrosion protection of steel during normal storage and fabrication, and reduces exposure to fumes during welding and cutting compared with medium to high zinc shopprimers.

Recommended use
To be used as a preconstruction primer on blast-cleaned steel surfaces in automatic shop-priming plants to protect steel during transport, storage and production.

For application on steel for water ballast tanks in accordance with PSPC (IMO Res. MSC 82/W), cleanliness must be: Dust - Min. rating 1, sizes 3,4,5 (ISO 8502-3:1993) and soluble salt - Maximum 50 mg/m² (ISO 8502-6 and- 9:1998).

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	15	20
Film thickness, wet (µm)	55	70
Theoretical spreading rate (m²/l)	18,7	14

Comments
Dry film thickness measured on a smooth test panel.

Physical properties

Colour	Green, Grey, Red
Solids (vol %)*	28 ± 2
Flash point	14ºC ± 2 (Setaflash)
VOC	600 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent within pH range 6-10.
Flexibility	Limited

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium S/G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Relative humidity in the air should not exceed 85% prior to application. Recommended steel temperature: 30-40°C.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for touch-up purposes.

Application data

Mixing ratio (volume)	10:6,75
Mixing	10 parts by volume Comp. A (Silicate solution) to be thoroughly mixed with 6,75 parts by volume Muki Z 2001, Comp. B (Zinc paste).
Pot life (23°C)	24 hours. (Reduced at higher temperatures).
Thinner/Cleaner	Jotun Thinner No. 4/25 (No. 4 - Fast Evaporation) - (No. 25 - Slow evaporation).
Guiding data airless spray	
Pressure at nozzle	5 - 7 MPa (50 - 70 kp/cm², 700 - 900 psi).
Nozzle tip	0.38 - 0.58 mm (0.015 - 0.023").
Spray angle	40 - 95º
Note	* Proper routines for cleaning and maintenance of the priming unit are necessary to achieve high productivity and uniform quality. Before start of work and after finishing with Muki Z 2001 it is recommended to circulate Jotun Thinner No. 4 or No. 25 through the entire spraying equipment for some minutes. During application it is necessary to use a mechanical stirrer. * The Comp. B (Zinc paste) must be stirred continuously while the Comp. A (Silicate solution) is added.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity at 80 %

Substrate temperature	**23°C**	**40°C**
Surface dry	1-3 min	20-40 sec
Through dry	3-5 min	1-2 min
Cured [1]	1 d	1 d
Dry to recoat, minimum [2]	1 d	1 d
Dry to recoat, maximum [3]	-	-

1. Curing time to be verified by MEK-test (ASTM D 4752-87).
1. Recommended data given for recoating with coatings normally specified on top of shopprimers.
2. The substrate should be free from any zinc salts and other contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Muki Z 2001 **1 x 15 - 20 µm** **(Dry Film Thickness - measured on a smooth test panel).**

Undamaged shopprimer can be overcoated with a choice of systems based on epoxy, vinyl or chlorinated rubber resins.

Other systems may be specified, depending on area of use

Storage

The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

SHELF LIFE: 6 months at room temperature for Comp. A. Handle with care. Stir well before Use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

20 litre unit: 10 litres Comp. A (silicate solution) in a 10 litre container and 6.75 litres Muki Z 2001, Comp. B (Zinc paste) in a 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Muki Z 2008

Product description
Muki Z 2008 is a two-pack, zinc ethyl silicate shopprimer. Designed to utilize extra high productivity in connection with advanced welding technology. Muki Z 2008 is excellent in corrosion protection of steel during normal storage and fabrication. Muki Z 2008 is compliant with ASTM D520 Type II zinc dust.

Recommended use
To be used as a preconstruction primer on blast-cleaned steel surfaces in automatic shoppriming plants to protect steel during transport, storage and fabrication.

For application on steel for water ballast tanks in accordance with PSPC (IMO Res. MSC 82/W), cleanliness must be: Dust - Min. rating 1, sizes 3,4,5 (ISO 8502-3:1993) and soluble salt - Maximum 50 mg/m² (ISO 8502-6 and- 9:1998).

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	15	20
Film thickness, wet (µm)	55	70
Theoretical spreading rate (m²/l)	18,7	14

Comments
Dry film thickness measured on a smooth test panel.

Physical properties

Colour	Green, Grey
Solids (vol %)*	28 ± 2
Flash point	14ºC ± 2 (Setaflash)
VOC	640 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent within pH range 6-10.
Flexibility	Limited

*Measured according to OCCA Monograph No. 4

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium S/G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Relative humidity in the air should not exceed 85% prior to application. Recommended steel temperature: 30-40°C.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for touch-up purposes.

Application data

Mixing ratio (volume)	1:1
Mixing	1 part by volume Comp. A (Silicate solution) to be thoroughly mixed with 1 parts by volume Muki Z 2008, Comp. B (Zinc paste).
Pot life (23°C)	24 hours. (Reduced at higher temperatures).
Thinner/Cleaner	Jotun Thinner No. 4/25(No. 4 - Fast Evaporation) - (No. 25 - Slow evaporation).
Guiding data airless spray	
Pressure at nozzle	5 - 7 MPa (50 - 70 kp/cm², 700 - 900 psi).
Nozzle tip	0.38 - 0.58 mm (0.015 - 0.023").
Spray angle	40 - 80º
Note	* Proper routines for cleaning and maintenance of the priming unit are necessary to achieve high productivity and uniform quality. Before start of work and after finishing with Muki Z 2008 it is recommended to circulate Jotun Thinner No. 4 or No. 25 through the entire spraying equipment for some minutes. During application it is necessary to use a mechanical stirrer. * The Comp. B (Zinc paste) must be stirred continuously while the Comp. A (Silicate solution) is added.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity at 80 %

Substrate temperature	**23°C**	**40°C**
Surface dry	1-3 min	1-2 min
Through dry	3-5 min	1-2 min
Cured [1]	1 d	1 d
Dry to recoat, minimum [2]	1 d	1 d
Dry to recoat, maximum [3]	-	-

1. Curing time to be verified by MEK-test (ASTM D 4752-87).
1. Recommended data given for recoating with coatings normally specified on top of shopprimers.
2. The substrate should be free from any zinc salts and other contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Muki Z 2008 **1 x 15 - 20 µm** **(Dry Film Thickness - measured on a smooth test panel).**

Undamaged shopprimer can be overcoated with a choice of systems based on epoxy, vinyl or chlorinated rubber resins.

Other systems may be specified, depending on area of use

Storage

The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

SHELF LIFE: 6 months at room temperature for Comp. A. Handle with care. Stir well before Use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

20 litre unit: 10 litres Comp. A (silicate solution) in a 10 litre container and 10 litres Muki Z 2008, Comp. B (Zinc paste) in a 20 litre container

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Classic MIO

Product description
Penguard Classic MIO is a high build, two-pack epoxy coating pigmented with micaceous iron oxide and based on epoxy resin with high molecular weight. Two hardeners (Comp. B) are available for varying substrate temperatures, Standard (Std) and Cold Climate (CC).

Recommended use
As an anti-corrosive primer and/or intermediate coating for protection of steel and other substrates. Can be used alone or in various systems of primers and topcoats.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	160	100
Film thickness, wet (µm)	160	260	160
Theoretical spreading rate (m²/l)	6,2	3,9	6,2

Physical properties

Colour	Grey, Red
Solids (vol %)*	62 ± 2
Flash point	25ºC ± 2 (Setaflash)
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (0°C in CC) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Mixing	30 minutes prior to use
Pot life (23°C)	Penguard Classic Std. Comp. B: 6 hours (Reduced at higher temperature) Penguard Classic CC Comp. B: 2 hours (Reduced at higher temperature)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm2, 2100 psi)
Nozzle tip	0.46-0.69(0.018-0.027")
Spray angle	40-80
Filter	Check to ensure that filters are clean

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std. Comp. B				
Substrate temperature		**10°C**	**23°C**	**40°C**
Surface dry		2 h	1 h	0,5 h
Through dry		14 h	7 h	3,5 h
Cured		14 d	7 d	3 d
Dry to recoat, minimum		14 h	7 h	3,5 h
Dry to recoat, maximum [1]				

CC Comp. B				
Substrate temperature	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	10 h	5 h	2 h	1 h
Through dry	24 h	16 h	8 h	4 h
Cured	-	16 d	8 d	4 d
Dry to recoat, minimum	24 h	16 h	8 h	4 h
Dry to recoat, maximum [1]				

1 Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Classic MIO	**1 x 100 microns**	**(Dry Film Thickness)**
Penguard Classic	1 x 100 microns	(Dry Film Thickness)
Hardtop AS	1 x 50 microns	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Comp. B (curing agent) in a 5 litre container
4 litres Comp. A (base) in a 5 litre container and 1 litre Comp. B (curing agent) in a 1 litre container
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Clear Sealer

Jotun Protects Property

Product description
Penguard Clear Sealer is a two-pack, transparent epoxy sealer with excellent penetrating properties.

Recommended use
It is used as a sealer/primer on concrete and other masonry surfaces as part of a suitable protective coating system.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	50	40
Film thickness, wet (µm)	70	115	90
Theoretical spreading rate (m²/l)	14,7	8,8	11

Physical properties

Colour	Transparent
Solids (vol %)*	44 ± 2
Flash point	25ºC ± 2 (Setaflash)
Gloss	Glossy
Water resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent

*Measured according to ISO 3233:1998 (E)

Surface preparation

Concrete substrates must be fully cured, sound, clean, dry and free from any form of contamination such as laitance, loose particles, oil, grease, curing compounds, shuttering oil, algae growth etc. Recommended pre-treatment methods are light grit blasting or high pressure water jetting (approx' 150 bars). Unsound concrete, blowholes, pinholes and other surface defects should be repaired using approved repair products/systems. The moisture content in the concrete substrate must be = 6% by volume. Please contact your local Jotun Office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying.

Application methods

Spray	Use airless spray
Brush	Recommended
Roller	Recommended

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts component A (base) to be mixed thoroughly with 1 part Penguard, Comp B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	8 hours (reduced at higher temperature).
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kg./cm², 2100 p.s.i.).
Nozzle tip	0.013" - 0.018" (0.33 mm - 0.46 mm).
Spray angle	40° - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	120 min	60 min	30 min
Through dry	14 h	6.5 h	4 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum [1]	8 h	4 h	2 h
Dry to recoat, maximum [2]			

1. Recommended data given for recoating with the same generic type of paint.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Clear Sealer	**1 -2 x 50 µm**	**(Dry Film Thickness)**
Penguard Midcoat	1 x 125 µm	(Dry Film Thickness)
Hardtop XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard, Comp. B (curing agent) in a 5 litre container.
or
4 litres Comp. A (base) in a 5 litre container and 1 litres Penguard, Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Express

Product description
Penguard Express is a fast drying, high solids two-pack epoxy coating which may be applied in high film thickness and at lower temperatures.

Recommended use
As an anti corrosive primer and/or intermediate coating for corrosion protection of steel and other substrates in athmospheric exposure where fast dry-to-recoat and/or dry-to-handle times are desired. Can be used alone or in various systems of primers and topcoats.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	250	125
Film thickness, wet (µm)	100	340	170
Theoretical spreading rate (m^2/l)	9,9	3	5,9

Physical properties

Colour	Grey, Red, Buff, Light Red
Solids (vol %)*	74 ± 2
Flash point	29ºC ± 2 (Setaflash)
VOC	230 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Note that primers used as the final coat may fade and chalk in time when exposed to sunlight and weathering effects. Colour may vary from batch to batch. If exact match to colour standards and long term cosmetic performance is needed please see our range of topcoats and finishes.

Hong Kong rules: Category of paints - Other vessel coatings; VOC 260 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.51 kg/ltr (A+B); Both VOC and Specific gravity values provided are typical values, and will vary according to colour chosen.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum -5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard Express, Comp. B (curing agent) for 10 min prior to use.
Pot life (23°C)	2 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46 - 0.69 mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-5°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	16 h	11 h	2 h	1 h	0,5 h
Through dry	38 h	24 h	6 h	3 h	2 h
Cured	-	21 d	8 d	4 d	3 d
Dry to recoat, minimum	24 h	14 h	4 h	2 h	1 h
Dry to recoat, maximum [1]					

Substrate temperature	**5°C**
Surface dry	4 h
Through dry	10 h
Cured	13 d
Dry to recoat, minimum	8 h
Dry to recoat, maximum [1]	

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier	1 x 50 µm	(Dry Film Thickness)
Penguard Express	**1 x 150 µm**	**(Dry Film Thickness)**
Hardtop AS/Hardtop XP	1 x 50 µm	(Dry Film Thickness)
or		
Penguard Express	**2 x 125 µm**	**(Dry Film Thickness)**
Hardtop AS/Hardtop XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard Express, Comp. B (curing agent) in a 5 litre container and
4 litres Comp. A (base) in a 5 litre container and 1 litre Penguard Express, Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 29 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Express MIO

Product description
Penguard Express MIO is a fast drying, high solids two-pack micaceous iron oxide pigmented epoxy coating which may be applied in high film thickness and at lower temperatures.

Recommended use
As an anti corrosive primer and/or intermediate coating for corrosion protection of steel and other substrates in athmospheric exposure where fast dry-to-recoat and/or dry-to-handle times are desired. Can be used alone or in various systems of primers and topcoats.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	250	125
Film thickness, wet (µm)	100	340	170
Theoretical spreading rate (m^2/l)	9,9	3	5,9

Physical properties

Colour	Grey, Red
Solids (vol %)*	74 ± 2
Flash point	32ºC ± 2 (Setaflash)
VOC	230 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum -5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Mixing	10 min prior to use.
Pot life (23°C)	2 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46 - 0.69 mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	16 h	11 h	4 h	2 h	1 h
Through dry	38 h	24 h	10 h	6 h	3 h
Cured	-	21 d	13 d	8 d	4 d
Dry to recoat, minimum	24 h	14 h	8 h	4 h	2 h
Dry to recoat, maximum [1]					

Substrate temperature	**40°C**
Surface dry	0,5 h
Through dry	2 h
Cured	3 d
Dry to recoat, minimum	1 h
Dry to recoat, maximum [1]	

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier 1 x 50 µm (Dry Film Thickness)
Penguard Express MIO 1 x 150 µm (Dry Film Thickness)
Hardtop AS/Hardtop XP 1 x 50 µm (Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Comp. B (curing agent) in a 5 litre container and
4 litres Comp. A (base) in a 5 litre container and 1 litres Comp. B (curing agent) in a 1 litre container.

Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Express ZP

Product description
Penguard Express ZP is a fast drying, high solids, two-pack zinc phosphate pigmented epoxy coating which may be applied in high film thickness and at lower temperatures.

Recommended use
As an anti corrosive primer and/or intermediate coating for corrosion protection of steel and other substrates in athmospheric exposure where fast dry-to-recoat and/or dry-to-handle times are desired. Can be used alone or in various systems of primers and topcoats.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	250	125
Film thickness, wet (µm)	100	340	170
Theoretical spreading rate (m^2/l)	9,9	3	5,9

Physical properties

Colour	Grey, Red
Solids (vol %)*	74 ± 2
Flash point	32ºC ± 2 (Setaflash)
VOC	2,17 lbs/gal (260 gms/ltr) USA-EPA Method 24 230 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum -5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent) 10 min prior to use.
Pot life (23°C)	2 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46 - 0.69 mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	16 h	11 h	4 h	2 h	1 h
Through dry	38 h	24 h	10 h	6 h	3 h
Cured	-	21 d	13 d	8 d	4 d
Dry to recoat, minimum	24 h	14 h	8 h	4 h	2 h
Dry to recoat, maximum [1]					

Substrate temperature	**40°C**
Surface dry	0,5 h
Through dry	2 h
Cured	3 d
Dry to recoat, minimum	1 h
Dry to recoat, maximum [1]	

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Express ZP **2 x 125 µm** **(Dry Film Thickness)**
Hardtop AS/Hardtop XP 1 x 50 µm (Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Comp. B (curing agent) in a 5 litre container and
4 litres Comp. A (base) in a 5 litre container and 1 litres Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard FC

Jotun Protects Property

Product description
Penguard FC is a high build, two component polyamide cured epoxy coating. This product is tintable in a wide range of colours in Jotuns Multicolour Industry system.

Recommended use
Penguard FC is an epoxy finish coat to be used when cosmetic appearance of an epoxy finish is acceptable. It can also be used as an anti corrosive primer in mild to medium environment for steel and concrete above water areas or as an intermediate coat in more corrosive environment.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	200	100
Film thickness, wet (µm)	130	320	160
Theoretical spreading rate (m^2/l)	7,8	3,1	6,2

Comments
For application below typical film thickness, 160 microns WFT, up to 5% thinning may be needed to obtain proper flow and film forming.

Physical properties

Colour	Selected colours over Multicolour tinting system (MCI)
Solids (vol %)*	62 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	310 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
For aluminium and galvanized surface; degreasing, light abrading or sand sweeping.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 0°C and minimum 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. With forced ventilation, avoid heated air at first as this may cause surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	Use a suitable roller. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent) 15 minutes prior to use.
Pot life (23°C)	2 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.)
Nozzle tip	0.46 - 0.69 mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**0°C**	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	9 h	8 h	7 h	2,5 h	1 h
Through dry	36 h	24 h	15 h	7,5 h	2 h
Cured	-	14 d	8 d	4 d	2 d
Dry to recoat, minimum	36 h	24 h	15 h	7,5 h	4 h
Dry to recoat, maximum [1]					

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard FC can be applied direct to metal or over a wide range of primers including:

Barrier	Penguard Midcoat	Primastic Universal
Jotamastic 87	Penguard Express	Penguard Tie Coat 100
Jotacote Universal	Penguard HB	

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Comp. B (curing agent) in a 5 litre container
or
4 litres Comp. A (base) in a 5 litre container and 1 litre Comp. B (curing agent) in a 1 litre container

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard FNY

Product description
Penguard FNY is a high build, non-yellowing, two component epoxy topcoat with good gloss and colour retention.

Recommended use
Penguard FNY is an epoxy finish coat designed for medium to severe exposure in areas where an epoxy finish is required and stable gloss and colour is important. Particularly suited for newbuilding projects, where maintaining an even white finish is top priority.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	60	150	80
Film thickness, wet (µm)	100	250	135
Theoretical spreading rate (m^2/l)	9,8	5,9	7,4

Comments
For application below typical film thickness, 130 microns WFT, thinning may be needed to obtain proper flow and film forming.

Physical properties

Colour	According to colour card
Solids (vol %)*	59 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	363 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	Use a suitable roller. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard FNY, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	4 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.)
Nozzle tip	0.46 - 0.69 mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	10 h	8 h	3 h	1 h
Through dry	36 h	18 h	8 h	2,5 h
Cured	16 d	12 d	7 d	4 d
Dry to recoat, minimum	36 h	18 h	8 h	2,5 h
Dry to recoat, maximum [1]				

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote Universal 80	1 or 2 x 150 µm	(Dry Film Thickness)
Penguard FNY	**1 x 80 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard FNY, Comp. B (curing agent) in a 5 litre container
or
4 litres Comp. A (base) in a 5 litre container and 1 litre Penguard FNY, Comp. B (curing agent) in a 1 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard FSG

Product description
Penguard FSG is a two-pack, semigloss and high molecular weight epoxy coating. Gives excellent physical properties such as toughness, flexibility, abrasion resistance and adhesion.

Recommended use
As a primer/finish for corrosion protection of various substrates, including steel, mainly designed for low corrosion environment.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	70	125	100
Film thickness, wet (µm)	125	225	180
Theoretical spreading rate (m^2/l)	7,9	4,4	5,5

Physical properties

Colour	Limited range of colours.
Solids (vol %)*	55 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	333 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable for minor touch-up work, subjected to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until cured. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard FSG, Comp. B (curing agent) 15 minutes prior to use.
Pot life (23°C)	5 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.)
Nozzle tip	0.53 - 0.69 mm (0.021-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	48 h	8 h	5 h	3 h	2 h
Through dry	72 h	20 h	14 h	8 h	5 h
Cured			8 d	4 d	2 d
Dry to recoat, minimum	96 h	24 h	14 h	8 h	5 h
Dry to recoat, maximum [1]					

Substrate temperature	**5°C**
Surface dry	7 h
Through dry	18 h
Cured	14 d
Dry to recoat, minimum	18 h
Dry to recoat, maximum [1]	-

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard FSG **1 x 100 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

China:
20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard FSG, Comp. B (curing agent) in a 5 litre container

Korea:
15 litre unit: 12 litres Comp. A (base) in a 18 litre container and 3 litre Penguard FSG, Comp. B (curing agent) in a 4 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard HB

Product description
Penguard HB is a high build, two-pack epoxy coating based on epoxy resin with high molecular weight. This product is a part of a complete system which is certified not to spread surface flames.

Recommended use
As an anti corrosive primer and intermediate coating for corrosion protection of various substrates including steel. May be used in tanks for potable water. A suitable washing procedure depending on national rules may be required.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	150	100
Film thickness, wet (µm)	150	280	185
Theoretical spreading rate (m^2/l)	6,8	3,6	5,4

Approvals
1. APAS approved to specification 2972.
2. Approved to UNE 48272.

Physical properties

Colour	Grey, Red, White
Solids (vol %)*	54 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	390 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
For aluminium and galvanized surface; degreasing, light abrading or sand sweeping.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured. If necessary, Penguard Stayer, Penguard Primer, Penguard HB, Penguard Special may be used down to 2ºC, provided a special accelerator is added.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	8 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17. Do not use thinner when applied in potable water tanks.
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.)
Nozzle tip	0.46 - 0.69 mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2,5 h	1 h
Through dry	16 h	8 h	3,5 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	16 h	8 h	3,5 h
Dry to recoat, maximum [1]			

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard HB	**2 x 100 µm**	**(Dry Film Thickness)**
Penguard Topcoat	1 x 50 µm	(Dry Film Thickness)
Or		
Penguard Primer	1 x 50 µm	(Dry Film Thickness)
Penguard HB	**1 x 100 µm**	**(Dry Film Thickness)**
Penguard Topcoat	1 x 50 µm	(Dry Film Thickness)
For potable water tanks:		
Penguard HB	**3 x 100 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

SPECIAL WASHING PROCEDURE WHEN THIS PRODUCT IS USED IN TANKS FOR POTABLE WATER

Either
After the paint is cured (see drying/curing time above), the tank is filled with warm water (above 60 - 80°C), which shall remain in the tank for 24 hours. Then the tank is thoroughly washed, using water of min. 80°C together with brushes or washed with steam
or
After the paint is cured (see drying/curing time above), the tank shall be ventilated with warm air, min 23°C for 7 days. Then the tank is filled three times with warm water (min. 50°C), each filling shall remain in the tank for 24 hours. Finally, the tank is washed, using water of min. 50°C together with brushes or washed with steam

Other washing procedures may be acceptable, please contact your local Jotun representative for details.

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard, Comp. B (curing agent) in a 5 litre container
4 litres Comp. A (base) in a 5 litre container and 1 litre Penguard, Comp. B (curing agent) in a 1 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard HB II

Product description
Penguard HB II is a high build, two-pack epoxy coating based on epoxy resin with high molecular weight. This product is designed to use as an intermediate or finish coat.

Recommended use
As part of a system for steel and concrete structures above water areas such as upper deck, topside and accommodation outside.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	150	125
Film thickness, wet (µm)	154	230	192
Theoretical spreading rate (m²/l)	6,5	4,3	5,2

Physical properties

Colour	Various
Solids (vol %)*	65 ± 2
Flash point	25ºC ± 2 (Setaflash)
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation
Shopprimed steel
Clean, dry and undamaged shopprimer. Corroded and damaged areas to be blast cleaned to min. Sa 2½ (ISO 8501-1:2007).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until cured. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss.

Application methods

Spray	Use airless spray
Brush	Use a suitable brush. Care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard HB II, Comp. B (curing agent).
Pot life (23°C)	8 hours. (Reduced to higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46 - 0.69 mm (0.018-0027")
Spray angle	40-80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	48 h	14 h	5 h	2,5 h	1 h
Through dry	72 h	36 h	16 h	8 h	4 h
Cured			10 d	5 d	3 d
Dry to recoat, minimum	96 h	24 h	16 h	8 h	4 h

Substrate temperature	**5°C**
Surface dry	7 h
Through dry	24 h
Cured	15 d
Dry to recoat, minimum	24 h
Dry to recoat, maximum	

1 Recommended data given for recoating with the same generic type of paint.
2 The surface should be free from chalking and contamination prior to application. Best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat is cured. If this is exceeded it may be necessary to roughen the surface.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

1) On bare steel or shopprimer:

Penguard Stayer HB	1 x 125µm	(Dry Film Thickness)
Penguard HB II	**1 x 125µm**	**(Dry Film Thickness)**
2) Penguard Primer	1 x 50µm	(Dry Film Thickness)
Penguard HB II	**1 x 100µm**	**(Dry Film Thickness)**
Penguard Topcoat	1 x 50µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Packing size

Corporate:
20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard HB II,Comp. B (curing agent) in a 5 litre container

Korea:
15 litre unit: 12 litres Comp. A (base) in a 18 litre container and 3 litres Penguard HB II,Comp. B (curing agent) in a 4 litre container

Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Midcoat

Product description
Penguard Midcoat is a high solids, low VOC, high build, two-pack epoxy coating.

Recommended use
Exclusively as a high build epoxy intermediate coat as a part of a multi layer coating system for protection of steel structures. The intermediate coat is used to improve the barrier protection for anti corrosive coating systems in a wide range of environments. Use Penguard Express in temperature below 15ºC.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	250	150
Film thickness, wet (µm)	125	300	185
Theoretical spreading rate (m²/l)	8,2	3,3	5,5

Physical properties

Colour	Buff, Grey, Light Red, Turquoise, White
Solids (vol %)*	82 ± 2 Std Comp. B
Flash point	25ºC ± 2 (Setaflash)
VOC	170 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semiflat
Gloss retention	Fair
Water resistance	Good
Abrasion resistance	Very good
Solvent resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Should only be applied over clean, dry and undamaged zinc rich primers. Zinc silicate primers must be fully cured and free of zinc salts and contaminants. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 15°C and at least 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Penguard Midcoat Comp. A (base) to be mixed thoroughly with 1 part Penguard Midcoat, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	2 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17 (up to 5% for lower film thickness application.)
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.)
Nozzle tip	0.40 - 0.69 mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	15°C	23°C	40°C
Surface dry	6 h	4 h	2 h
Through dry	9 h	6 h	3 h
Cured	10 d	7 d	5 d
Dry to recoat, minimum	9 h	6 h	3 h
Dry to recoat, maximum [1]			
Dry to recoat, maximum [1]			

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier, Barrier 80 or Barrier 77	1 x 60 µm	(Dry Film Thickness)
Penguard Midcoat	**1 x 175 µm**	**(Dry Film Thickness)**
Hardtop AS/Hardtop XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Penguard Midcoat Comp. A (base) in a 20 litre container and 4 litres Penguard Midcoat, Comp. B (curing agent) in a 5 litre container and/or
4 litres Penguard Midcoat Comp. A (base) in a 5 litre container and 1 litres Penguard Midcoat, Comp. B (curing agent) in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Midcoat MIO

Product description
Penguard Midcoat MIO is a high solids, low VOC, high build, micaceous iron oxide pigmented two-pack epoxy coating.

Recommended use
Exclusively as a high build MIO epoxy intermediate coat as a part of a multi layer coating system for protection of steel structures. The intermediate coat is used to improve the barrier protection for anti corrosive coatings systems in a wide range of environments.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	250	150
Film thickness, wet (µm)	125	300	185
Theoretical spreading rate (m²/l)	8,2	3,3	5,5

Physical properties

Colour	Red, Grey
Solids (vol %)*	82 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	180 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Should only be applied over clean, dry and undamaged compatible anti-corrosive zinc primer. Zinc silicate primed surfaces must be fully cured and free of zinc salts and contaminants. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 15°C and at least 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Mixing	5-10 minutes prior to use.
Pot life (23°C)	2 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17 (up to 5% for lower film thickness application.)
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.)
Nozzle tip	0.53 - 0.69 mm (0.021-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	15°C	23°C	40°C
Surface dry	6 h	4 h	2 h
Through dry	9 h	6 h	3 h
Cured	10 d	7 d	5 d
Dry to recoat, minimum	9 h	6 h	3 h
Dry to recoat, maximum [1]			

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Barrier	1 x 60 µm	(Dry Film Thickness)
Penguard Midcoat MIO	**1 x 175 µm**	**(Dry Film Thickness)**
Hardtop AS/Hardtop XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Comp. B (curing agent) in a 5 litre container and 4 litres Comp. A (base) in a 5 litre container and 1 litres Comp. B (curing agent) in a 1 litre container.

Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Primer

Jotun Protects Property

Product description
Penguard Primer is a two-pack epoxy primer based on epoxy resin with high molecular weight. This product is a part of a complete system which is certified not to spread surface flames.

Recommended use
As a primer in a coating system for corrosion protection of steel and other substrates. Penguard Primer is also recommended for internal lining for friction reduction in gas transmitting pipelines as per API 5L2. Please contact Jotun for specific recommendations.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	60	50
Film thickness, wet (µm)	80	120	100
Theoretical spreading rate (m²/l)	12,8	8,5	10,2

Approvals
API 5L2 by Egyptian National Research Centre NRC.

Physical properties

Colour	Grey, Red
Solids (vol %)*	51 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	420 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Tank lining coatings; VOC 440 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.24 kg/ltr (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
For aluminium and galvanised surface; degreasing, light abrading or sweep blasting. For stainless steel; light abrading or sweep blasting using chloride free, non-metallic abrasive.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured. If necessary, Penguard Stayer, Penguard Primer, Penguard HB, Penguard Special may be used down to 2ºC, provided a special accelerator is added.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Penguard Primer Comp. A (base) to be mixed thoroughly with 1 part Penguard, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	8 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17. Do not use thinner when applied in potable water tanks.
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46 - 0.58 mm (0.018-0.023")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	2 h	1 h	0,5 h
Through dry	14 h	6,5 h	3 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum [1]	8 h	4 h	3 h
Dry to recoat, maximum [1]			

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Primer	**1 x 50 µm**	**(Dry Film Thickness)**
Penguard HB	1 x 100 µm	(Dry Film Thickness)
Penguard Topcoat	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Penguard Primer Comp. A (base) in a 20 litre container and 4 litres Penguard, Comp. B (curing agent) in a 5 litre container
5 litre unit: 4 litres Penguard Primer Comp. A (base) in a 5 litre container and 1 litre Penguard, Comp. B (curing agent) in a 1 litre container

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Primer SEA

Product description
Penguard Primer SEA is a high build, two-pack epoxy coating based on epoxy resin with high molecular weight.

Recommended use
As a primer in a coating system for corrosion protection of steel and other substrates.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	60	50
Film thickness, wet (µm)	65	100	80
Theoretical spreading rate (m²/l)	15,5	10,3	12,4

Physical properties

Colour	Grey, Red
Solids (vol %)*	62 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	300 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
For aluminium and galvanised surface; degreasing, light abrading or sweep blasting. For stainless steel; light abrading or sweep blasting using chloride free, non-metallic abrasive.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard Primer SEA, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	Penguard Primer SEA, Comp. B: 6 hours (Reduced at higher temperature)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm2, 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40 - 80º
Filter	Check to ensure that filters are clean

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	2 h	1 h	0,5 h
Through dry	14 h	6,5 h	3 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	14 h	6,5 h	3 h
Dry to recoat, maximum [1]			
Dry to recoat, maximum [1]			

1 Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Primer SEA	**1 x 50 microns (Dry Film Thickness)**
Penguard Classic	1 x 100 microns (Dry Film Thickness)
Hardtop AS	1 x 50 microns (Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard Primer SEA, Comp. B (curing agent) in a 5 litre container
4 litres Comp. A (base) in a 5 litre container and 1 litre Penguard Primer SEA, Comp. B (curing agent) in a 1 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Special

Product description
Penguard Special is a high build, two-pack zinc phosphate pigmented epoxy coating based on epoxy resin with high molecular weight.

Recommended use
As an anti corrosive primer and intermediate coating for corrosion protection of various substrates including steel.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	150	100
Film thickness, wet (µm)	80	300	200
Theoretical spreading rate (m²/l)	12,6	3,3	5

Comments
For DFTs below 80 µm thinner should be used

Approvals
1. APAS approved to specification 2971.

Physical properties

Colour	Grey, Red, White
Solids (vol %)*	50 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	390 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
For aluminium and galvanized surface; degreasing, light abrading or sand sweeping.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured. If necessary, Penguard Stayer, Penguard Primer, Penguard HB, Penguard Special may be used down to 2ºC, provided a special accelerator is added.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	8 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Normal hardener			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	4 h	2 h	1 h
Through dry	16 h	8 h	3 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	16 h	8 h	3 h
Dry to recoat, maximum [1]			

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Special **1 - 2 x 100 µm** **(Dry Film Thickness)**
Normally topcoated with Epoxy or Polyurethane.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Penguard, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 22 MARCH 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Tie Coat 100

Product description
Penguard Tie Coat 100 is a two-pack corrosion preventing polyamide cured epoxy tie coat.

Recommended use
On steel structures for use as tie coat/sealer on top of inorganic zinc silicate.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	50	35
Film thickness, wet (µm)	70	120	85
Theoretical spreading rate (m²/l)	14	8,4	12

Physical properties

Colour	Red
Solids (vol %)*	42 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	480 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Cured and clean inorganic zinc silicate primer (tested with MEK).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	2:1
Mixing	2 parts Penguard Tie Coat 100 Comp. A (base) to be mixed thoroughly with 1 part Penguard Tie Coat 100, Comp. B (curing agent)
Induction time	30 minutes.
Pot life (23°C)	4 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi)
Nozzle tip	0.018" (0.46 mm)
Spray angle	40-80º
Filter	Check to ensure that filters are clean.
Note	Thinner should be added after mixing components. Extra thinner (up to 30%) may be added to avoid popping on difficult substrates.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Normal hardener			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	2 h	1 h	0,5 h
Through dry	14 h	6,5 h	3 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	18 h	6 h	3 h
Dry to recoat, maximum [1]			

1. The surface should be free from chalking and contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 78 or Resist 86	1 x 60 µm	(Dry Film Thickness)
Penguard Tie Coat 100	**1 x 35 µm**	**(Dry Film Thickness)**
Jotamastic 80/87	1 x 200 µm	(Dry Film Thickness)
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 13 litres Penguard Tie Coat Comp. A (base) in a 20 litre container and 6.5 litres Penguard Tie Coat 100, Comp. B (curing agent) in a 10 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Penguard Topcoat

Product description
Penguard Topcoat is a two-pack epoxy topcoat based on a polyamide cured epoxy resin. This product is a part of a complete system which is certified not to spread surface flames. Penguard Topcoat bases are intermediates and need to be processed before use.

Recommended use
As finishing coat in epoxy systems. Also on concrete where epoxy paints are specified.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	60	50
Film thickness, wet (µm)	80	120	100
Theoretical spreading rate (m²/l)	12,5	8,3	10

Approvals
APAS approved to specification 2919.

Physical properties

Colour	According to colour card and Multicolor tinting system (MCI)
Solids (vol %)*	50 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	410 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The moisture content in the concrete should not exceed 4 % (by weight). The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard, Comp. B (curing agent).
Induction time	30 minutes.
Pot life (23°C)	8 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17. Do not use thinner when applied in potable water tanks.
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46 - 0.58 mm (0.018-0.023")
Spray angle	40 - 80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Normal hardener			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	2,5 h	1,5 h	0,5 h
Through dry	14 h	6,5 h	3 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	14 h	7 h	3 h
Dry to recoat, maximum [1]			

1. The surface should be free from chalking and contamination prior to application. Best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat is cured. If this is exceeded it may be necessary to roughen the surface.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote Universal	2 x 125 µm	(Dry Film Thickness)
Penguard Topcoat	**1 x 50 µm**	**(Dry Film Thickness)**

or

Barrier	1 x 40 µm	(Dry Film Thickness)
Penguard Express	1 x 150 µm	(Dry Film Thickness)
Penguard Topcoat	**1 x 50 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A in a 20 litre container and 4 litres Penguard, Comp. B (curing agent) in a 5 litre container
4 litres Comp. A in a 5 litre container and 1 litre Penguard, Comp. B (curing agent) in a 1 litre container

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Pilot II

Product description
Pilot II is an alkyd based topcoat for both exterior and interior use. This product is part of a complete system which is certified not to spread surface flames. Pilot II bases are intermediates and need to be processed before use.

Recommended use
Topcoat in a traditional alkyd system suitable for steel and woodwork. Good weather and colour stability. Good hiding power.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	50	40
Film thickness, wet (µm)	60	105	85
Theoretical spreading rate (m^2/l)	16	9,6	12

Comments
Hong Kong rules: Category of paints - Marine maintenance coatings; VOC 400 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.04;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
APAS approved to specification 2922.

Physical properties

Colour	According to colour card and Multicolor tinting system (MCI)
Solids (vol %)*	48 ± 2
Flash point	36ºC ± 2 (Setaflash)
VOC	410 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Gloss retention	Good
Water resistance	Limited
Abrasion resistance	Fair
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.021")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	4 h	3 h	1 h
Through dry	25 h	14 h	7 h	3 h
Dry to recoat, minimum	36 h	18 h	16 h	12 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Alkydprimer or Pilot Primer	2 x 40 µm	(Dry Film Thickness)
Pilot II	**1 x 40 µm**	**(Dry Film Thickness)**

Note 1: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.
Note 2: Pilot II is not suitable for direct application to zinc rich primers or galvanised surfaces or alkaline substrates such as concrete.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 litre container or 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Pilot QD Primer

Jotun Protects Property

Product description
Pilot QD Primer is a fast drying, alkyd based primer with zinc phosphate as active corrosion preventing pigments. This product is certified not to spread surface flames, IMO FTPC Part 5 (IMO Res. A.653(16)) / IMO FTPC Annex2 Item 2.2. Compliant in the UK and Ireland as a primer/finish as per environmental protection act guidance PG6/23.

Recommended use
As primer for steel and aluminium structures in moderate, non aggressive environments. Pilot QD Primer is fast drying and resistant against dry heat up to 120°C. Suitable when used in conjunction with Jotun Steelmaster range of Intumescent coatings as part of overall system.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	125	75
Film thickness, wet (µm)	70	220	130
Theoretical spreading rate (m^2/l)	14	4,5	7,5

Comments
Hong Kong rules: Category of paints - Marine maintenance coatings; VOC 420 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.58;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Grey, Red, White
Solids (vol %)*	56 ± 2
Flash point	26ºC ± 2 (Setaflash)
VOC	3,5 lbs/gal (420 gms/ltr) USA-EPA Method 24 390 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable for minor touch-up work, subjected to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
For aluminium substrates, thorough washing and sweeping with a nonmetallic blast medium is required.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended
Roller	Recommended

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.38-0.53 mm (0.015-0.021").
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	30 min	20 min	15 min	10 min
Through dry	2,5 h	2 h	1,5 h	1 h
Dry to recoat, minimum [2]	2,5 h	2 h	1,5 h	1 h
Dry to recoat, maximum [1, 2]				

1. The surface should be free from chalking and contamination prior to application of the subsequent coat.
2. Pilot QD Primer can be recoated with coatings containing xylene or stronger solvents within 24 hours or after 5 days after application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Corrosivity category C2 - medium (ISO 12944):

Pilot QD Primer	**40 µm**	**(Dry Film Thickness)**
Pilot II	40 µm	(Dry Film Thickness)

In conjunction with Intumescent coatings:

Pilot QD Primer	**75 µm**	**(Dry Film Thickness)**
Steelmaster	according to steelmaster loading table	

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 and 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Pioner Topcoat

Product description
Pioner Topcoat is an acrylic resin based topcoat. Pioner Topcoat bases are intermediates and need to be processed before use.

Recommended use
Finishing coat for protection of steel and concrete in a variety of climatic conditions, exterior and interior. Water resistant and unsaponifiable. Quick drying and may be used at low temperatures. This product can be used as topcoat on top of Jotun's Steelmaster range of intumescent coatings.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	60	50
Film thickness, wet (µm)	120	180	150
Theoretical spreading rate (m²/l)	8,5	5,7	6,8

Approvals
APAS approved to specification 2903.

Physical properties

Colour	According to colour card and Multicolor tinting system (MCI)
Solids (vol %)*	34 ± 2
Flash point	37ºC ± 2 (Setaflash)
VOC	560 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Good
Water resistance	Very good
Abrasion resistance	Good
Solvent resistance	Limited
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.66 mm (0.018-0.026")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	60 min	45 min	30 min	15 min
Through dry	10 h	9 h	7 h	4 h
Dry to recoat, minimum	5 h	4 h	2 h	1,5 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Vinyguard Silvergrey 88	2 x 80 µm	(Dry Film Thickness)
Pioner Topcoat	**1 x 50 µm**	**(Dry Film Thickness)**

Note: To obtain full coverage an extra coat may be necessary, especially for signal colours in red, orange and yellow.

If for special reasons aged Pioner Topcoat is overcoated with polyurethanes, note that the system will appear weak for normally 2-3 days after application. Be careful to avoid stress to the film during the time it takes for Pioner Topcoat to recover its mechanical and adhesive strength.

Note: Thick layers are the weakest points in old Pioner Topcoat systems. The recovery time from the effect of solvents used in Polyurethanes will increase. For high DFT areas, recommended practice is to first do test application.
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

5 litre container or 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Primastic

Product description
Primastic is a two-pack, surface-tolerant, high solids epoxy mastic coating. Available with different hardeners for varying substrate temperatures, Standard (Std) and Wintergrade (WG).

Recommended use
Anticorrosive coating for steel and concrete structures above water, also on steel where blast cleaning may not be possible.

Film thickness and spreading rate

Std Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	250	125
Film thickness, wet (µm)	130	320	160
Theoretical spreading rate (m²/l)	7,8	3,1	6,2

WG Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	250	125
Film thickness, wet (µm)	140	350	175
Theoretical spreading rate (m²/l)	7,2	2,9	5,7

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 200 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.53 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Black, Green, Grey, Off-white, Red
Solids (vol %)*	78 ± 2 Std Comp. B 72 ± 2 WG Comp. B
Flash point	**Std Comp. B:** 35ºC ± 2 (Setaflash) **WG Comp. B:** 31ºC ± 2 (Setaflash)
VOC	**Std Comp. B** 180 gms/ltr UK-PG6/23(97). Appendix 3 **WG Comp. B** 230 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Good
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (-5°C in WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	**Std Comp. B:** 7:1 **WG Comp. B:** 4:1
Mixing	7 parts by volume Comp. A (Base) to 1 part Primastic, Std Comp. B (curing agent). 4 parts by volume Comp. A (Base) to 1 part Primastic, WG Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B:** 2 hours **WG Comp. B:** 1 hour
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.79 mm (0.021 - 0.031")
Spray angle	40 - 80°
Filter	Check to ensure that the filters are clean
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	24 h	10 h	4 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	24 h	10 h	4 h
Dry to recoat, maximum [1]			

WG Comp. B					
Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	24 h	18 h	12 h	6 h	2,5 h
Through dry	48 h	26 h	18 h	12 h	5 h
Cured	21 d	14 d	7 d	3 d	2 d
Dry to recoat, minimum	48 h	26 h	18 h	12 h	5 h
Dry to recoat, maximum [1]					

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Primastic	**2 x 125 µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 2.3 litres Primastic, Std Comp. B (curing agent) in a 3 litre container.
16 litres Comp. A (base) in a 20 litre container and 4 litres Primastic, WG Comp B (curing agent) in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

Technical Data
Primastic Universal

Product description
Primastic Universal is a two-pack, surface-tolerant, high solids epoxy mastic coating. Available with different hardeners for varying substrate temperatures, Standard (Std) and Wintergrade (WG).

Recommended use
Anticorrosive primer for steel structures above and below water, also on steel where blast cleaning may not be possible.

Film thickness and spreading rate

Std Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	250	125
Film thickness, wet (µm)	135	330	165
Theoretical spreading rate (m²/l)	7,5	3	6

WG Comp. B	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	250	125
Film thickness, wet (µm)	145	360	180
Theoretical spreading rate (m²/l)	7	2,8	5,6

Comments
Hong Kong rules: Category of paints - Other vessel coatings; VOC 320 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.46 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Aluminium, Aluminium Red toned
Solids (vol %)*	75 ± 2 Std Comp. B 70 ± 2 WG Comp. B
Flash point	**Std Comp. B:** 35ºC ± 2 (Setaflash) **WG Comp. B:** 31ºC ± 2 (Setaflash)
VOC	**Std Comp. B** 2,67 lbs/gal (320 gms/ltr) USA-EPA Method 24 210 gms/ltr UK-PG6/23(97). Appendix 3 **WG Comp. B** 230 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Power tool cleaning to min. St 2, mill scale free (ISO 8501-1:2007). Improved surface treatment (blast cleaning to Sa 2½) will improve the performance.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information. For maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12) or Power tool cleaning to min. St 2 for rusted areas

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum +10°C (Std) (-5°C in WG) and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	**Std Comp. B:** 5:1 **WG Comp. B:** 4:1
Mixing	5 parts Comp. A (base) to be mixed thoroughly with 1 part Primastic Universal, Std Comp.B (curing agent). 4 parts Comp. A (base) to be mixed thoroughly with 1 part Primastic Universal, WG Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	**Std Comp. B:** 2 hours **WG Comp. B:** 1 hour
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.79 mm (0.021 - 0.031")
Spray angle	40-80°
Filter	Check to ensure that the filters are clean.
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * If extra solvent is necessary, this should be added after mixing of the two components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Std Comp. B			
Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	8 h	4 h	2 h
Through dry	24 h	10 h	4 h
Cured	14 d	7 d	2 d
Dry to recoat, minimum	24 h	10 h	4 h
Dry to recoat, maximum [1]			

WG Comp. B					
Substrate temperature	**-5°C**	**0°C**	**5°C**	**10°C**	**23°C**
Surface dry	24 h	18 h	12 h	6 h	2,5 h
Through dry	48 h	26 h	18 h	12 h	5 h
Cured	21 d	14 d	7 d	3 d	2 d
Dry to recoat, minimum	48 h	26 h	18 h	12 h	5 h
Dry to recoat, maximum [1]					

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Primastic Universal	**2 x 125 µm**	**(Dry Film Thickness)**
Hardtop AS/XP	1 x 50 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16 litres Comp. A (base) in a 20 litre container and 3.2 litres Primastic Universal, Std Comp. B (curing agent) in a 5 litre container.
16 litres Comp. A (base) in a 20 litre container and 4 litres Primastic Universal, WG Comp. B (curing agent) in a 5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Resist 18 WF

Jotun Protects Property

Product description

Resist 18 WF is a two-pack, self-curing, water borne inorganic zinc rich silicate primer with high conductivity. It complies with the compositional requirements for SSPC Paint 20 level 1 and can be applied in high film thickness. Resist 18 WF is supplied with ASTM D520 Type II zinc dust.

Recommended use

As protection on blast cleaned steel. Can be used alone or overcoated with water borne / solvent borne coatings, such as epoxy and other advanced coatings. Withstands temperatures up to 400ºC (752ºF). Resist 18 WF can be used as a one coat system for interior tanks, and where antistatic coating is required.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	125	100
Film thickness, wet (µm)	75	185	150
Theoretical spreading rate (m²/l)	13,6	5,4	6,8

Physical properties

Colour	Grey
Solids (vol %)*	68 ± 2
Flash point	Non-Flammable
VOC	0 lbs/gal (0 gms/ltr) USA-EPA Method 24
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent Within pH range of 6-10

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium S/G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10ºC and at least 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilatoin is usually required in confined areas to ensure proper drying. Relative humidity during application and drying should be maximum 85% and if possible avoid application at relative humidity below (30%) due to risk of dry spraying. To avoid pinholes (popping) in subsequent coat when overcoating porous zinc silicate films, first apply a thin coat (mist coat) to fill the pores, wait 3-5 minutes to let air in the pores escape and then apply to full specified film thickness. In difficult cases the mist coat can be thinned.

Application methods

Spray	Specially designed conventional spray/HVLP.

Application data

Mixing ratio (volume)	10.4:4.54
Mixing	A two component product with liquid resin and dry zinc dust pigment supplied in separate containers. The two components must be mixed as follows: add the zinc dust pigment Comp. B slowly to liquid Comp. A, stirring continuously. Pigment must be added to liquid; not liquid into pigment. Stir until uniformly mixed, then strain through a 50 mesh strainer. Continuous agitation during application is recommended.
Pot life (23°C)	6 hours.
Thinner/Cleaner	Water, 60 g/l maximum.
Guiding data conventional spray	
Pressure at nozzle	0.3-0.5 MPa (3-5 kp/cm², 42-70 psi).
Nozzle tip	0.043" - 0.072" (1.08 - 1.8 mm)
Spray angle	40-80º
Filter	Check to ensure that filters are clean.
Note	* Proper routines for cleaning and maintenance of the priming unit are necessary to achieve high productivity and uniform quality. Before starting work and after finishing with Resist 18 WF it is recommended to circulate water through the entire spraying equipment for some minutes.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	40 min	10 min	5 min
Through dry	80 min	20 min	10 min
Dry to recoat, minimum [2]	6 h	3 h	2 h

1 The surface should be free of zinc salts and other contamination prior to application.
2 Before overcoating, the apparent surface density of salts must be less than 50 mg/m² using the Bresle Method. ISO 8502-6 and ISO 8502-9 or by using Universal indicator paper pH 0-14. Surface pH shall be less than 8 compared to the fixed scale.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 18 WF **1 x 100 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, well ventilated space. Containers must be kept tightly closed. Handle with care.
Keep from freezing.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigments from settling.

Packing size

10,4 litres (2.8 gallons) of Comp A (silicate) in a 20 litre/5 gallon plastic container and 4,54 litres (70 pounds) of Resist 18 WF, Comp. B (zinc) in a 5 litre/3 gallon container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Resist 78

Jotun Protects Property

Product description
Resist 78 is a two-pack, quick curing, zinc-rich ethyl silicate based coating that complies with the compositional requirements for SSPC Paint 20 level 2 and ISO 12944. Resist 78 meets Aramco specifications 09-AMSS-071 tested according to SSPC 20. Can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
A general purpose, heavy duty, anti-corrosive primer:
1. As the first coat in a multiple layer system.
2. As a single coating for long term protection of steel exposed to moderately to severely corrosive environment. Resistant to cyclic dry temperatures up to 400°C.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	90	75
Film thickness, wet (µm)	70	125	104
Theoretical spreading rate (m^2/l)	14,4	8	9,6

Comments
There is a risk of mud-cracking if the thickness exceeds 120 µm.

Physical properties

Colour	Grey
Solids (vol %)*	72 ± 2
Flash point	14ºC ± 2 (Setaflash)
VOC	395 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent within pH-range 6-10
Flexibility	Limited

*Measured according to OCCA Monograph No. 4

Hong Kong rules: Category of paints - Inorganic zinc coatings; VOC 360 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 2.51 (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be min. 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Zinc silicate paints in general requires moisture for curing. At low humidity the curing will be improved by gently sprinkling fresh water over the paint film, and/or by artificial humidification of the surrounding atmosphere. The paint must be completely cured before topcoating, otherwise the adhesion of the subsequent coat will be unsatisfactory. Use Methyl ethyl ketone (MEK) test according to ASTM D 4752-87 to verify the curing time before topcoating. Unweathered zinc silicate films are porous and the porosity may vary according to the weather condition during application and the application technique. When overcoating, the air in the pores will escape through the new coat of paint and may cause blisters or pinholes ("popping") in the coat just after application. To avoid this a mist coat/full coat technique is recommended:
First apply a thin coat to fill the pores in the zinc silicate film and a few minutes later apply to full specified film thickness. In difficult cases it may be necessary to thin the next coat, or use Penguard Tie Coat 100 as first overcoat.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness. In order to avoid settling of heavy zinc, continuous mechanical stirring during application is recommended.

Application data

Mixing ratio (volume)	9:2,6
Mixing	Comp. A is a liquid and Comp. B is dry zinc dust. Consists of 9 litres Comp. A and 18.5 kg/2,6L Jotun Zinc 100, Comp B or 18,5 kg/2,6 litres Jotun Zinc 100 ASTM D520 Type II, Comp B. Pour the zinc dust slowly into the liquid during mechanical mixing. The Comp. A must be well shaken before use. Stir until lump free and pass through a 60 mesh sieve.
Pot life (23°C)	8 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 4/25. Adjusting spray pattern and drying may sometimes become necessary. Use max 5% *, Jotun Thinner No. 4 (fast evaporation) when temperature is low and Jotun Thinner No. 25 (slow evaporation) when temperature is high.

Guiding data airless spray

Pressure at nozzle	10 MPa (100 kp/cm², 1400 psi)
Nozzle tip	0.46-0.58 mm (0.018-0.023")
Spray angle	30-80°
Filter	Check to ensure that filters are clean.

Note * Thinner should be added after mixing components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity at 70%

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	30 min	15 min	13 min
Through dry	90 min	45 min	30 min	25 min
Cured [1]	18 h	13 h	4 h	1,5 h
Dry to recoat, minimum [2]	18 h	13 h	4 h	1,5 h
Dry to recoat, maximum [3]				

1. Curing time to be verified by MEK test (ASTM D 4752-87)
1. Recommended data given for recoating with coatings normally specified on top of zinc ethyl silicate coatings.
2. The surface should be free of zinc salts and other contamination prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 78 **1 x 75 µm** **(Dry Film Thickness)**
Normally overcoated with an epoxy system.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. The component A must be stored below 25°C. The product component B is zinc dust and has no strict limitation's for storage. SHELF LIFE: 6 months at 23°C for Comp. A. , 4 years for comp. B, subject to re-inspection thereafter. Higher temperatures during storage may reduce the shelf life and may lead to gelling in the tin.

Handling
Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size
11,6 litres unit: 9 litres Resist 78 Comp A in a 10 litre container and 18,5 kg/2,6 litres Jotun Zinc 100, Comp B (previously named Resist 78/86, Comp B) in a 20 litre container
or
11,6 litres unit: 9 litres Resist 78 Comp A in a 10 litre container and 18,5 kg/2,6 litres Jotun Zinc 100 ASTM D520 Type II, Comp B (previously named Resist 78 ASTM D520 Type II, Comp B) in a 20 litre container.

Health and safety
Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Resist 86

Jotun Protects Property

Product description
Resist 86 is a two-pack, quick curing zinc rich ethyl silicate coating that complies with the compositional requirements for SSPC Paint 20 level 1 and ISO 12944. Can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
A general purpose, heavy duty, anti-corrosive primer:
1. As the first coat in a multiple layer system.
2. As a single coating for long term protection of steel exposed to moderately to severely corrosive environment. Resistant to cyclic dry temperatures up to 400°C.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	90	75
Film thickness, wet (µm)	75	135	115
Theoretical spreading rate (m^2/l)	13,4	7,4	8,9

Comments
There is a risk of mud-cracking if the film thickness exceeds 120µm.

Physical properties

Colour	Greenish grey, Grey
Solids (vol %)*	67 ± 2
Flash point	14ºC ± 2 (Setaflash)
VOC	465 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent within pH-range 6-10
Flexibility	Limited

*Measured according to OCCA Monograph No. 4

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be min. 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Zinc silicate paints in general requires moisture for curing. At low humidity the curing will be improved by gently sprinkling fresh water over the paint film, and/or by artificial humidification of the surrounding atmosphere. The paint must be completely cured before topcoating, otherwise the adhesion of the subsequent coat will be unsatisfactory. Use Methyl ethyl ketone (MEK) test according to ASTM D 4752-87 to verify the curing time before topcoating. Unweathered zinc silicate films are porous and the porosity may vary according to the weather condition during application and the application technique. When overcoating, the air in the pores will escape through the new coat of paint and may cause blisters or pinholes ("popping") in the coat just after application. To avoid this a mist coat/full coat technique is recommended:
First apply a thin coat to fill the pores in the zinc silicate film and a few minutes later apply to full specified film thickness. In difficult cases it may be necessary to thin the next coat, or use Penguard Tie Coat 100 as first overcoat.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness. In order to avoid settling of heavy zinc, continuous mechanical stirring during application is recommended.

Application data

Mixing ratio (volume)	8:2,6
Mixing	Comp. A is a liquid and Comp. B is dry zinc dust. Consists of 8 litres Comp. A and 18.5 kg/2,6L Jotun Zinc 100, Comp B or 18.5 kg/2,6L Jotun Zinc 100 ASTM D520 Type II, Comp B. Pour the zinc dust slowly into the liquid during mechanical mixing. The Comp. A must be well shaken before use. Stir until lump free and pass through a 60 mesh sieve.
Pot life (23°C)	8-12 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 4/25 Adjusting spray pattern and drying may sometimes become necessary*. Use max 5% Jotun Thinner No. 4 (fast evaporation) when temperature is low and Jotun Thinner No. 25 (slow evaporation) when temperature is high. Thinner should be added after mixing of components
Guiding data airless spray	
Pressure at nozzle	10 MPa (100 kg/cm², 1400 psi)
Nozzle tip	0.46-0.58 mm (0.018-0.023")
Spray angle	30-80º
Filter	Check to ensure that filters are clean.
Note	*Thinner should be added after mixing components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity of 70%

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	30 min	15 min	13 min
Through dry	90 min	45 min	30 min	25 min
Cured [1]	18 h	13 h	4 h	1,5 h
Dry to recoat, minimum [2]	18 h	13 h	4 h	1,5 h
Dry to recoat, maximum [3]				

1. Curing time to be verified by MEK test (ASTM D 4752-87).
2. Recommended data given for recoating with coatings normally specified on top of zinc ethyl silicate coatings.
3. The surface should be free of zinc salts and other contamination prior to application.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 86 **1 x 75 µm** **(Dry Film Thickness)**
Normally overcoated with an epoxy system.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. The component A must be stored below 25°C. The product component B is zinc dust and has no strict limitation's for storage. SHELF LIFE: 6 months at 23°C for Comp. A. , 4 years for comp. B, subject to re-inspection thereafter. Higher temperatures during storage may reduce the shelf life and may lead to gelling in the tin.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

10,6 litres unit: 8 litres Resist 86 Comp A in a 10 litre container and 18,5 kg/2,6 litres Jotun Zinc 100, Comp B (previously named Resist 78/86, Comp B) in a 20 litre container
or
10,6 litres unit: 8 litres Resist 86 Comp A in a 10 litre container and 18,5 kg/2,6 litres Jotun Zinc 100 ASTM D520 Type II, Comp B (previously named Resist 86 ASTM D520 Type II, Comp B) in a 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Resist GTI

Product description
Resist GTI is a two-pack, moisture curing, ethyl silicate based zinc-rich coating that complies with the compositional requirements for SSPC Paint 20 level 1 and ISO 12944. Can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
As a lining for protection of chemical tanks. A separate resistance list is available.
Resist GTI can also be used as a general purpose, heavy duty, anti-corrosive primer:
1. As the first coat in a multiple layer system.
2. As a single coating for long term protection of steel exposed to moderately to severely corrosive environment. Resistant to cyclic dry temperatures up to 400°C.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	100	75
Film thickness, wet (µm)	75	135	115
Theoretical spreading rate (m^2/l)	13,4	7,4	8,9

Comments
There is a risk of mud-cracking if the film thickness exceeds 120 µm.
Hong Kong rules: Category of paints - Inorganic zinc coatings; VOC 447 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 2.62 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Greenish grey
Solids (vol %)*	67 ± 2
Flash point	16ºC ± 2 (Setaflash)
VOC	458 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent within pH-range 6-10
Flexibility	Limited

*Measured according to OCCA Monograph No. 4

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be min. 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Zinc silicate paints in general requires moisture for curing. At low humidity the curing will be improved by gently sprinkling fresh water over the paint film, and/or by artificial humidification of the surrounding atmosphere. The paint must be completely cured before topcoating, otherwise the adhesion of the subsequent coat will be unsatisfactory. Use Methyl ethyl ketone (MEK) test according to ASTM D 4752-87 to verify the curing time before topcoating. Unweathered zinc silicate films are porous and the porosity may vary according to the weather condition during application and the application technique. When overcoating, the air in the pores will escape through the new coat of paint and may cause blisters or pinholes ("popping") in the coat just after application. To avoid this a mist coat/full coat technique is recommended: First apply a thin coat to fill the pores in the zinc silicate film and a few minutes later apply to full specified film thickness. In difficult cases it may be necessary to thin the next coat, or use Penguard Tie Coat 100 as first overcoat.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	10:4,5
Mixing	4,5 Litres (28.5 kg) Resist GTI Comp. B (zinc powder) to be poured slowly into 10 litres Comp. A (Base) during mechanical mixing. Stir until lump free and pass through a 60 mesh sieve.
Pot life (23°C)	8-12 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 4/25
Guiding data airless spray	
Pressure at nozzle	10 MPa (100 kp/cm², 1400 psi)
Nozzle tip	0.46-0.58 mm (0.018-0.023")
Spray angle	30-80°
Filter	Check to ensure that filters are clean.
Note	Adjusting spray pattern and drying may sometimes become necessary. Use max 5% Jotun Thinner No. 4 (fast evaporation) when temperature is low and Jotun Thinner No. 25 (slow evaporation) when temperature is high. REMARKS: Thinner should be added after mixing components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity at 80%

Normal hardener				
Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	30 min	15 min	13 min
Through dry	90 min	45 min	30 min	25 min
Cured [1]	36 h	24 h	12 h	7 h
Dry to recoat, minimum [2]	36 h	24 h	12 h	7 h

1. Curing time to be verified by MEK test (ASTM D 4752-87)
1. Recommended data given for recoating with coatings normally specified on top of zinc ethyl silicate coatings.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

For interior of tanks:
Resist GTI **1 x 100 µm** **(Dry Film Thickness)**

When overcoated:
Resist GTI **1 x 75 µm** **(Dry Film Thickness)**
Topcoat with an epoxy or a vinyl system.

Other systems may be specified, depending on area of use

COMPLETE CURING :

When Resist GTI is used as a one coat system for the interior of tanks the paint must be completely cured. In order to achieve this the following procedures can be used:

- Apply 100 µm Resist GTI
- Let the paint dry/cure with good ventilation and low humidity for 4 hours
- Then let the paint cure at high humidity and preferably at high temperature. Curing is to be verified by MEK-test (ASTM D 4752-87)
- Spray water (seawater is preferred) on the coating and leave the tank closed. Repeat the water spraying 3 - 4 times during a 48 hours period
- Remove the water and let the tank dry
- Check the curing by scraping the coating with a coin. The coin shall produce a shiny mark without any loosened zinc

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. The component A must be stored below 25°C. The product component B is zinc dust and has no strict limitation's for storage. SHELF LIFE: 6 months at 23°C for Comp. A. , 4 years for comp. B, subject to re-inspection thereafter. Higher temperatures during storage may reduce the shelf life and may lead to gelling in the tin.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

14,5 litre unit: 10 litres Resist GTI Comp. A (base) in a 10 litre container and 4,5L (28.5 kg) Resist GTI, Comp. B (zinc powder) in a 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Safeguard Plus

Product description
Safeguard Plus is a two-pack corrosion preventing epoxy vinyl-based coating designed as part of the anticorrosive system to optimize adhesion to the antifouling paint.

Recommended use
Safeguard Plus offers very good adhesion for antifouling paint when applied under correct conditions.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	75	150	100
Film thickness, wet (µm)	135	265	180
Theoretical spreading rate (m²/l)	7,5	3,7	5,6

Physical properties

Colour	Yellow
Solids (vol %)*	56 ± 2
Flash point	24ºC ± 2 (Setaflash)
VOC	365 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until cured. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	5:1
Mixing	5 parts Safeguard Plus Comp. A (base) to be mixed thoroughly with 1 part Safeguard Plus, Comp. B (curing agent).
Pot life (23°C)	2 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Nozzle tip	0.48-0.78 mm (0.019-0.031")
Spray angle	60-80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**-5°C**	**0°C**	**23°C**	**40°C**
Surface dry	24 h	12 h	8 h	1 h	0,5 h
Through dry	72 h	36 h	20 h	6 h	3 h
Cured			14 d	3 d	2 d
Dry to recoat, minimum	96 h	24 h	18 h	5 h	2 h
Dry to recoat, maximum [1],[2]	14 d	10 d	8 d	5 d	3 d

Substrate temperature	**10°C**
Surface dry	3 h
Through dry	10 h
Cured	5 d
Dry to recoat, minimum	8 h
Dry to recoat, maximum [1],[2]	7 d

1 Recommended data given for recoating with antifouling. For recoating with other types of paint, please contact your local Jotun office for more information.
2 The surface should be free from chalking and contamination prior to application. At interior exposure note that best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat is cured. At exterior exposure, the chalking effect especially from the sunlight limits the maximum dry to recoat time.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote Universal	1 x 200µm	(Dry Film Thickness)
Safeguard Plus	**1 x 100µm**	**(Dry Film Thickness)**

Antifouling as required.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

China:
20 litre unit: 16.7 litres Comp. A (base) in a 20 litres container and 3.3 litres Safeguard Plus, Comp. B (curing agent) in a 5 litres container

Korea:
15 litre unit: 12.5 litres Comp. A (base) in a 18 litres container and 2.5 litres Safeguard Plus, Comp. B (curing agent) in a 3 litres container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Safeguard TF KS

Product description
Safeguard TF KS is a two-pack corrosion preventing epoxy vinyl-based coating designed as a tie coat between anticorrosive products and antifoulings.

Recommended use
Safeguard TF KS offers very good adhesion for antifouling paint when applied under correct conditions.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	150	75
Film thickness, wet (µm)	115	350	175
Theoretical spreading rate (m²/l)	8,6	2,9	5,7

Physical properties

Colour	Yellow/Grey/Buff
Solids (vol %)*	43 ± 2
Flash point	10ºC ± 2 (Setaflash)
Gloss	Flat
Water resistance	Excellent
Abrasion resistance	Good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum -5°C and minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. Do not use heated air until the solvents have evaporated from the paint film to avoid surface drying and solvent entrapment. The coating should not be exposed to strain until cured.

Application methods

Spray	Use airless spray
Brush	Use a suitable brush. Care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	5 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent).
Pot life (23°C)	5 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Nozzle tip	0.58-0.78 mm (0.023-0.031")
Filter	40-80º
Note	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**0°C**	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	8 h	6 h	4 h	2 h	1 h
Through dry	30 h	24 h	18 h	12 h	8 h
Cured	14 d	9 d	7 d	5 d	4 d
Dry to recoat, minimum	22 h	20 h	18 h	12 h	8 h
Dry to recoat, maximum [1]	5 d	7 d	7 d	5 d	3 d

Cold temperature hardener	
Substrate temperature	**-5°C**
Surface dry	10 h
Through dry	36 h
Cured	-
Dry to recoat, minimum	24 h
Dry to recoat, maximum [1]	7 d

1 The surface should be free from chalking and contamination prior to application. At interior exposure note that best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat is cured. At exterior exposure, the chalking effect especially from the sunlight limits the maximum dry to recoat time.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotacote HF002 1 x 200µm (Dry Film Thickness)
Safeguard TF KS 1 x 75µm (Dry Film Thickness)
Antifouling as required.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Packing size

16.7 l Comp. A and 3.3 l Comp. B
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN

Technical Data
Safeguard Universal ES

Product description
Safeguard Universal ES is a two-pack corrosion preventing epoxy vinyl-based coating.

Recommended use
Safeguard Universal ES is normally used as an anti-corrosive undercoat for various paint systems or as a sealer coat on antifouling. It provides a very good adhesion for self-polishing antifoulings as well as various topcoats (not alkyds).

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	200	150
Film thickness, wet (µm)	80	325	240
Theoretical spreading rate (m^2/l)	12,4	3,1	4,1

Comments
When Safeguard Universal ES is used as a tie coat applied with dry film thickness 50-75 µm on epoxy primers or on existing antifouling systems, it is recommended to add 5-10% thinner 17.

Physical properties

Colour	Buff
Solids (vol %)*	62 ± 2
Flash point	27ºC ± 2 (Setaflash)
VOC	330 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Water resistance	Excellent
Abrasion resistance	Good
Solvent resistance	Good
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 0°C and minimum 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. With forced ventilation, avoid heated air at first as this may cause surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	5:1
Mixing	5 parts Comp. A (base) to be mixed thoroughly with 1 part Safeguard Universal ES, Comp. B (curing agent)
Induction time	10 minutes.
Pot life (23°C)	2 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.48-0.78 mm (0.019-0.031")
Spray angle	65-80°
Filter	Check to ensure that filters are clean.
Note	* The temperature of the mixture of base and curing agent is recommended to be at least 15°C, otherwise extra solvent may be required to obtain correct viscosity. * Too much solvent results in lower sag resistance and slower cure. * Thinner should be added after mixing components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Safeguard Universal ES:					
Substrate temperature	**0°C**	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	12 h	8 h	5 h	2 h	1,5 h
Through dry	30 h	24 h	18 h	10 h	6 h
Cured	14 d	7 d	5 d	3 d	2 d
Dry to recoat, minimum [1]	30 h	24 h	18 h	10 h	6 h

1. The surface should be free from chalking and contamination prior to application. For interior exposure, note that best intercoat adhesion occurs when the subsequent coat is applied before the preceding coat is cured.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Jotamastic 87 Aluminium	1 x 200 µm	(Dry Film Thickness)
Safeguard Universal ES	**1 x 100 µm**	**(Dry Film Thickness)**
Antifouling as required		

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

15 litres Comp. A (base) in a 20 litre container and 3 litres Safeguard Universal ES, Comp. B (curing agent) in a 3 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaForce 15

Product description
SeaForce 15 is a TBT-free high solids self-polishing antifouling based on Polymeric Plasticizer Technology (patented). The performance of SeaForce 15 is achieved by a combination of unique synthetic polymers. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
To be used on vessels operating in global service with drydocking intervals up to 36 months on flatbottom/boottop and in combination with Seaforce 30 on side bottom.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	175
Film thickness, wet (µm)	145	335
Theoretical spreading rate (m^2/l)	6,9	3

Comments
Hong Kong rules: Category of paints - Antifouling coatings; VOC 460 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.46;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Dark Red & Light Red
Solids (vol %)*	52 ± 2
Flash point	26ºC ± 2 (Setaflash)
VOC	3,84 lbs/gal (460 gms/ltr) USA-EPA Method 24 420 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation

Coated surfaces
Prior to paint application, all surfaces should be clean, dry and free from contamination. Remove surface contamination by high pressure fresh water cleaning. To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	60 min	30 min	30 min
Through dry	9 h	7 h	5 h	4 h
Dry for launching [1]	12-24 h	12-24 h	10-20 h	8-16 h
Dry to recoat, minimum [2]	13 h	10 h	8 h	7 h

1. The interval indicates the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.

1. The substrate should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with Safeguard Universal ES or Safeguard Plus as a sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. Shelf life at 23°C: 18 months for standard colour(s) and 6 months for other colour(s), if available. Thereafter the paint quality is subject to re-inspection.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaForce 30

Product description
SeaForce 30 is a TBT-free high solids self-polishing antifouling based on Polymeric Plasticizer Technology (patented). The performance of SeaForce 30 is achieved by a combination of unique synthetic polymers. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
To be used on vessels operating in global service with drydocking intervals up to 36 months on the vertical side and up to 60 months on the flatbottom when good fouling protection/performance is important (consult your Jotun sales representative).

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	175
Film thickness, wet (µm)	130	300
Theoretical spreading rate (m²/l)	7,7	3,3

Comments
Hong Kong rules: Category of paints - Antifouling coatings; VOC 400 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.61;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Dark Red & Light Red
Solids (vol %)*	58 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	3,34 lbs/gal (400 gms/ltr) USA-EPA Method 24 370 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation

Coated surfaces
Prior to paint application, all surfaces should be clean, dry and free from contamination. Remove surface contamination by high pressure fresh water cleaning. To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. The coating should not be exposed to oil, chemicals or mechanical stress until it is thoroughly dried. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss and discolouration.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2 h	45 min	30 min	30 min
Through dry	24 h	12 h	6 h	4 h	3 h
Dry for launching [1]	48 h	36 h	12-22 h	10-20 h	8-16 h
Dry to recoat, minimum [2]	48 h	36 h	9 h	7 h	6 h

Substrate temperature	**5°C**
Surface dry	60 min
Through dry	8 h
Dry for launching [1]	12-24 h
Dry to recoat, minimum [2]	12 h
Dry to recoat, maximum	

1. The interval indicates the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.
1. The substrate should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with Safeguard Universal ES or Safeguard Plus as a sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. Shelf life at 23°C: 18 months for standard colour(s) and 6 months for other colour(s), if available. Thereafter the paint quality is subject to re-inspection.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaForce 60

Product description
SeaForce 60 is a TBT-free high solids self-polishing antifouling based on Polymeric Plasticizer Technology (patented) designed to last up to 60 months (consult your Jotun sales representative). The performance of SeaForce 60 is achieved by a combination of unique synthetic polymers designed to impart features not found in the traditional hydrating/CDP/Hybrid range of antifouling. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
To be used on vessels operating in global service with drydocking intervals up to 36 months on the vertical side and up to 60 months on the flatbottom when good fouling protection/performance is important. Can also be specified for 60 months on boottop on vessels that spend a significant time in ballast condition.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	175
Film thickness, wet (µm)	130	300
Theoretical spreading rate (m²/l)	7,7	3,3

Comments
Hong Kong rules: Category of paints - Antifouling coatings; VOC 400 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.72;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Dark Red & Light Red
Solids (vol %)*	58 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	3,34 lbs/gal (400 gms/ltr) USA-EPA Method 24 370 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation

Coated surfaces
Prior to paint application, all surfaces should be clean, dry and free from contamination. Remove surface contamination by high pressure fresh water cleaning. To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. The coating should not be exposed to oil, chemicals or mechanical stress until it is thoroughly dried. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss and discolouration.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2 h	45 min	30 min	30 min
Through dry	24 h	12 h	6 h	4 h	3 h
Dry for launching [1]	48 h	36 h	12-22 h	10-20 h	8-16 h
Dry to recoat, minimum [2]	48 h	36 h	9 h	7 h	6 h

Substrate temperature	**5°C**
Surface dry	60 min
Through dry	8 h
Dry for launching [1]	12-24 h
Dry to recoat, minimum [2]	12 h
Dry to recoat, maximum	

1. The interval indicates the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.
1. The substrate should be dry and free from any contamination prior to application of the subsequent coat.
2. When applying at low temperatures (below 10°C), high humidity and low ventilation will increase the drying time. As antifoulings are physically drying paints, good ventilation is required especially on the flat bottom and in sea chests. If thinning is required at these lower temperatures, special attention should then be given to the application reduce the risk of sagging.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Universal ES or Safeguard Plus as a sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. Shelf life at 23°C: 18 months for standard colour(s) and 6 months for other colour(s), if available. Thereafter the paint quality is subject to re-inspection.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaForce 90

Product description
SeaForce 90 is a TBT-free high solids self-polishing antifouling based on Polymeric Plasticizer Technology (patented) designed to last up to 60 months (consult your Jotun sales representative). The performance of SeaForce 90 is achieved by a combination of unique synthetic polymers designed to impart features not found in the traditional hydrating/CDP/Hybrid range of antifouling. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
To be used on vessels operating in global service with drydocking intervals up to 60 months. SeaForce 90 is well suited to offer 60 months antifouling performance on all underwater areas on vessels trading at high frequency.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	175
Film thickness, wet (µm)	130	300
Theoretical spreading rate (m²/l)	7,7	3,3

Physical properties

Colour	Standard; Dark Red & Light Red (Made-To-Order; Blue, Black & Green)
Solids (vol %)*	58 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	3,34 lbs/gal (400 gms/ltr) USA-EPA Method 24 370 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation
Coated surfaces
Prior to paint application, all surfaces should be clean, dry and free from contamination. Remove surface contamination by high pressure fresh water cleaning. To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. The coating should not be exposed to oil, chemicals or mechanical stress until it is thoroughly dried. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss and discolouration.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2 h	45 min	30 min	30 min
Through dry	24 h	12 h	6 h	4 h	3 h
Dry for launching [1]	48 h	36 h	12-22 h	10-20 h	8-16 h
Dry to recoat, minimum [2]	48 h	36 h	9 h	7 h	6 h

Substrate temperature	**5°C**
Surface dry	60 min
Through dry	8 h
Dry for launching [1]	12-24 h
Dry to recoat, minimum [2]	12 h
Dry to recoat, maximum	

1. The interval indicates the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.
1. The substrate should be dry and free from any contamination prior to application of the subsequent coat.
2. When applying at low temperatures (below 10°C), high humidity and low ventilation will increase the drying time. As antifoulings are physically drying paints, good ventilation is required especially on the flat bottom and in sea chests. If thinning is required at these lower temperatures, special attention should then be given to the application reduce the risk of sagging.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Universal ES or Safeguard Plus as a sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. Shelf life at 23°C: 18 months for standard colour(s) and 6 months for other colour(s), if available. Thereafter the paint quality is subject to re-inspection.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaLion Repulse

Jotun Protects Property

Product description
SeaLion Repulse is a three-pack silicone elastomeric foul release finish. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
As finish in the SeaLion fouling release coating (FRC) system.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	150	150
Film thickness, wet (µm)	210	210	210
Theoretical spreading rate (m^2/l)	4,8	4,8	4,8

Physical properties

Colour	Blue, Grey, Red
Solids (vol %)*	72 ± 2
Flash point	27ºC ± 2
VOC	2,2 lbs/gal (254 gms/ltr) USA-EPA Method 24 230 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation
Coated surfaces
To be applied on a clean, dry SeaLion Tiecoat within the specified overcoating time interval.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate must be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The air temperature must be minimum 5ºC. Good ventilation is usually required in confined areas to ensure proper drying. Relative humidity during application and drying should be minimum 30%.

Application methods

Spray	Use airless spray
Other	Care should be taken to avoid overspray onto other coated areas.

Application data

Mixing ratio (volume)	17 litres Comp. A (base) to be mixed thoroughly with 0,7 litres SeaLion Repulse Comp. B (Curing agent). Then add 0,75 litre SeaLion Repulse Comp. C (catalyst) and mix thoroughly again. SeaLion Repulse Comp A can alternatively be mixed with SeaLion Topcoat, Comp B and Comp C.
Pot life (23°C)	1 hours
	0,5 hours (40ºC)
Thinner/Cleaner	Do not thin.
Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (211 kp/cm², 3000 psi).
Nozzle tip	0,38 mm - 0,53 mm (0,015" - 0,021")
Filter	Check to ensure that filters are clean
Note	Sagging may occure if application procedure and specification are not followed.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**15°C**	**23°C**	**40°C**
Surface dry	12 h	10 h	7 h	5 h	2 h
Dry for launching	24 h	24 h	24 h	24 h	24 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

SeaLion Repulse MUST only be applied on SeaLion Tiecoat within the specified time interval (please see TDS for SeaLion Tiecoat).
Application on any other substrate can give adverse effects on adhesion.

The SeaLion FRC system constitutes of SeaLion Tiecoat and SeaLion Repulse. SeaLion Tiecoat is applied to anticorrosive layer as adhesion promotion layer for SeaLion Repulse.

Muki EPS (optional)	1 x 30 µm	(Dry Film Thickness)
Anticorrosive primer system suitable for purpose	1 x 200 µm	(Dry Film Thickness)
Safeguard Universal ES Buff	1 x 100 µm	(Dry Film Thickness)
SeaLion Tiecoat	1 x 90 µm	(Dry Film Thickness)
SeaLion Repulse	**1 x 150 µm**	**(Dry Film Thickness)**

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. Shelf life at 23°C: 2 years for every component. Thereafter the paint quality is subject to re-inspection.

Handling

Handle with care. Stir well before use.

Packing size

17 litre Comp. A (base) in a 20 litre container, 0,7 litre SeaLion Repulse/Topcoat, Comp. B in a 0,75 litre container and 0,75 litre SeaLion Repulse/Topcoat, Comp. C in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaLion Tiecoat

Product description
SeaLion Tiecoat is a three-pack silicone elastomeric tiecoat. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
To promote adhesion of SeaLion Topcoat. Constitutes a part of the SeaLion fouling release coating (FRC) system.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)			90
Film thickness, wet (µm)			150
Theoretical spreading rate (m²/l)			6,4

Physical properties

Colour	White
Solids (vol %)*	58 ± 2
Flash point	24ºC ± 2
VOC	3,59 lbs/gal (430 gms/ltr) USA-EPA Method 24 406 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation
Coated surfaces
To be applied on a clean, dry Safeguard Universal ES. The primer must be fresh, not applied more than three days prior to the SeaLion Tiecoat application.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate must be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. The air temperature must be minimum 5ºC. Good ventilation is usually required in confined areas to ensure proper drying. Relative humidity during application and drying should be minimum 30%.

Application methods

Spray	Use airless spray
Other	Care should be taken to avoid overspray onto other coated areas.

Application data

Mixing ratio (volume)	16,7 litres Comp. A (base) to be mixed thoroughly with 0,6 litres Comp. B (Curing agent). Then add 0,9 litre comp. C (catalyst) and mix thoroughly again.
Pot life (23°C)	1 hours
	0,5 hours (40ºC)
Thinner/Cleaner	Do not thin.
Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (211 kp/cm², 3000 psi).
Nozzle tip	0,38 mm - 0,53 mm (0,015" - 0,021")
Filter	Check to ensure that filters are clean
Note	Sagging may occure if application procedure and specification are not followed.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**15°C**	**23°C**	**40°C**
Surface dry	17 h	15 h	12 h	6 h	3 h
Dry to recoat, minimum	24 h	24 h	24 h	15 h	6 h
Dry to recoat, maximum	4 d	4 d	4 d	4 d	4 d

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

SeaLion Tiecoat MUST only be applied on Safeguard Universal ES.
Application on any other substrate can give adverse effects on adhesion.

The SeaLion FRC system constitutes of SeaLion Tiecoat and SeaLion Topcoat. SeaLion Tiecoat is applied to anticorrosive layer as adhesion promotion layer for SeaLion Topcoat.

Muki EPS (optional)	1 x 30 µm	(Dry Film Thickness)
Anticorrosive primer system suitable for purpose	1 x 200 µm	(Dry Film Thickness)
Safeguard Universal ES	1 x 100 µm	(Dry Film Thickness)
SeaLion Tiecoat	**1 x 90 µm**	**(Dry Film Thickness)**
SeaLion Topcoat	1 x 135 µm	(Dry Film Thickness)

Overcoating with itself (SeaLion Tiecoat) is not recommended.

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

16,7 litre Comp. A (base) in a 20 litre container, 0,6 litre Comp. B in a 0,75 litre container and 0,9 litre Comp. C in a 1 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaMate

Product description
Antifouling SeaMate is a high solids self-polishing antifouling, based on silyl acrylate binder technology. This binder hydrolyses in seawater to ensure linear polishing rate and result in the continuous exposure of fresh antifouling. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
As an antifouling for newbuildings and major refurbishment, for side and flatbottom areas for vessels with drydocking intervals up to 90 months.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	175
Film thickness, wet (µm)	135	320
Theoretical spreading rate (m²/l)	7	3,14

Physical properties

Colour	Dark Red & Light Red
Solids (vol %)*	55 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	3,35 lbs/gal (401 gms/ltr) USA-EPA Method 24 401 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation
Coated surfaces
Prior to paint application, all surfaces should be clean, dry and free from contamination. Remove surface contamination by high pressure fresh water cleaning. To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. The coating should not be exposed to oil, chemicals or mechanical stress until it is thoroughly dried. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss and discolouration.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2 h	45 min	30 min	30 min
Through dry	24 h	12 h	6 h	4 h	3 h
Dry for launching [1]	48 h	36 h	12-22 h	10-20 h	8-16 h
Dry to recoat, minimum [2]	48 h	36 h	9 h	7 h	6 h

Substrate temperature	**5°C**
Surface dry	60 min
Through dry	8 h
Dry for launching [1]	12-24 h
Dry to recoat, minimum [2]	12 h
Dry to recoat, maximum	

1. The interval indicates the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness. When three or more AF coats are applied in a rapid succession it is recommended to use the longest launch interval.
2. The substrate should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Universal ES, Safeguard Plus or Vinyguard SG 88 as a sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 18 JANUARY 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaQuantum Classic

Product description
SeaQuantum Classic is a high performance self-polishing and self-smoothening antifouling coating, based on a hydrolysing organosilyl polymer as binder. This binder dissolves in seawater at a rate permitting the continuous exposure of fresh antifouling.
IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
As an antifouling coating for newbuildings and major refurbishment, for bottop, side- and flatbottom areas with drydocking intervals up to 60 months.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	150
Film thickness, wet (µm)	160	320
Theoretical spreading rate (m²/l)	6,2	3,1

Physical properties

Colour	Standard; Dark Red & Light Red (Made-To-Order; Blue, Black and Green)
Solids (vol %)*	47 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	3,92 lbs/gal (470 gms/ltr) USA-EPA Method 24

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Antifouling coatings; VOC 470 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.77; Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

Coated surfaces
Prior to paint application, all surfaces should be clean, dry and free from contamination. Remove surface contamination by high pressure fresh water cleaning. To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. The coating should not be exposed to oil, chemicals or mechanical stress until it is thoroughly dried. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss and discolouration.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Mixing	Always to be mixed thoroughly with a power agitator before application
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2 h	45 min	30 min	30 min
Dry for launching [1]	36 h	24 h	10 h	9 h	8 h
Dry to recoat, minimum [2]	24 h	16 h	9 h	7 h	6 h

1. Indicates the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness. When three or more antifouling coats are applied in a rapid succession it is recommend to double the launch time. When applying at low temperatures (below 10°C), high humidity and low ventilation will increase the drying time. As antifoulings are physically drying paints, good ventilation is required especially on the flat bottom and in sea chests. If thinning is required at these lower temperatures, special attention should then be given to the application reduce the risk of sagging.

2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with Safeguard Plus or Safeguard Universal ES as sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. Shelf life at 23°C: 12 months for standard colour(s) and 6 months for other colour(s), if available. Thereafter the paint quality is subject to re-inspection.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 15 APRIL 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaQuantum Plus

Product description
Antifouling SeaQuantum Plus is a tin-free high performance self-polishing antifouling, based on a hydrolysing organosilyl polymer as binder. This binder dissolves in seawater at a rate permitting the continuous exposure of fresh antifouling. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
As an antifouling for newbuildings and major refurbishment, for side and flatbottom areas on vessels operating at medium/high speed with drydocking intervals up to 60 months.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	150
Film thickness, wet (µm)	160	320
Theoretical spreading rate (m²/l)	6,2	3,1

Comments
Hong Kong rules: Category of paints - Antifouling coatings; VOC 470 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.76;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Dark Red, Light Red
Solids (vol %)*	47 ± 2
Flash point	25±2 (Setaflash)
VOC	3,92 lbs/gal (470 gms/ltr) USA-EPA Method 24 460 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation

Coated surfaces

To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling in accordance with Jotun's requirements. Remove surface contamination by high pressure fresh water cleaning.

Other surfaces

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	45 min	30 min	15 min
Through dry	8 h	6 h	4 h	3 h
Dry for launching [1]	12-24 h	10-22 h	8-20 h	8-16 h
Dry to recoat, minimum [2]	12 h	9 h	7 h	6 h

1. Indicate the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Universal ES or Vinyguard Silvergrey 88 as sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaQuantum Plus S

Product description
SeaQuantum Plus S is a tin-free high performance self-polishing antifouling, based on advanced hydrolysing organosilyl polymer as binder. This binder dissolves in seawater at a rate permitting the continuous exposure of fresh antifouling. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
As an antifouling for newbuildings and major refurbishment, for side and flatbottom areas on vessels operating at high speed and high activity with drydocking intervals up to 90 months.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	175
Film thickness, wet (µm)	150	350
Theoretical spreading rate (m²/l)	6,6	2,8

Physical properties

Colour	Dark Red, Light Red
Solids (vol %)*	50 ± 2
Flash point	25±2 (Setaflash)
VOC	3,84 lbs/gal (460 gms/ltr) USA-EPA Method 24 430 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Hong Kong rules: Category of paints - Antifouling coatings; VOC 460 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.82;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

Coated surfaces
To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling in accordance with Jotun's requirements. Remove surface contamination by high pressure fresh water cleaning.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The coating could be applied down to -15°C surface temperature. Temperature of the substrate should be minimum 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying and curing. The coating should not be exposed to oil, chemicals or mechanical stress until it is thoroughly dried. During application and the initial drying of the coating, the coating should not be exposed to high humidity as this can result in loss of gloss and discolouration.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**-10°C**	**0°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2 h	45 min	30 min	30 min
Through dry	24 h	12 h	6 h	4 h	3 h
Dry for launching [1]	48 h	36 h	12-22 h	10-20 h	8-16 h
Dry to recoat, minimum [2]	48 h	36 h	9 h	7 h	6 h

Substrate temperature	**5°C**
Surface dry	60 min
Through dry	8 h
Dry for launching [1]	12-24 h
Dry to recoat, minimum [2]	12 h
Dry to recoat, maximum	

1. Indicate the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness. When three or more AF coats are applied in a rapid succession it is recommended to use the longest launch interval.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.
3. When applying at low temperatures (below 10°C), high humidity and low ventilation will increase the drying time. As antifoulings are physically drying paints, good ventilation is required especially on the flat bottom and in sea chests. If thinning is required at these lower temperatures, special attention should then be given to the application reduce the risk of sagging.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Plus or Safeguard Universal ES as sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 1 DECEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaQuantum Static

Product description
SeaQuantum Static is a self polishing antifouling based on our silyl acrylate binder technology. This binder hydrolyses in seawater at a rate permitting the continuous exposure of fresh antifouling. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
Specially designed to perform as an antifouling for side and flat bottom on newbuildings during outfitting or on laid-up or other stationary vessels (e.g. during major refurbishments) and on stationary installations. The product is also well suited to prevent biofouling in hull niche areas with limited water flow (e.g. sea chests, gratings, transducers faces, optical sensor housings and behind anodes) being prone to transport non-indigenous species.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	150
Film thickness, wet (µm)	160	320
Theoretical spreading rate (m²/l)	6,2	3,1

Physical properties

Colour	Dark Red, Light Red
Solids (vol %)*	47 ± 2
Flash point	25±2 (Setaflash)
VOC	3,92 lbs/gal (470 gms/ltr) USA-EPA Method 24 460 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation
Coated surfaces
To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling in accordance with Jotun's requirements. Remove surface contamination by high pressure fresh water cleaning.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	45 min	30 min	15 min
Through dry	8 h	6 h	4 h	3 h
Dry for launching [1]	12-24 h	10-22 h	8-20 h	8-16 h
Dry to recoat, minimum [2]	12 h	9 h	7 h	6 h

1. Indicate the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Universal ES or Vinyguard Silvergrey 88 as sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaQuantum Ultra

Product description
Antifouling SeaQuantum Ultra is a tin-free high performance self-polishing antifouling, based on a hydrolysing organosilyl polymer as binder. This binder dissolves in seawater at a rate permitting the continuous exposure of fresh antifouling.
IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
As an antifouling on ships/ferries with short distance in service and frequent calls in port, on laid-up ships/storage tankers and on stationary installations.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	150
Film thickness, wet (µm)	160	320
Theoretical spreading rate (m²/l)	6,2	3,1

Comments
Hong Kong rules: Category of paints - Antifouling coatings; VOC 470 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.67;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Dark Red, Light Red
Solids (vol %)*	47 ± 2
Flash point	25±2 (Setaflash)
VOC	3,92 lbs/gal (470 gms/ltr) USA-EPA Method 24 460 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation

Coated surfaces

To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling in accordance with Jotun's requirements. Remove surface contamination by high pressure fresh water cleaning.

Other surfaces

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	45 min	30 min	15 min
Through dry	8 h	6 h	4 h	3 h
Dry for launching [1]	12-24 h	10-22 h	8-20 h	8-16 h
Dry to recoat, minimum [2]	12 h	9 h	7 h	6 h

1. Indicate the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Universal ES or Vinyguard Silvergrey 88 as sealer coat/tie-coat.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
SeaQuantum X200

Product description
SeaQuantum X200 is the latest development in tin-free high performance self-polishing antifouling, based on the latest development in hydrolysing silyl methacrylate copolymers. This copolymer dissolves in seawater at a rate permitting the continuous exposure of fresh antifouling and minimizing build up of leached layers. The product secures long term fuel performance by maintaining a smooth surface free of fouling. IMO Anti-fouling System Convention compliant (AFS/CONF/26).

Recommended use
As an antifouling for newbuildings and major refurbishment, for side and flatbottom areas on vessels with drydocking intervals up to 60 months where long term fuel economy is the primary focus.

Film thickness and spreading rate

	Minimum	Maximum
Film thickness, dry (µm)	75	175
Film thickness, wet (µm)	135	320
Theoretical spreading rate (m²/l)	7,3	3,1

Comments
Application of the product to 200 µm dry film thickness is possible if the application of the second coat is not overlapping at the same area where the overlap zone for the first coat.

Physical properties

Colour	Dark Red, Light Red
Solids (vol %)*	55 ± 2
Flash point	25±2 (Setaflash)
VOC	3,51 lbs/gal (420 gms/ltr) USA-EPA Method 24 392 gms/ltr UK-PG6/23(97). Appendix 3

*Measured according to ISO 3233:1998 (E)

Surface preparation

Coated surfaces

To be applied on a clean, dry approved primer/undercoat or intact self-polishing antifouling in accordance with Jotun's requirements. Remove surface contamination by high pressure fresh water cleaning.

Other surfaces

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	May be used but care must be taken to achieve the specified dry film thickness.
Roller	May be used. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi.).
Nozzle tip	0.53 - 0.78 mm (0.021 - 0.031").
Spray angle	65 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	45 min	30 min	15 min
Through dry	9 h	7 h	5 h	4 h
Dry for launching [1]	12-24 h	10-22 h	8-20 h	8-16 h
Dry to recoat, minimum [2]	13 h	10 h	8 h	7 h

1. Indicates the time which normally occurs in a drydocking situation where the drying time depends on the total film thickness of primer/antifouling applied. The drying time will increase with increasing film thickness.
2. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Recommended type of primer:

Anticorrosive primer system suitable for purpose with
Safeguard Plus or Safeguard Universal ES as sealer coat/ tie-coat.

Other systems may be specified, depending on area of use

Storage

Storage conditions are to keep the container in a dry, cool well ventilated space and away from source of heat and ignition and in accordance to national regulations. Containers must be kept tightly closed and kept away from freezing. Shelf life is minimum 12 months at 23ºC. Subject to re-inspection thereafter. Storage at elevated temperatures will reduce product shelf life significantly.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 17 FEBRUARY 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Se-lett

Product description
Se-Lett is a light reflecting paint transforming and reflecting light in a very visible bright colour.

Recommended use
Se-Lett is used for warning signs and signal colour on air planes and airports, transport material, quay structures, life rafts, beacons and buoys, signposts etc.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	30	50	40
Film thickness, wet (µm)	55	90	70
Theoretical spreading rate (m²/l)	19	11,2	14

Physical properties

Colour	Signal orange
Solids (vol %)*	56 ± 2
Flash point	40ºC ± 2 (Setaflash)
VOC	340 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2
Guiding data airless spray	
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	5 h	3 h	2 h	1 h
Through dry	25 h	14 h	7 h	3 h
Dry to recoat, minimum	36 h	18 h	16 h	12 h
Dry to recoat, maximum [1]				

1. The surface should be free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

A conventional corrosion protection system to be overcoated with:

Alkydprimer, Light Grey	2 x 40 µm	(Dry Film Thickness)
Se-Lett	**2 x 40 µm**	**(Dry Film Thickness)**

Se-Lett Clear Varnish	1 x 30 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

1 litre container
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Solvalitt

Product description
Solvalitt is a heat resisting paint based on silicone acrylic binder.

Recommended use
To be used as a topcoat on items exposed to high temperatures (up to 600ºC) in combination with Zinc Silicate coatings, maximum 400ºC.

Film thickness and spreading rate

Aluminium	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	30	20
Film thickness, wet (µm)	55	80	55
Theoretical spreading rate (m²/l)	19	12,7	19

Colours	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	30	20
Film thickness, wet (µm)	50	70	50
Theoretical spreading rate (m²/l)	21	14	21

Physical properties

Colour	Aluminium, Black, Green, Grey, White
Solids (vol %)*	40 ± 2 Aluminium 43 ± 2 Colours
Flash point	26°C (Setaflash)
VOC	**Aluminium** 4,43 lbs/gal (530 gms/ltr) USA-EPA Method 24 500 gms/ltr UK-PG6/23(97). Appendix 3 **Colours** 4,34 lbs/gal (520 gms/ltr) USA-EPA Method 24 490 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Aluminium sheen/Flat
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Other colours (limited range) can be supplied on request and may be subject to maximum temperature limitations below 600 °C depending on specific pigments heat resistance.
Please consult with Jotun local office for detail.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Coated surfaces
Cured and clean zinc silicate primer.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.38-0.48 mm (0.015-0.021")
Spray angle	40-60°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	60 min	45 min	30 min	15 min
Through dry	4 h	3 h	2 h	1,5 h
Dry to recoat, minimum	8 h	5 h	4 h	3 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 78, Resist 86 or Resist GTI	1 x 75 µm	(Dry Film Thickness)
Solvalitt	**1 - 2 x 20 µm**	**(Dry Film Thickness)**
or		
Solvalitt	**2 - 3 x 20 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

Storage condition are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. The container must be protected from freezing.
SHELF LIFE: 2 years at 23°C, subject to re-inspection thereafter. Storage at elevated temperatures will reduce product shelf life significantly.

Handling

Handle with care. Stir well before use.

Packing size

5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Solvalitt Midtherm

Product description
Solvalitt Midtherm is a mid temperature resisting paint based on acrylic modified silicone resins.

Recommended use
To be applied over steel substrate or over inorganic zinc silicate primer as topcoat for steelwork operating at temperature up to 260ºC.

Film thickness and spreading rate

Aluminium	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	40	30
Film thickness, wet (µm)	60	120	90
Theoretical spreading rate (m²/l)	17	8,5	11,3

Colours	Minimum	Maximum	Typical
Film thickness, dry (µm)	20	40	30
Film thickness, wet (µm)	50	100	75
Theoretical spreading rate (m²/l)	20	10	13,3

Physical properties

Colour	Aluminium, Black, Red, White
Solids (vol %)*	34 ± 2 Aluminium 40 ± 2 Colours
Flash point	27ºC ± 2
VOC	**Aluminium** 4,85 lbs/gal (580 gms/ltr) USA-EPA Method 24 545 gms/ltr UK-PG6/23(97). Appendix 3 **Colours** 4,47 lbs/gal (535 gms/ltr) USA-EPA Method 24 500 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Aluminium sheen/Flat
Flexibility	Good
Dry heat resistant	
Intermitent	Very good
Extended	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Coated surfaces
Cured and clean zinc silicate primer.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa min (150 kp/cm2, 2100 psi)
Nozzle tip	0.38 - 0.48 mm (0.015 - 0.021")
Spray angle	40 - 60º
Filter	Check to ensure that filters are clean.
Note	It is recommended to thin the paint by 5% with Jotun Thinner No. 7 when using conventional spray.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	45 min	30 min	15 min	10 min
Through dry	4 h	3 h	2 h	1 h
Dry to recoat, minimum	6 h	3 h	2 h	1 h
Dry to recoat, maximum [1]				

1 The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Resist 78, Resist 86 or Resist GTI	1 X 75 microns	(Dry film thickness)
Solvalitt Midtherm	1 X 30 microns	(Dry film Thickness)
or		
Solvalitt Midtherm	2 X 30 microns	(Dry film thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored below 25°C and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

SHELF LIFE: 24 months at 23°C. Higher temperatures during storage may reduce the shelf life and may lead to gelling in the tin. Handle with care. Stir well before use.

Packing size

5 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Spontan Varnish

Product description
Spontan Varnish is a clear varnish based on urethane alkyd

Recommended use
Protection of interior and exterior wood work.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	25	50	35
Film thickness, wet (µm)	60	120	85
Theoretical spreading rate (m²/l)	16,4	8,2	11,7

Physical properties

Colour	Transparent
Solids (vol %)*	41 ± 2
Flash point	36ºC ± 2 (Setaflash)
Gloss	Glossy
Gloss retention	Very good
Water resistance	Good
Abrasion resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

Clean and dry surface. Surface contamination is to be removed by detergents and fresh water cleaning.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 2

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	3 h	2 h	1 h	0,5 h
Through dry	20 h	9 h	4 h	2 h
Dry to recoat, minimum	36 h	12 h	8 h	4 h
Dry to recoat, maximum [1]				

1. The surface should be dry and free from any contamination prior to application of the subsequent coat.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Spontan Varnish 1 - 3 x 35 µm (Dry Film Thickness)
New wood-work should first be prepared with one coat Spontan Varnish thinned 10% with Jotun Thinner No. 2.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition.Containers must be kept tightly closed.

Handling
Handle with care. Stir well before use.

Packing size
5 litre container

Health and safety
Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Steelmaster 60/120

Product description
Steelmaster 60/120 is specially formulated solvent based, fully EPA VOC compliant and advanced technology thin film intumescent coating.

Recommended use
The product is designed to be used as the reactive midcoat in a full passive fire protection system.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	200	1400	700
Film thickness, wet (µm)	280	2000	1000
Theoretical spreading rate (m^2/l)	3,6	0,5	1

Approvals
BS 476 part 20/21
UK Rail track/Network rail approved for Specification RT98

Physical properties

Colour	Grey, White
Solids (vol %)*	71 ± 3
Flash point	25ºC ± 2 (Setaflash)
VOC	325 gms/ltr UK-PG6/23(97). Appendix 3
Gloss retention	Good
Water resistance	Limited
Abrasion resistance	Good
Chemical resistance	Limited
Flexibility	Limited

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2).

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack
Mixing	Do not thin/ready for use.
Cleaner	Clean equipment with Jotun thinner No.7
Guiding data airless spray	
Pressure at nozzle	Minimum 25 MPa (200 kp/cm², 2800 psi).
Nozzle tip	0.48-0.68mm (0.019-0.027").
Spray angle	40-100°
Filter	30 mesh internal filters recommended. Check to ensure that filters are clean.
Note	The Inside hose diameter of the spray line is required to be 10mm (except the whip end at 8mm) and the maximum recommended length of spray line is 60 Meters

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	2 h	1.5 h	1 h	30 min
Through dry	48 h	36 h	24 h	12 h
Dry to recoat, minimum	24 h	12 h	8 h	4 h
Dry to recoat, maximum [1]	7 d	4 d	2 d	1 d

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.
2. Early exposure to condensation (high humidity, low temperature) may cause colour and/or gloss variations.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Express ZP	1 x 75 µm	(Dry Film Thickness)
Steelmaster 60/120	**1 x 700 µm**	**(Dry Film Thickness)**
Pioneer Topcoat	1 x 50 µm	(Dry Film Thickness)

Primers and Topsealers must be compatible with Steelmaster 60/120 to ensure fire performance.
Contact your local Jotun office for a list of approved Jotun primers and topsealers
Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre and 5 litres units

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Steelmaster 60WB

Product description
Steelmaster 60WB is specially formulated water based, full EPA VOC compliant and advanced technology thin film intumescent coating.

Recommended use
The product is designed to be used as the reactive midcoat in a full passive fire protection system.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	205	700	500
Film thickness, wet (µm)	285	970	695
Theoretical spreading rate (m²/l)	3,5	1	1,4

Approvals
BS 476 part 20/21

Physical properties

Colour	White, Grey
Solids (vol %)*	72 ± 2
Flash point	63ºC ± 2 (Setaflash)
VOC	20 gms/ltr UK-PG6/23(97). Appendix 3
Water resistance	Limited
Abrasion resistance	Good
Chemical resistance	Limited
Flexibility	Limited

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray.
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack
Mixing	Electrical homogenous mixer
Cleaner	Do not thin/ready for use. Clean equipment with fresh water
Guiding data airless spray	
Pressure at nozzle	Minimum 20 MPa (200 kp/cm², 2800 psi).
Nozzle tip	0.43-0.53 mm (0.017-0.021").
Spray angle	40-100°
Filter	30 mesh internal filters recommended. Check to ensure that filters are clean.
Note	The Inside hose diameter of the spray line is required to be 10mm (execpt the whip end at 8mm) and the maximum recommended length of spray line is 60 Meters

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Around 50% RH

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	8 h	4 h	2 h	1 h
Through dry	48 h	24 h	12 h	8 h
Dry to recoat, minimum	16 h	8 h	6 h	3 h
Dry to recoat, maximum [1]	3 d	2 d	1 d	12 h

1. The surface must be free from any chalking or any other contamination and if necessary, sufficiently roughened prior to application.
2. Early exposure to condensation (high humidity, low temperature) may cause colour and/or gloss variations.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard Express ZP	1 x 75 µm	(Dry Film Thickness)
Steelmaster 60WB	**1 x 500 µm**	**(Dry Film Thickness)**
WaterFine Topcoat	1 x 50 µm	(Dry Film Thickness)

Primers and Topsealers must be compatible with Steelmaster 60WB to ensure fire performance.
Contact your local Jotun office for a list of approved Jotun primers and topsealers.
Other systems may be specified, depending on area of use

Storage

The product must be stored between the storage temperature of 5°C and 35°C, and in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space, and away from direct sunlight, source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

18.5 litre and 5 litre units

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard 412

Jotun Protects Property

Product description
Tankguard 412 is a solvent-free, two-pack epoxy tank coating.

Recommended use
Tankguard 412 is designed for use in Potable Water (drinking water) tanks.
Tankguard 412 can also be used for corrosion protection for the internal lining of steel storage tanks and for friction reduction in gas pipes - please contact Jotun for specific recommendations.

Film thickness and spreading rate

As tank coating	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	500	200
Film thickness, wet (µm)	150	500	200
Theoretical spreading rate (m²/l)	6,7	2	5

As internal pipe coating	Minimum	Maximum	Typical
Film thickness, dry (µm)	60	500	200
Film thickness, wet (µm)	60	500	200
Theoretical spreading rate (m²/l)	16,7	2	5

Comments
When used in drinking water tanks, do not thin.
When used for pipe coating at raised temperature it is recommended to aim for an average DFT between 80 - 100 microns DFT above the profile of the steel. These low DFTs are only possible with paint material at 40°C.

Hong Kong rules:
Category of paints - Tank lining coatings; VOC 130 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.50 (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
1. The Norwegian Institute of Public Health (Nasjonalt Folkehelseinstitutt) has approved Tankguard 412 for use in contact with potable water. The approval requires curing at temperature min 23°C for 7 days after application.
2. BS6920 part 1: 2000 clause 5,7 and 8, WRc-NSP Ltd., 2011
3. AS/NZS 4020:2005, Australian Water Quality Centre
4. ANSI/NSF Standard 61 for potable water in USA, Underwriters Laboratories Inc.

Physical properties

Colour	Black, Green, Red , White
Solids (vol %)*	100 ± -2
Flash point	>100ºC (Setaflash)
VOC	0,83 lbs/gal (100 gms/ltr) USA-EPA Method 24 40 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and minimum 3°C above the dew point of the air. Best intercoat adhesion is obtained by utilising the induction time indicated after mixing of the two components and with Relative Humidity below 60% during the application process. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray.
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	2:1
Mixing	2 parts Comp. A (base) to be mixed thoroughly with 1 part Tankguard 412, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	1 hour (reduced at higher temperature).
Cleaner	Flush the application equipment with Jotun Thinner No. 28 prior to application. Use Jotun Thinner No. 17 for cleaning equipment after application.
Guiding data airless spray	
Pressure at nozzle	25 - 35 MPa (3600 - 5000 p.s.i.)
Nozzle tip	0.53 mm - 0.66 mm (0.021" - 0.026")
Spray angle	40° - 80°
Filter	Filters should be removed, both in the pump and the spray gun, due to the viscosity of the paint. Should, however, air bubbles in the paint be a problem a coarse filter may be employed. If used, check to ensure that filters are clean.
Note	* It is of vital importance that the nozzle and other parts of the spraying equipment are cleaned properly directly after the work is done due to the short pot life. * The hoses should be of good quality and not longer than necessary. * An extra whip 1 m prior to the spray gun may be used. * Preferably store both paint components at 23 – 28 degrees C. Be aware that higher storage temperature will shorten the pot life after mixing. For stripe coating, however, a lower paint temperature may be favourable, in order to get a sufficient pot life.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	15 h	6 h	1.5 h
Through dry	30 h	12 h	4 h
Cured [1]	15 d	7 d	4 d
Dry to recoat, minimum	30 h	12 h	4 h
Dry to recoat, maximum [2]	96 h	48 h	18 h

1. For potable water tanks intended to be used under Norwegian government regulations, the coating shall be cured at minimum 23°C for 7 days, i.e. immediately after coating application.
2. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

As tank coating		
Tankguard 412	**2 x 200 microns**	**(Dry Film Thickness)**
or		
Tankguard 412	**1 x 300 microns**	**(Dry Film Thickness)**
As internal pipe coating		
Tankguard 412	**1 x 80 -100 microns**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Optional washing procedures for potable water tanks

After the coating is fully cured, and before the tank is taken into use for potable water it should be thoroughly cleaned.

The letter of approval from the Norwegian Institute of Public Health specifies several possible procedures. Alternatively, one of the following procedures may be employed:

- High pressure fresh water washing using a temperature of minimum 30**°C**.
- Steam cleaning.
- Manually scrubbing the tank with warm water and an alkaline detergent.

Afterwards the tank surfaces should be flushed with clean fresh water.

For the BS6920 certificate there is no specific requirements to cleaning procedure, the only requirement is that the coating is properly cured and the tank cleaned preferably with fresh water before the tank is taken into use.

On completion of the washing the tank shall be emptied of water by pumping. The remaining water after pumping shall be removed by the use of towels and rags in order to ensure that contaminants are removed.
Evaporation will only concentrate remaining contaminants.

Please contact Jotun's local technical service team for further information, or refer to the Application guide.

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

15 litre unit: 10 litres Comp. A (Base) in a 20 litre container and 5 litres Tankguard 412, Comp. B (curing agent) in a 5 litre container.
Also available on special order in 1000 litre IBC containers, please contact Jotun for further information

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 6 APRIL 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard AST

Product description
Tankguard AST is a two-pack polyamide epoxy coating with excellent anti-static property without any graphite.

Recommended use
Tankguard AST is designed for gasoline or bulk crude tanks where anti-static coating is required.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	100	75
Film thickness, wet (µm)	100	200	150
Theoretical spreading rate (m²/l)	10	5	6,67

Physical properties

Colour	Light grey and Dark grey
Solids (vol %)*	50 ± 2
Flash point	25ºC ± 2 (Setaflash)
Gloss	Flat
Gloss retention	Fair
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and minimum 3°C above the dew point of the air. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. With forced ventilation, avoid heated air at first as this may cause surface drying and solvent entrapment. The coating should not be exposed to oil, chemicals or mechanical stress until fully cured.

Application methods

Spray	Use airless spray
Brush	Use a suitable brush. Care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Mixing	½ hour prior to use.
Pot life (23°C)	8 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 17
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi).
Nozzle tip	0.46 - 0.69mm (0.018-0.027")
Spray angle	40 - 80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	5 h	2,5 h	1 h
Through dry	16 h	8 h	4 h
Cured	14 d	7 d	3 d
Dry to recoat, minimum	16 h	8 h	4 h
Dry to recoat, maximum [1]			

1. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Penguard HB	2 x 100 µm	(Dry Film Thickness)
Tankguard AST	**1 x 75 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Preferred storage conditions are to keep the containers in a dry space provided with adequate ventilation. The containers should be sealed tightly.

Handling

Handle with care. Stir well before use.

Packing size

16 l Comp. A (base) in a 20 ltr. container and 4 l Comp. B (curing agent) in a 5 ltr container and 4 l Comp. A (base) in a 5 ltr. container and 1 l Comp. B (curing agent) in a 3 ltr. container.
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard CPC

Product description
Tankguard CPC is a low temperature cure epoxy coating designed specifically for use in tanks for Clean Petroleum Products.

Recommended use
Interiors of tanks. A separate resistance list and an application procedure are available. (The application procedure is referred to under "Other surfaces" and "Drying time").

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	150	100
Film thickness, wet (µm)	160	300	200
Theoretical spreading rate (m^2/l)	6,3	3,3	5

Physical properties

Colour	Light grey, Pink
Solids (vol %)*	50 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	3,5 lbs/gal (420 gms/ltr) USA-EPA Method 24 410 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Other surfaces
Erection joint: According to the application procedure.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. However when product is applied between 5ºC-10ºC then substrate should be min 5ºC above dew point. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Tankguard CPC, Comp. B (curing agent) ½ hour prior to use
Pot life (23°C)	8 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 23
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80ºC
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	0°C	5°C	10°C	23°C	40°C
Surface dry	15 h	12 h	7 h	3,5 h	1,5 h
Through dry	46 h	32 h	24 h	6 h	4 h
Cured [2]	-	28 d	14 d	7 d	3 d
Dry to recoat, minimum	48 h	36 h	24 h	12 h	5 h
Dry to recoat, maximum [1]	30 d	28 d	25 d	21 d	7 d

1. The surface should be dry and free from any contamination prior to application. If the maximum dry to recoat time is exceeded, please contact your local Jotun office for more information.
2. See the application procedure.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard CPC **2 x 125 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Tankguard CPC, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard DW

Product description
Tankguard DW is a solvent-free, two-pack epoxy tank coating.

Recommended use
Tankguard DW is designed for use in Potable Water (drinking water) tanks. For advice please refer to the "Application guide for Tankguard DW.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	400	200
Film thickness, wet (µm)	150	400	200
Theoretical spreading rate (m²/l)	6,7	2,5	5

Approvals
Tankguard DW has passed all requirements for BS 6920:2000 and has been approved by the Norwegian Institute of Public Health (Nasjonalt Folkehelseinstitutt) for use in contact with potable water.

Physical properties

Colour	White, Light grey
Solids (vol %)*	100 ± -2
Flash point	>100ºC (Setaflash)
VOC	0,25 lbs/gal (3 gms/ltr) USA-EPA Method 24 2 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Very good
Chemical resistance	Very good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and minimum 3°C above the dew point of the air. Best intercoat adhesion is obtained by utilising the induction time indicated after mixing of the two components and with Relative Humidity below 60% during the application process. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Note: Personal Protective Equipment (PPE) shall be used during all handling, mixing and application of the paint. Please consult the Safety Data Sheet (SDS) for details.

Application methods

Spray	Use airless spray.
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	2:1
Mixing	2 parts Comp. A (base) to be mixed thoroughly with 1 part Tankguard DW, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	1 hour (reduced at higher temperature).
Thinner/Cleaner	Do not thin.
Cleaner	Flush the application equipment with Jotun Thinner No. 28 prior to application. Use Jotun Thinner No. 17 for cleaning equipment after application.

Guiding data airless spray

Pressure at nozzle	25 - 35 MPa (3600 - 5000 p.s.i.)
Nozzle tip	0.46 mm - 0.66 mm (0.018” - 0.026”)
Spray angle	40° - 80°
Filter	Filters should be removed, both in the pump and the spray gun, due to the viscosity of the paint. Should, however, air bubbles in the paint be a problem a coarse filter may be employed. If used, check to ensure that filters are clean.

Note

* It is of vital importance that the nozzle and other parts of the spraying equipment are cleaned properly directly after the work is done due to the short pot life.
* The hoses should be of good quality and not longer than necessary.
* An extra whip 1 m prior to the spray gun may be used.
* Preferably store both paint components at 23 – 28 degrees C. Be aware that higher storage temperature will shorten the pot life after mixing.

For stripe coating, however, a lower paint temperature may be favourable, in order to get a sufficient pot life.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	15 h	10 h	3 h
Through dry	25 h	13 h	5 h
Cured [1]	14 d	7 d	4 d
Dry to recoat, minimum	25 h	13 h	5 h
Dry to recoat, maximum [2]	10 d	5 d	3 d

1. For potable water tanks intended to be used under Norwegian government regulations, the coating shall be cured at minimum 10°C for 21 days, i.e. immediately after coating application.
2. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard DW	**2 x 200 microns**	**(Dry Film Thickness)**
or		
Tankguard DW	**1 x 300 microns**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

OPTIONAL WASHING PROCEDURES FOR POTABLE WATER TANKS:

After the coating is fully cured, and before the tank is taken into use for potable water it should be thoroughly cleaned.

The letter of approval from the Norwegian Institute of Public Health specifies several possible procedures. Alternatively, one of the following procedures may be employed:

- High pressure fresh water washing using a temperature of minimum 30**°C**.
- Steam cleaning.
- Manually scrubbing the tank with warm water and an alkaline detergent.

Afterwards the tank surfaces should be flushed with clean fresh water.

For the BS6920 certificate there is no specific requirements to cleaning procedure, the only requirement is that the coating is properly cured and the tank cleaned preferably with fresh water before the tank is taken into use.

On completion of the washing the tank shall be emptied of water by pumping. The remaining water after pumping shall be removed by the use of towels and rags in order to ensure that contaminants are removed.
Evaporation will only concentrate remaining contaminants.

Please contact Jotun's local technical service team for further information, or refer to the Application guide.

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

15 litres unit: 10 litres Comp. A (Base) in a 20 litre container and 5 litres Tankguard DW, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 6 APRIL 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard HB

Jotun Protects Property

Product description
Tankguard HB is a high-build epoxy coating with high resistance to a wide range of chemicals and solvents.

Recommended use
Interiors of tanks and gas pipes. A separate resistance list is available.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	150	100
Film thickness, wet (µm)	160	300	200
Theoretical spreading rate (m^2/l)	6,3	3,3	5

Physical properties

Colour	Light green, Light grey, Pink
Solids (vol %)*	50 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	3,5 lbs/gal (420 gms/ltr) USA-EPA Method 24 410 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent

*Measured according to ISO 3233:1998 (E)

Hong Kong rules:
Category of paints - Tank lining coatings; VOC 420 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.40 (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. However when product is applied between 5ºC-10ºC then substrate should be min 5ºC above dew point. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Tankguard HB, Comp. B (curing agent) prior to use.
Induction time	30 minutes.
Pot life (23°C)	8 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 23
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80ºC
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	5°C	10°C	23°C	40°C
Surface dry	12 h	7 h	3,5 h	1,5 h
Through dry	36 h	24 h	6 h	4 h
Cured [2]	-	14 d	7 d	3 d
Dry to recoat, minimum	36 h	24 h	12 h	5 h
Dry to recoat, maximum [1]	28 d	25 d	21 d	7 d

1. The surface should be dry and free from any contamination prior to application. If the maximum dry to recoat time is exceeded, please contact your local Jotun office for more information.
2. To achieve full chemical resistance a substrate temperature of at least 10ºC is needed.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard HB	**3 x 100 µm**	**(Dry Film Thickness)**
or		
Tankguard HB	**2 x 125 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Tankguard HB, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 6 APRIL 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard SF

Product description
Tankguard SF is a solvent-free, novolac phenolic epoxy tank coating.

Recommended use
Tankguard SF is designed to be used for corrosion protection for the internal lining of steel storage tanks e.g crude oil and Clean petroleum products. Tankguard SF has Jet A1 approval. Please contact Jotun for specific recommendations.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	150	500	200
Film thickness, wet (µm)	150	500	200
Theoretical spreading rate (m^2/l)	6,7	2	5

Approvals
Aviation Fuel certificate according to DEF STAN 80-97 Annex G.

Physical properties

Colour	Buff, Light grey, Light Red
Solids (vol %)*	100 ± -2
Flash point	>100ºC (Setaflash)
VOC	0,83 lbs/gal (90 gms/ltr) USA-EPA Method 24 30 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Glossy
Water resistance	Excellent
Abrasion resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and minimum 3°C above the dew point of the air. Best intercoat adhesion is obtained by utilising the induction time indicated after mixing of the two components and with Relative Humidity below 60% during the application process. The temperature and the relative humidity should be measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	2.2:1
Mixing	2.2 parts Comp. A (base) to be mixed thoroughly with 1 part Tankguard SF, Comp. B (curing agent).
Induction time	10 minutes.
Pot life (23°C)	1 hour (reduced at higher temperature).
Cleaner	Use Jotun Thinner No. 17 for cleaning equipment after application.
Guiding data airless spray	
Pressure at nozzle	25 - 35 MPa (3600 - 5000 p.s.i.)
Nozzle tip	0.46 mm - 0.66 mm (0.018” - 0.026”)
Spray angle	40° - 80°
Filter	Min. 60 mesh recommended. Check to ensure that filters are clean.
Note	* It is of vital importance that the nozzle and other parts of the spraying equipment are cleaned properly directly after the work is done due to the short pot life. * The hoses should be of good quality and not longer than necessary. * An extra whip 1 m prior to the spray gun may be used. * Both components should have a temperature between 23 and 28 degrees C prior to application. For stripe coating, however, a lower paint temperature may be favourable, in order to get a sufficient pot life.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**23°C**	**40°C**
Surface dry	15 h	6 h	1,5 h
Through dry	30 h	12 h	4 h
Cured	15 d	7 d	4 d
Dry to recoat, minimum	30 h	12 h	4 h
Dry to recoat, maximum	30 d	14 d	5 d

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard SF	**2 x 200 microns**	**(Dry Film Thickness)**
or		
Tankguard SF	**1 x 300 microns**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

11 litres Comp. A (Base) in a 20 litre container and 5 litres Tankguard SF, Comp. B (curing agent) in a 5 litre container

---

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard Special Primer and Mid-coat

Product description
Tankguard Special Primer and Mid-Coat is a two-component phenolic epoxy coating with high resistance to a wide range of chemicals and solvents.

Recommended use
Interior of tanks. Tankguard Special Primer and Tankguard Special Mid-Coat are the first and second coat in the Tankguard Special coating system. A separate resistance list is available.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	150	100
Film thickness, wet (µm)	125	240	160
Theoretical spreading rate (m²/l)	7,9	4,2	6,3

Physical properties

Colour	Light red (primer), Yellow (mid-coat)
Solids (vol %)*	63 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	310 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Fair

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Coated surfaces
Approved on top of thin coat (50 µm) of Tankguard HB

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application
The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Induction time	20 minutes.
Pot life (23°C)	3 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 23
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time
Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:
* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	10°C	15°C	23°C	40°C
Surface dry	18 h	10 h	5,5 h	2 h
Through dry	36 h	16 h	8,5 h	4 h
Cured	- d	14 d	7 d	3 d
Dry to recoat, minimum [2]	52 h	36 h	20 h	10 h
Dry to recoat, maximum [1]	18 d	12 d	7 d	4 d

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.
2. In order to achieve full product resistance, a combined total of 14 days curing at minimum 15ºC is required during build period.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard Special Primer	**100 µm**	**(Dry Film Thickness)**
Tankguard Special Mid-Coat	**100 µm**	**(Dry Film Thickness)**
Tankguard Special Topcoat	100 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Comp. B (curing agent) in a 5 litre container
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER
The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard Special Topcoat

Product description
Tankguard Special Topcoat is a two-component phenolic epoxy coating with high resistance to a wide range of chemicals and solvents.

Recommended use
Interior of tanks. Tankguard Special Topcoat is the final coat in the Tankguard Special coating system. A separate resistance list is available.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	150	100
Film thickness, wet (µm)	125	240	160
Theoretical spreading rate (m²/l)	7,9	4,2	6,3

Physical properties

Colour	Grey
Solids (vol %)*	63 ± 2
Flash point	25ºC ± 2 (Setaflash)
VOC	240 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Water resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Fair

*Measured according to ISO 3233:1998 (E)

Surface preparation

Clean and dry surface. Surface contamination is to be removed by detergents and fresh water cleaning.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3,7 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Induction time	20 minutes.
Pot life (23°C)	3 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 23
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**10°C**	**15°C**	**23°C**	**40°C**
Surface dry	16 h	10 h	5,5 h	2 h
Through dry	36 h	16 h	8,5 h	4 h
Cured	- d	14 d	7 d	3 d
Dry to recoat, minimum [2]	52 h	36 h	20 h	10 h
Dry to recoat, maximum [1]	18 d	12 d	7 d	4 d

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

2. In order to achieve full product resistance, a combined total of 14 days curing at minimum 15ºC is required during build period.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard Special Primer	100 µm	(Dry Film Thickness)
Tankguard Special Mid-Coat	100 µm	(Dry Film Thickness)
Tankguard Special Topcoat	**100 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 14.7 litres Comp. A (base) in a 20 litre container and 4 litres Comp. B (curing agent) in a 5 litre container
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard Special Ultra

Product description
Tankguard Special Ultra is a two-component phenolic epoxy coating with high resistance to a wide range of chemicals and solvents.

Recommended use
A tank coating system specifically designed for interior of tanks on chemical carriers and product carriers. For details regarding carriage of various cargoes reference is made to the separate Tankcoating Resistance List.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	150	100
Film thickness, wet (µm)	125	240	160
Theoretical spreading rate (m^2/l)	7,9	4,2	6,3

Comments
Hong Kong rules: Category of paints - Tank lining coatings; VOC 300 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.57 (A+B);
Both VOC and Specific gravity values provided are typical values, which will vary according to colour chosen.

Approvals
Food Contact - FDA Compliant in accordance with section 175.300 of the Code of Federal Regulations

Physical properties

Colour	Light red, Yellow, Light grey
Solids (vol %)*	63 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	270 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Semigloss
Water resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Fair

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	4:1
Mixing	4 parts Comp. A (base) to be mixed thoroughly with 1 part Tankguard Special Ultra, Comp. B (curing agent)
Induction time	15 minutes.
Pot life (23°C)	2 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 23

Guiding data airless spray

Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**15°C**	**23°C**	**40°C**
Surface dry	24 h	16 h	6 h	4 h	2 h
Through dry	36 h	24 h	10 h	7 h	3 h
Cured	30 d	14 d	10 d	7 d	3 d
Dry to recoat, minimum	52 h	36 h	30 h	20 h	10 h
Dry to recoat, maximum [1]	30 d	30 d	25 d	21 d	7 d

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard Special Ultra **3 x 100 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16 litres Comp. A (base) in a 20 litre container and 4 litres Tankguard Special Ultra, Comp. B (curing agent) in a 5 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Tankguard Storage

Product description
Tankguard Storage is a two-component, high solid phenolic epoxy coating with high resistance to a wide range of chemicals and solvents.

Recommended use
Corrosion protection for the internal lining of steel storage tanks being resistant to a wide range of chemicals including, but not limited to, crude oil and aromatic and aliphatic solvents and others.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	100	200	125
Film thickness, wet (µm)	160	320	200
Theoretical spreading rate (m²/l)	6,3	3,2	5

Physical properties

Colour	Light grey, Light Red, Red
Solids (vol %)*	63 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	2,5 lbs/gal (300 gms/ltr) USA-EPA Method 24 310 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Solvent resistance	Excellent
Chemical resistance	Excellent
Flexibility	Fair

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501 1:2007). Roughness: using abrasives suitable to achieve Grade Medium G (50 - 85 µm, Ry5) (ISO 8503-2).

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 10°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure proper drying. The coating should not be exposed to oil, chemicals or mechanical stress until cured.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	6,5:1
Mixing	6,5 parts Comp. A (base) to be mixed thoroughly with 1 part Comp. B (curing agent)
Induction time	20 minutes.
Pot life (23°C)	4 hours (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 23
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	10°C	15°C	23°C	40°C
Surface dry	15 h	12 h	4 h	2 h
Through dry	24 h	20 h	10 h	4 h
Cured	- d	14 d	7 d	3 d
Dry to recoat, minimum [2]	24 h	20 h	10 h	4 h
Dry to recoat, maximum [1]	30 d	30 d	30 d	30 d

1. The surface should be free from chalking and contamination prior to application. If the maximum dry to recoat time is exceeded, please contact Jotun for advice.
2. In order to achieve full product resistance, a combined total of 14 days curing at minimum 15ºC is required during build period.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Tankguard Storage **2 x 125 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 16.3 litres Comp. A (base) in a 20 litre container and 2.5 litres Comp. B (curing agent) in a 3 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN

Technical Data
Tankguard Zinc

Product description
Tankguard Zinc is a two-pack, moisture curing, ethyl silicate based zinc-rich lining that complies with the compositional requirements for SSPC Paint 20 level 1 and ISO 12944. Can also be made to order with ASTM D520 Type II zinc dust.

Recommended use
As a lining for protection of tanks for chemicals and potable water onshore, offshore and on ships. A separate resistance list is available. Resistant to cyclic dry temperatures up to 400ºC.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	50	170	100
Film thickness, wet (µm)	75	250	150
Theoretical spreading rate (m^2/l)	13,4	3,9	6,7

Comments
Hong Kong rules: Category of paints -Tank lining coatings; VOC 500 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 2.59 (A+B);
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Approvals
The Norwegian Institute of Public Health (Nasjonalt Folkehelseinstitutt) has approved Tankguard Zinc for use in contact with potable water.

Physical properties

Colour	Grey
Solids (vol %)*	67 ± 2
Flash point	16ºC ± 2 (Setaflash)
VOC	463 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Excellent
Solvent resistance	Excellent
Chemical resistance	Excellent within pH-range 6-10
Flexibility	Good

*Measured according to OCCA Monograph No. 4

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast cleaning to Sa 2½ (ISO 8501-1:2007). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be min. 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Zinc silicate paints in general require moisture for curing. At low humidity the curing will be improved by gently sprinkling fresh water over the paint film, and/or by artificial humidification of the surrounding atmosphere.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	3:1
Mixing	18,5 kg/2,6L Jotun Zinc 100, Comp B (zinc dust) to be poured slowly into 7,8 litres Tankguard Zinc Comp. A (Base) during mechanical mixing. Stir until lump free and pass through a 60 mesh sieve.
Pot life (23°C)	8-12 hours. (Reduced at higher temp.)
Thinner/Cleaner	Jotun Thinner No. 4/25
Guiding data airless spray	
Pressure at nozzle	10 MPa (100 kp/cm², 1400 psi)
Nozzle tip	0.46-0.58 mm (0.018-0.023")
Spray angle	30-80°
Filter	Check to ensure that filters are clean.
Note	Adjusting spray pattern and drying may sometimes become necessary. Use max 5% Jotun Thinner No. 4 (fast evaporation) when temperature is low and Jotun Thinner No. 25 (slow evaporation) when temperature is high. REMARKS: Thinner should be added after mixing components.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity at 80%

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	30 min	15 min	13 min
Through dry	90 min	45 min	30 min	25 min
Cured [1]	36 h	24 h	12 h	7 h
Dry to recoat, maximum [2]	8 h	4 h	2 h	1 h

1. Fully cured film to be verified by MEK test (ASTM D 4752-87) and Coin test: Scrape the coating fiercely with a coin, a shining metallic lustre indicates a through cured coating.
1. For touch up by itself only

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

For interior of tanks:

Tankguard Zinc **1 x 100 µm** **(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Complete curing :

Tankguard Zinc must be completely cured before the tank is put into service. In order to achieve this the following procedures can be used:

- Apply 100 µm Tankguard Zinc
- Let the paint dry/ cure with good ventilation for 4 hours at 80-90% relative humidity and minimum 5°C.
- Spray water (seawater is preferred) on the coating and leave the tank closed. Repeat the water spraying 3 - 4 times during a 48 hours period
- Remove the water and let the tank dry.
- Complete curing should be verified by MEK test (ASTM D 4752-87) and Coin test: Scrape the coating fiercely with a coin, a shining metallic lustre indicates a through cured coating.

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. The component A must be stored below 25°C. The product component B is zinc dust and has no strict limitation's for storage. SHELF LIFE: 6 months at 23°C for Comp. A. , 4 years for comp. B, subject to re-inspection thereafter. Higher temperatures during storage may reduce the shelf life and may lead to gelling in the tin.

Handling

Handle with care. Stir well before use. Continuous stirring during application will prevent the heavy zinc pigment from settling.

Packing size

10.4 litre unit: 7.8 litres Comp. A in a 10 litre container and 18,5 kg/2,6 litres Jotun Zinc 100, Comp B (zinc dust) in a 20 litre container.
or
10.4 litre unit: 7.8 litres Comp. A in a 10 litre container and 18,5 kg/2,6 litres Jotun Zinc 100 ASTM D520 Type II, Comp B (zinc dust) in a 20 litre container.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 1 MARCH 2011 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
Vinyguard Silvergrey 88

Product description
Vinyguard Silvergrey 88 is a quick drying, modified vinyl primer.

Recommended use
As a tie coat or as a sealer for an antifouling system to be compliant with IMO Anti-fouling System Convention (AFS/CONF/26). Can also be used as a primer/touch-up primer under alkyd and acrylic coatings for steel structures.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	35	100	80
Film thickness, wet (µm)	95	260	210
Theoretical spreading rate (m^2/l)	10,9	3,8	4,8

Comments
When used as a sealer coat in 35µm dry film thickness, 5-10% additional thinning may be necessary.
Hong Kong rules: Category of paints - Antifouling sealer coatings; VOC 540 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.14;
Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

Physical properties

Colour	Aluminium, Aluminium Red toned
Solids (vol %)*	38 ± 2
Flash point	28ºC ± 2 (Setaflash)
VOC	530 gms/ltr UK-PG6/23(97). Appendix 3
Gloss	Flat
Water resistance	Very good
Abrasion resistance	Good
Solvent resistance	Limited
Chemical resistance	Good
Flexibility	Good

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 3ºC above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Jotun Thinner No. 7
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi)
Nozzle tip	0.46-0.69 mm (0.018-0.027")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	30 min	20 min	15 min	10 min
Through dry	4 h	3 h	2 h	1.5 h
Dry to recoat, minimum [1]	4 h	3 h	2 h	2 h
Dry to recoat, maximum [2]				

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Below water:

Vinyguard Silvergrey 88	**3 x 80 µm**	**(Dry Film Thickness)**

Above water:

Vinyguard Silvergrey 88	**2 x 80 µm**	**(Dry Film Thickness)**
Pioner Topcoat	1 x 50 µm	(Dry Film Thickness) alternatively
Pilot II	1 x 40 µm	(Dry Film Thickness)

Antifouling systems:
See recommendations in the antifouling technical data sheets.

Other systems may be specified, depending on area of use

Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
WaterFine Acrylic Primer

Product description
WaterFine Acrylic Primer is a one-pack anticorrosive primer based on an acrylic emulsion.

Recommended use
As primer on steel, galvanized steel and aluminium above waterline. The product is quick drying and give good corrosion protection in mildly to moderate corrosive environments. May be overcoated with water borne acrylics, solvent borne acrylics, alkyds, epoxies and polyurethane paints.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	80	200	80
Film thickness, wet (µm)	175	435	175
Theoretical spreading rate (m²/l)	5,7	2,3	5,7

Comments
VOC: 66 g/l (Actual).

Physical properties

Colour	Grey, Red
Solids (vol %)*	46 ± 2
Gloss	Flat
Water resistance	Good
Flexibility	Excellent

*Measured according to ISO 3233:1998 (E)

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel
Cleanliness: Blast-cleaning to Sa 2½ (ISO-8501-1:2007). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure conditions.

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
For aluminium and galvanized surface; cleaning with an alkaline detergent solution.

The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. Risk of dry spraying when applying at low relative humitity (below 30 %).

Application methods

Spray	Use airless spray or conventional spray (thin 5-10 % with fresh clean water)
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Water (Fresh clean water)
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi)
Nozzle tip	0.38 - 0.53 mm (0.015 - 0.023")
Spray angle	40-80°
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative Humidity 70%.

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	40 min	30 min	15 min
Through dry	3 h	2 h	1 h	0,5 h
Dry to recoat, minimum	3 h	2,5 h	1 h	1 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Corrosivity category C2 (ISO 12944):

WaterFine Acrylic Primer	**1 x 80 µm**	**(Dry Film Thickness)**
WaterFine Topcoat	1 x 50 µm	(Dry Film Thickness)

Corrosivity category C3 (ISO 12944):

WaterFine Acrylic Primer	**2 x 120 µm**	**(Dry Film Thickness)**
WaterFine Topcoat	1 x 40 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Procedure for preparation and cleaning of application equipment

To avoid solvent contamination of the water borne paint the spraying equipment has to be conditioned before use. All equipment containing solvents in the pump, hoses and gun have to be thoroughly cleaned according to the following instructions.

If the application equipment is made in stainless steel, designed for and only used for application of water borne coatings this preparation and cleaning procedure is not needed.

Before spraying:
Circulate Jotun Thinner No. 17 through the equipment and hoses. Then Jotun Thinner No. 4 before fresh clean water.

After spraying:
Clean the equipment and hoses with water and alkaline detergent (Kraftvask), then circulate Jotun Thinner No. 4 and finally Jotun Thinner No. 17.

Storage

Storage conditions are to keep the container in a dry, cool well ventilated space and away from source of heat and ignition and in accordance to national regulations. Containers must be kept tightly closed and kept away from freezing. Shelf life is minimum 12 months at 23ºC. Subject to re-inspection thereafter. Storage at elevated temperatures will reduce product shelf life significantly.

Handling

Handle with care. Stir well before use.

Packing size

20 litre container
Packing may vary from country to country according to local requirements.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
WaterFine Primer

Jotun Protects Property

Product description

WaterFine Primer is a two-pack, anticorrosive, quick drying, water borne epoxy primer/intermediate paint which cures down to 5°C. Contains active corrosion protective pigments and flashrusting inhibitors.

Recommended use

As a primer/intermediate paint on steel, aluminium, galvanized steel and thermally sprayed zinc surfaces above the waterline. May be overcoated with water borne acrylics, water borne epoxy and suitable solvent borne coatings.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	60	125	100
Film thickness, wet (µm)	135	270	220
Theoretical spreading rate (m²/l)	7,6	3,7	4,6

Physical properties

Colour	Grey, Red
Solids (vol %)*	46 ± 2
Flash point	Non flammable
Gloss	Glossy
Water resistance	Very good
Flexibility	Excellent

*Measured according to ISO 3233:1998 (E)

Theorectically calculated VOC: 60g/L

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Bare steel

Cleanliness: Blast cleaning to min. Sa 2 ½ (ISO 8501-1:2007) or for maintenance UHPWJ to WJ2 (NACE No.5/SSPC-SP 12). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2)

Shopprimed steel
Clean, dry and undamaged approved shopprimer.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is required in confined areas to ensure correct drying.

Application methods

Spray	Use airless spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	May be used for small areas but not recommended for first primer coat, however when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	1:1.2
Mixing	1 part of Comp. A to be thoroughly mixed with 1.2 part of WaterFine Primer, Comp. B. To secure a proper mix. a mechanical stirrer should be used to stir up both the components separately before mixture and during the mixing of the two components thoroughly down to the bottom of the can (mix for at least 5 minutes).
Induction time	15 minutes.
Pot life (23°C)	3 hours. NOTE: THE PAINT MUST NOT BE USED AFTER EXCEEDED POT LIFE TIME. USE E.G. AN ALARM CLOCK TO TELL WHEN THE POT LIFE HAS EXCEEDED.
Thinner	Water. Fresh clean water.
Cleaner	Jotun Thinner No. 17 and Jotun Thinner No. 4
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm² 2100 psi)
Nozzle tip	0.38-0.53 mm (0.017-0.023")
Spray angle	40-80°
Filter	Make certain that the filters are perfectly clean.
Note	In order to secure a proper mixing, it is recommended that the temperature of the two components is approximately 20ºC when mixing.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity 70%.

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	60 min	60 min	45 min	45 min
Through dry	5 d	2 d	1 d	1 d
Cured	20 d	14 d	7 d	5 d
Dry to recoat, minimum	24 h	10 h	1,5 h	1,5 h

Dry to handle : 5ºC = 6 hours, 10ºC = 2 hours, 23ºC = 2 hours, 35ºC = 1 hour.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Corrosivity category C4 (ISO 12944):

WaterFine Primer	**2 x 100 µm**	**(Dry Film Thickness)**
WaterFine Topcoat	1 x 50 µm	(Dry Film Thickness)

Corrosivity category C5-I (ISO 12944), (System 1, NORSOK M-501)

WaterFine Barrier	1 x 50 µm	(Dry Film Thickness)
WaterFine Primer	**1 x 120 µm**	**(Dry Film Thickness)**
WaterFine Topcoat	1 x 80 µm	(Dry Film Thickness)

Other systems may be specified, depending on area of use

Procedure for preparation and cleaning of application equipment

To avoid solvent contamination of the water borne paint the spraying equipment has to be conditioned before use. All equipment containing solvents in the pump, hoses and gun have to be thoroughly cleaned according to the following instructions.

If the application equipment is made in stainless steel, designed for and only used for application of water borne coatings this preparation and cleaning procedure is not needed.

Before spraying:
Circulate Jotun Thinner No. 17 through the equipment and hoses. Then Jotun Thinner No. 4 before fresh clean water.

After spraying:
Clean the equipment and hoses with water and detergent (Kraftvask), then circulate Jotun Thinner No. 4 and finally Jotun Thinner No. 17.

Storage

Storage conditions are to keep the container in a dry, cool well ventilated space and away from source of heat and ignition and in accordance to national regulations. Containers must be kept tightly closed and kept away from freezing. Shelf life at 23ºC: Comp. A, 2 years; Comp. B, 1 years. Subject to re-inspection thereafter. Storage at elevated temperatures will reduce product shelf life significantly.

Handling

Handle with care. Stir well before use.

Packing size

20 litre unit: 9 litres Comp. A in a 10 litre container and 11 litres WaterFine Primer, Comp. B in a 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Technical Data
WaterFine Topcoat

Jotun Protects Property

Product description
WaterFine Topcoat is an one-pack hard and glossy topcoat based on an acrylic emulsion with very good weather resistance.

Recommended use
As topcoat in a complete water borne corrosion protection coating system or as a topcoat in a hybrid system with suitable solvent borne/solvent free primer. WaterFine Topcat can also be used aesthetic finish over a wide range of existing weathered coating systems.

Film thickness and spreading rate

	Minimum	Maximum	Typical
Film thickness, dry (µm)	40	80	60
Film thickness, wet (µm)	110	220	170
Theoretical spreading rate (m²/l)	9,25	4,62	6,16

Physical properties

Colour	According to colour card and Multicolor Aqua tinting system
Solids (vol %)*	37 ± 2
VOC	0,88 lbs/gal (105 gms/ltr) USA-EPA Method 24
Gloss	Glossy
Gloss retention	Excellent
Water resistance	Good
Chemical resistance	Good
Flexibility	Excellent

*Measured according to ISO 3233:1998 (E)

Actual VOC in accordance with ISO 11890-1: 70 gms/ltr

Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

Coated surfaces
Clean, dry and undamaged compatible primer. Contact your local Jotun office for more information.

Other surfaces
The coating may be used on other substrates. Please contact your local Jotun office for more information.

Condition during application

The temperature of the substrate should be minimum 5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. Risk of dry spraying when applying at low relative humitity (below 30 %).

Application methods

Spray	Use airless spray or conventional spray
Brush	Recommended for stripe coating and small areas, care must be taken to achieve the specified dry film thickness.
Roller	Use a suitable roller. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Application data

Mixing ratio (volume)	Single pack.
Thinner/Cleaner	Water Fresh clean water
Guiding data airless spray	
Pressure at nozzle	15 MPa (150 kp/cm², 2100 psi)
Nozzle tip	0.38-0.53 mm (0.015 - 0.021")
Spray angle	40-80º
Filter	Check to ensure that filters are clean.

Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate
* Relative humidity 70%

Substrate temperature	**5°C**	**10°C**	**23°C**	**40°C**
Surface dry	90 min	30 min	25 min	20 min
Through dry	6 h	1,5 h	1 h	1 h
Dry to recoat, minimum	8 h	2,5 h	1,5 h	1 h

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

Typical paint system

Corrosivity category C4 (ISO 12944):

WaterFine Primer	2 x 60 µm	(Dry Film Thickness)
WaterFine Topcoat	**1 x 50 µm**	**(Dry Film Thickness)**

Corrosivity category C5-I (ISO 12944)

WaterFine Barrier	1 x 50 µm	(Dry Film Thickness)
WaterFine Primer	1 x 120 µm	(Dry Film Thickness)
WaterFine Topcoat	**1 x 80 µm**	**(Dry Film Thickness)**

Other systems may be specified, depending on area of use

Procedure for preparation and cleaning of application equipment

To avoid solvent contamination of the water borne paint the spraying equipment has to be conditioned before use. All equipment containing solvents in the pump, hoses and gun have to be thoroughly cleaned according to the following instructions.

If the application equipment is made in stainless steel, designed for and only used for application of water borne coatings this preparation and cleaning procedure is not needed.

Before spraying:
Circulate Jotun Thinner No. 17 through the equipment and hoses. Then Jotun Thinner No. 4 before fresh clean water.

After spraying:
Clean the equipment and hoses with water and alkaline detergent (Kraftvask), then circulate Jotun Thinner No. 4 and finally Jotun Thinner No. 17.

Storage

Storage condition are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed. The container must be protected from freezing.
SHELF LIFE: 2 years at 23°C, subject to re-inspection thereafter. Storage at elevated temperatures will reduce product shelf life significantly.

Handling

Handle with care. Stir well before use.

Packing size

5 or 20 litre container

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.

DISCLAIMER

The information in this data sheet is given to the best of our knowledge based on laboratory testing and practical experience. However, as the product can be used under conditions beyond our control, we can only guarantee the quality of the product itself. We also reserve the right to change the given data without notice. Minor product variations may be implemented in order to comply with local requirements.
If there is any inconsistency in the text the English (UK) version will prevail.

Jotun is a World Wide company with factories, sales offices and stocks in more than 50 countries. For your nearest local Jotun address please contact the nearest regional office or visit our website at www.jotun.com

ISSUED 26 NOVEMBER 2010 BY JOTUN
THIS DATA SHEET SUPERSEDES THOSE PREVIOUSLY ISSUED

Jotun
Protects
Property
jotun.com



Jotun Protects Property