Support Documents

PAINT DEFECTS

ADHESION FAILURE
Description:
Craters and water marks on the surface of the paint film caused by rain or heavy condensation.
Probable Causes:
Rain falling on a freshly painted surface causes craters to form on the surface before it has hardened sufficiently.
Prevention:
Allow coating (where practicable) to surface harden prior to exposure to rain or heavy condensation.
Repair:
Abrade, clean all surface damage areas and apply overall undercoat and or topcoat.



ALLIGATORING
Description:
Very large (macro) checking or cracking which resembles the skin of an alligator or crocodile. Cracks may penetrate through to the undercoat down to the substrate.
Probable Causes:
Internal stresses in the coating where the surface shrinks faster than the body of the paint film. Can be caused by excessive film thickness and limited paint flexibility. Also found on paint films having a soft undercoat with a hard topcoat.
Prevention:
Use correct coating specification and materials. Avoid excessive thickness. Avoid application at high ambient temperatures.

Support Documents

Repair:
Repair will depend upon size and extent of alligatoring. Abrade or remove all affected coats and apply suitable undercoat and topcoat. Follow recommended application procedures.



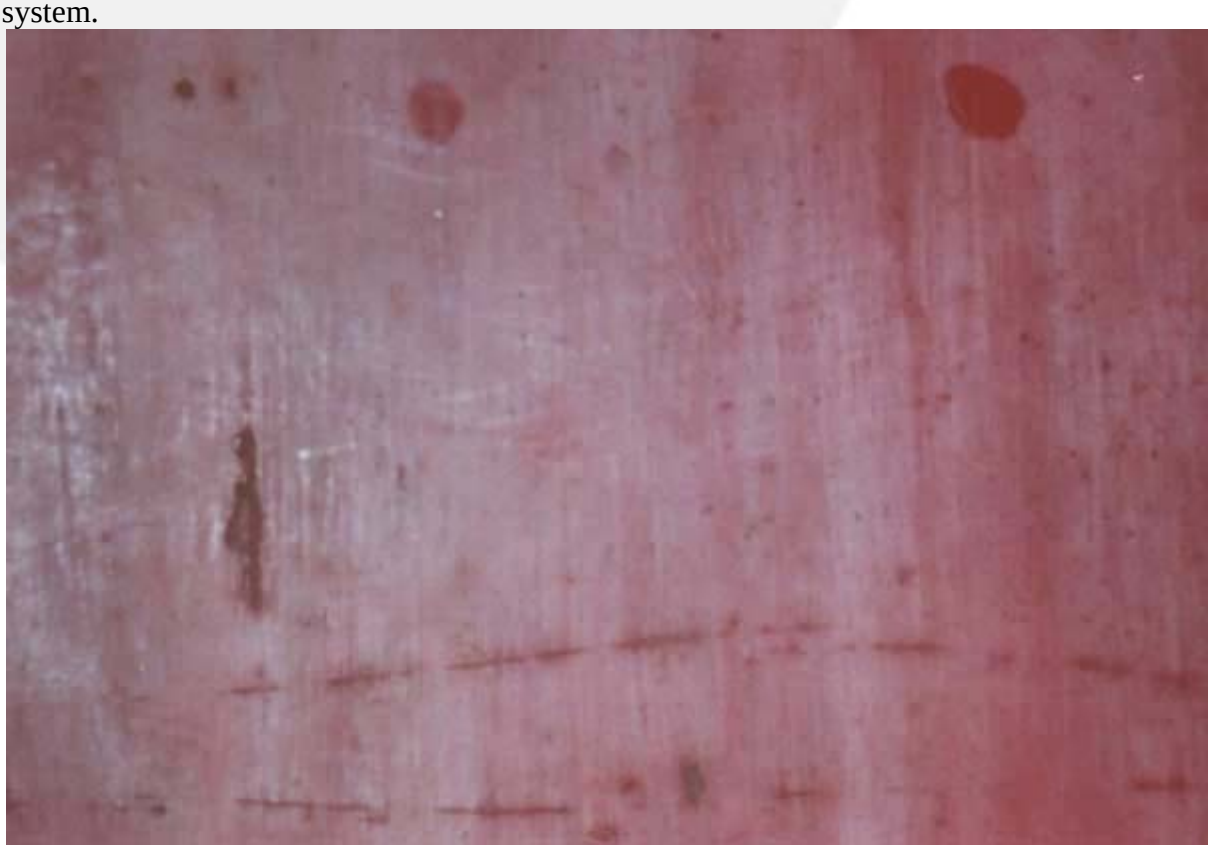
BITTINESS
Description:
Film contaminated by particles of paint skin, gel, flocculated material or foreign matter, which project above the surface of the paint film to give a rough appearance. The term Peppery is used when the bits are small and uniformly distributed.
Probable Causes:
The main cause is contamination within or on the surface of the paint film. This can be paint skin, gelled particles, airborne sand and grit or contamination from brushes, rollers etc.
Prevention:
Use clean application equipment and clean working environment. Use new, uncontaminated paint. Follow good painting practices.
Repair:
Repair depends on size and extent of problem. Abrade or completely remove the contaminated layer and recoat.



Support Documents

BLEACHING

Description:
Total loss of colour of a coating.
Probable Causes:
Bleaching due to weathering or chemical attack.
Prevention:
Use colour stable pigments or a system which will withstand the chemical environment.
Repair:
Remove bleached coating or abrade the surface and recoat using a more suitable coating system.



BLEEDING

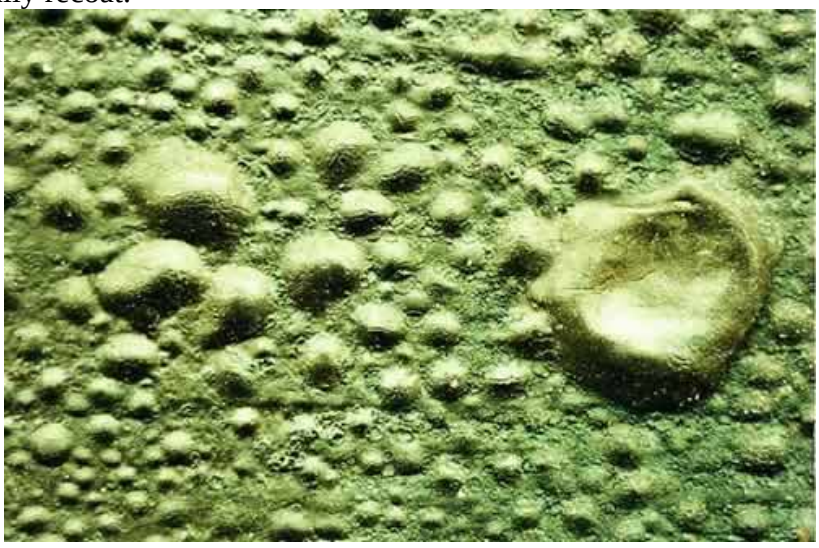
Description:
Staining of a paint film by diffusion of a soluble coloured substance from the underlying paint to give undesirable discoloration or staining . Very often, this is seen where bitumen or tar based products are over-coated with alkyd based or other conventional topcoats. Also occurs with emulsion paints.
Probable Causes:
'Bleed Through' is generally a full or partial redissolving of the previous coat. Bleeding can happen when strong solvents are used in the topcoats.
Prevention:
Use correct coating specification and materials. Use compatible materials. Use appropriate sealer coat.

Support Documents

Repair:
Remove stained or contaminated layer. Apply a suitable sealer coat which will not dissolve soluble material e.g. an aluminium pigmented coating.



BLISTERING
Description:
Dome shaped projections or blisters in the dry paint film through local loss of adhesion from the underlying surface. Blisters may contain liquid, gas or crystals.
Probable Causes:
Localised loss of adhesion caused by contamination with grease, oil, salts, trapped moisture, retained solvent, hydrogen pressure (on coatings used with cathodic protection), soluble pigmemts etc. Osmotic blistering can occur in immersed conditions.
Prevention:
Ensure correct surface preparation and application. Apply a suitable coating system.
Repair:
Depending upon size and type of blistering, remove blistered areas or entire coating system and repair or fully recoat.



Support Documents

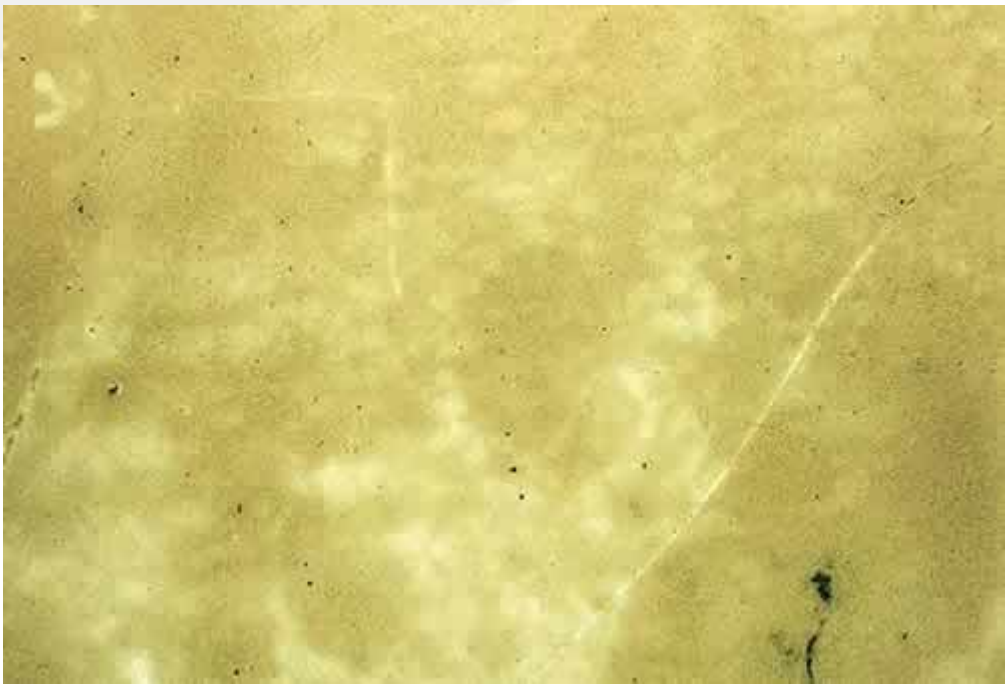
BLOOM

Description:
A hazy deposit on the surface of the paint film resembling the bloom on a grape, resulting in a loss of gloss and dulling of colour.

Probable Causes:
Paint film exposed to condensation or moisture during curing, (common phenomenon with amine cured epoxies). Incorrect solvent blend can also contribute to blooming.

Prevention:
Apply and cure coating systems under correct environmental conditions and follow the manufacturer's recommendations.

Repair:
Remove bloom with clean cloth or suitable solvent cleaners. If necessary, apply undercoat/topcoat following coating manufacturer's recommendations.



BRIDGING

Description:
The covering over of unfilled gaps such as cracks or corners with a film of coating material. This causes a weakness in the paint film which may crack, blister or flake off.

Probable Causes:
Poor application. High viscosity paint system. Failure to brush paint into corners and over welds.

Prevention:
Brush apply a stripe coat into corners and welds, and fill all cracks prior to application of the full coating system.

Support Documents

Repair:
Remove all loose paint, abrade the surface, apply a stripe coat by brush and recoat.



BRUSH MARKS
Description:
Undesirable ridges and furrows which remain in a dry paint film after brush application, where the paint film has not flowed out. May be found as a cross-hatch pattern (Laddering) where alternate coats have been applied in opposite directions. Pronounced brush marks are known as Ropiness.
Probable Causes:
Viscosity of material may be too high for brush application; Incorrect thinners used in the paint; Inadequate mixing or poor application technique. Two-pack paints may have exceeded application pot-life.
Prevention:
Use brushing grade of paint and apply adequate thickness. Thin paint to brushing viscosity. Use within pot-life
Repair:
Depending on extent of brush marks, thoroughly abrade surface and recoat with a suitable viscosity paint.



Support Documents

BUBBLES or BUBBLING

Description:

Bubbles within a paint film appear as small raised blisters. These may be intact or broken (to leave a crater). Can be found in excessively thick paint films, especially if spray applied, and also with roller application. This should not be confused with blistering.

Probable Causes:

Trapped air/solvent within the coating which is not released before the surface dries. Can be found with factory applied coatings where application is by dipping, electrodeposition or roller coating.

Prevention:

Spray application - use airless spray equipment, reduce viscosity with thinners. Use correct mixing equipment to ensure air is not stirred in during mixing. Add defoaming agent to emulsion paints.

Repair:

Depending on extent and severity of bubbling, abrade or remove the offending coat(s) and recoat.



CHALKING

Description:

A friable, powdery layer on the surface of a paint film. A change of colour or fading is also seen. Chalking rates vary with pigment concentration and choice of binder. Chalking is a known characteristic of certain paints e.g. epoxy paints.

Probable Causes:

Disintegration of the paint binder on exposure to weathering and/or UV light.

Prevention:

Apply a topcoat with high resistance to chalking, such as a polyurethane of acrylic.

Support Documents

Repair:
Remove all powdery deposits by abrasion or light sweep blast cleaning, wipe loose material off and apply a chalk resistant topcoat.

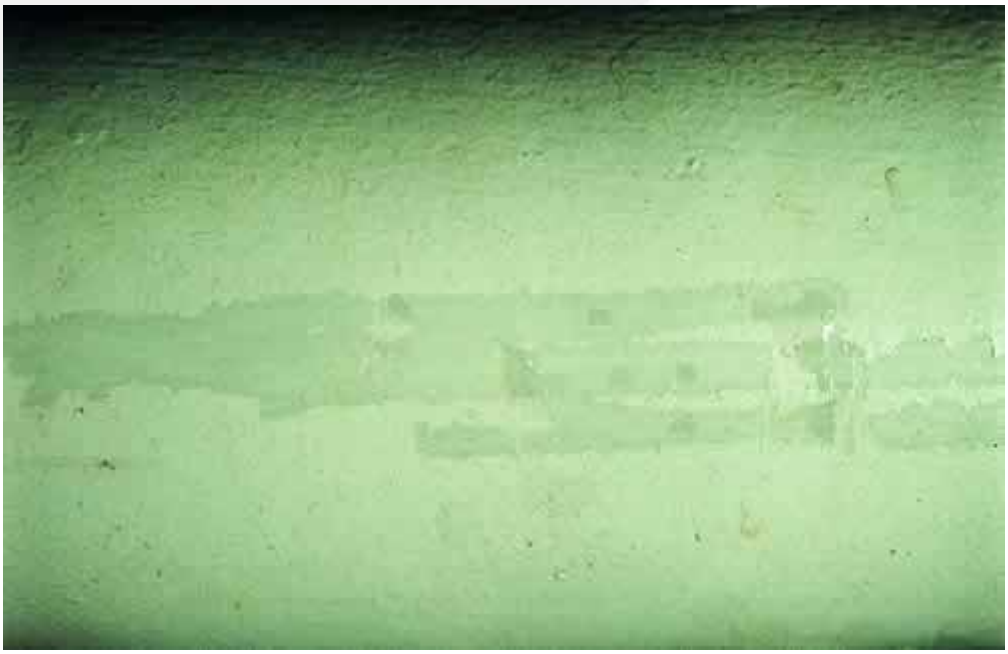


CHECKING
Description:
Fine cracks which do not penetrate the topcoat of a paint system. Some checking can be so minute that it is impossible to see without magnification.
Probable Causes:
Typically a formulation and/or a specification problem. As with cracking, stresses are developed which cause the surface of the paint film to become brittle and crack. Limited paint flexibility.
Prevention:
Use a correctly formulated coating system.
Repair:
Abrade and clean surface then apply an undercoat/topcoat to suit



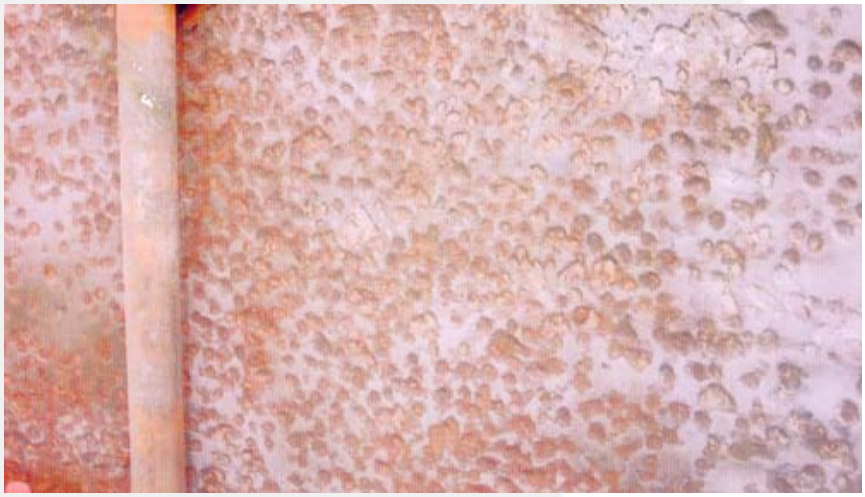
Support Documents

CHEESINESS (Soft Coating)
Description:
Fine cracks which do not penetrate the topcoat of a paint system. Some checking can be so minute that it is impossible to see without magnification.
Probable Causes:
Typically a formulation and/or a specification problem. As with cracking, stresses are developed which cause the surface of the paint film to become brittle and crack. Limited paint flexibility.
Prevention:
Use a correctly formulated coating system.
Repair:
Abrade and clean surface then apply an undercoat/topcoat to suit.



CHEMICAL EXPOSURE-ATTACK
Description:
The coatings is totally destroyed by a chemical attack or exosure. Attack to the surface is also possible.
Probable Causes:
Incorrect coating specification, wrong testing regime or uncontrolled exposure.
Prevention:
Correct testing and coating system. Monitor exposures.
Repair:
Total removal and recoat to specification.

Support Documents



CISSING

Description:

Surface breaks in a wet paint film, where the paint has receded to expose the underlying substrate. Sometimes known as crawling or fisheyes. The paint is unable to wet-out the substrate. Can be very large.

Probable Causes:

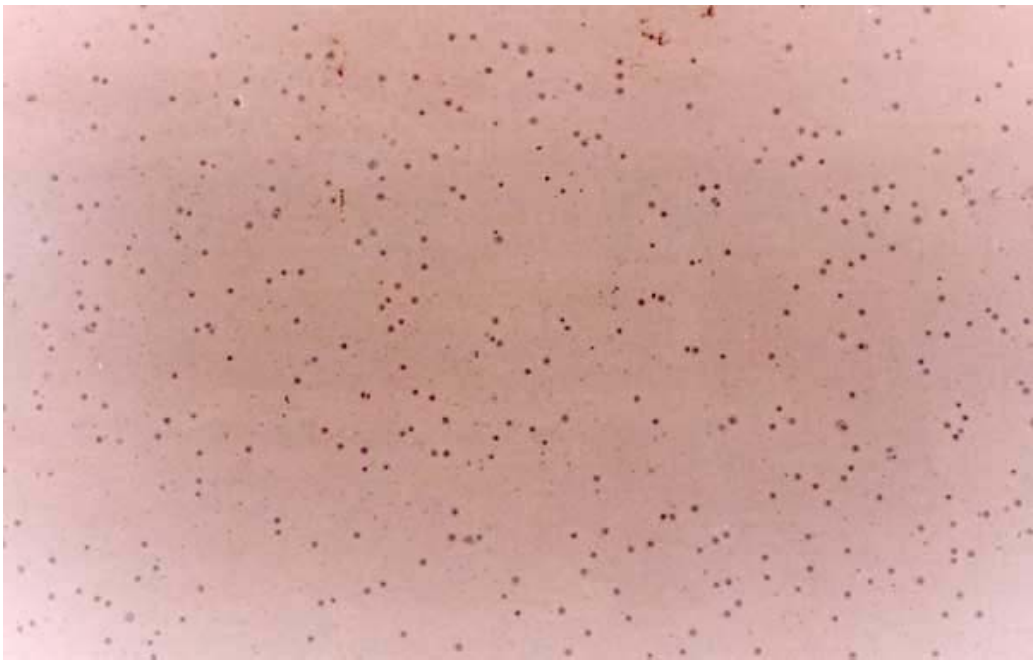
Surface contamination by either moisture or foreign matter such as oil, grease, silicone etc. Also known to happen when incorrect solvent blends have been used.

Prevention:

Ensure surface is clean and free from grease, oil and foreign contaminates prior to application of coating.

Repair:

Abrade and thoroughly clean the contaminated surface or remove the coating to achieve a clean surface. Reapply the coating system to the coating manufacturer's recommendations.



Support Documents

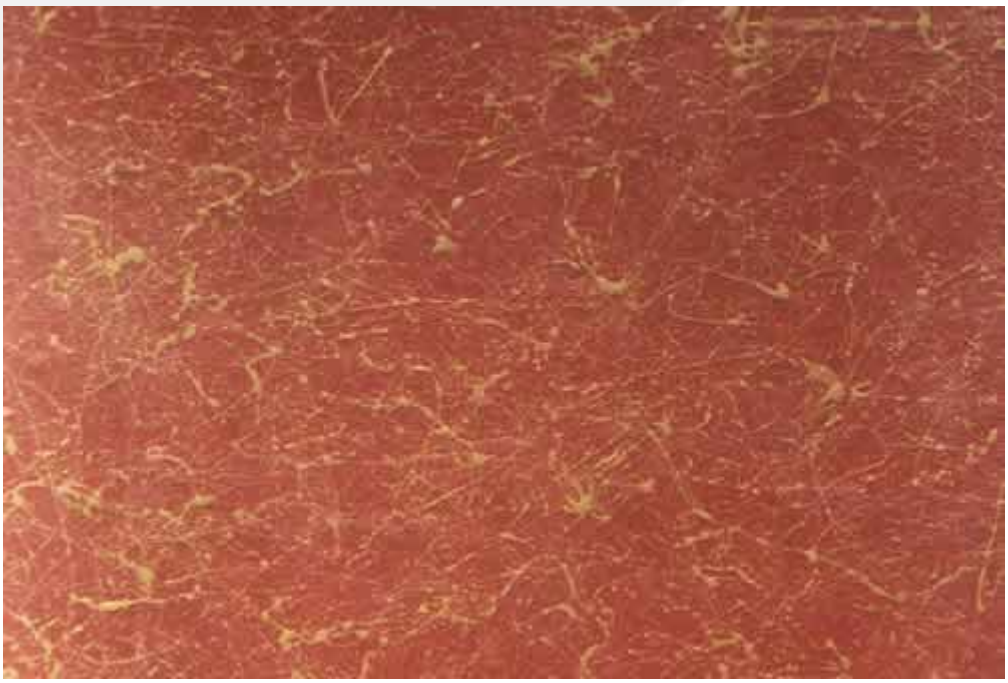
COBWEBBING

Description:
The production of fine filaments instead of normal atomised particles when some solutions of high molecular weight polymers are sprayed.

Probable Causes:
Too high a viscosity with some types of polymer solutions.

Prevention:
Reduce the spraying viscosity. Select a more suitable solvent blend. Change the spraying conditions.

Repair:
Abrade to remove all affected material and recoat.



CORROSION UNDER INSULATION

Description:
Coating breakdown followed by various forms of corrosion (crevice, pitting, general etc) Only visible once the insulation is removed. Because the coatings are not visible there is a tendency to assume the coatings are performing.

Probable Causes:
Usually lack of maintenance, however there are many other reasons including wrong coating system (poor specification)and damaged insulation allowing moisture, salts etc to reach the surface. Damage can be in one section and corrosion in another.

Prevention:
Correct design of the coating system to meet the environment under the insulation. The environment can change from one area to another. Correct plant maintenance should be conducted to the coatings/structure.

Repair:
Depends upon type of coatings failure or corrosion damage/surface loss.

Support Documents



CRACKING

Description:

Paint coatings with visible cracks which may penetrate down to the substrate. Cracking comes in several forms, from minute cracking to severe cracking.

Probable Causes:

Cracking is generally a stress related failure and can be attributed to surface movement, ageing, absorption and desorption of moisture and general lack of flexibility of the coating. The thicker the paint film the greater the possibility it will cracks.

Prevention:

Use correct coating systems, application techniques and dry film thicknesses. Alternatively, use a more flexible coating system.

Repair:

Abrade to remove all cracked paint. Correctly reapply the coating system or use a more flexible system and one less prone to cracking.



Support Documents

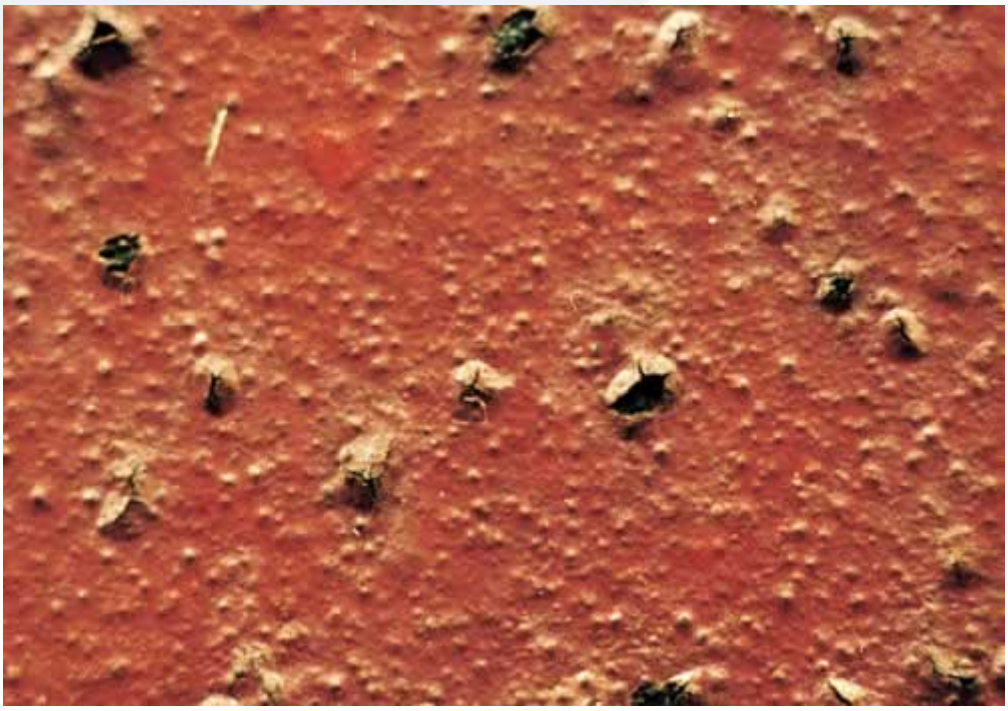
CRATERING

Description:
The formation of small bowl shaped depressions in the paint film. Not to be confused with Cissing.

Probable Causes:
Trapped air bubbles which have burst to leave small craters as the coating dries. The coating has insufficient time to flow into a uniform film.

Prevention:
Improve spray technique to avoid air entrainment. Add thinners as recommended by the paint supplier.

Repair:
Abrade and clean the surface and recoat.



CROWSFOOTING

Description:
The development of small wrinkles in the paint film which occur in a pattern resembling that of a crow's foot.

Probable Causes:
Usually due to the surface drying rapidly to form a skin which then wrinkles as solvent slowly evaporates from the soft underlying paint.

Prevention:
Apply a thinner coat of paint, add slower drying thinners, check application and drying conditions are correct for the paint system used.

Repair:
Abrade the surface when fully dry and recoat.

Support Documents





DELAMINATION
Description:
Loss of adhesion between coats of paint.
Probable Causes:
Provided compatible paint materials have been used, delamination defects are generally related to poor surface preparation and application defects, such as contamination between coats; exceeding overcoat times; application to a glossy surface.
Prevention:
Ensure no contamination between paint coats, closely follow intercoat times, lightly abrade and clean glossy surfaces between coats.
Repair:
Depending on extent, abrade and recoat or completely remove the delaminated coating and reapply.

DIRT RETENTION
Description:
Surface of coating collects dirt and grime. May cause discolouration and coating failure.
Probable Causes:
Lack of cleaning. Incorrect coating systems. Contamination during curing.
Prevention:
Periodical cleaning. Use of appropriate coating system. Ensure coating is cured prior to exposure.

Support Documents

Repair:
Clean surface and inspect coating. Repair as necessary.



DRYSPRAY
Description:
Rough and uneven finish to the surface of the paint film where the particles are insufficiently fluid to flow together.
Probable Causes:
Incorrect spray application i.e. gun distance. Also associated with fast drying products and too high an application temperature.
Prevention:
Use correct coating application equipment and techniques. Use a slower drying solvent or solvent blend. Follow recommended application procedures.
Repair:
Abrade and remove any loose dryspray and re-apply coating or topcoat.



EDGE BREAKDOWN

Support Documents

Description:
Coating failure, usually in the form of corrosion to edges of a structure. Can also happen to any areas of sharp edges such as welds etc.
Probable Causes:
Usually inadequate paint film thickness and/or lack of stripe coats(s). Steel surface may not have any pre-treatment such as a radius of the recommended 2mm.
Prevention:
Radius all edges where possible. Dress welds and protrusions. Apply brush/stripe coats at the appropriate time to suit coating system. This may be prior to full coat or after full coat.
Repair:
Depends upon extent of coating breakdown. Conduct localised repair where necessary, feather edge existing coating and spot repair.
Check compatibility between coats. Dress steelwork as necessary.



EFFLORESCENCE
Description:
White (powdery) substance on the substrate of concrete, brick, masonry and plaster. The efflorescence, which comes from the migration of salts, lifts the paint from the substrate.
Probable Causes:
Soluble salts within the substrate. Moisture brings the salts to the surface of the substrate resulting in coating adhesion failure.
Prevention:
Ensure surface is moisture free, clean and suitable for application of the coating system. Remove or eliminate the source of moisture.
Repair:
Remove all powdery substances and thoroughly clean the surface. Apply a suitable sealer and coating system formulated for concrete, masonry etc.

Support Documents



EROSION
Description:
Selective removal of paint films from areas or high spots.
Probable Causes:
The wearing away of the paint film by various elements such as rain, snow, wind, sand etc. Found to be more prominent on brush applied coatings because of the uneven finish.
Prevention:
Use a suitable coating system with resistance to surface erosion/abrasion.
Repair:
Clean surface free from contamination and apply a coating system formulated and tested for the specific environment.



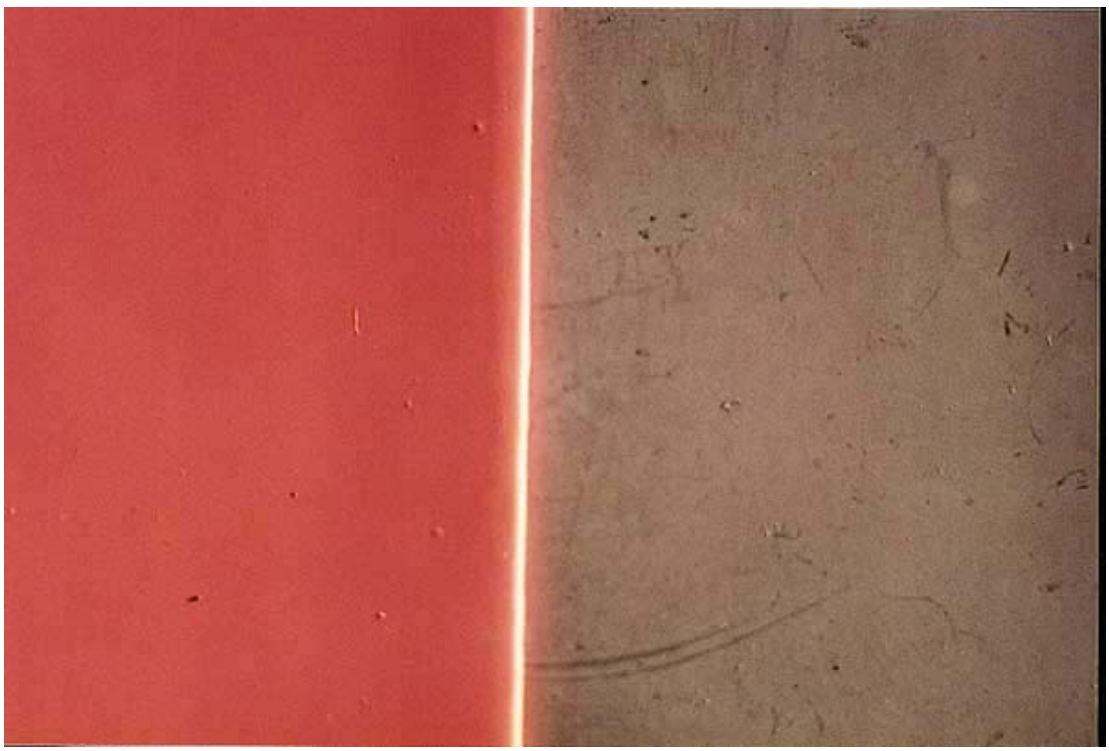
Support Documents

EXUDATION

Description:
Emergence of oily matter on the surface of the paint film after the coating has dried.
Probable Causes:
Incorrect mixing of two-pack paints. Incompatibility of one of the components.
Prevention:
Mix two-pack paints thoroughly and follow the manufacturer's instructions. Use a different paint system.
Repair:
Remove all affected coating and recoat.

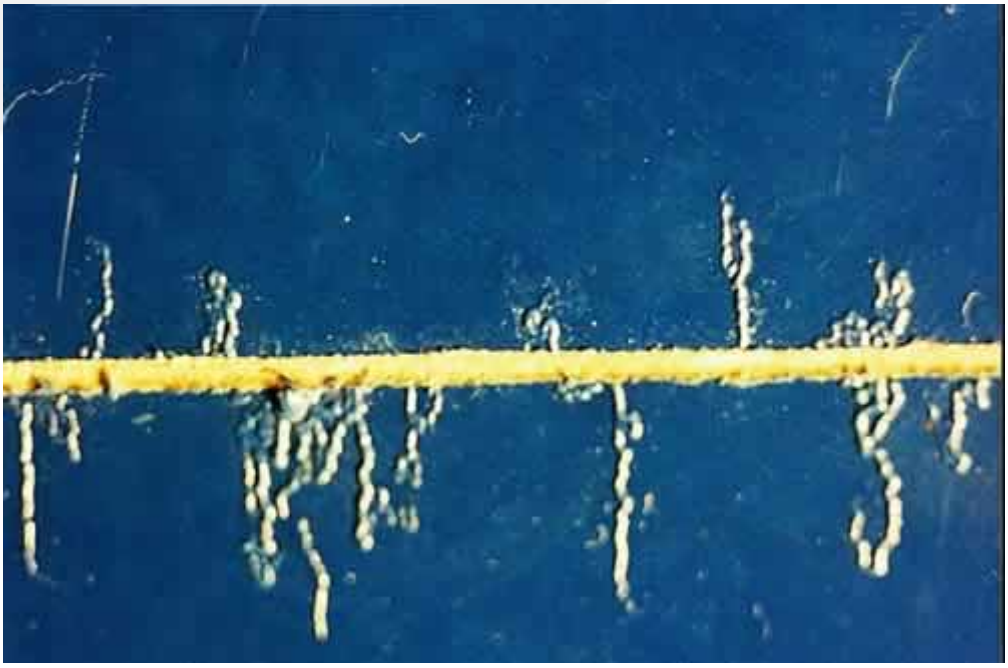
FADING-DISCOLOURATION

Description:
Discoloration or gradual decrease in colour of a paint when exposed to sunlight/weather. May be accompanied by loss of gloss. In some situations it may resemble chalking but without the powdery surface. Fading tends to accelerate in the presence moisture.
Probable Causes:
Incorrect pigmentation; use of organic pigments; atmospheric contamination; porous substrate.
Prevention:
Use correct coating systems which resists UV light and fading. Use a coating with light stable pigments.
Repair:
Abrade and clean the surface and apply a light stable coating system.



Support Documents

FILLIFORM (Corrosion)
Description:
Random threads of corrosion that develop beneath thin lacquers and other coating films from a growing head or point. Often seen on old 'tin' food cans, with thin electro plating but also seen on painted aluminium and other surfaces.
Probable Causes:
Contamination on the metallic substrate or damage to the coating which allows a corrosion cell to develop at the tip and advance under the coating.
Prevention:
Ensure no contamination exists on the substrate prior to coating application.
Repair:
Remove all traces of corrosion products and non adhering coatings. Abrade, clean and coat to manufacturer's recommendations.



FLAKING (syn. Delamination)
Description:
A form of adhesion failure where paint literally flakes from the substrate. A familiar sight on wood substrates and on galvanising.
Probable Causes:
Incorrect paint system used. Either none or incorrect pre-treatment used for certain substrate i.e. non-ferrous or galvanised. Also poor application techniques. May also be attributed to differential expansion and contraction of paint and substrate e.g. wood. Can be the result of ageing of the paint system.
Prevention:
Use correct coating system and pre-treatment.
Repair:
Remove all flaking coating until a firm edge can be achieved. Abrade, sweep blast and clean overall and apply suitable coating system to coating manufacturer's recommendations.

Support Documents



FLOCCULATION

Description:

The development of loosely coherent pigment agglomerates in a coating material.

Probable Causes:

Non-uniform pigment dispersion which results in the pigments forming agglomerations.
Unsuitable thinners or inadequate mixing.

Prevention:

Ensure only properly formulated and mixed products are used. Use recommended thinners.

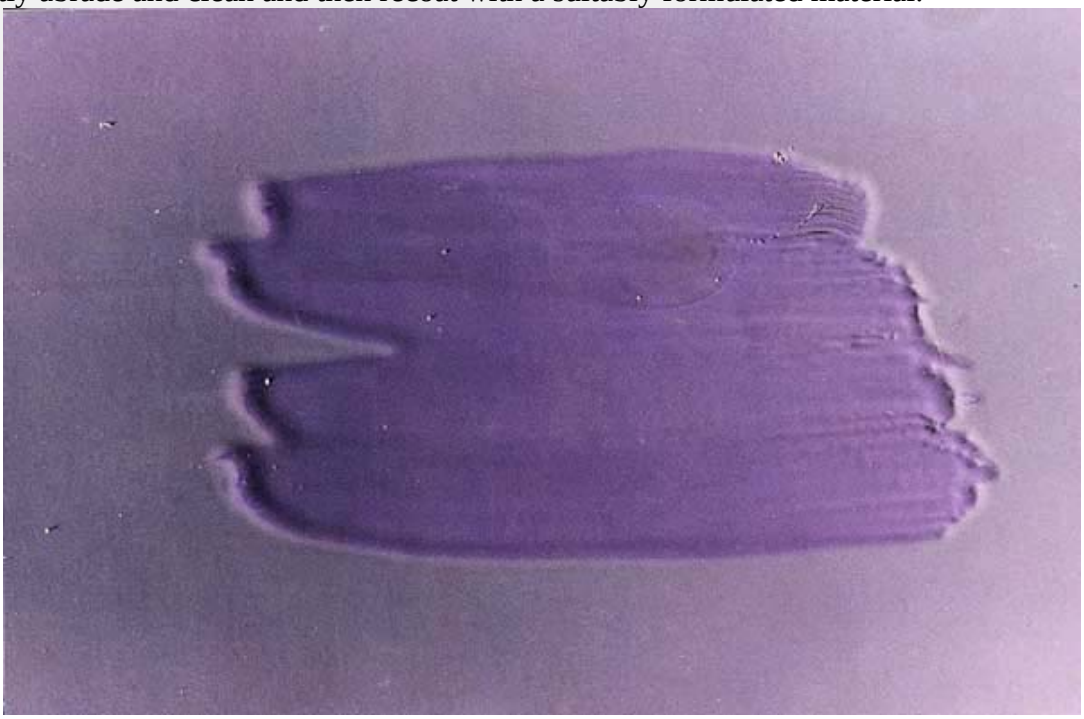
Repair:

Remove coating where flocculation is visible. Abrade and clean the surface and apply a properly formulated and mixed coating system.



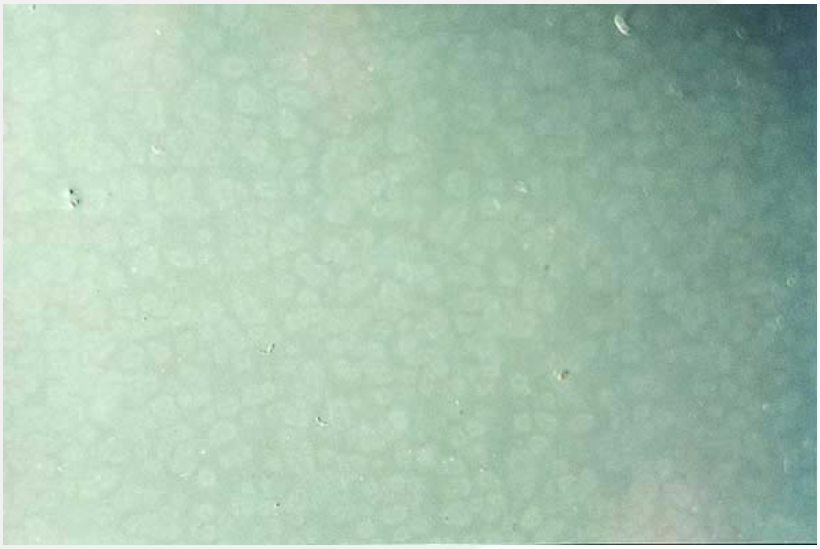
Support Documents

Description:
A defect which appears soon after application due to pigment separation. The visual appearance is a deepening of the colour. The affected area dries to a deeper shade than the remainder of the surface.
Probable Causes:
Pigment separation and settlement.
Prevention:
Use correctly formulated products.
Repair:
Lightly abrade and clean and then recoat with a suitably formulated material.



FLOTATION
Description:
Occurs in coloured materials containing mixtures of different pigments. It closely resembles flooding, although a mottled or streaky effect is produced when the different pigments separate.
Probable Causes:
The mottled effect, which is visible to the eye, is caused by separation of the different coloured pigments. It may also result from the addition of excessive thinners.
Prevention:
Use correctly formulated products. Do not over thin with solvent.
Repair:
Abrade and clean overall and apply a suitable sealer or topcoat.

Support Documents



GRINNING
Description:
The underlying surface is visible through the paint film due to inadequate hiding power of the coating material. This is sometimes called 'Grinning-Through'. Often seen where dark colours are overcoated with lighter colours.
Probable Causes:
Low film thickness of penultimate coat. Poor opacity and covering power of topcoat coat. Strong colour of primer/undercoats.
Prevention:
Apply adequate dry film thickness between individual coats. Use opaque coatings with good covering properties.
Repair:
Apply additional compatible coats to clean surface.



Support Documents

GRIT INCLUSIONS

Description:
Particles of grit and dust embedded within the coating system.
Probable Causes:
Failure to remove used grit from the surface prior to coating. Contamination of the wet primer or coating. Wind blown grit particles.
Prevention:
Ensure all used grit is removed from the surface prior to coating operations. Clean working conditions...good supervision.
Repair:
Abrade or blast clean the surface to remove all grit contamination, clean the surface and recoat.



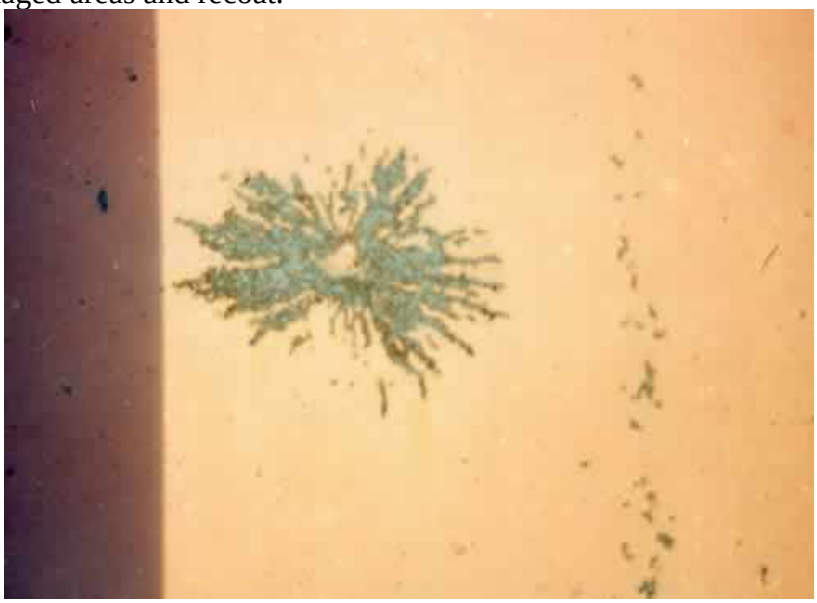
GROWTH-BIOLOGICAL FAILURE

Description:
Growth and attachments of natural and organisms to surface of finished products. These vary in form, size and lifespan, e.g. algae, mosses etc.
Probable Causes:
Generally, natural organisms within moist, wet or immersed conditions. Growth may continue after attachment.
Prevention:
Use correct coating specification and products suitable for the environment. Where practical, clean regularly to prevent build-up of moss and algae.
Repair:
Clean and remove all growth, abrade the surface and apply a suitable coating system.

Support Documents



IMPACT DAMAGE
Description:
Cracks which radiate from a point of impact.
Probable Causes:
Impact damage to a relatively brittle coating. Often see on glass fibre reinforced plastics.
Prevention:
Prevent impact damage.
Repair:
Abrade all damaged areas and recoat.



INADEQUATE PREPARATION

Support Documents

Description:
Lack of adequate surface preparation.
Probable Causes:
Poor workmanship or sub-standard specification.
Prevention:
Use of skilled personnel and correct coating specification.
Repair:
Remove defective coating and re-prepare and coat to specification/data sheets.



INCORRECT COATING SYSTEM
Description:
An unsuitable or incompatible coating system has been used which results in rapid failure.
Probable Causes:
Use of incompatible or unsuitable coating materials.
Prevention:
Use correct coating specification and materials. Ensure that different coats are compatible with each other.
Repair:
Remove all defective coating and apply correct coating system to manufacturer's recommendations.

Support Documents



INCORRECT MIXING
Description:
Incorrect mixing procedures. Generally two and three pack materials.
Probable Causes:
Poor workmanship. Lack of knowledge.
Prevention:
Mix coating in accordance with manufactures data sheets.
Repair:
Removal of defective coating, check with specific coating manufacturer.



Support Documents

INSUFFICIENT CURE

Description:
Coating has not adequately cured enough to either go into surface or be topcoated with the next coat of paint. Sometimes this is not seen until a coating failure arises ie flaking, cracking of topcoats or disintegration of a coating.

Probable Causes:
Lack of curing agent or requirements for a coating to cure ie moisture in moisture cured urethanes and inorganic zinc silicates. Low temperatures and lack of air movement will hinder curing.

Prevention:
Apply coatings as required by the paint manufacturers recommendations. Check that curing/mixing ratio's are correct. Ensure environmental conditions are maintained during drying and curing.

Repair:
Cure the coating, if at all possible. Usually total removal is the only option.



LOSS OF GLOSS

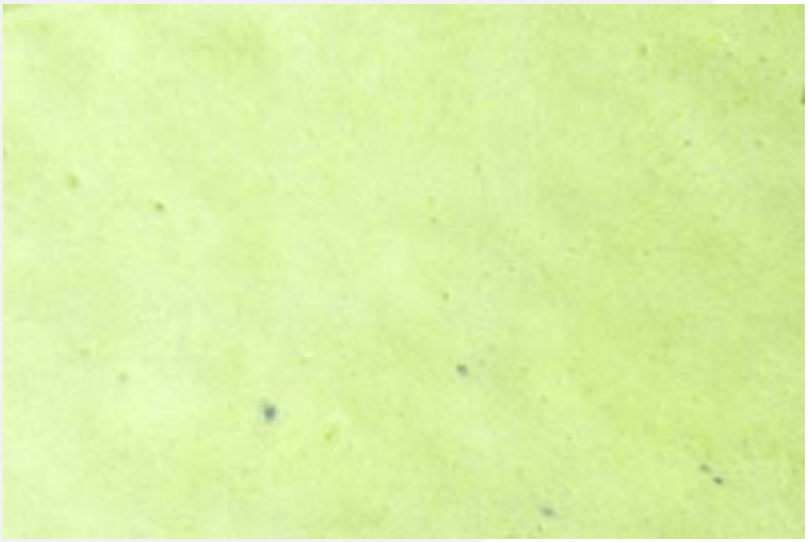
Description:
Dull flat coating soon after application. Remains flat. Generally restricted to alkyd and oil based paints (decorative)

Probable Causes:
For decorative paints loss of gloss soon after drying is generally attributed to contact with moisture or airborne contaminates. Could be old or out of date paint and/or inadequte mixing.

Prevention:
Ensure ambient temperatures and conditions are correct for coating application.

Repair:
Abrade and recoat.

Support Documents



MARINE FOULING

Description:

Surface has a covering of slime and/or marine fouling particular to that location around the globe.

Probable Causes:

Exhausted or no anti-fouling treatment. Also wrong anti-fouling coating system specified or applied.

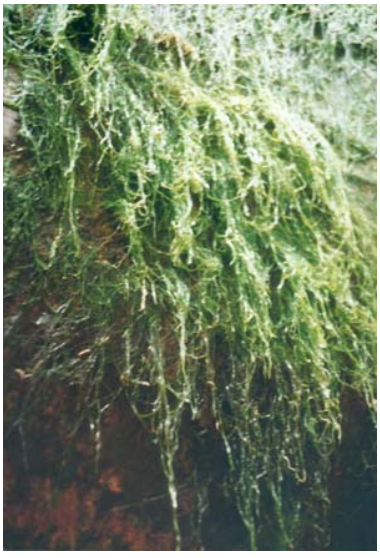
Prevention:

Adequate anti-fouling coating system. Seek expert advice from marine coating manufactures who specialise in anti-fouling coating systems. Check location of vessels etc along with speed and dry-docking intervals.

Repair:

Remove all traces of fouling by scraping, high pressure water wash etc. Apply suitable anti-corrosion system prior to anti-fouling system.





Support Documents

MISSES/SKIPS/HOLIDAYS

Description:
Exposed areas of substrate when the intention was to coat the entire area. Could be confined to a single coat in a multi-coat paint system.

Probable Causes:
Poor application techniques. Lack of quality control.

Prevention:
Use correct application techniques. Apply good painting practices. Use inspection.

Repair:
Apply coatings to suitable prepared and cleaned substrates to original specification and manufacturer's repair procedures.



MUD CRACKING

Description:
The dried paint film has the appearance of a dried-out mud bath. Cracks vary in size and amount but form a network of cracks.

Probable Causes:
Generally over application of heavily pigmented primers such as inorganic zinc silicates or water based coatings, although can occur with other over thick systems.

Prevention:
Only apply the recommended coating thickness. Use recommended application techniques with suitably formulated products.

Repair:
Remove all cracked and flaking paint back to a sound base. Abrade and clean surface. Re-apply coating to manufacturer's recommendations.

Support Documents



ORANGE PEEL

Description:

The uniform pock-marked appearance, in particular of a sprayed paint film in which the surface of the paint film resembles the skin of an orange.

Probable Causes:

Failure of the paint film to flow out. Usually caused by poor application techniques or by incorrect solvent blend.

Prevention:

Use correct application techniques with suitably formulated products.

Repair:

Where aesthetics are of concern, abrade overall, clean and recoat.



Support Documents

OVERBLAST

Description:
Damage to intact and sound coatings.
Probable Causes:
Overblast damage from grit particles while blast operator is conducting abrasive blast cleaning in close proximity. Usually spot/maintenance preparation techniques.
Prevention:
Trained abrasive blast cleaning operatives. Lower pressures, softer grit or use of water and grit. Bettter access for operator (scaffold)
Repair:
Depends upon damage. Ensure damage coatings do not expose steel (use primer) no flaking/cracking etc. Scrape clean edges and fully coat the area - check compatibility.



OVERSPRAY

Description:
Paint and coating spray and debris onto a surface that was not intended to be the target. Not to be confused with dryspray, as overspray can wet and adhere well to a surface.
Probable Causes:
Poor workmanship, inadequate masking, wrong spray equipment.
Prevention:
Correct methods of cutting in with the use of rollers and brushes before spray application. Use of trained operatives. Adequate masking and sheeting.
Repair:
Depends upon type of coating and substrate. Can usually be removed immediately with solvents or cleaners, high pressure water washing and/or abrading. Prevetion is better than cure in this case.

Support Documents



PEELING (syn. Flaking)
Description:
Similar to flaking, although peeling tends to produce soft and pliable coatings which can be pulled away from or spontaneously flake away from the substrate or from between coats, due to loss of adhesion.
Probable Causes:
Peeling is the reduction in bond strength of the paint film due to contamination or incompatibility of coats.
Prevention:
Use correct coating system and specification applied to clean and uncontaminated surfaces.
Repair:
Remove all soft and pliable coating back to a firm edge or total removal. Abrade, clean and apply suitable coating system to coating manufacturer's recommendations.



Support Documents

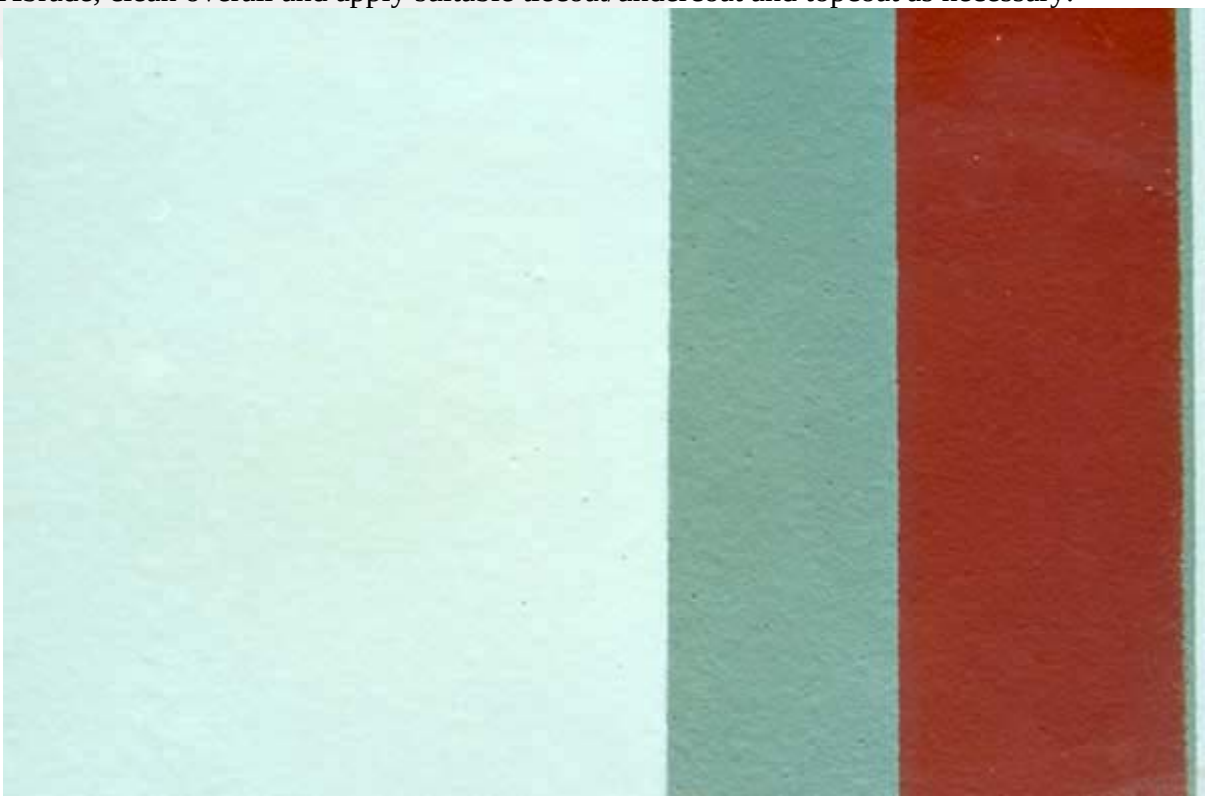
PINHOLES

Description:
The formation of minute holes in the wet paint film during application and drying, due to air or gas bubbles which burst, giving rise to small craters or holes which fail to coalesce before the film dries.

Probable Causes:
Solvent or air entrapment within a paint film. A common problem when coating porous substrate such as zinc filled primers, zinc silicates and metal sprayed coatings etc. Pinholes can also be caused by incorrect spray application or incorrect solvent blend.

Prevention:
Use correct application techniques with suitably formulated products. Correct solvent blends and environmental conditions. Check spray equipment and distance of spray gun from the surface.

Repair:
Abrade, clean overall and apply suitable tiecoat/undercoat and topcoat as necessary.



Once developed, pinholes can penetrate all the subsequent coats as demonstrated in this photograph.

POOR REPAIR

Description:
Coating failure (cracking, blistering, flaking etc) due to poor methods of coating repair.

Probable Causes:
Poor workmanship/supervision. Inadequate specification and instructions.

Prevention:
Correct procedures for repair to existing coating. Seek manufacturers advice, conduct test area. Feather edge to a sound base and abrade overlap locations.

Support Documents

Repair:
Remove defective coatings and repair as in prevention



RIPPLED COATING
Description:
A rippled effect on the surface of the paint.
Probable Causes:
Strong wind blowing across the surface of wet paint causes it to ripple. Where this is on the underside, the ripples can hang down in the form of small stalactites. Can also be caused by poor application techniques.
Prevention:
Do not apply paint under unfavourable conditions.
Repair:
When mild ripples are seen, abrade the surface and recoat. Where this is a major effect, remove the coatings and recoat.



Support Documents

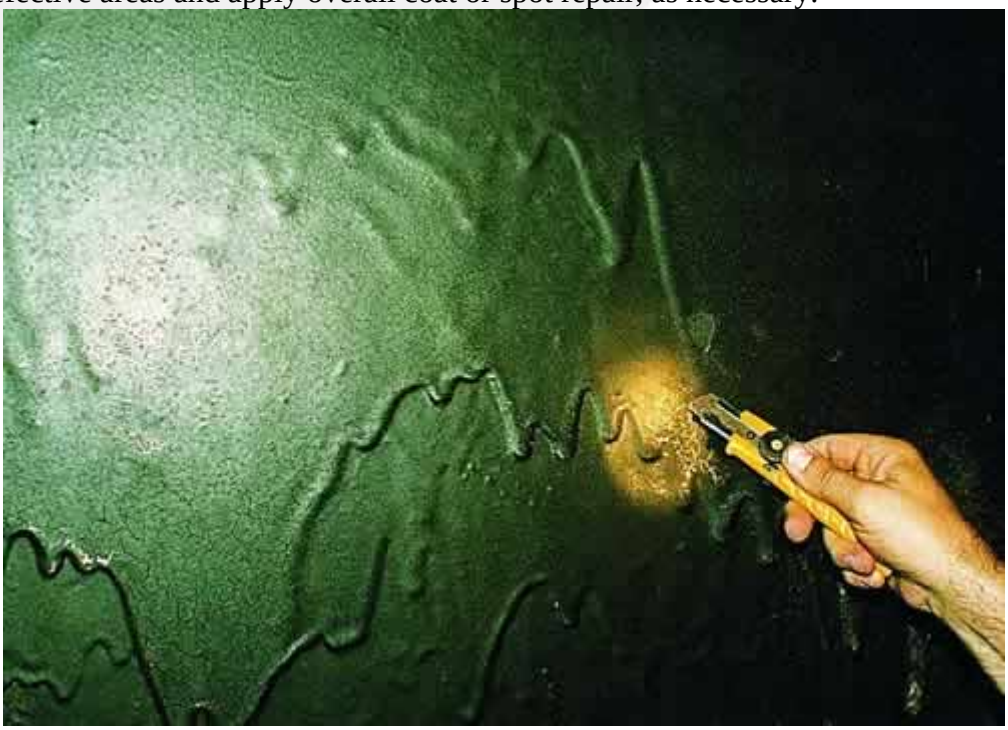
ROT (wood)
Description:
Damp and rotten wood exposing friable substance, splitting, flaking and cracking of paint.
Probable Causes:
Generally poor maintenance or application over soft and rotten wood. Occasionally, use of incorrect paint system.
Prevention:
Correct and ongoing maintenance to the wood and coating. Ensure all wooden surfaces are sound and free from rot before application of paint.
Repair:
Replace rotten wood, preferably with treated wood. Apply a suitable coating system formulated for wood surfaces.



RUNS or SAGS
Description:
Downward movement and tears of paint which appear soon after application to vertical surfaces due to excessive paint application. In severe situations it may be described as curtains.
Probable Causes:
Over application of paint, excessive thinners, wrong (lack) of curing agent or just poor workmanship. Could, in extreme circumstances, be a formulation problem.
Prevention:
Use correct application techniques with suitably formulated products.
Repair:
While the paint is still wet, brush out runs and sags. When the paint has dried, abrade and clean defective areas and apply overall coat or spot repair, as necessary.

Support Documents

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Repair:
While the paint is still wet, brush out runs and sags. When the paint has dried, abrade and clean defective areas and apply overall coat or spot repair, as necessary.



RUST RASHING TO THERMAL SPRAY COATING
Description:
Spots of ferrous oxide develop within the pores of a sprayed metal coating. Similar to rust spotting on a paint film.
Probable Causes:
A phenomenon which can develop on aluminium thermal spray coatings soon after application. Moisture is absorbed into the metal coating and reacts with the ferrous substrate. Early sealing with an appropriate coating prevents such problems.
Prevention:
Apply thermal spray coating in a controlled environment. Seal metal spray surface immediately after application.

Support Documents

Repair:
Apply thermal spray coating in a controlled environment. Seal metal sprayed surface immediately after application.



RUST SPOTTING-PINPOINT RUSTING
Description:
Fine spots of rust which appear on a paint film, usually a thin primer coat. This frequently starts as localised spotting but rapidly spreads over the surface.
Probable Causes:
Low film thickness, voids and holidays, also defects in the steel i.e. laminations. Too high a surface profile may cause penetration of peaks through a paint film and cause rust spotting. May also occur from metallic contamination of a coated surface by grinding dust etc.
Prevention:
Apply an adequate primer coat. Ensure coating system adequately covers the surface profile. Use a thicker coating system or a lower blast profile. Protection coating from contamination with grinding dust etc.
Repair:
Depending on type and extent, abrade or blast clean surface and recoat. Remove all foreign debris and abrade, clean damaged areas. Apply spot repair or recoat overall.



Support Documents

RUST STAINING

Description:
A light staining on the surface of the paint caused by the precipitation of ferrous oxide.
Probable Causes:
Water run-off from a rusty surface above a soundly coated surface. Rust staining occurs when the rust is wetted-out and contaminated water runs over and discolours other items or locations. Usually more of an eye-sore than a defect. The coating itself may not be defective, only stained.
Prevention:
Adequate design and suitable maintenance.
Repair:
Remove staining and apply a cosmetic coating, as necessary



SAPONIFICATION

Description:
The coating appears to be soft and sticky. Can be sporadic isolated spots or an overall effect.
Probable Causes:
A soap formation reaction between esters, alkali and water. Often found in alkyd and oil coatings. Notably found on concrete coated structures and coating used in conjunction with cathodic protection.
Prevention:
Use correct coating specifications and materials.
Repair:
Remove all soft coatings where saponification has occurred, abrade, clean and re-apply undercoat/topcoat (non-saponifiable

Support Documents



SETTLEMENT

Description:

A term used to describe the settled pigment/solids in a liquid prior to application. Found during paint storage. Settlement which occurs after mixing and during application can result in different colours in different areas.

Probable Causes:

Old stock, heavily pigmented paint, wrong formulation or contamination of product. Can be a problem with zinc rich primers.

Prevention:

Use products within shelf life. Use adequate mixing procedures. Keep paint mixed or recirculated during spray application.

Repair:

As Prevention. Where the results is a patchy finish, remove the affected coating and recoat taking precautions against settlement.



Ensure all (both single and two pack paints are mixed in accordance with manufacturers data sheets. Some coating have heavy pigmentation ie zinc primers and settlement is not uncommon.

Support Documents

SOLVENT LIFTING

Description:
Eruption of the surface of the paint film. Wrinkling and blistering which leads to a weak surface and ultimate coating breakdown.

Probable Causes:
Incompatible paint systems used. Topcoats with a strong solvent blend can attack previous and weaker solvent blended coatings. Overcoating before the previous coat has adequately hardened.

Prevention:
Use correct coating specification, overcoating times and materials. Conduct compatibility trials with undercoat/topcoats.

Repair:
Remove all defective coatings. Abrade, clean and recoat with correct coating system, following the recommended overcoating times.



SOLVENT POPPING

Description:
Solvent (clear) bubbles on the surface of the paint film soon after application.

Probable Causes:
Incorrect solvent blends, porous surfaces and wrong environmental conditions.

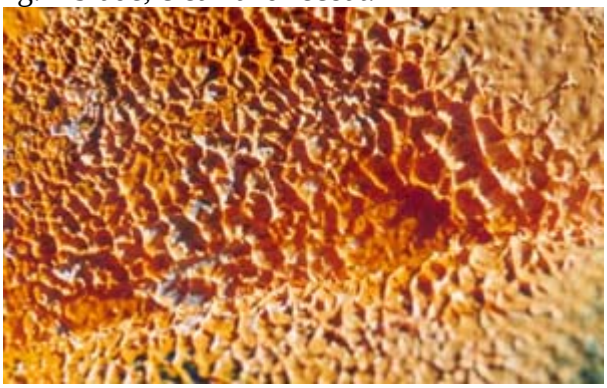
Prevention:
User correct coating specifications and materials. Correct application techniques and environmental conditions.

Repair:
Lightly abrade and clean the surface and apply undercoat/topcoat

Support Documents



TACKINESS
Description:
Soft film of applied coatings. Although beyond the wet and liquid stage, the paint film remains as a tacky and soft surface. Sometimes only apparent on touching the substrate.
Probable Causes:
There are various reasons why a paint will remain tacky: Over thickness; Excessive thinners; Wrong (lack of) curing agent; Low drying/curing temperature; Use of coating beyond pot life or shelf life.
Prevention:
Use correct coating specifications and materials. Ensure two-pack materials are correctly mixed. Follow paint suppliers recommendations.
Repair:
Remove defective coating. Abrade, clean and recoat.



UNDERCUTTING
Description:
Visual corrosion beneath a paint film. Corrosion travels beneath the paint film and lifts the paint from the substrate. Severe cases can show as blistering, flaking, cracks and exposed rust.

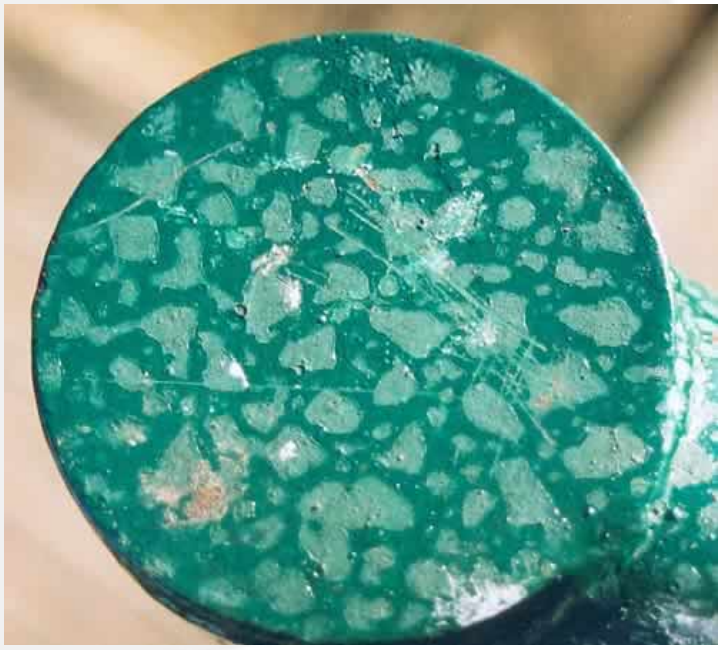
Support Documents

Probable Causes:
Application of paint to corroded substrate. Rust creep from areas of mechanical damage and missing primer coat. Can be found in areas of poor design or access where inadequate preparation and coating thickness was applied. Could also be due to lack of maintenance.
Prevention:
use adequate coating specifications and maintenance procedures. Apply a suitably formulated primer.
Repair:
Spot repair localised areas. Clean areas back to sound base, apply suitable repair coating to manufacturer's recommendations.



WATER DAMAGE
Description:
Craters and water marks on the surface of the paint film caused by rain or heavy condensation.
Probable Causes:
Rain falling on a freshly painted surface causes craters to form on the surface before it has hardened sufficiently.
Prevention:
Allow coating (where practicable) to surface harden prior to exposure to rain or heavy condensation.
Repair:
Abrade, clean all surface damage areas and apply overall undercoat/topcoat.

Support Documents



WATER SPOTTING

Description:

The spotty appearance of the paint film caused by drops of water on the surface and which remains after the water has evaporated. The effect may or may not be permanent.

Probable Causes:

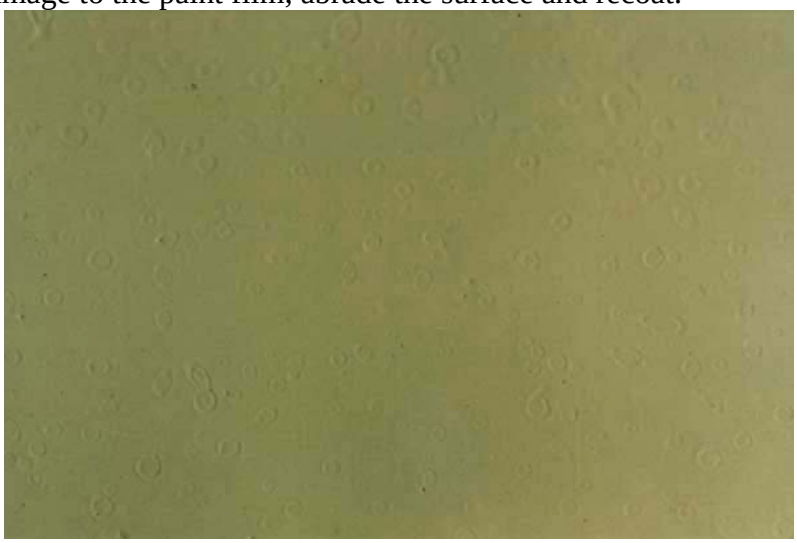
Rain drops falling on the wet paint film. These leave permanent marks. Rain drops falling on a freshly dried but hard surface. When the water evaporated, marks may be seen which can be rubbed off.

Prevention:

Do not apply paint when rain is threatened.

Repair:

Where the marks are just on the surface these may be washed off but where there is cratering or permanent damage to the paint film, abrade the surface and recoat.



Support Documents

WRINKLING

Description:
The development of wrinkles in the paint film during drying, Wrinkling, swelling and blistering of the coating.

Probable Causes:
Usually due to the initial formation of a surface skin with solvent based paints. Also swelling of the coating from solvent attack. Can arise from overcoating before the previous coat has adequately hardened.

Prevention:
Use correct coating specification and materials. Adequate mixing, application and curing of materials. Follow the paint suppliers recommended overcoating times.

Repair:
Remove defective coatings. Abrade, clean and recoat.



ZINC CARBONATES

Description:
Loss of adhesion to galvanised surfaces. Blistering of paint on a galvanised surface.

Probable Causes:
White rust or carbonates on the surface of galvanising prior to application of the paint coating. Corrosion of zinc under the paint surface. Can be similar to rash rusting but white in colour.

Prevention:
Seal zinc coating from the environment and application of an appropriate protective coating system.

Repair:
Water wash the surface to remove all traces of zinc corrosion products. Sweep blast or abrade, clean and apply a suitable coating system.

Support Documents



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