Click to go to Contents Page

MODULE 10

INTERSLEEK APPLICATION

MODULE 10

INTERSLEEK APPLICATION

CONTENTS **PAGE**

Section 1	Study Guide	3
Section 2	Objectives for Module 10	4
Section 3	Introduction	5
Section 4	Intersleek Application	6-13
Section 5	Intersleek “Masterclass” Training	14
Section 6	Key Learning Points	16

SECTION 1

STUDY GUIDE

1.1 Module No. 10 consists of a video and the workbook. You should review the video in entirety before studying the workbook.

However, you should be aware of the fact that the video is currently being up-dated and the new version will not be available until late 2004/early 2005. It will include greater detail on the use of Intersleek on Newbuildings.

1.2 The workbook is prefaced with a set of training objectives which you should aim to achieve. Read these objectives and return to them after you have completed the module.

1.3 This particular module does not contain any case studies or in-text questions. However, it comprises only a part of the process you must complete before you become an accredited Intersleek Technical Service Representative.

Accreditation entails attending an Intersleek "Masterclass" training course and the latter is explained in more detail later in this module.

Although the Intersleek Coating Application Procedures are covered in the "Masterclass" training course they are very comprehensive and it is recommended that you download the current version of them from the Technical Operations section of the Marine Intranet Site
http://www.international.intra/marine/newbuilding/coatingAppProcedure.asp

SECTION 2

OBJECTIVES FOR MODULE 10

When you have completed this module you should:

2.1 Understand how Intersleek differs from conventional antifouling coatings and how it functions.

2.2 Be familiar with the Intersleek product range as used in different parts of the World.

2.3 Understand the key points that make application of Intersleek different to normal underwater hull applications.

2.4 Understand the importance of adhering to the detailed application procedures associated with Intersleek and the problems that are likely to arise if they are not followed precisely.

2.5 Be familiar with the check list that must be used prior to the commencement of any Intersleek project to ensure that all of the steps are in place to ensure a successful application.

2.6 Understand the process by which you can become accredited to work on Intersleek projects.

SECTION 3

INTRODUCTION

The pressure on the marine coatings industry to formulate evermore environmentally friendly products continues unabated. This is particularly true in the area of antifoulings where choice of biocide, the level in a formulation and its leaching rate during service are under continuous scrutiny.

However, although the existing range of antifoulings will continue to be sold subject to any changes in legislation, the future is uncertain. Consequently foul release coatings have been introduced for use on outer hulls of particular types of vessel that will not be subject to the legislation affecting antifoulings since they do not use biocide to control fouling. “Intersleek” is the brand name that International Paint uses for its Foul Release products.

Intersleek has actually been sold by International Paint for a number of years but it’s use is now growing at a rapid rate on a range of ship types. This is partly due to legislative and environmental pressures but also the fact that more and more vessel operators have now seen the benefits of using it. The wider produce range and scheme availability within the Intersleek family has also increased it’s attraction to the customer.

Intersleek is based on silicone technology and is quite unlike any other biocidal antifouling coatings. The technology provides a smooth low energy surface to which fouling organisms either cannot attach, or to which they adhere loosely and can therefore be easily removed.

It relies purely on the ‘non-stick’ or Foul Release nature of its surface to prevent adhesion of fouling organisms, and does not rely on the release of biocides. This is a particularly important feature as it means that it is not an “antifouling” in the usual sense and, therefore, is not subject to environmental restrictions.

Although fouling organisms can attach loosely to the surface of Intersleek when a vessel is stationary, they will detach when a vessel is underway as a result of water flow passing the hull. The minimum speed required for this to occur is 15 knots. Any vessels which operate at higher speeds, such as Vehicle carriers, Liquid Gas carriers, Cruise vessels, fast ferries, etc. are suitable for Intersleek.

Successful in-service performance depends on the adoption of the correct procedures for surface preparation and application and the minimisation of damage during the coatings lifetime. It is vitally important that the detailed application procedures relating to Intersleek are followed precisely in order to ensure that this is achieved.

This module outlines the various Intersleek schemes that are available and the procedures that must be followed during their application.

SECTION 4

INTERSLEEK APPLICATION

4.1 INTERSLEEK RANGE

There are two basic Intersleek product ranges available:

(i) Intersleek 425 : For use on fast craft operating at speeds greater than 30 knots (e.g. fast ferries and military vessels)

(ii) Intersleek 700 : For use on "deep sea" scheduled ships operating at speeds in the range of 15-30 knots (e.g. LNG carriers, vehicle carriers, cruise ships, container ships)

There is also a "Link Coat" available (Intersleek 717) that allows up-grade to Intersleek from existing SPC antifoulings when certain specified criteria can be met.

The schemes in which these products are used varies depending on whether application takes place in the Americas or in any other part of the World. The following shows a comparison of the basic schemes:

INTERSLEEK 425

AMERICAS

Intergard 264, Red	5 mils (125 microns)
Intergard 264, Black	5 (125)
Intersleek 381 Tie Coat Lt. Pink	4 (100)
Intersleek 425 Finish	6 (150)

REST OF WORLD

Intershield 300, Aluminium	125 microns
Intershield 300, Bronze	125
Intersleek 386 Tie Coat Lt Grey	100
Intersleek 425 Finish	150

NOTE:

(i) If a holding primer is required Intergard 264 or Intershield 300 respectively, thinned 15% and applied at a dry film thickness of 50 microns may be used. Alternatively, in the "Rest of the World", Intergard 269 applied at a dry film thickness of 40 microns may be used.

(ii) Intersleek 381 Tie Coat is a two pack product, Intersleek 386 is three pack.

INTERSLEEK 700

AMERICAS

Intergard 264, Red	5 mils (125 microns)
Intergard 264, Black	5 (125)
Intersleek 731 Tie Coat Lt. Pink	4 (100)
Intersleek 757 Finish	6 (150)

REST OF WORLD

Intershield 300, Aluminium	125 microns
Intershield 300, Bronze	125
Intersleek 737 Tie Coat Lt Grey	100
Intersleek 757 Finish	150

NOTE:

(i) As with Intersleek 425 there are similar options if a holding primer is required.

(ii) Intersleek 731 Tie Coat is a two pack product, Intersleek 737 is three pack.

4.2 PRIOR TO APPLICATION

There are a number of key points that make the application of Intersleek different to normal underwater hull applications. These are:

(i) Contamination of equipment and surroundings
(ii) Preparation, completion and masking of non-Intersleek areas
(iii) Cutting in lines and join ups
(iv) Product mixing prior to use
(v) Short maximum overcoating interval between the anticorrosive and the Intersleek Tie Coat

It is essential therefore that, prior to the commencement of any project, discussions should take place with the appropriate shipyard personnel and contractor undertaking the application. Detailed application procedures are available on the Technical Operations section of the Marine Intranet site http://www.international.intra/marine/newbuilding/coatingAppProcedure.asp covering the various Intersleek scheme options. That pertaining to the particular project you are concerned with should form the basis of the discussion. You must familiarise yourself with these procedures.

One of the appendices in the application procedures is a check list that you should use as an “aide memoire” to ensure that everything is in place that will be required for the project. This is shown on the next page.

Outer Hull: Intersleek 700 System

Revision 16
1/5/2004

CHECK LIST PRIOR TO COMMENCEMENT **APPENDIX 1**

Vessel Name: _____ **Project Commencement Date :** _____

1.	Has project approval form for Intersleek 700 applications been signed off by both technical and commercial departments?	☐
2.	Are suitably trained and accredited technical service staff available to work on the project?	☐
3.	Has everyone involved been properly briefed as to the project requirements and the procedures to be followed?	☐
4.	Have the shipyard and contractor been given a copy of the detailed application procedures?	☐
5.	Have arrangements for good painting practice been put in place?	☐
6.	Is a suitable mild, neutral, water-soluble degreaser available, which has been approved by International Paint?	☐
7.	Has sufficient material been delivered (including thinners and cleaning solvent) and been correctly stored? Paint must be stored under cool conditions prior to application - see Section 4.	☐
8.	Is a small quantity of contrasting colour of Intersleek 425 Finish available for numbering, draft marking etc.?	☐
9.	Have all batch numbers and sales codes been recorded?	☐
10.	Are all batches within their defined shelf life?	☐
11.	Is a suitable airless spray machine available which is in good clean condition?	☐
12.	Are new spray fluid lines available for the Intersleek Tiecoat and Finish application?	☐
13.	Is a selection of suitable spray tips available, of the requisite sizes, and in good clean condition?	☐
14.	Are clean (air driven) mixers available?	☐
15.	Is clean filter mesh, of appropriate mesh size, available for sieving the paint?	☐
16.	Is a selection of empty clean containers available for cleaning purposes?	☐
17.	Is a full range of inspection equipment, including wet film thickness gauges, relative humidity / dew point / temperature meters available?	☐
18.	Is there suitable masking tape available?	☐
19.	Is a small application record / test plate available?	☐
20.	Is a good quality camera available to record progress?	☐
21.	Is a notebook available to record coating application details?	☐
22.	Does the vessel need to be screened to contain overspray?	☐
23.	If tenting is used to contain overspray, is there explosion proof lighting and sufficient ventilation available to ensure a safe working environment?	☐
24.	For Intersleek 717 linkcoat applications, does the in-dock coating condition meet the requisite criteria in terms of substrate condition and defect extent?	☐
25.	Has the vessel been de-ballasted prior to work commencement?	☐

4.3 DURING THE APPLICATION

4.3.1 CONTAMINATION OF EQUIPMENT AND SURROUNDINGS

As explained earlier, Intersleek is a novel silicone technology which is incompatible with other paint systems. This incompatibility can result in poor adhesion. Therefore precautions must be taken to avoid contamination of other coatings that may be applied by the same equipment and to prevent surrounding areas becoming contaminated. The latter can be done by masking off. However, poor masking off can easily lead to contamination - resulting in possible detachment.

Whenever possible dedicated pumps and other application equipment for Intersleek should be used. If this is not possible new or dedicated spray lines, guns and tips are essential. On completion of the Intersleek system application the entire spraying equipment requires thorough cleaning, especially if non dedicated spray pumps are used.

Cleaning using the recommended equipment cleaner, International GTA822 (or GTA007 in USA) is essential and, once used, the cleaner must be discarded and not used with other paint systems. To complete the cleaning it is recommended that waste paint be pumped through the system, to remove any residual Intersleek material, then appropriately discarded.

Prevention of Intersleek contamination to surrounding vessels also needs to be considered. There are several ways that this can be done. ‘Tenting in’, using tarpaulins or fine mesh netting, of the vessel is a common and relatively inexpensive way of ensuring that contamination is minimised.

In some yards in the world, this is already standard practice to prevent any overspray escaping. In the USA, Metro Machine has developed a novel method known as ‘Cape System’. It consists of a number of 20 foot wide towers of protective plastic built around steel frames and tightly sealed at the top and ends to a ships hull. This forms a sealed space in which application can take place without dust or overspray escaping. A barge, moored alongside, provides all the support services including ventilation, heating, dust filtration and burn off of extracted solvent.

4.3.2 PREPARATION, COMPLETION AND MASKING OF NON-INTERSLEEK AREAS

The ‘non stick’ nature of both the Intersleek Tie Coat and Finish means that, while fouling organisms do not adhere to them, neither do other coating systems. Consequently application procedures must take account of this effect.

If there is an existing Intersleek system on the underwater area, the area where topsides or boottop overspray could land should be masked off, using plastic sheeting and special tape.

Where touch up of an old Intersleek system, or first time application of a new one, is to take place the first priming coat should be applied to those areas.

When this is completed, a programme for coating the topsides and/or boottop needs to be in place with particular attention paid to the masking and join-up with the Intersleek area.

After completion of the topsides and after masking, the second anticorrosive coat in the underwater area is then applied, followed by the Intersleek Tie Coat and Intersleek Finish.

Removal of the masking tape when the Intersleek system is fresh will result in a straight line. Delaying the removal of the tape may cause tearing of the Intersleek.

When the Intersleek is being applied, after completion of the boottopping/topsides, the latter must be masked off for a minimum height of 2 metres to prevent contamination with the Intersleek. Spraying should be downwards, from the line masking off the Topsides/Boottopping area. This will prevent any Intersleek overspray from settling on the Topsides/Boottopping above the zone that is masked off; which could occur with “upward” spraying.

4.3.3 CUTTING IN OF LINES AND JOIN UPS

If the normal practice of spraying the underwater scheme slightly above the light or deep load line and cutting the line with topside or boottop coating is carried out, detachment will result as Intersleek will not accept any other paint coating except itself.

The recommended method for the Intersleek join-up area is to entirely complete the topsides or boottop area ensuring that the system is applied to just below the antifouling line. On completion of these areas, the line should be masked using tape and polythene, for 2m above the antifouling line.

As previously stated the first coat of anticorrosive is applied to the Intersleek area prior to coating the boottopping/topsides. The second coat of anticorrosive and the Intersleek Tie Coat and Finish is then applied after the boottopping/topsides area has been completed and masking has been applied.

4.3.4 PRODUCT MIXING PRIOR TO USE

Unlike the vast majority of coatings Intersleek Finish (Intersleek 425 and Intersleek 757) and also Intersleek Tie Coat used outside of the Americas (Intersleek 737 and Intersleek 386) are three pack products.

A base and curing agent forms the resin system and a third component, an accelerator, is required to fully cure the system. It is therefore very important that all appropriate personnel are aware of this. It is strongly recommended that the 3 components be matched up as units prior to mixing to avoid errors.

When application is due to begin, the base and curing agents should be thoroughly mixed. After completion the accelerator should then be added to the mix and stirred in slowly. The accelerator unit should not be opened until it is required, as it is moisture sensitive and readily forms a skin when exposed to air.

When application has commenced, it is good practice to transfer the suction pipe, of the airless pray pump, into freshly mixed paint rather than topping up the originals. This will prevent cured material from blocking the lines and tips during large applications.

4.3.5 SHORT MAXIMUM OVERCOATING INTERVAL BETWEEN ANTICORROSIVE AND INTERSLEEK

It is important to note the relatively short maximum overcoating interval between the anticorrosive system and the Intersleek Tie Coat. Depending on temperature the difference between the minimum and maximum overcoating interval can be as short as three hours. This must be discussed and planned at the pre-project meeting.

4.3.6 GENERAL POINTS

- When spraying Intersleek it is important that a smooth, glossy, finish is obtained in order to minimise hull roughness.

  To help achieve this the correct size tip, as specified on the product data sheet, must be used. This will reduce the likelihood of overapplication and sagging.

- Procedures covering general paint application are covered in some of the earlier International Paint training modules. These practices and guidelines remain true for Intersleek projects.

  Volume Area Control principles, as covered in Training Module No. 6 (Painting Procedures), must be applied during application of the Intersleek system. The efficacy of the system is dependent on application of the correct film thickness.

- In order to ensure that no intercoat adhesion problems are experienced with the system it is important that the specified parameters in the Coatings Application Procedures previously referred to are rigidly adhered to.

  These include:

  (i) Maximum and minimum overcoating intervals.

  (ii) Film thickness

  - variations in film thickness will obviously alter drying times and invalidate published overcoating intervals. This is particularly critical at the interface between the anticorrosive and the Intersleek Tie Coat because of the small overcoating window at that point.

(iii) Pot Life

- Product, including the underlying anticorrosive, must not be used after the specified pot life has expired, even if material remains of a viscosity such that it can still be airless spray applied. (It should be noted that the pot life that must be observed for Intershield 300 used on Intersleek projects differs from that when it is used as a general anticorrosive/antiabrasion coating).

(iv) Minimum time after application of the final coat of Intersleek Finish and prior to the vessel being immersed/dock flooded.

(v) Environmental Conditions

- The minimum temperatures specified in the application procedures must be observed. In situations where there is uncertainty as to whether the requisite conditions will be achieved and maintained the vessel should be tented in and heated to create a controlled environment.

- Absorption of water by the tie coat can also affect intercoat adhesion and it is important that tenting in is used in order to protect the coating from rainfall when inclement weather is expected.

4.4 INTERSLEEK 717 LINKCOAT

Other than re-coat/touch up applications the Intersleek projects that you will be involved with will normally entail re-blasting to remove the existing underwater hull system followed by application of the Intershield 300 or Intergard 264 anticorrosive system.

However, there may be occasions when projects entail the use of Intersleek 717 Linkcoat. Use of the latter offers a more economical option by allowing Intersleek systems to be applied over existing International Paint Intersmooth SPC schemes (both TBT and TBT-free) provided that certain defined criteria are met. (The latter are defined in detail in the Intersleek 700 Coatings Application Procedures).

The scheme applied will normally be a 150 microns touch up coat of Intershield 300 followed by a full 100 microns coat of Intersleek 717 then the standard Intersleek 737/Intersleek 757 scheme.

4.5 INTERSLEEK USE ON NEWBUILDINGS

A number of options are available to enable use of Intersleek on Newbuildings and these are covered in the Intersleek Coating Application Procedures. As research work is still ongoing to establish schemes that are more suited to local practices in various Newbuilding locations around the World it is not intended to detail these in this module.

However, if an Intersleek system is to be applied at block stage, or in sections to a ship, then particular care must be taken to allow for proper treatment of join ups. The latter require stepping back of the anticorrosive coats and masking to prevent Intersleek overspray falling onto them.

The recommended procedure is as follows:

On completion of the first coat of the anticorrosive system a 300mm band of the second coat should be sprayed onto the periphery of the block or section. When dry, this should be partially masked and the remaining coats applied.

This procedure prevents contamination of the join up areas with Intersleek and ensures that the required two coats of anticorrosive are present everywhere under the Intersleek.

SECTION 5

INTERSLEEK "MASTERCLASS" TRAINING

As mentioned in the Study Guide this module is only part of the process that you must complete before you become accredited to work on Intersleek projects. You must also attend a Masterclass training course which is run in conjunction with a practical full scale Intersleek application.

In addition to witnessing the application you will also receive theoretical "classroom" training covering:

(i) The Intersleek 700 project approval form
(ii) Technical/Marketing presentation
(iii) Competitor's products
(iv) Intersleek 700 application procedures
(v) Intersleek 425 application procedures
(vi) Project check list

If you are likely to be required to work on Intersleek projects your Technical Service Manager will arrange for you to attend one of the Regional "Masterclass" training courses.

After attending "Masterclass" training you will be issued with the following certificate as confirmation that you have been formally accredited to provide technical service on Intersleek projects.



International

Marine Technical Service

This is to certify that

_____

having successfully completed
Intersleek theoretical ("Masterclass")
and practical training at

_____

_____

is fully accredited for the
provision of technical service on
Intersleek projects

_____ Technical Operations Manager

_____ Trainer

SECTION 6

KEY LEARNING POINTS

The key points from Module No. 10 are as follows:

6.1 You should be familiar with the Intersleek product range, the various schemes in use in different parts of the World, and how Intersleek differs from conventional antifouling systems.

6.2 You should be familiar with the detailed application procedures that exist for Intersleek projects, the importance of ensuring that these are followed precisely, and the likely consequences if they are not.

6.3 You should understand the process you must go through before you are formally accredited to work on Intersleek projects.