

APPLICATION GUIDELINES

CARGO TANKS

Interline[®] 9001

Revision 16

Issue Date: 9th February 2018

<u>CONTENTS</u>	<u>Page</u>
1. SCOPE AND PURPOSE	3
2. PRODUCT SPECIFICATION AND PRODUCT CURE GRAPHS	4
2.1 Surface Preparation	4
2.2 Specification	4
2.3 Notes	5
2.4 Product Cure Graphs	6
3. COATING APPLICATION PROCEDURES	8
4. TECHNICAL INSPECTION AND PROJECT CONTROL	13
5. GENERAL NOTES	14
5.1 Tank condition	14
5.2 Steelwork Preparation	15
5.3 Scaffolding	16
5.4 Cargo Lines	16
5.5 Heating Coils	17
5.6 Ventilation	17
5.7 Dehumidification	18
5.8 Heating & Cooling	18
5.9 Lighting	19
5.10 Storage at point of application	19
5.11 Grit Blasting	19
5.12 Cleaning	21
5.13 Paint Application	21
5.14 Stripe Coats	22
5.15 Coating Procedures	23
5.16 Post Curing	24
6. REPAIR PROCEDURES	26
7. HEALTH & SAFETY	27

1. SCOPE AND PURPOSE

The International Paint Cargo Tank Coatings Application Guidelines have been produced and revised in line with the Worldwide Marine product range. The purpose of the guidelines is to ensure that a coating system, as applied, provides adequate protection against corrosion and resistance to cargoes in order to ensure that tanks are suitable for the carriage of products in accordance with the current revision of the International Paint Cargo Resistance Guide.

Successful in-service performance of a tank coating system depends upon both the correct choice of coating and the adoption of the correct procedures for surface preparation and paint application.

This document provides guidance to the specialised field of cargo tank coating application. It is the result of experience gained by International Paint during the application of sophisticated cargo tank coatings to over 7600 vessels since 1960.

The responsibilities for achieving the specific standards outlined and for carrying out surface preparation and paint application rest with the Contracting Company and Shipyard. Under no circumstances do these responsibilities rest with International Paint. We will generally provide for the presence of a Technical Service Representative at key stages during the performance of the contract. The role of the International Paint Technical Service Representative is advisory only unless otherwise specified in the terms and conditions of the contract.

2. PRODUCT SPECIFICATION AND PRODUCT CURE GRAPHS

2.1 SURFACE PREPARATION

2.1.1 Surface Preparation

Grit blast entire tank to ISO Standard 8501-1 (2007) - Sa2½. A surface profile of between 50 and 100 microns (2 and 4 mils) is required.

2.1.2 Application

Airless spray

2.2 SPECIFICATION

	Coat	Product	Colour	Spec	Dft (microns)		Spec	Dft (mils)	
					Min	Max		Min	Max
(i)	Full	Interline 9001	Buff (TCA900/2)	150	(120)	(225)	5.90	(4.72)	(8.84)
	Stripe	Interline 9001	Grey (TCA901/2)						
	Full	Interline 9001	Grey (TCA901/2)	150	(120)	(225)	5.90	(4.72)	(8.84)
Or									
(ii)	Full	Interline 9001	Grey (TCA901/2)	100	(80)	(150)	3.93	(3.15)	(5.90)
	Stripe	Interline 9001	Buff (TCA900/2)						
	Full	Interline 9001	Buff (TCA900/2)	100	(80)	(150)	3.93	(3.15)	(5.90)
	Stripe	Interline 9001	Grey (TCA901/2)						
	Full	Interline 9001	Grey (TCA901/2)	100	(80)	(150)	3.93	(3.15)	(5.90)

Note: Colours may be interchanged.

The minimum dft for the system is 240 microns (9.45 mils).
The maximum dft for the system is 450 microns (17.72 mils).

Note: It is important to ensure that the maximum DFT of the first coat does not exceed 225 microns (8.84 mils) where possible.

In way of areas of tanks that are difficult to paint due to their configuration, e.g. heavily stiffened tanks, and where a degree of overthickness is unavoidable, a maximum of 600 microns (24 mils) dft is acceptable.

Application Guidelines

Interline® 9001

Revision 16 Issue Date 9th February 2018



2.3 NOTES

- 2.3.1 Stripe coats are to be applied between each full coat. To avoid problems with poorly mixed, off-ratio paint and the risk of exotherm, only full freshly mixed 4 or 5 litre packs of Interline 9001 must be used for the stripe coat procedure.
- 2.3.2 Refer to the accompanying graphs for recommended overcoating intervals, pot life and curing requirements. Particular consideration should be given to potential temperature drops during curing (e.g. overnight), when consulting recommended overcoating intervals/curing requirements.
- 2.3.3 Touch up of damages caused during destaging is to be done with Interline 9001 by brush to a minimum dry film thickness of 240 microns (9.45 mils).
- 2.3.4 All thicknesses are to be checked by the International Paint Technical Service Representative on site. Any substandard areas are to be rectified.
- 2.3.5 An induction period of 15 minutes is required after mixing, prior to application of Interline 9001
- 2.3.6 Paint temperature must be at least 20°C at all stages during induction and application.
- 2.3.7 During application and up to the first 48 hours after application of the final coat, the steel temperature must be a minimum 15°C (59°F) and must not exceed 40°C (104°F).
- 2.3.8 During application and up to the first 48 hours after application of the final coat, the relative humidity must not exceed 50%RH.
- 2.3.9 Areas of overspray are to be sanded down prior to overcoating.

Application Guidelines Interline® 9001

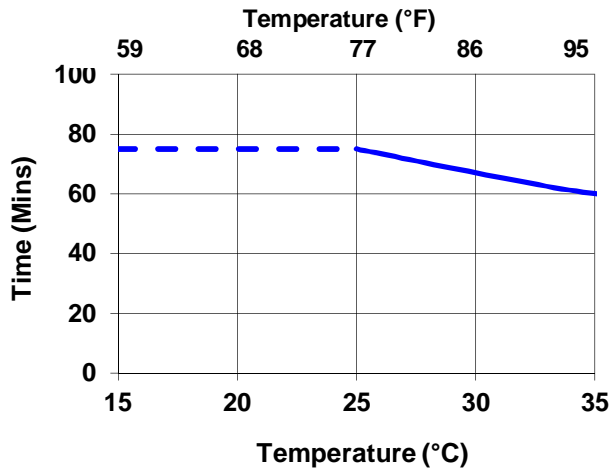
Revision 16 Issue Date 9th February 2018



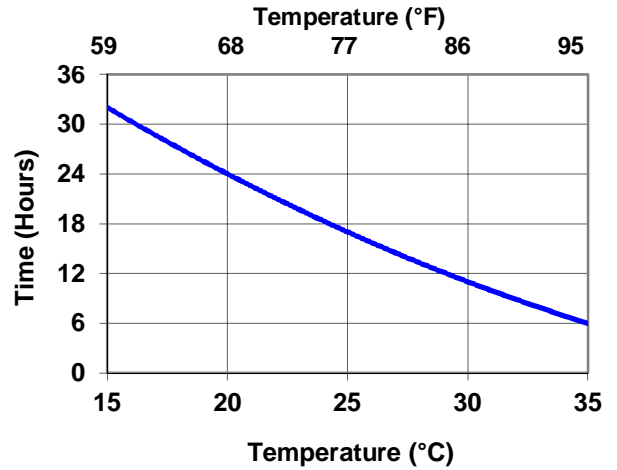
2.4 PRODUCT CURE GRAPHS

- 2.4.1 Pot Life
- 2.4.2 Touch Dry Times
- 2.4.3 Hard Dry Times
- 2.4.4 Curing Times
- 2.4.5 Minimum Overcoating Intervals
- 2.4.6 Maximum Overcoating Intervals
- 2.4.7 Environmental conditions during application

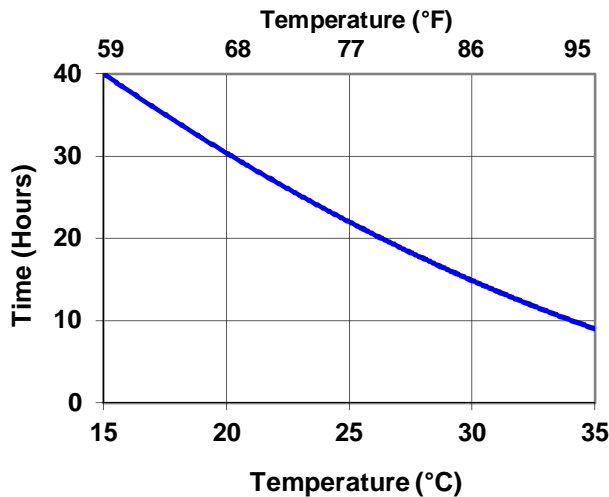
Interline 9001: Pot Life



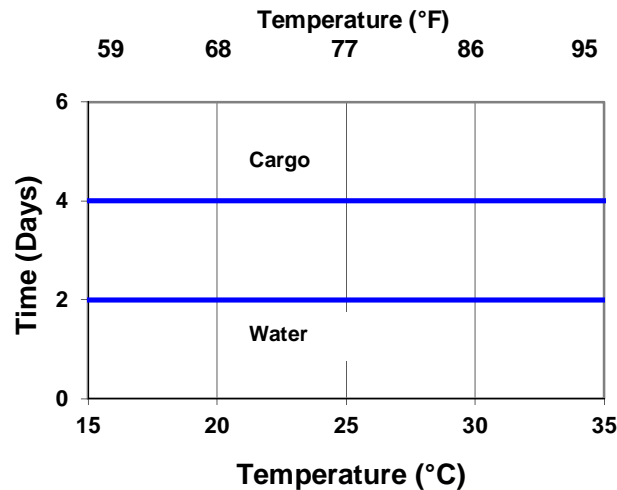
Interline 9001: Touch Dry



Interline 9001: Hard Dry

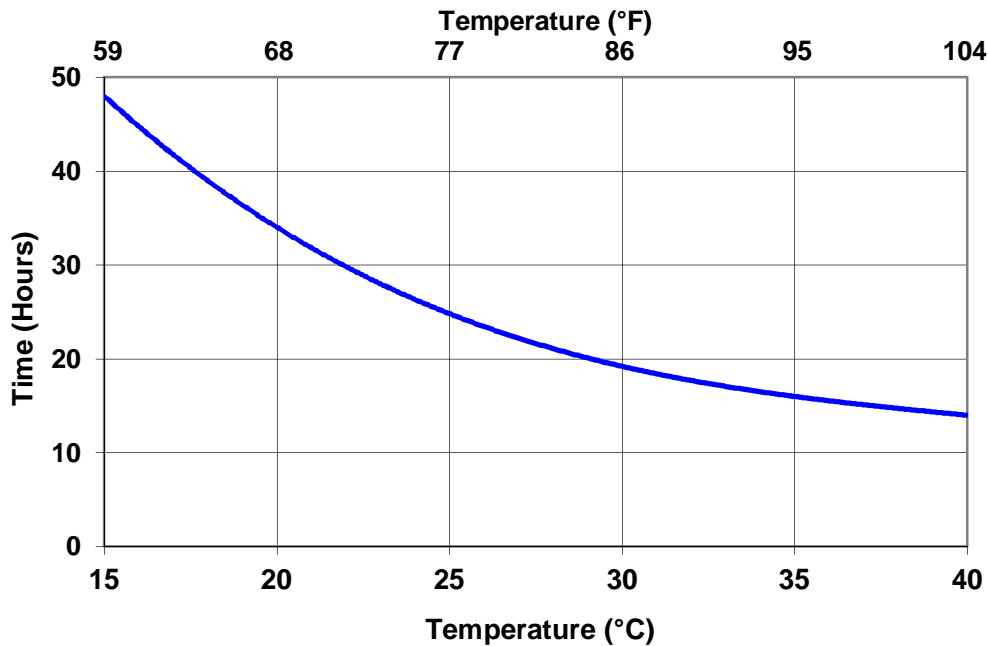


Interline 9001: Curing Time (required prior to water or full immersion) *



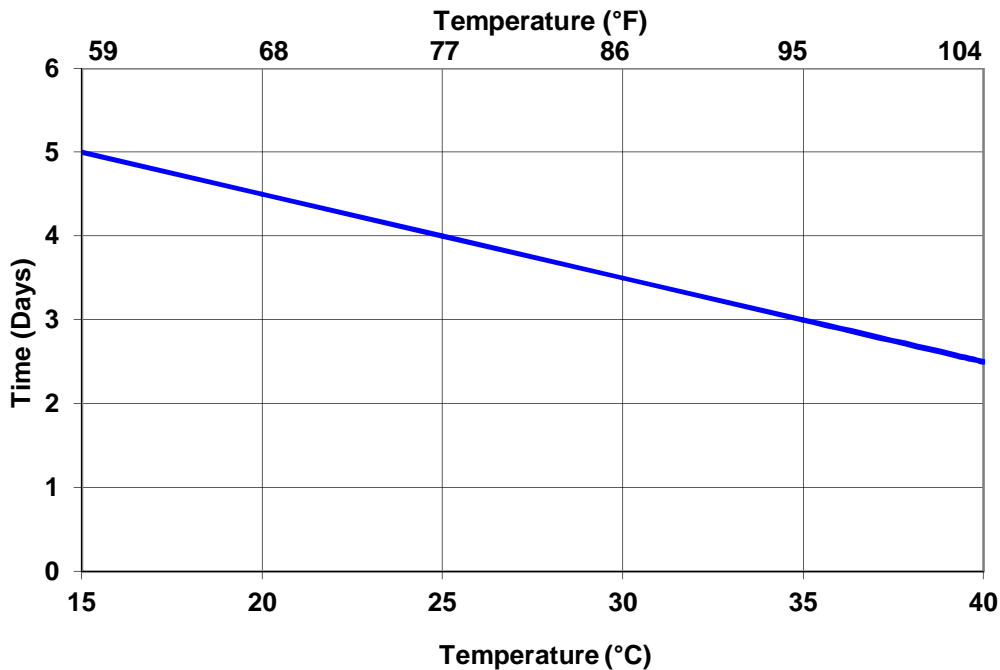
* Water immersion refers to water testing to highlight any "holidays" in the coating, ballasting of tanks during sea trials or postcure of tanks and usually will not exceed 7 days. If extended water immersion times are required, contact your local representative for guidance. On deballasting the tanks must be dried out.

Interline 9001 : Minimum Overcoating



Note: Application inside of the minimum overcoating interval will result in slumping of the second coat requiring the affected area to be repaired. Particular consideration should be given to potential temperature drops during application/curing (e.g. overnight) when consulting minimum overcoating recommendations.

Interline 9001: Maximum Overcoating



Note: The maximum overcoating interval can potentially be extended by the use of sand papering or power tool. Any mechanical damage through to steel must be fully repaired following guidelines in this document. Please contact International Paint for more details

3. COATING APPLICATION PROCEDURES

3.1 2 COAT SYSTEM: BLAST COMPLETE TANK THEN COAT UPPER AND BOTTOM AREAS SEPARATELY

- 3.1.1 Erect the scaffolding. Refer to Section 5.3 for recommendations.
- 3.1.2 Grit blast the entire tank to ISO Standard ISO 8501-1 (2007) - Sa2½. The specified surface profile is required - see Section 2.1.
- 3.1.3 Upon completion of the blasting, and after inspection by the Contractor Quality Control Department, the International Paint Technical Service Representative will also inspect the whole area and mark up any substandard areas. French chalk may be used for this purpose and any marks left after re-blasting do not need to be removed prior to application of the coating. However if any other material is used to mark the steel any remaining marks must be removed prior to application of the coating.
- 3.1.4 All marked areas shall be re-blasted and brought up to the required standard. The whole blasted area is to be vacuum cleaned to remove dust and contamination.
- 3.1.5 Before coating of the blasted surfaces commences, the amount of residual salt should be measured using the Bresle patch method (ISO 8502-6: 2006 "Extraction of soluble contaminants for analysis – The Bresle method" / ISO 8502-9: 1998 "Field method for the conductimetric determination of water-soluble salts") or similar. These methods are also described in Module No.8 of the International Paint Technical Service training programme. If the result is less than 5 micrograms/cm², progress to 3.1.7. If the result is greater than 5 micrograms/cm² progress to 3.1.6. The number of tests to be carried out is dependent upon the tank size. A figure should be agreed before the contract begins, consult International Paint. As a guide one to two salt measurement should be made per bulkhead.
- 3.1.6 The entire tank is to be fresh water washed. After the tank is dry, the salt contamination level is to be re-measured. The process outlined in 3.1.5 is to be repeated if the level is more than 5 micrograms/cm². The entire tank must then be re-blasted to ISO 8501-1 (2007) Sa2½. The specified surface profile as given in Section 2.1 must be achieved. Salt levels should then be re-measured by following 3.1.5 above.
- 3.1.7 This product will not cure adequately below 15°C. At no time during the application and up to the first 48 hours after application of the final coat must the steel temperature fall below 15°C and the relative humidity exceed 50%. As such, the conditions inside the tank should include a safety margin to help ensure these limits are not exceeded. Particular consideration should be given to potential temperature drops during curing (e.g. overnight). It is recommended that cloth insulation or a similar material is used on the vessel's decks to maintain temperature when heating of the tanks is required. This will save on fuel costs and should help in providing a steady temperature. When heating is not required during the summer months, similar material can be used to help keep the tanks at a comfortable temperature.
- 3.1.8 The bottom area of the tank should be protected with polythene to prevent contamination from dry spray / overspray when the upper areas are coated.
- 3.1.9 The upper areas are to receive a full coat of the first coat of the system to the specified dry film thickness, with minimum and maximum thicknesses as given in Section 2.2.
- 3.1.10 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.

- 3.1.11 The upper areas itemised in Section 5.14 are to receive a stripe coat of the second coat of the system. It is recommended that all stripe coats be applied using a 4 or 5 litre pack of Interline 9001.
- 3.1.12 The stripe coat is to be inspected by the International Paint Technical Service Representative.
- 3.1.13 The upper areas are to receive a full coat of the second coat of the system to the thickness specified in Section 2.2. The total dry film thickness of the system should be as specified in Section 2.2, within the specified acceptable minimum and maximum thicknesses.
- 3.1.14 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.
- 3.1.15 Any areas of under thickness are to be brought up to the minimum thickness specified.
- 3.1.16 When the full upper area is coated to the required standard the polythene and scaffolding are to be removed from tank. Care should be taken to avoid damaging the coating during de-staging and it is recommended that temporary rubber matting is used to help protect inside the access coaming. Any minor damages to the coating that do occur are to be repaired in accordance with the recommendations of the International Paint Technical Service Representative. These recommendations will be based upon those outlined in Section 6.
- 3.1.17 Prior to commencing blasting of the bottom area, the fully coated area immediately above it must be protected e.g. with wood and/or rubber to a minimum of 1m. Above this, plastic can then be used to reduce dust on the bulkhead coating.
- 3.1.18 Blast (flash-up) the bottom area to ISO Standard ISO 8501-1 (2007) - Sa2½. The overlap area on the bulkheads is to be prepared by power-tool disc sanding to feather back into the existing coating.
- 3.1.19 The whole bottom area is to be vacuum cleaned to remove dust and contamination.
- 3.1.20 Prior to application, the coated bulkheads immediately adjacent to the prepared bottom area must be protected from overspray.
- 3.1.21 The bottom areas are to receive a full coat of the first coat of the system to the specified dry film thickness, with minimum and maximum thicknesses as given in Section 2.2.
- 3.1.22 Areas itemised in Section 5.14, in way of the bottom area, are to receive a stripe coat of the second coat of the system.
- 3.1.23 The stripe coat is to be inspected by the International Paint Technical Service Representative.
- 3.1.24 The bottom areas are to receive a full coat of the second coat of the system. The total dry film thickness of the system should be as specified in Section 2.2, within the specified acceptable minimum and maximum thicknesses.
- 3.1.25 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.
- 3.1.26 Any areas of under thickness are to be brought up to the minimum thickness specified.
- 3.1.27 Finished tanks must be subjected to a seawater or freshwater test to highlight pinholes/irregularities in the tank coating which have not been identified by normal visual inspection. This may be carried out either by:

- a) Full ballasting of the tank for a minimum of 24 hours
- b) Full ballasting of the tank. After de-ballasting, the tank should remain closed up for at least 48 hours.
- c) Seawater re-circulation using the tank washing system. A minimum of 2 full cycles is to be run and the tank then left closed up for at least 48 hours.

Where method b) or c) is utilised, water to a depth of 1m should remain in the tank while in a closed condition.

If fresh water is used the test duration should be doubled.

The minimum curing period prior to water testing is 2 days at all temperatures.

3.1.28 Following testing, the tank should be thoroughly washed down with fresh water and dried, and any defective area repaired in accordance with the recommendations of the International Paint Technical Service Representative. These recommendations will be based upon those outlined in Section 6.

3.2 3 COAT SYSTEM: BLAST COMPLETE TANK THEN COAT UPPER AND BOTTOM AREAS SEPARATELY

- 3.2.1 Erect the scaffolding. Refer to Section 5.3 for recommendations.
- 3.2.2 Grit blast the entire tank to ISO Standard ISO 8501-1 (2007) - Sa2½. The specified surface profile is required - see Section 2.1.
- 3.2.3 Upon completion of the blasting, and after inspection by the Contractor Quality Control Department, the International Paint Technical Service Representative will also inspect the whole area and mark up any substandard areas. French chalk may be used for this purpose and any marks left after re-blasting do not need to be removed prior to application of the coating. However if any other material is used to mark the steel any remaining marks must be removed prior to application of the coating.
- 3.2.4 All marked areas shall be re-blasted and brought up to the required standard. Any sub-standard steelwork identified after the initial blast should be rectified and the affected areas re-blasted. The whole blasted area is to be vacuum cleaned to remove dust and contamination.
- 3.2.5 Before coating of the blasted surfaces commences, the amount of residual salt should be measured using the Bresle patch method (ISO 8502-6: 2006 "Extraction of soluble contaminants for analysis – The Bresle method" / ISO 8502-9: 1998 "Field method for the conductimetric determination of water-soluble salts") or similar. These methods are also described in Module No.8 of the International Paint Technical Service training programme. If the result is less than 5 micrograms/cm², progress to 3.2.7. If the result is greater than 5 micrograms/cm² progress to 3.2.6. The number of tests to be carried out is dependent upon the tank size. A figure should be agreed before the contract begins, consult International Paint. As a guide one to two salt measurements should be made per bulkhead.
- 3.2.6 The entire tank is to be fresh water washed. After the tank is dry, the salt contamination level is to be re-measured. The process outlined in 3.2.5 is to be repeated if the level is more than 5 micrograms/cm². The entire tank must then be re-blasted to ISO 8501-1 (2007) Sa2½. The specified surface profile as given in Section 2.1 must be achieved. Salt levels should then be re-measured by following 3.2.5 above.
- 3.2.7 This product will not cure adequately below 15°C. At no time during the application and up to the first 48 hours after application of the final coat must the steel temperature fall below 15°C and the relative humidity exceed 50%. As such, the conditions inside the tank should

include a safety margin to help ensure these limits are not exceeded. Particular consideration should be given to potential temperature drops during curing (e.g. overnight). It is recommended that cloth insulation or a similar material is used on the vessel's decks to maintain temperature when heating of the tanks is required. This will save on fuel costs and should help in providing a steady temperature. When heating is not required during the summer months, similar material can be used to help keep the tanks at a comfortable temperature.

- 3.2.8 The bottom area of the tank should be protected with polythene to prevent contamination from dry spray / overspray when the upper areas are coated.
- 3.2.9 The upper areas are to receive a full coat of the first coat of the system to the specified dry film thickness, with minimum and maximum thicknesses as given in Section 2.2.
- 3.2.10 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.
- 3.2.11 The upper areas itemised in Section 5.14 are to receive a stripe coat of the second coat of the system. It is recommended that all stripe coats be applied using a 4 or 5 litre pack of Interline 9001.
- 3.2.12 The stripe coat is to be inspected by the International Paint Technical Service Representative.
- 3.2.13 The upper areas are to receive a full coat of the second coat of the system to the thickness specified in Section 2.2.
- 3.2.14 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.
- 3.2.15 All the areas itemised in Section 5.14 in way of the upper area are to receive a stripe coat with the third coat of the system. It is recommended that all stripe coats be applied using a 4 or 5 litre pack of Interline 9001.
- 3.2.16 The stripe coat is to be inspected by the International Paint Technical Service Representative.
- 3.2.17 The upper areas are to receive a full coat of the third coat of the system. The total dry film thickness of the system should be as specified in Section 2.2, within the specified acceptable minimum and maximum thicknesses.
- 3.2.18 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.
- 3.2.19 Any areas of under thickness are to be brought up to the minimum thickness specified.
- 3.2.20 When the full upper area is coated to the required standard the polythene and scaffolding are to be removed from tank. Care should be taken to avoid damaging the coating during de-staging and it is recommended that temporary rubber matting is used to help protect inside the access coaming. Any minor damages to the coating that do occur are to be repaired in accordance with the recommendations of the International Paint Technical Service Representative. These recommendations will be based upon those outlined in Section 6.
- 3.2.21 Prior to commencing blasting of the bottom area, the fully coated area immediately above it must be protected e.g. with wood and/or rubber to a minimum of 1m. Above this, plastic can then be used to reduce dust on the bulkhead coating.

- 3.2.22 Blast (flash-up) the bottom area to ISO Standard ISO 8501-1 (2007) - Sa2½. The overlap area on the bulkheads is to be prepared by power-tool disc sanding to feather back into the existing coating.
- 3.2.23 The whole bottom area is to be vacuum cleaned to remove dust and contamination.
- 3.2.24 Prior to application, the coated bulkheads immediately adjacent to the prepared bottom area must be protected from overspray.
- 3.2.25 The bottom areas are to receive a full coat of the first coat of the system to the specified dry film thickness, with minimum and maximum thicknesses as given in Section 2.2.
- 3.2.26 Areas itemised in Section 5.14, in way of the bottom area, are to receive a stripe coat of the second coat of the system.
- 3.2.27 The stripe coat is to be inspected by the International Paint Technical Service Representative.
- 3.2.28 All bottom areas are to receive the second coat of the system to the thickness specified in Section 2.2.
- 3.2.29 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.
- 3.2.30 Areas itemised in Section 5.14, in way of the bottom area, are to receive a stripe coat of the third coat of this system.
- 3.2.31 The stripe coat is to be inspected by the International Paint Technical Service Representative.
- 3.2.32 The bottom areas are to receive a full coat of the third coat of the system. The total dry film thickness of the system should be as specified in Section 2.2, within the specified acceptable minimum and maximum thicknesses.
- 3.2.33 When hard dry, and accepted by the Contractor Quality Control Department, the International Paint Technical Service Representative will check the dry film thickness.
- 3.2.34 Any areas of under thickness are to be brought up to the minimum thickness specified.
- 3.2.35 Finished tanks must be subjected to a seawater or freshwater test to highlight pinholes/irregularities in the tank coating which have not been identified by normal visual inspection. This may be carried out either by:
- Full ballasting of the tank for a minimum of 24 hours
 - Full ballasting of the tank. After de-ballasting, the tank should remain closed up for at least 48 hours.
 - Seawater re-circulation using the tank washing system. A minimum of 2 full cycles is to be run and the tank then left closed up for at least 48 hours.

Where method b) or c) is utilised, water to a depth of 1m should remain in the tank while in a closed condition.

If fresh water is used the test duration should be doubled.

The minimum curing period prior to water testing is 2 days at all temperatures.

Application Guidelines

Interline® 9001

Revision 16 Issue Date 9th February 2018



- 3.2.36 Following testing, the tank should be thoroughly washed down with fresh water and dried, and any defective area repaired in accordance with the recommendations of the International Paint Technical Service Representative. These recommendations will be based upon those outlined in Section 6.

4. TECHNICAL INSPECTION AND PROJECT CONTROL

Project control by regular inspection and agreement on future action is vital to successful tank coating projects, and in maximising the potential of a coating system.

All parties involved in the cargo tank coating work must agree an inspection procedure prior to work commencing, this should outline how and when both work and inspection will be undertaken.

Prior to commencing the project the contractor(s) must be provided with copies of the relevant product data sheets. Attention should be drawn to pack sizes, mix ratios, thinning restrictions etc.

The International Paint Technical Service Representative must be present during initial mixing of the first drums of product to be applied to ensure that all parties are aware of mixing and application characteristics.

Daily meetings should be arranged to confirm performance of the work and inspection schedules, minutes of these meetings must be taken and circulated to all participants. Representatives of the contractor, shipyard and ship owner would normally be present at these meetings.

In the event of work continuing at any stage without the approval of International Paint, the Company cannot be held responsible for any subsequent failure of the tank coating system on the areas concerned. Those areas **MUST** be specifically excluded from the performance guarantee. Such an event is termed an **EXCEPTION**. All parties **MUST** be officially informed in writing using the standard International Paint Coating Exception Report Form.

International Paint, and any other authorised personnel, may inspect any stage in the process. If additional inspections are considered necessary because of on-site conditions or by agreement prior to commencement of the contract, then the contractor must obtain written approval for that stage from International Paint before continuing.

Contractors must supply interpreters if necessary.

On completion of the contract all relevant documentation must be retained, and suitably archived (for a minimum period of 12 years, or longer if required by the guarantee period or defined by local procedures), by the Local Technical Service Manager.

Inspection equipment for measurement of blast profile depth, relative humidity, wet and dry film thickness, etc. should be of approved types and be correctly calibrated.

Note: When measuring the dry film thickness of coatings, the DFT gauge must be calibrated prior to use and measurements made in accordance with ISO 2808:2007, unless regulations dictate that an alternative standard should be used.

5. GENERAL NOTES

5.1 TANK CONDITION

5.1.1 Newbuilding

Prior to commencement of blasting it is essential that the tanks are clean, dry, and in a condition suitable for surface preparation and application of the tank coatings. The following briefly outlines the minimum requirements:

All grease and oil must be removed from all surfaces.

All hot work in way of tanks must be complete.

Heating coils (if to be fitted) should be installed.

All cargo lines should be fitted and tested.

Cargo suction strums (if fitted) should be removed in order to give total access.

After final tank testing, tanks should be fresh water washed and dried, especially if they have been in contact with sea water.

Defective steelwork, prior to contract commencement, should be repaired in line with the guidance notes given in 5.2 (Steelwork Preparation).

5.1.2 Maintenance & Repair

Prior to the commencement of blasting it is essential that the tanks are clean, dry, and in a condition suitable for surface preparation and application of tank coatings. The following briefly outlines the minimum requirements:

Tanks must be cleaned and gas free.

Any blisters present must be burst and blister caps removed from surface.

Heavy scale must be removed from all surfaces.

Scale, debris and cargo residues must be removed from the tanks.

All grease and oil must be removed from all surfaces.

All hot work in way of tanks must be complete.

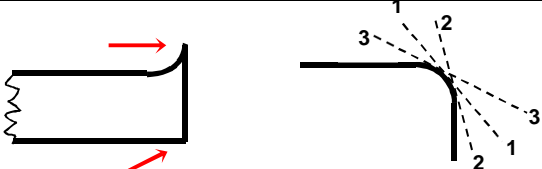
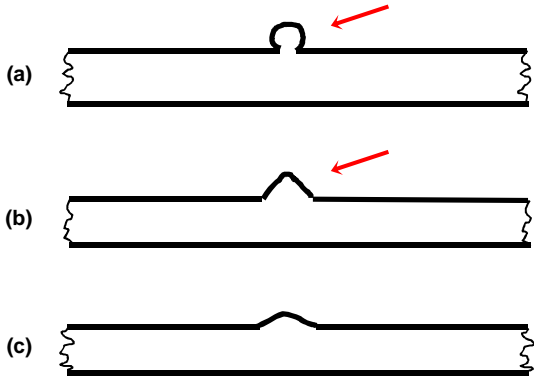
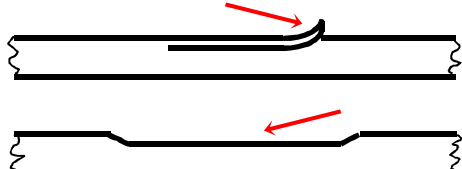
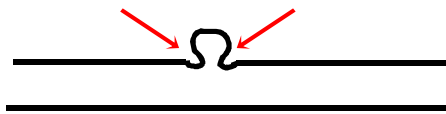
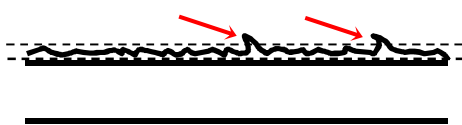
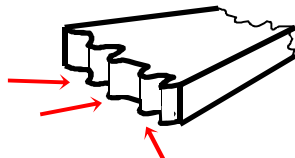
Cargo suction strums (if fitted) should be removed in order to give total access.

All tanks must be fresh water washed.

Any areas of steel renewal should be prepared in the manner described in 5.2 Steelwork Preparation.

5.2 STEELWORK PREPARATION

Preparation grades of welds, cut edges and surface imperfections are described in ISO 8501-3. Preparation to P3 grade of this standard will provide surfaces which will ensure optimum paint performance. International Paint recommend the following methods and minimum levels of preparation on any new steelwork:

ITEM	PROBLEM / SOLUTION
Sharp Edge	<p>Remove sharp edges or gas cutting edges with grinder or disc sander:</p> 
Weld Spatter	<p>1. Remove spatter observed before blasting by grinder, chipping hammer etc.</p> <p>2. For spatter observed after blasting:</p> <ol style="list-style-type: none"> Remove with chipping hammer /scraper etc. Where spatter is sharp, use disc sander or grinder until obtuse Obtuse spatter – no treatment required 
Plate Lamination	<p>Any lamination to be removed by grinder or disc sander</p> 
Undercut	<p>Where undercut is to a depth exceeding 1mm and a width smaller than the depth, repair by welding or grinding may be necessary</p> 
Manual Weld	<p>For welding bead with surface irregularity or with excessive sharp edges, remove by disc sander or grinder</p> 
Gas Cut Surface	<p>For surfaces of excessive irregularity, remove by disc sander or grinder</p> 

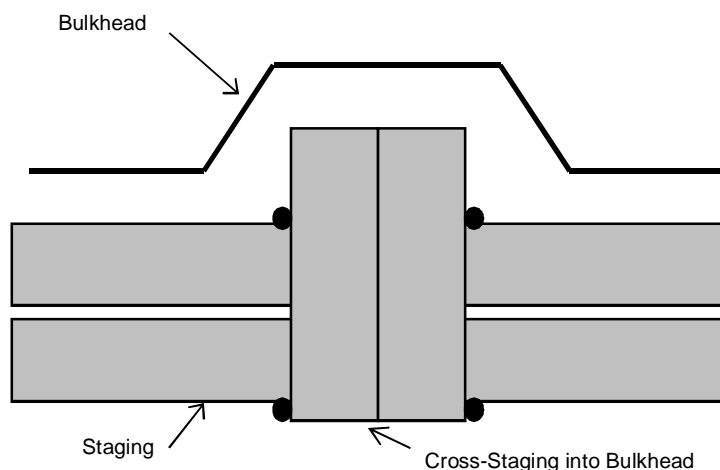
Pre-blasting of tank welds is recommended to ensure undercut, roughness, blow holes, etc are properly repaired ahead of full tank blasting.

5.3 SCAFFOLDING

Tubular scaffolding must not mask surfaces to be coated. Where contact is necessary then spade ends should be used.

Staging must afford easy and safe access to all surfaces to be coated and should be between 15cm and 30cm (6 and 12 inches) from vertical surfaces which are to be coated.

Where bulkheads are corrugated, staging should be erected such that it extends into the corrugations in order to assist safe inspection. Cross-staging must be firmly secured.



Tubular scaffolding must be plugged or capped prior to grit blasting to prevent the ingress of grit and dirt.

Staging should be designed to allow thorough cleaning. If staging is wooden in nature, International Paint recommend that it be of the 'turn over' type, when local safety regulations permit.

Distance between staging levels should not exceed 2.2 metres (7 feet).

If fixed staging lugs are fitted, these should be stainless steel.

Staging layout should be such that ventilation is not rendered ineffective.

Care must be taken when removing scaffolding in order to keep damages to a minimum. Any damages should be repaired in accordance with the recommendations of the International Paint representative on site.

It is recommended that temporary rubber matting/protection is used to protect the bottom areas and inside coaming/access to avoid coating damage during the de-staging.

5.4 CARGO LINES

Cargo lines should be uncoated stainless steel.

5.5 HEATING COILS (IF FITTED)

Heating coils in position during blasting and coating should be masked with suitable material.

Masking, fitted to heating coils before blasting, must be removed and the coils re-wrapped prior to painting.

The material used for masking when painting should be of a type which is absorbent, thus ensuring no contamination from paint flaking from masking on to painted surfaces beneath.

Heating coil brackets should be of stainless steel.

5.6 VENTILATION

Ventilation is necessary during abrasive blasting operations to ensure adequate visibility. Flexible trunking should be used to allow the point of extraction to be reasonably close to the personnel carrying out the blasting.

During and after coating application the ventilation system and trunking must be so arranged such that "dead spaces" do not exist. As solvent vapours are heavier than air, and will tend to accumulate in the lower areas of tanks, it is important that they are extracted from those areas.

Equipment used must not re-introduce abrasive dust, solvent vapour etc. into the tank. For this reason a positive pressure, (above normal atmospheric pressure) should be maintained in the tank during painting and a negative pressure (below atmospheric pressure) should be maintained during blasting.

Ventilation must be maintained during application and continue whilst solvent is released from the paint film during drying. Failure to do this may result in solvent retention within the coating system that will adversely affect its long term performance. Ventilation must be maintained for a minimum period of 48 hours after coating application has been completed unless otherwise agreed with International Paint.

The level of ventilation employed must take account of the Lower Explosive Limit (LEL) of the product being applied and comply with local legislative requirements. (The LEL is the minimum concentration of vapour in air, expressed as a percentage, that will ignite). International Paint recommend that vapour concentrations do not exceed 10% of the LEL. This figure is in line with general industry standards and the requirements of the United Kingdom Health & Safety Executive (Information Document HSE 703/13 "Application of Surface Coatings to Ship's Tanks") and the United States Department of Labor Occupational Safety and Health Administration (OSHA) regulation 1915.36(a)(2).

The ventilation requirement can be calculated from the required air quantity (RAQ) to produce 10% of the LEL figures and the product application rate. A typical paint application rate by airless spray is 75-100 litres (19.7-26.3 U.S. Gallons) per hour per sprayer.

Venting to 10% of the LEL is considered to provide a reasonable margin of safety to allow for possible higher local concentrations in tanks. Nevertheless, care should be taken when setting up ventilation/extraction systems, to ensure that this 10% figure is not exceeded.

If the level of ventilation is reduced during coating application, in order to minimise possible dry spray, the paint application rate must also be reduced to ensure that solvent vapour levels remain below 10% of the LEL.

Immediately following application and until the coating is dry, rapid air-flow across the wet paint film should be avoided, particularly if there is a large difference between the incoming air temperature and the substrate temperature.

Responsibility rests with the shipyard/contractor to ensure that the requisite equipment is available and operated in such a way that these requirements are met. International Paint will provide all of the information needed to allow the shipyard/contractor to calculate ventilation requirements. However, International Paint does not accept responsibility for the equipment, its operation, or the monitoring necessary to ensure that the requisite ventilation requirements are met.

All equipment used after the commencement of paint application must be electrically safe in operation.

Provision must be made by the contractor/shipyard for continuous, round the clock, surveillance of ventilation equipment.

5.7 DEHUMIDIFICATION

Dehumidification equipment must be of adequate capacity to maintain the condition of blasted steelwork to the required standard. Additionally, in order to prevent condensation, the steel temperature must always be at least 3°C (5°F) above the dew point.

Coatings may only be applied to surfaces which have been maintained in a dry condition with the steel temperature at least 3°C (5°F) above the dew point for more than one hour. The surfaces must be visibly dry and clean at the time of application. This condition must be maintained until the coating is cured.

Tank Coating must only be undertaken under acceptable atmospheric conditions, otherwise adverse effects may occur.

At no time during the application and up to the first 48 hours after application of the final coat of Interline 9001 must the relative humidity exceed 50%.

It is recommended that a maximum relative humidity of 40% inside the tank is targeted to provide a safety margin in the event of any temporary increases towards the 50% limit. Note that a relative humidity of less than 40% is required to maintain the blast standard required so this should also be achievable during coating application.

Provision should be made for 24 hour surveillance of equipment.

5.8 HEATING & COOLING

Substrate temperatures should be maintained for the duration of the contract from application to cure and provision should be made for 24 hour surveillance of equipment by the contractor/shipyard.

At no point during application or the first 48 hours after application of the final coat of Interline 9001 must the substrate temperature drop below 15°C. Therefore the substrate temperature established during application and drying/curing should be set to provide a safety margin that will take into account any potential temperature drops due to weather changes and/or overnight lows.

If heating is necessary to satisfy the painting specification, it should be by means of a heat exchange system, i.e. air admitted to the tank should not pass directly through a combustion chamber.

Vessel decks above the cargo spaces may need to be insulated and kept dry to ensure tank deckhead temperatures reach the desired level during very cold ambient conditions.

The substrate temperature must not exceed 40°C from application to cure so if there are high outside ambient temperatures, it may be necessary to protect the tank from direct sunlight by erecting tenting over the deckhead.

It is recommended that the heating/cooling, ventilation and the positioning of the trunking inside the tank are adjusted so as to avoid large differences in the substrate temperature across the tank. More consistent substrate temperatures will make the product drying times and overcoating intervals more predictable so easier to manage during the project.

5.9 **LIGHTING**

Lighting during blasting and painting must be electrically safe and provide suitable illumination for all work. As a guide, lighting may be considered suitable if this text can be read at a distance of 30 centimetres (12 inches) from the eye.

Ideally, the lighting should be powerful mains supplied spotlight with background lighting on at all times in the interests of safety.

Powerful mains spotlighting must be provided when inspection work is being carried out.

5.10 **STORAGE (AT POINT OF APPLICATION)**

The paint must be stored out of direct sunlight so that the temperature of the material will not exceed 35°C (95°F) for prolonged periods of time.

When ambient temperatures can be expected to fall below 23°C (77°F), base and curing agent must be stored in premises, (storeroom, hut, etc), which are heated to a temperature in excess of 23°C (77°F) for a period of not less than 48 hours immediately prior to use (unless stated otherwise on the product technical data sheet).

Interline 9001 is prone to crystallisation if stored at temperatures below 10°C. If this occurs then it must be held at 23°C for a minimum of 48 hours prior to use.

5.11 **GRIT BLASTING**

5.11.1 **General**

Two main universal standards of surface preparation are normally specified for cargo tank coatings - ISO Standard ISO 8501-1 (2007) – Sa2½ and Sa3.

In general, the following comments apply to these standards.

Sa2½ - in practice, this is considered to be the best standard a skilled blasting operative can consistently achieve.

Sa3 - the possibility of achieving a uniform standard of Sa3 throughout the tanks is remote and a more realistic achievement would be somewhere between Sa2½ and Sa3.

Comparative Standards

<u>ISO 8501-1: 2007</u>	<u>Japanese Standard on new steel</u>	<u>SSPC Standard</u>
Sa2½	JA SH2	SSPC-SP10
Sa3	JA SH3	SSPC-SP5

In cases where the substrate is corroded or pitted, it may be necessary to fresh water wash the areas after abrasive blasting, then re-blast, in order to ensure complete removal of soluble corrosion products.

5.11.2 Compressed Air

Air used for blasting must be clean, oil free and dry. The pressure should be at least 7kg/cm² (100lb/sq inch) at the nozzle.

5.11.3 Abrasive

Abrasives used for blasting must be dry and free from dirt, oil, grease and suitable for producing the standard of cleanliness and profile specified. The abrasive must therefore be in accordance with the specifications given in ISO 11126 - Parts 1 to 8 and each delivery should carry a certificate of conformity to this specification.

If blasting abrasive is supplied on site without a certificate of conformity, the material should be tested by the yard or contractor in accordance with the methods given in ISO 11127 - Parts 1 to 7.

Particular attention should be given to ISO 11127 - Part 6, where the level of water soluble contaminants must not give a conductivity value greater than 25mS/m, and ISO 11127 - Part 7, where the level of water soluble chlorides must not exceed 0.0025% by weight.

Iron or steel abrasives can be used for in-situ open blasting. Specifications for metallic abrasives are given in ISO 11124 - Parts 1 to 4 and the corresponding test methods in ISO 11125 - Parts 1 to 7. If used, careful and thorough cleaning must be carried out at all stages of the operation to ensure that no abrasive remains in the tank as this may subsequently corrode.

Recycled grit may be used providing it is dry, has been shown to be free from contamination by dirt, oil, grease, and has been tested in accordance with the above ISO standards.

5.11.4 Blast Profile

Measurement of surface profile using comparators is described in ISO 8503-2 using comparators detailed in ISO 8503-1. A blast profile of 50-100 microns is required and can alternatively be measured using:

- a) ISO 8503-3: Focusing microscope
- b) ISO 8503-4: Stylus

5.12 CLEANING

Prior to initial blasting inspection, the bulk of spent grit must be removed.

Any substandard areas should be identified and must be brought up to the specified standard.

All marking paint, chalk, etc, used to identify substandard areas must be removed after substandard areas are rectified. If left, the marks made will cause blistering and detachment of subsequent coats.

Following provisional approval of the blast standard, all remaining traces of grit and dust must be removed from all areas including scaffolding, using industrial vacuum cleaners fitted with brushes, or by other suitable methods agreed by International Paint. The quantity of dust remaining should be no greater than Pictorial reference 1: ISO 8502-3 and be of no greater size than Class 2 : ISO 8502-3.

Final approval of a substrate for coating application must be confirmed after final cleaning.

Mats for wiping feet, (or overshoes), should be placed at the entrance of tanks, and the area immediately surrounding them kept in a clean condition.

5.13 PAINT APPLICATION

All paints should be applied by airless spray except for stripe coats where brush (flat head brushes only) or roller should in general be used.

Efficient mechanical stirrers for the correct mixing of paint must be used.

An induction period of 15 minutes is required prior to application of Interline 9001. Paint temperature must be a minimum of 20°C both during this induction period, and throughout applications.

Available air pressure and capacity for spray equipment should be at least 5.5kg/cm² and 1.4m³/min (80 psi and 50 cfm).

All spray equipment must be in good working order and be capable of performing to the output requirements defined in International Paint product technical data sheets.

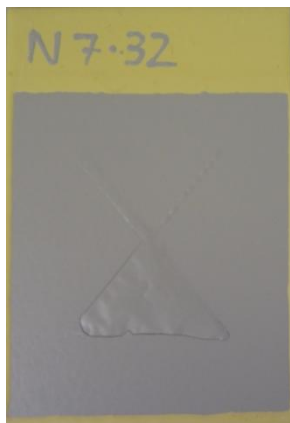
New spray lines must be used exclusively for Interline 9001 applications.

It is recommended that airless spray pump ratios of 40:1 or greater should be used.

Tips should be the size stipulated on the product technical data sheet, or as agreed with the International Paint representative on site. Tips must not be in a worn condition.

Both during and following application of paint, all operatives entering the confines of coated tanks must wear soft soled shoes.

Marker pens are commonly used to mark up areas of tanks, which require attention between application of paint coats. The marks made on the underlying coat can cause blistering and detachment of subsequent coats – see photographs of test panels below marked using unapproved marker pens between coats. All marker pens used must be technically approved by the International Paint Worldwide Marine Laboratories prior to use. Information on approved marker pens is available from IP Technical Service Representatives.



Detachment of topcoat following use of unapproved pen



Blistering of topcoat following use of unapproved pen

Exotherm Control

The product can exotherm in a certain period following initial mixing of the paint unit. Exotherm is when the paint starts to produce white fumes, followed by bubbling and an increase in temperature. The following recommendations have been put in place to try to reduce the risk of exotherming:

- Working time with any unit of Interline 9001 should not exceed 75 minutes. Consult section 2.4 for guidance relating to potlife with varying temperatures.
- Remains of spray units should not be poured into freshly mixed units.
- Stripe coating:
 - Only 4 or 5 litre units of Interline 9001 (pre-packed) should be used.
 - The paint temperature must be a minimum of 20°C after mixing, during the induction period and throughout the application
 - After the 15 minute induction period mix again
 - Decant the 4 or 5 litre mixed unit into separate smaller containers.
 - Limit work to a maximum of 75 minutes. (See section 2.4)
 - After the potlife has been reached, empty smaller containers into waste receptacle.
 - Clean the small unit tin with solvent.
 - Re-fill smaller container with freshly mixed 4 or 5 litre pre-packed unit of Interline 9001.

5.14 STRIPE COATS

Stripe coating is an essential part of good painting practice. Typical areas where stripe coats must be applied include:

- behind bars
- plate edges
- cut outs i.e. scallops, manholes etc
- welds
- areas of difficult access
- ladders and handrails
- small fittings of difficult configuration
- areas of pitting

Note: The above list is not comprehensive, all areas must be included.

To avoid problems with exotherming units, 5 litre pre-packed units of Interline 9001 must be used for stripe coating.

To avoid problems with poorly mixed or off-ratio paint, full 5 litre units of Interline 9001 must be mixed together when stripe coating.

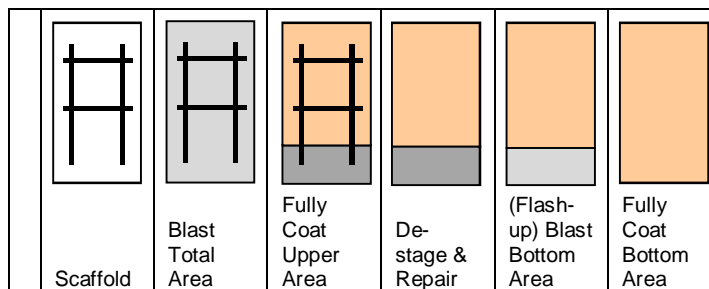
In general, stripe coats should be applied by brush or roller, depending upon items concerned. If brushes are to be used, they must be flat head brushes only.

In exceptional circumstances it may be acceptable to apply a stripe coat to the backs of angle bars by narrow angle spray. The use of spray applied stripe coats however, must be discussed and agreed with the International Paint representative on site.

5.15 COATING PROCEDURES

The following diagrams show the “model” cargo tank coating procedures suitable for Interline 9001:-

5.15.1 Procedure 1: Blast Total Area + Coat Upper Area and Bottom Area separately



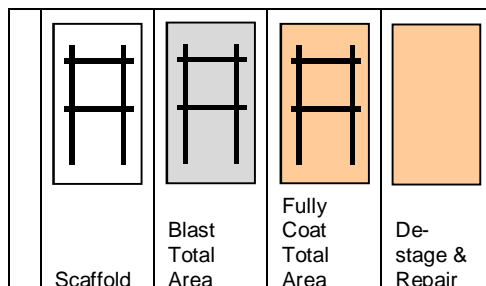
Advantages

- Maximum overcoating interval can be managed.
- No debris falling from the staging leading to inclusions in the wet paint on the tank-top.
- No damages to the tank-top coating during de-staging.
- In blasting the total area initially, after de-staging, the bottom area will only require flashing-up to achieve the required blast standard prior to coating.

Disadvantages

- Protection required immediately above the bottom area and due care and attention needed when blasting to avoid over-blast/ricochet damage of the fully coated upper area.
- Overlap area requires preparation (power-tool discing and feathering).
- The cleaning of the upper area after blasting the bottom can be more difficult without staging.

5.15.2 Procedure 2: Blast Total Area + Fully Coat Total Area



Advantages

- Maximum overcoating interval can be managed.
- No protection required or risk of over-blast damage.
- No cleaning.
- No overlap area to prepare.

Disadvantages

- Potential damage to the tank-top coating during de-staging.
- Scaffolding contact points on bottom area require preparation (e.g. vacuum blast).
- Risk of debris falling from the staging leading to inclusions in the wet paint on the tank-top.

The above disadvantages can all result in numerous touch-up repairs being required on the tank-top.

5.15.3 Notes

Procedure 1 is the preferred coating procedure as it reduces the risk of inclusions and damages to the tank-top coating that can lead to multiple touch-up repairs. Procedure 1 is detailed in Section 3.

Procedure 2 is only viable if the inclusions and damages on the tank-top can be eliminated or controlled to acceptable levels.

To discuss any alternative coating procedure options, please contact International Paint.

5.16 POST CURING

For Interline 9001 post cure is mandatory prior to carriage of any cargoes.

5.16.1 Hot Seawater/Freshwater Curing Using Tank Cleaning Machines

A hot cure may also be achieved by a hot recirculating wash with seawater/freshwater.

Before beginning the post cure process, a minimum initial curing period is required at the ambient temperature prevailing. Details of time requirements can be found in Section 3.1.24.

Post cure duration will depend on the temperature of the coating as measured by the temperature of the tank surfaces in adjacent spaces.

<u>Minimum Surface Temperature</u>	<u>Minimum Time</u>
60°C	16 hours
65°C	11 hours
70°C	6 hours
75°C	4 hours 30 minutes
80°C	3 hours

It is recommended that, prior to tank washing, the water is heated using heating coils in slop tanks or by other suitable heating equipment. Once the water has reached 80 - 85°C, it should then be recirculated through tank cleaning machines continuously for the minimum time period outlined in the above table, after the requisite substrate temperature has been reached.

The time taken to achieve the required steel temperature will depend on the capacity of heating equipment and external temperatures.

Water and substrate temperatures may be 85 - 100°C for a maximum of 3 hours per tank during post cure operations.

Notes:

It is a condition of the Interline 9001 guarantee that records of the steel temperature are maintained at all times during post-curing to ensure that the entire coated surface has attained the required minimum specified temperature/ time requirements.

It is generally recommended that thermocouples attached to suitable dataloggers are placed around the tank (e.g. on reverse bulkheads in the double-hull space) in order to monitor and record steel temperatures.

5.16.2 Hot Seawater/Fresh Water Immersion

A hot cure may be achieved by filling the cargo tank with hot seawater or hot freshwater. Tanks should be filled to maximum capacity with no ullage space in order to post cure the entire tank, including the deck head.

Before beginning the post cure process, a minimum initial curing period is required at the ambient temperature prevailing. Details of time requirements can be found in Section 3.1.24.

Post cure duration will depend on the temperature of the coating as measured by the temperature of the water in the tank.

<u>Measured Water Temperature</u>	<u>Minimum Time</u>
60°C	16 hours
65°C	11 hours
70°C	6 hours
75°C	4 hours 30 minutes
80°C	3 hours

Note: It is a condition of the Interline 9001 guarantee that records of the water temperature, measured by internal tank thermometers, are maintained at all times during post curing.

Water and substrate temperatures may be 85 - 100°C for a maximum of 3 hours per tank during post cure operations.

5.16.3 Hot Dry Air

Post cure may also be achieved using hot dry air.

Before beginning the post cure process, a minimum initial curing period is required at the ambient temperature prevailing. Details of time requirements can be found in Section 3.1.24.

To achieve post cure the air temperature needs to be sufficient to raise the steel temperature to at least 80°C for a minimum of 8 hours.

5.16.4 Notes

5.16.3.1 During the post-curing procedures described above, areas adjacent to the cargo tanks, including double bottom space, must be empty or contain a cargo that is at a temperature equal or greater than the post curing temperature employed.

5.16.3.2 Post-curing, using the methods described above, is suitable for double-hulled vessels only. For application of Interline 9001 to single-hulled vessels, consult your local International Paint representative.

6. REPAIR PROCEDURES

6.1 INTRODUCTION

These repair procedures are recommended for damages either at the initial coating stage or where breakdown of coating has occurred during the service life of the vessel.

The repair procedure recommended will depend upon the extent of damage involved but can be split into:

- i) Repairs of major areas
- ii) Repairs of minor areas

6.2 MAJOR REPAIRS

A Major repair should essentially be dealt with as if the project were beginning. The recommendations given earlier for steel preparation, coating application, etc. **MUST** all be adhered to.

6.3 MINOR REPAIRS

Under this heading are repairs to areas damaged either at the initial coating stage, i.e. caused by de-staging, etc or caused during service, i.e. tank cleaning equipment damages, spot corrosion, etc. The principle requirements are:

The area to be repaired must be fresh water washed and dry.

Remove any corrosion by means of either:

- vacuum blasting
- hand tools, i.e. disc sander and grinder.

Any pittings which, in the opinion of the Classification Society, do not need re-welding, should be prepared by needle gun and/or cone shaped grinder to remove corrosion deposits.

It is not recommended to use filler in pittings as it is unlikely to offer the cargo and cargo cycling resistance of Interline 9001.

Abrade area immediately surrounding repair to provide key for subsequent paint application.

Apply the paint system in accordance with our recommendations. If small areas are involved and application is by brush, several coats may be required to achieve the correct dry film thickness.

Following application of the first coat, the following areas may be sanded back:

- Areas of sagging
- Areas of paint runs
- Splatters
- Areas of over-application

To avoid damage to the coating, scrapers should not be used for minor repairs to the coating. Where application of full coats is required after touch up, minimum overcoating intervals are to be followed as recommended in section 2.4

Cure time - when minor repairs have been carried out the cure time can be reduced to 75% of that recommended for full tank applications.

7. HEALTH & SAFETY

7.1 INTRODUCTION

Some tank coatings contain volatile flammable organic solvents which can form explosive mixtures with air. Definite safety precautions must be taken whilst applying this type of coating in the confines of a ship's cargo tank. Detailed attention must be given to the following points:

- Danger of explosion or fire.
- Provision of a suitable breathing environment for workers.
- Prevention of skin irritation problems.
- Use of paints which have been specially formulated for use in tanks.

7.2 VENTILATION

(Note: This must be read in conjunction with General Note 5.6).

Ventilation is necessary during abrasive blasting operations to ensure adequate visibility. Flexible trunking should be used to allow the point of extraction to be reasonably close to the personnel carrying out the blasting.

During and after coating application it is essential that solvent vapours are removed to ensure that the level present in the atmosphere does not reach or exceed 1% by volume in air (this is the lower explosive limit or LEL). This means that the ventilation system must be arranged such that "dead spaces" do not exist and the ventilation must be continued both during the time that application is proceeding and also whilst solvent is released from the paint film during the drying process. Particular care must be taken to ensure that solvent vapour, which is heavier than air, does not accumulate in the lower areas of the tanks.

The amount of air per minute for ventilating to 10% of the LEL (recommended) can be regarded as the required air quantity multiplied by rate of application per minute. The required air quantity is the amount of air needed for each litre of paint to ventilate to the required level.

RAQ = Required Air Quantity
LEL = Low Explosive Limit

International Paint should be contacted for RAQ and LEL values.

Ventilation required (m³/minute) = RAQ x the application rate (litres/minute). The likely approximate application rate can be calculated from figures available from the application equipment supplier and will depend on the airless spray pump pressure and the orifice size of the tip used.

The geometry and size of tanks makes each one a separate problem, and it is essential that the ventilation arrangement, fan type, etc is checked as being suitable before painting commences.

In the event of a failure of the extraction/ventilation system paint application must be stopped and the tanks evacuated of personnel immediately.

7.3 ELIMINATION OF IGNITION SOURCES

Safety is the overriding consideration with this type of tank coating work, and the Contractor and Crew must be made fully aware of all aspects of the operation.

Welding, cutting or grinding in the tank must be forbidden until paint fumes are totally ventilated. This also applies to all areas within a 20m (60 feet) radius of tank and trunking outlets.

Coamings and hatch openings must be covered so as to efficiently prevent spark entry where welding is being carried out on the superstructure.

Lights, including hand torches, must be certified by the manufacturer as flash proof and suitable for use in solvent laden atmospheres.

Smoking must be prohibited in or near tanks or extraction systems.

No electrical junction boxes should be allowed in tanks.

Airless spray equipment must be earthed (because of the danger of static electricity build-up).

Mobile telephones, electrical cameras, and any equipment that is not intrinsically safe, must not be used in or near tanks or extraction systems until paint fumes are totally dispersed.

7.4 SOLVENT VAPOUR AND PAINT MISTS – PROTECTION OF PAINTING PERSONNEL

No ventilation system can reduce solvent vapour levels to below the Occupational Exposure Limit for solvents whilst tank coating is in operation. Painters must, therefore, wear air fed hoods or pressure fed masks with additional eye protection. (Please note: air fed hoods which provide a curtain of air across the visor are available. These help to prevent settlement of spray mist on the visor). Normal protective clothing must be worn, e.g. overalls, gloves, and suitable footwear of non-spark type.

7.5 SKIN IRRITATION

If proper protective clothing has been worn, e.g. overalls, gloves, air fed hood, etc no discomfort should be experienced from skin irritation.

Any areas of skin accidentally contaminated with paint must be thoroughly washed with soap and water. A skin conditioner that is designed to replace the natural oils in the skin can be used.

Note


1. The preceding safety information is given for guidance only.
2. It is imperative that, prior to the commencement of any tank coating project, local Regulations regarding Health and Safety and International Paint PPE Guidelines be consulted.

All representations and statements concerning the product(s) in this publication are accurate to the best of our knowledge. Statements made in this publication are advisory only and are not intended to be specific recommendations or warranties of any product, combination of products or fitness for any particular purpose. To the extent permitted by law, we do not accept any liability to any person for any loss or damage (direct or indirect) that may arise from any use or reliance on any of the methods or information contained in this publication for any purpose.

Unless otherwise agreed in writing, all products supplied and technical advice or recommendations given are subject to the Conditions of Sale of our supplying company. Any warranties, if given, are contained in those standard Conditions of Sale and are the only ones made with respect to any products we sell to you or advice or recommendations we give to you.

We hereby disclaim any warranties or representations, expressed or implied, by operation of law or otherwise, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose.

For each of our products the relevant Product Data Sheet, Material Safety Data Sheet and package labelling comprise an integral information system about the product in question. Copies of our Product Data Sheets and Material Safety Data Sheets are available on request or from our website: www.international-marine.com.

 International and all product names mentioned in this publication are trademarks of, or licensed to, Akzo Nobel.

Global Marine Coatings Headquarters
International Paint Singapore Pte Ltd, 21, Tuas South Street 3, Singapore 638023