Interzone 762
Application Guidelines

Prepared by: Protective Coatings Technical Support

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The International Paint Application Guidelines have been produced and revised in line with the Worldwide Protective Coatings Product Range. The purpose of the guidelines is to ensure that the product, as applied, provides the required level of durability.

Successful in-service performance of a coating system depends upon both the correct choice of product(s) and the adoption of the correct guidelines for surface preparation and paint application.

The responsibilities for achieving the specific standards outlined, and for carrying out surface preparation and paint application, rest with the Contracting Company. 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. The information contained herein presents guidelines for the application of Interzone 762 to correctly prepared surfaces.

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1. WHERE TO APPLY INTERZONE 762

Interzone 762 is intended for the protection of steelwork exposed in aggressive environments such as offshore structures, chemical and petrochemical plants, pulp and paper mills and power plants.

It may also be applied to tank internals. Please ensure that the system is suitable for the intended cargo.

2. STORAGE OF MATERIAL

The paint must be stored out of direct sunlight so that the temperature of the material will not exceed 25°C (77°F) for prolonged periods of time.

The peroxide catalyst should be stored separately in sealed containers, away from direct sunlight. Consult the MSDS for additional information.

In winter months, when temperatures can be expected to fall below 5°C, the base should be stored in premises (storeroom, hut, etc.,), which are heated to a temperature in excess of 5°C for a period of not less than 48 hours immediately prior to use (unless stated otherwise on the product technical data sheet).

3. ENVIRONMENTAL CONDITIONS FOR APPLICATION

In order to prevent condensation, the steel temperature must always be at least 3°C 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 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.

Application of coating must only be undertaken under acceptable atmospheric conditions, otherwise adverse effects may occur.

Heating

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 encapsulated area should not pass directly through a combustion chamber.

Lighting

Lighting during 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 centimeters from the eye.

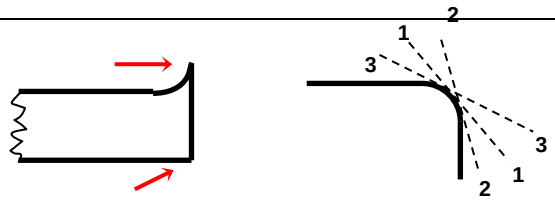
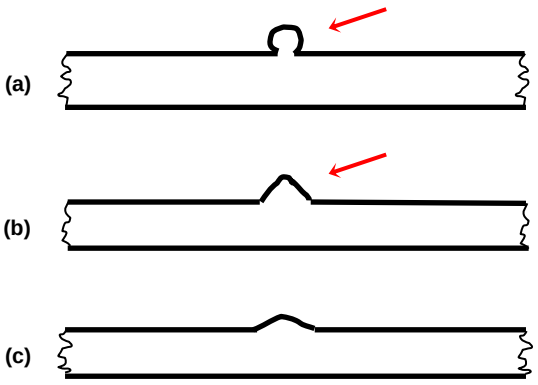
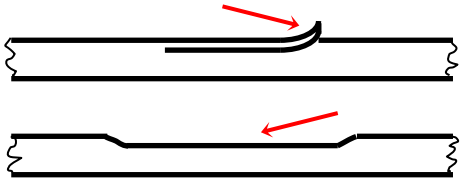
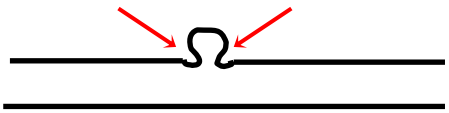
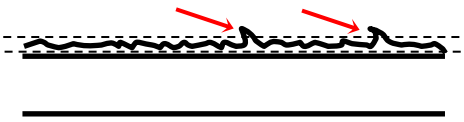
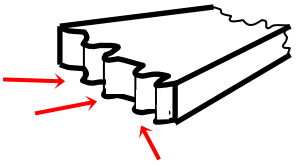
Ideally, the lighting should be powerful mains supplied spotlight with background lighting on at all times in the interests of safety.

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

4. SURFACE PREPARATION

Steel Condition

Prior to commencement of grit blasting it is essential that the steel is clean, dry and in a condition suitable for surface preparation and application of the coating scheme. Briefly, the minimum requirements are that all grease and oil must be removed from all surfaces, all hot work must be complete and defective steelwork, prior to contract commencement, should be repaired as indicated below.

ITEM	PROBLEM / SOLUTION
Sharp Edge	**Remove sharp edges or gas cutting edges with grinder or disc sander to achieve a radius of 1.5mm-2.0mm** 
Weld Spatter	**1. Remove spatter observed before blasting by grinder, chipping hammer etc.** **2. For spatter observed after blasting:** **a) Remove with chipping hammer /scraper etc.** **b) Where spatter is sharp, use disc sander or grinder until obtuse** **c) Obtuse spatter – no treatment required** 
Plate Lamination	**Any lamination to be removed by grinder or disc sander** 
Undercut	**Where undercut is to a depth exceeding 1mm and a width smaller than the depth, repair by welding or grinding may be necessary** 
Manual Weld	**For welding bead with surface irregularity or with excessive sharp edges, remove by disc sander or grinder** 
Gas Cut Surface	**For surfaces of excessive irregularity, remove by disc sander or grinder** 

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 recommends the following methods and minimum levels of preparation on any new steelwork:

The surface should be grit blasted to a minimum standard Sa2½ (ISO 8501-1:2007). In practice, this is considered to be the best standard a skilled blasting operative can consistently achieve. 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. The maximum allowed total soluble salt contamination on the steel before application of the Interzone 762 scheme is 50mg/m².

Compressed Air

Air used for blasting must be clean, oil free and dry. The pressure should be at least 7kgcm-² at the nozzle.

Abrasive

Abrasives used for blasting must be dry and free from dirt, oil, and 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 11127-6, where the level of water soluble contaminants must not give a conductivity value greater than 25mS/m, and ISO 11127-7, 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 on the steel as this may subsequently corrode.

Although not recommended, 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.

Blast Profile

The required amplitude of the blast profile depends upon the type of coating to be applied. Measurement on site should be by profile gauge or other mutually acceptable instruments. Measurement of surface profile using comparators is described in ISO 8503-2 using comparators detailed in ISO 8503-1. A medium 'G' type comparator should be used and a value of 75-95 microns is acceptable when measured by:

ISO 8503-3: Focusing microscope
ISO 8503-4: Stylus

When using a needle gauge such as the Elcometer 123, a value of 75 microns, taking a maximum of 10 determinations, is suitable.

Cleaning

Prior to initial blasting inspection, the bulk of spent grit should be removed. Any substandard areas should be identified and should be brought up to the specified standard.

Following provisional approval of the blast standard, all remaining traces of grit and dust should be removed from all areas and final approval of a substrate for coating application should be confirmed after final cleaning.

5. PRIMERS AND OVERCOAT INTERVALS

Refer to the datasheets for recommended overcoating intervals, pot life and curing requirements. The drying times quoted refer to a single coat applied at the specified thickness. At higher film thicknesses drying times may be extended, particularly at low temperature.

Interzone 762 will not cure adequately at ambient temperatures below 5°C. For maximum performance the temperature should be greater than 10°C.

Microclimate should be monitored in between applications, as changes in microclimate may affect over coating intervals. Areas of overspray should be sanded down prior to overcoating.

6. AIRLESS SPRAY APPLICATION

Ventilation

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, they will tend to accumulate in the lower areas and it is important that they are extracted from those areas. The extracted air must be balanced with fresh air being introduced into the encapsulated area.

Equipment used must not re-introduce abrasive dust, solvent vapour, etc., into the area where the coated articles are stored.

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. International Paint recommends that this is such that vapour concentrations do not exceed 10% of the LEL. Ventilating to 10% of the LEL is considered to provide a reasonable margin of safety to allow for possible higher local concentrations. Care should be taken when setting up ventilation/extraction systems, to ensure that 10% figure is not exceeded.

Responsibility rests with the 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 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.

Paint Application

All paints should be applied by airless spray except for stripe coats where brush or roller should in general be used.

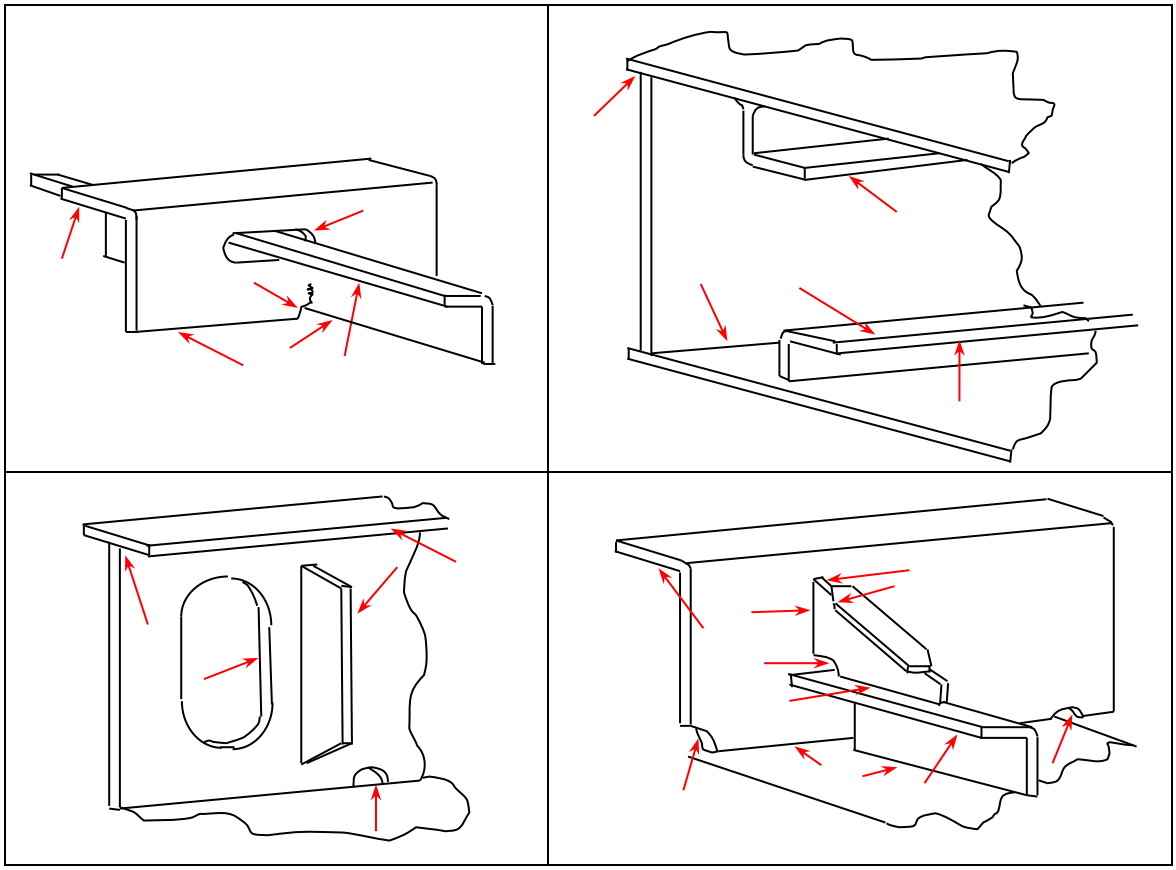
Available air pressure and capacity for spray equipment should be at least 5.5kg/cm^2 and 7.0m^3/min (80 psi and 250 cfm). All spray equipment must be in good working order and be capable of performing to the output requirements defined in International Paint product technical data sheets.

It is recommended that airless spray pump ratios of 45:1 or greater should be used. Teflon packings are recommended. Remove all filters from the spray unit and airless spray guns. Tips should be the size range 0.53-0.68mm (21-27 thou). Tips must not be in a worn condition.

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, small fitments of difficult configuration and areas of pitting.

Note: The above list is not exhaustive; all areas must be included. The diagrams following indicate key areas requiring stripe coating:



In general, stripe coats should be applied by brush. Application by roller should be limited to the inside of scallops.

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.

7. POSSIBLE FILM DEFECTS

A number of potential defects are detailed below together with recommended remedial treatment.

"Orange Peel"
This is due to application technique and the effect can be minimised by thinning of the material and ensuring that the material is at a working temperature of 10ºC-25ºC (50ºF-77ºF). This effect normally occurs if the coating is applied with the gun held too close to the workpiece.

Under-Application
If insufficient coating is applied then coalescence will be poor and the steel profile or primer will be clearly visible beneath the coating. Stripe coats should be applied to bolts, welds, angles, corners and other difficult areas which are likely to receive less than the specified film thickness. When the material is theoretically up to specified thickness, film thickness readings must be taken and any low areas brought up to specification.

Pinholes
This may occur as a result of application over porous substrates, hand-prepared substrates, surfaces that are suffering from overspray/dry spray or poorly cleaned surfaces containing dust debris. Surfaces should be suitably prepared before application commences. Pressurised air may be used to blow down the surfaces but it should first be checked for cleanliness to avoid further

contamination of the substrate, e.g. to ISO 8573 or ASTM D4266. If pinholing is observed, holiday testing can be used to confirm whether or not there is a conductive route through to the steel surface.

Sagging
This is the result of excessive film thickness and poor spray technique or over-thinning. If the areas are greater than 100mm equivalent diameter, the coating should be removed and re-applied. A maximum dry film thickness value is supplied in the data sheet and this should be adhered to as closely as possible.

Soft Films
Films which show signs of being mobile after the hard dry time indicate lack of curing. This may be as a result of poor mixing or even omission of the curing agent and affected areas will require removal and re-application.

8. MEASUREMENT OF DRY FILM THICKNESS

NOTE: When measuring the dry film thickness of coatings, the d.f.t. gauge must be calibrated prior to use as follows:

i) Check that the probe is clean.
ii) Place the probe on a sample of millscale-free **smooth** steel of thickness greater than 1mm.
iii) Calibrate the instrument to zero.
iv) Select a certified shim of similar thickness to that expected for the coating under test.
v) Calibrate the gauge to the shim thickness.
vi) Check that the gauge reads zero when replaced on the smooth steel sample.

Measurement of dry film thickness is described in ISO Standard 2808:1991 - Method 6A. Any substandard areas are to be rectified.

9. INSPECTION AND REPAIR

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

All parties involved in the 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 the project commencing, 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, required application conditions etc.

Inspection equipment for measurement of profile depth, humidity, wet and dry film thickness, etc., should be of appropriate types and should be within calibration limits. Measurement of dry film thickness is described in ISO Standard 2808:1991 - Method 6A.

Repairs
All damages are to be either vacuum blasted to Sa2.5 (ISO 8501-1:2007) or power tool cleaned to SSPC SP11 with a profile of 75 microns. All damages are to be touched up with the specified scheme to the recommended dry film thickness.

Touch up of damages caused during destaging is to be done by brush with Interzone 762 to a minimum dry film thickness of 400 microns.

On completion of installation the final coating should be inspected using a suitable non-destructive magnetic gauge to verify average thickness.

Following testing any defective area should be repaired in accordance with the recommendations of the International Paint. These recommendations will be based upon those outlined in 5.0 Surface Preparation.

10. GENERAL NOTES

Introduction

Some coatings contain volatile flammable organic solvents which can form explosive mixtures with air, especially when applying by spray methods. Safety precautions must be taken whilst applying this type of coating in enclosed areas. 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.

Danger of Explosion or Fire

The key factors in preventing an explosion or fire are:

- Adequate ventilation.
- Elimination of naked flames, sparks and any ignition sources.

Any organic solvent based coating could, merely by the normal process of drying, give off sufficient solvent vapour to produce an explosive mixture in an enclosed area when the vapour concentration reaches or exceeds 1% by volume in air. However, at 1% the solvents in the coatings produce an intolerably unpleasant odour (often with irritating skin effects) and smarting of the eyes. These symptoms must be taken as a warning sign that better ventilation is needed. 0.1% solvent vapour in air is normally recommended to give a tenfold safety margin and at this concentration, no explosion can occur and no operator effects should be noticed.

Elimination of Ignition Sources

Safety is the overriding consideration with this type of coating work and the Site Safety Department must be made fully aware of all aspects of the operation.

Welding, cutting or grinding in the immediate vicinity should be forbidden until paint fumes are totally dispersed. 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 the area or near to extraction systems. No electrical junction boxes should be allowed in the area where application is carried out. 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 the area or near to extraction systems.

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 it is essential that solvent vapours are removed to ensure that the level present in the atmosphere does not rise above that recommended in the section dealing with “Danger of Explosion and Fire”. 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 tanks.

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

Responsibility rests with the 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 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.

The amount of air per minute for ventilating to 10% of the LEL (lower explosive limit) 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. International Paint should be contacted for RAQ and LEL values for the appropriate products.

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

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. International Paint recommends that this is such that vapour concentrations do not exceed 10% of the LEL.

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 coating is in operation. Painters should, 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.

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 small areas not protected by clothing, e.g. wrists or neck, can be treated with a non-greasy barrier cream. Petroleum jelly is not recommended as this can assist the transport of solvents into the skin.

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.

11. HEALTH AND SAFETY

Interzone 762 is intended for use only by professional applicators in industrial situations in accordance with the advice given in this leaflet and on containers and should not be used without reference to the Material Health and Safety Data Sheets (MSDS) which International Protective Coatings has provided to its customers. If for any reason a copy of the relevant Material Health & Safety Data Sheets (MSDS) is not immediately available the user should obtain a copy before using the product.

Minimum safety precautions in dealing with all paints are:

- Take precautions to avoid skin and eye contact (i.e. use overalls, gloves, goggles, face mask, barrier creams etc.).
- Where possible provide adequate ventilation. In confined spaces with poor or no ventilation, use airfed hoods.
- If product comes in contact with the skin, wash thoroughly with lukewarm water and soap or suitable industrial cleaner. Do not wash with solvents. If the eyes are contaminated flush with water (minimum 10 minutes) and obtain medical attention at once.
- These coatings contain flammable materials and should be kept away from sparks and open flames. Smoking should be prohibited in the area.

Observe all precautionary notices on containers.