

# Application Guide



## SteelMaster 600WF

### Product description

This is a one component waterborne acrylic thin film intumescent coating. Independently approved for fire protection of structural steel exposed to cellulosic fire. Can be used as mid coat or finish coat in atmospheric environments. Suitable on approved primers on carbon steel substrates.

### Scope

The Application Guide offers product details and recommended practices for the use of the product.

The data and information provided are not definite requirements. They are guidelines to assist with efficient and safe use, and optimum service of the product. Adherence to the guidelines does not relieve the applicator of responsibility for ensuring that the work meets specification requirements.

Jotuns liability is in accordance with general product liability rules.

The Application Guide (AG) must be read in conjunction with the relevant specification, Technical Data Sheet (TDS) and Safety Data Sheet (SDS) for all the products used as part of the coating system.

### Referred standards

Reference is generally made to ISO Standards. When using standards from other regions it is recommended to reference only one corresponding standard for the substrate being treated.

### Surface preparation

The required quality of surface preparation can vary depending on the area of use, expected durability and if applicable, project specification.

Metal surface preparation refers to requirements for preparation prior to application of approved primers.

All steel must be physically clean, dry and free from mud, concrete slurry, grease, zinc salts and other forms of contamination. Complete washing down of steelwork may be necessary. Oil & grease should be removed in accordance with SSPSC SP1 solvent cleaning.

Paint solvents (thinners) shall not be used for general degreasing or preparation of the surface for painting due to the risk of spreading dissolved hydrocarbon contamination. Paint thinners can be used to treat small localised areas of contamination such as dye penetration inks and marker pens. Use clean, white cotton cloths that are turned and replaced often. Do not bundle used solvent saturated cloths. Place used cloths into water.

#### Process sequence

Surface preparation and coating should normally be commenced only after all welding, degreasing, removal of sharp edges, weld spatter and treatment of welds is complete. It is important that all hot work is completed before coating commences.

### Carbon steel

#### Metal finishing

Surface laminations and sharp edges should be removed, sharp edges must be rounded off smooth prior to priming. Weld spatter, or flux, dust and spent abrasive and all contamination must also be removed before primer application. Ensure substrate is clean and dry before painting.

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## Coated surfaces

### Over coating

When applied on coatings past maximum intercoating interval light abrading may be required to achieve proper intercoat adhesion.

### Organic primers/intermediates

Clean, dry and undamaged compatible coating (ISO 12944-4 6.1.4)

This product must always be applied over a primer approved by Jotun and must be applied within the recoating interval of the primer as specified. Areas with breakdown, damage, etc. must be prepared to the specified standard of blast cleaning to Sa 2½ (ISO 8501-1) or power tool cleaning to minimum St 3 (for small areas) and a coat of primer touched up before the product is applied.

The product has been fire tested as part of a system. For the complete list of approved Jotun primers and other approved primers please contact Jotun's technical department.

Should the primer's suitability for overcoating be in doubt in any way, for example, primer type unknown, primer not approved, excessive dry film thickness, surface contamination, surface glossiness etc, Jotun must be consulted prior to the application of SteelMaster.

Recommendation of on site evaluation patch to confirm surface preparation and adhesion before main application work commences.

The typical primer thickness is 75 µm. The maximum recommended dry film thickness of the primer system is 150 µm depending on the type of product used. If the primer system exceeds the maximum recommended DFT of 150 µm sanding or sweep blasting may be required to bring down the total DFT of the primer system to below the specified limit of 150 µm.

If in doubt contact Jotun's technical department.

### Compatibility of Intumescent coatings with zinc rich primers

Zinc rich primers, usually based on epoxy resin or silicate binders, are often used as corrosion protection coatings on structural steelwork. Weathering or prolonged exposure of the zinc primer will lead to the formation of zinc salts on the surface of the coating. If subsequent coatings, including intumescent coatings are applied over this layer of zinc salt, problems will be experienced with inter-coat adhesion. In such situations therefore, it is essential that the zinc salts are completely removed by washing down with fresh clean water. Hard bristle brushes may be used to remove stubborn zinc salts. Where full removal of zinc salts cannot be guaranteed, the only safe option is to remove the zinc coating and re-prime the steelwork.

The product must not be applied directly over zinc primers. An epoxy tie coat must be applied prior to the application of the SteelMaster system. The recommended Jotun approved tie coat is Penguard Tiecoat 100 applied at a DFT of 35 µm.

In all cases, the intumescent coating manufacturer must be consulted to confirm the compatibility of the priming system with the intumescent system and, where applicable, the tie coat.

## Application

### Environmental conditions

Intumescent coatings require a greater degree of environmental monitoring than conventional coatings. Intumescent coatings are moisture sensitive and must be protected against high humidity, rain and consequent water ponding both during application, transportation or during storage prior to being erected at site. Otherwise blistering/delamination will occur.

### Moisture resistance:

SteelMaster coated steelwork must be protected. SteelMaster products will react to high humidity, moisture condensation, rain and/or any water ponding when exposed. This will cause blistering and delamination of the intumescent coating. Where a topcoat is specified, application must occur as soon as the final coat of

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SteelMaster is fully through dry.

### Acceptable environmental conditions - before and during application

Before application, test the atmospheric conditions in the vicinity of the substrate for the dew formation according to ISO 8502-4.

|                        |         |    |
|------------------------|---------|----|
| Air temperature        | 10 - 40 | °C |
| Substrate temperature  | 10 - 40 | °C |
| Relative Humidity (RH) | 10 - 80 | %  |

The following restrictions must be observed:

- Only apply the coating when the substrate temperature is at least 3 °C (5 °F) above the dew point
- Do not apply the coating if the substrate is wet or likely to become wet
- Do not apply the coating if the weather is clearly deteriorating or unfavourable for application or curing
- Do not apply the coating in high wind conditions

It is advisable to apply the product to the steelwork when the building has been made water tight and dry. Where a topcoat is specified, application must take place in accordance with the recommended overcoating interval.

It is recommended that the ambient conditions are monitored every 4 hours. Where conditions vary it will be necessary to monitor at least every one or two hours.

## Product mixing

### Product mixing

Single pack

This product is a high viscosity product. It is possible that this may be affected when stored. It should be mixed with an air powered mechanical paint mixing tool that is clean and fit for purpose. Mechanically mix for about 1-2 minutes to ensure that the product is mixed to a uniform consistency and to fully incorporate all of the ingredients into a homogenous mixture.

Slow speed mixers or mechanical mixers are highly recommended to ensure no aeration or air bubbles are formed during the mixing process.

Manual mixing is not recommended.

### Thinner/Cleaning solvent

Do not add thinner. The product is ready to use and should not be thinned.

Cleaning solvent: Fresh water

## Application data

### Spray application

#### Airless Spray Equipment

|                                 |                  |
|---------------------------------|------------------|
| Pump ratio (minimum) :          | 45:1             |
| Pressure at nozzle (minimum) :  | 200 bar/2900 psi |
| Nozzle tip (inch/1000) :        | 19-23            |
| Nozzle output (litres/minute) : | 1.5-2.6          |

This Application Guide supersedes those previously issued.

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For your nearest local Jotun office, please visit our website at [www.jotun.com](http://www.jotun.com).

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|                        |                   |
|------------------------|-------------------|
| Spray angle :          | 30-40°            |
| Filters (mesh) :       | 30                |
| Material hose length : | Maximum 60 meters |

Several factors influence, and need to be observed to maintain the recommended pressure at the nozzle. Among factors causing pressure drop are:

- extended hoses or hose bundles
- extended hose whip-end line
- small internal diameter hoses
- high paint viscosity
- large spray nozzle size
- inadequate air capacity from compressor
- incorrect or clogged filters

#### Single coat application

The recommended method of application is by heavy-duty airless spray equipment. A maximum wet film thickness (wft) of 1000 µm is recommended. If thicker coats are applied sagging may occur and will also affect the drying and handling time. The minimum and maximum over coating times are given in the technical data sheet of the product.

The most suitable method and technique will depend on a number of factors such as coating thickness required, configuration of the steelwork, access to the steelwork, programming of the project, presence of other trade activity on site, etc.

#### Multi-coat application method

Where the specified DFT is greater than 700 µm, apply two or more coats to build up the total specified DFT. Keep the wft to a maximum of 700 µm per coat. Follow the recommended over coating intervals between coats as given in the product technical data sheet. Drying time and over coating intervals will depend on local environmental conditions.

The over coating time between each coat depends on the total DFT required to be built up as a system. The actual drying time can vary depending on environmental conditions such as air temperature, relative humidity, weather conditions, ventilation and also the number of coats, total dry film thickness applied, etc. Water ponding must be avoided. Early exposure of SteelMaster to moisture, rainwater, high humidity or condensation will cause defects such as blistering and/or delamination.

#### Other application tools

##### Brush application

Brush application is only for small areas or repairs. Application rates will always be slow when compared to airless spray. Multi-coat application by brush to achieve high DFT is neither practical nor economical. Care should be taken to achieve a uniform DFT.

##### Equipment cleaning

It is recommended as best practice to use airless spray equipment suited exclusively for spraying waterborne coatings. Although this is not mandatory, well maintained airless spray equipment will perform well. Alternating use of solvent and water borne coatings need conditioning of the spray equipment to avoid solvent contamination of the water borne paint. All equipment containing solvent in the pump, hoses and gun must be thoroughly cleaned. Before spraying, circulate a suitable thinner such as Jotun Thinner No. 17 through the equipment, hoses and gun until such time clean solvent flows through them. This should be followed by flushing with clean fresh water through the pump, hoses and gun until you see clean water flow. Care should be taken to ensure no water is mixed with SteelMaster when the paint is circulated through the pump, hose and gun. Allow some of the SteelMaster to flow out into the waste container to ensure that any product mixed with water is not used for spraying. Mixing of even small quantity of water with SteelMaster can affect the spray properties of the product.

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## Film thickness per coat

### Typical recommended specification range

|                    |                          |
|--------------------|--------------------------|
| Dry film thickness | 175 - 710 $\mu\text{m}$  |
| Wet film thickness | 250 - 1000 $\mu\text{m}$ |

All steel sections must be coated with correct film thickness to achieve the required fire rating. Please refer to the current loading tables. For further advice please contact your local Jotun office.

Note: The film thickness is only achievable by airless spray application in one coat.

## Film thickness measurement

### Wet film thickness (WFT) measurement and calculation

To ensure correct film thickness, it is recommended to measure the wet film thickness continuously during application using a painter's wet film comb (ISO 2808 Method 1A). The measurements should be done as soon as possible after application.

Fast drying paints may give incorrect (too low) readings resulting in excessive dry film thickness. For multi layer physically drying (resoluble) coating systems the wet film thickness comb may give too high readings resulting in too low dry film thickness of the intermediate and top coats.

Use a wet-to-dry film calculation table (available on the Jotun Web site) to calculate the required wet film thickness per coat.

### Dry film thickness (DFT) measurement

The effectiveness of an intumescent coating is controlled by thickness applied to give the appropriate fire rating. It is essential to ensure that the correct thickness applicable to each section size is obtained according to the loading tables issued by Jotun. It is the responsibility of the applicator to ensure all coatings are applied in accordance with this working procedure and that the specified dry film thickness is achieved on each section.

The film thicknesses for Jotun's intumescent coating are included in the Jotun loading tables (Dft). These thicknesses apply only to the intumescent coating and are not inclusive of any primer coat. Allowance will have to be made for the thickness of primer & topcoat (deduct) when measuring the overall system.

Primer thickness may be determined either after application in shop, or on site prior to commencement of application of the intumescent basecoat. It should be a requirement of the contract that steelwork delivered to site in primed condition should be accompanied by a documented record of primer thickness supplied by the fabricator. If this is not available, the site contractor must be required to conduct a primer thickness survey prior to commencement of intumescent application. Establishing the correct primer thickness is important. Measurement at this stage will more easily facilitate any subsequent corrections which may prove necessary. If the total intumescent dry film coating thickness, allowing for the underlying primer, is found to be within specified tolerances, application of the next coat (usually a decorative and/or protective coat) can proceed.

Indentation of the intumescent coating by the measuring instrument probe indicates insufficient hardness of the intumescent coating and measurements should be deferred. However, if programming requires coating to proceed urgently, by agreement with the specifier a shim of known thickness can be used to spread the load of the probe tip on the coated surface, allowing measurement to proceed before the coating has fully hardened. The dry film thickness of coating and shim together can then be measured and the shim value deducted to give the coating thickness.

If the total intumescent dry film coating thickness is found to be outside the specified tolerances, the procedure outlined below.

### Correction of inadequate coating thickness

The importance of dry film thickness checking is emphasized where inadequate thickness is identified prior to application of the final sealer coat / decorative top coat.

In such situations it is a relatively simple exercise to define the extent of the deficient area(s) and to apply further coat(s) of intumescent product to bring the overall thickness up to acceptable standards.

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However, if low thickness is not detected until after the sealer coat / decorative top coat has been applied, the topcoat must be completely removed. After cleaning, apply further coat(s) of intumescent product to bring the overall thickness up to the specified dry film thickness.

#### Frequency of measurement

The recommended procedure for measuring dry film thickness and the acceptance criteria is based on Section 4.7 of ASFP Technical Guidance Document 11.

Sections must be measured in accordance with the following guidelines:

(i) I Sections, Tee Sections and Channels

Webs: Two readings per metre length on each face of web

Flanges: Two readings per metre length on the outer face of each flange

One reading per metre length on the inner face of each flange.

(ii) Square and Rectangular Hollow Sections and Angles:

Two readings per metre length on each face.

(iii) Circular Hollow Sections:

Eight readings per metre length evenly spread around the section

Where members are less than 2 m in length, three sets of readings shall be taken, one at each end and at the centre of the member. Each set shall comprise the number of readings on each face given by (i), (ii) or (iii) above, as appropriate.

When taking DFT readings, it is recommended that no readings are taken within 25 mm of the edge of an I section or within 25 mm of the join of flange to web of an I section.

#### DFT acceptance criteria

The average dry film thickness (dft) applied to each steel section shall be greater than or equal to the specified dry film thickness.

Where any single thickness reading is found to be less than 80 % of the specified dft, a further three readings shall be taken within 200 to 300 mm around the area of the low reading. The initial reading may be considered isolated if all the additional readings are at least 80 % of the specified nominal value.

If one or more of the additional readings are less than 80 % of the specified nominal value, further readings shall be made to determine the extent of the area of under thickness. In such cases, low thickness areas identified must be brought up to the specified dry film thickness before proceeding to the next application stage.

Individual dry film thickness readings of less than 50 % of the specified dft are not acceptable.

The average measured dry film thickness of any face of any member should not exceed 10 % of the manufacturer's recommended maximum thickness for the particular member shape and orientation.

#### Ventilation

Sufficient ventilation is very important to ensure proper drying/curing of the film.

With little air movement, it is possible that the local relative humidity in the vicinity of the coated steel will increase to unacceptable levels, resulting in extended drying/overcoating times and poor performance.

Forced ventilation such as portable fans is permissible, however not in direct contact with the freshly applied product as it can lead to surface skinning, wrinkling of the coating or other related defects.

Waterborne coatings must be protected from condensation and water during application and drying. They must always be protected from pooling or running water, driving rain, high humidity/condensation even when topcoated. If in doubt contact Jotun.

#### Coating loss

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The consumption of paint should be controlled carefully, with thorough planning and a practical approach to reducing loss. Application of liquid coatings will result in some material loss. Understanding the ways that coating can be lost during the application process, and making appropriate changes, can help reducing material loss.

Some of the factors that can influence the loss of coating material are:

- type of spray gun/unit used
- air pressure used for airless pump or for atomization
- orifice size of the spray tip or nozzle
- fan width of the spray tip or nozzle
- the amount of thinner added
- the distance between spray gun and substrate
- the profile or surface roughness of the substrate. Higher profiles will lead to a higher "dead volume"
- the shape of the substrate target
- environmental conditions such as wind and air temperature

#### Pre-commissioning considerations

During the above operations damage to the coating system can occur particularly between in-shop applications through to final erection on site. Due to the relative high film thickness of intumescent systems, coupled with their drying mechanism, particular care must be taken during handling of steel sections. The paint system should be allowed to dry for as long as possible before movement to stock or site or before further coating. Lifting devices should be of suitable material in order to limit the extent of mechanical damage. Contact points on the coated steel should be protected. If necessary lifting lugs should be incorporated into the fabrication process to facilitate the lifting of large or complex configurations of steel sections.

SteelMaster coated steelwork must be protected and suitably covered to avoid water ponding. Section pieces must be stored in a horizontal position with toes down. Provide adequate ventilation and allow air circulation to facilitate thorough drying. Minimal stacking is recommended.

For transportation of the applied sections from the fabrication yard to the erection site, the complete system with approved topcoat must be applied. Systems must be allowed to hard dry and approved before movement to site.

## Drying and Curing time

| Substrate temperature     | 10 °C | 23 °C | 40 °C |
|---------------------------|-------|-------|-------|
| Surface (touch) dry       | 4 h   | 2 h   | 1 h   |
| Dried to handle           | 6 h   | 4 h   | 3 h   |
| Dry to over coat, minimum | 16 h  | 6 h   | 4 h   |

All drying times have been measured at a wet film thickness of 1000 µm under controlled temperature and relative humidity below 80 %.

Topcoating: The minimum overcoating interval of this product with approved topcoats is 48 hours. Prior to application of topcoat, the applicator must ensure that the specified dry film thickness has been achieved and the system is dried to handle.

Surface (touch) dry: The state of drying when slight pressure with a finger does not leave an imprint or reveal tackiness.

Dried to handle: Minimum time before the coated objects can be handled without physical damage.

Dry to over coat, minimum: The recommended shortest time before the next coat can be applied.

## Maximum over coating intervals

Maximum time before thorough surface preparation is required. The surface must be clean and dry and suitable for over coating. Inspect the surface for chalking and other contamination and if present, remove with an alkaline detergent. Agitate the surface to activate the cleaner and before it dries, wash the treated area by low-pressure water jetting to Wa 1 (ISO 8501-4) using fresh water.

If maximum over coating interval is exceeded the surface should in addition be carefully roughened to ensure good inter coat adhesion.

The drying time of the intumescent coating system will increase as the DFT of the total system increases, hence for coating systems higher than 1000 µm DFT the minimum over coating interval of any subsequent coat other than itself is 48 hours.

The subsequent coat will adhere to the substrate when applied on top of this product within the given time frame. However during this period the surface coated with this product should not be exposed to humidity above 80 %. Direct exposure to water without an approved topcoat will have a negative effect on the performance of the coating system.

## Other conditions that can affect drying / curing / over coating

### Topcoating:

Only topcoats approved by Jotun can be applied over SteelMaster products. Contact Jotun's technical department for the approved topcoats.

Prior to application of the topcoat ensure that the SteelMaster has been applied to the specified DFT. The surface must be clean, dry and free of contamination before applying the topcoat.

The minimum over coating time between SteelMaster and the top coat is 48 hours and when the system is dried to handle. If the system is not dried to handle, the over coating time may be extended.

Topcoat will normally be applied as per specification. For exposure to corrosivity category C2 (ISO 12944-2) a minimum of one topcoat at 50 µm dft is recommended. For corrosivity category C3 Jotun recommends two topcoats at 50 µm dft per coat.

It is recommended that the total dft of the topcoat does not exceed 125 µm.

Apply using an airless spray machine and follow the instructions contained on the technical data sheets. Topcoat can be applied on site by brush/roller, where there is no access or limited access and shall be recorded in the reports.

It is important that the topcoat is applied at the specified dft film thickness. To achieve a uniform finish on an uneven surface is difficult and may require additional coats. As a guide the wet film thickness of the topcoat should be measured at regular intervals to ensure the specified dry film thickness is obtained. Top coated steelwork should not be exposed to direct sunlight and/or elevated temperatures immediately after application of the topcoat as this may cause blistering due to entrapped solvents within the SteelMaster.

### Bolts and fixtures

General guidance notes from ASFP recommends that bolt heads should have the same resistance to fire exposure as the steel section. Continuous linear fixtures (brackets and angles) should be considered as part of the main beam and duly protected from fire.

### Repair of coating system

It is always recommended that all types of damages are repaired at the earliest opportunity to avoid any moisture ingress that can lead to degradation of the intumescent coating. The repair method will depend on the extent of damage.

### Substrate preparation:

Ensure exposed substrate is clean, dry and free from any contamination such as grease, oil, or salt formation.

**Damage to SteelMaster coating** - Depending on the extent of damage lightly abrade the surface or 'Cut Out' as described below. Ensure the primer is not damaged. If the primer is damaged a priming coat will be necessary. Apply the SteelMaster to the specified film thickness by airless spray/brush.

**Damage to the coating that exposes bare steel** - Damage to small areas may be mechanically cleaned by abrasive sanding to a minimum standard of SSPC SP11. Care must be taken to avoid burnishing of the steel substrate. Overlapping zones to intact coating shall be masked off to a minimum 200 mm distance to the damaged area. The surrounding area must be covered so that overspray to the sound coating does not occur during repair application. Edges of intact coating around damage area shall be feathered to ensure a smooth



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transition from the coating to the prepared steel.

Large areas of damage shall be dry abrasive blast cleaned to Sa 2½ (ISO 8501-1) preferably by the use of vacuum blasting equipment to avoid damage to intact coating.

Apply one coat of the original primer or the recommended repair primer prior to applying SteelMaster to the specified dry film thickness.

**Damage to Topcoat only** - If only the topcoat is damaged then remove loose unsound coatings and feather the rough edges. Ensure the surface is free from contamination, sound and dry before applying the topcoat to the recommended/specified dry film thickness.

When repairing SteelMaster, the intumescent coating must not be applied over top coated areas. Ensure to limit the primers/ SteelMaster/topcoat within its own layers of coating on feathered edges.

This repair procedure applies to following areas

- a) Areas of mechanical damages due to other site works
- b) Coating damaged due to fixing additional brackets by welding
- c) Burn damages due to welding
- d) Any other damages down to bare steel
- e) SteelMaster surface damages
- f) Damages caused by high humidity, moisture, entrapped air, etc causing blistering
- g) Ensure the surfaces are clean, dry and free from contamination before applying any coating layer

#### Cut out:

Cut out the SteelMaster coating at least five centimeters from the damaged/heat affected area, in all directions back to sound edge (large enough to allow manual/mechanical preparation). In case of scattered spot blistering/damages caused due to water ingress, moisture, high humidity the blisters need to be cut open. Sand down the affected area, feather the edges and repair as recommended above. In case of extensive blistering/swelling of the SteelMaster due to the above reasons the coating needs to be removed to bare/primed steel and repaired as above.

#### Repair Primer:

Jotamastic 70, Jotamastic 80 or Jotamastic Smart Pack colours to be applied at DFT 75-100 µm to patch prime exposed steel. Care should be taken to avoid overlap of primer onto the adjacent SteelMaster.

#### Surface finish

The cosmetic finish of SteelMaster products will depend largely on the method of application. Generally airless spray application will give a superior finish.

ASFP Technical Guidance Document 11 section 2.1.11 outlines three standards of finish:

- 1. Basic Finish:** The coating system achieves the required fire and corrosion protection performance but is not required to achieve any required standard of finish
- 2. Decorative Finish:** In addition to item 1, a good standard of cosmetic finish is required when viewed from a distance of 5 meters. Minor orange peel or other textures resulting from application or localized repair is acceptable.
- 3. Bespoke Finish:** In addition to item 1, the finish coating is required to have a standard of evenness, smoothness and gloss agreed between specifier and contractor.

## Quality assurance

The following information is the minimum required. The specification may have additional requirements.

- Confirm that all welding and other metal work has been completed before commencing pre-treatment and surface preparation
- Confirm that installed ventilation is balanced and has the capacity to deliver and maintain the RAQ
- Confirm that the required surface preparation standard has been achieved and is held prior to coating application
- Confirm that the climatic conditions are within recommendations in the AG, and are held during the application
- Confirm that the required number of stripe coats have been applied
- Confirm that each coat meets the DFT requirements in the specification
- Confirm that the coating has not been adversely affected by rain or other factors during curing
- Observe that adequate coverage has been achieved on corners, crevices, edges and surfaces where the spray gun cannot be positioned so that its spray impinges on the surface at 90° angle
- Observe that the coating is free from defects, discontinuities, insects, abrasive media and other contamination
- Observe that the coating is free from misses, sags, runs, wrinkles, fat edges, mud cracking, blistering, obvious

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pinholes, excessive dry spray, heavy brush marks and excessive film build  
- Observe that the uniformity and colour are satisfactory

All noted defects shall be fully repaired to conform to the coating specification.

#### Caution

This product is for professional use only. The applicators and operators shall be trained, experienced and have the capability and equipment to mix/stir and apply the coatings correctly and according to Jotun's technical documentation. Applicators and operators shall use appropriate personal protection equipment when using this product. This guideline is given based on the current knowledge of the product. Any suggested deviation to suit the site conditions shall be forwarded to the responsible Jotun representative for approval before commencing the work.

For further advice please contact your local Jotun office.

#### Health and safety

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

#### Accuracy of information

Always refer to and use the current (last issued) version of the TDS, SDS and if available, the AG for this product. Always refer to and use the current (last issued) version of all International and Local Authority Standards referred to in the TDS, AG & SDS for this product.

#### Colour variation

Some coatings used as the final coat may fade and chalk in time when exposed to sunlight and weathering effects. Coatings designed for high temperature service can undergo colour changes without affecting performance. Some slight colour variation can occur from batch to batch. When long term colour and gloss retention is required, please seek advice from your local Jotun office for assistance in selection of the most suitable top coat for the exposure conditions and durability requirements.

#### Reference to related documents

The Application Guide (AG) must be read in conjunction with the relevant specification, Technical Data Sheet (TDS) and Safety Data Sheet (SDS) for all the products used as part of the coating system.

When applicable, refer to the separate application procedure for Jotun products that are approved to classification societies such as PSPC, IMO etc.

## Symbols and abbreviations

min = minutes

h = hours

d = days

°C = degree Celsius

° = unit of angle

µm = microns = micrometres

g/l = grams per litre

g/kg = grams per kilogram

m<sup>2</sup>/l = square metres per litre

mg/m<sup>2</sup> = milligrams per square metre

psi = unit of pressure, pounds/inch<sup>2</sup>

Bar = unit of pressure

RH = Relative humidity (% RH)

UV = Ultraviolet

DFT = dry film thickness

WFT = wet film thickness

TDS = Technical Data Sheet

AG = Application Guide

SDS = Safety Data Sheet

VOC = Volatile Organic Compound

MCI = Jotun Multi Colour Industry (tinted colour)

RAQ = Required air quantity

PPE = Personal Protective Equipment

EU = European Union

UK = United Kingdom

EPA = Environmental Protection Agency

ISO = International Standards Organisation

ASTM = American Society of Testing and Materials

AS/NZS = Australian/New Zealand Standards

NACE = National Association of Corrosion Engineers

SSPC = The Society for Protective Coatings

PSPC = Performance Standard for Protective Coatings

IMO = International Maritime Organization

ASFP = Association for Specialist Fire Protection

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## Disclaimer

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.

Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.

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