

Steelmaster 1200WF

Product description

This is a one component waterborne acrylic thin film intumescent coating. Independently tested and approved for fire protection of structural steel exposed to cellulosic fire up to 180 minutes. Suitable for properly prepared carbon steel substrates.

Scope

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

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.

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.

Application

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.

Standard grade

Air temperature	5 - 60	°C
Substrate temperature	5 - 60	°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 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

Product mixing

Product mixing ratio (by volume)

Single pack

Product mixing

This product is a high viscosity product. It is possible that this may be effected 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 5 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

Cleaning solvent: Fresh water

Application data

Airless Spray Equipment

Pressure at nozzle (minimum) : 200 bar/2900 psi
Nozzle tip (inch/1000) : 17-23

Material hose length :

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

- long paint- and whip hoses
- low inner diameter hoses
- high paint viscosity
- large spray nozzle size
- inadequate air capacity from compressor
- wrong or clogged filters

Recommended film thickness per coat

Typical dry film thickness per coat: 207-690 microns
Typical wet film thickness per coat: 300-1000 microns

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 maximum and typical film thickness are only achievable by airless spray.

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.

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.

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.

Drying and Curing time

Substrate temperature	10 °C	23 °C	40 °C
Surface (touch) dry	16 h	6	4 h
Dried to handle	24 h	12 h	8 h
Dried to over coat, minimum	16 h	6 h	4 h
Dried to over coat, maximum, atmospheric	extended		

Drying and curing times are determined under controlled temperatures and relative humidity below 85%, and within the DFT range of the product.

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 of this product has been achieved.

Surface (touch) dry: The state of drying when slight pressure with a finger does not leave an imprint or reveal tackiness. Dry sand sprinkled on the surface can be brushed off without sticking to or causing damage to the surface.

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

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

Dried to over coat, maximum, atmospheric: The longest time allowed before the next coat can be applied without any surface preparation.

Maximum over coating intervals for atmospheric exposure

The drying time of the intumescent coating system will increase as the DFT of the total system is increasing, hence for coating systems higher than 1000 microns DFT the minimum over coating interval of any subsequent coat other than itself is 48 hours at 23 °C.

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 85 %. 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

Topcoat will normally be applied as per specification. For exposure to ISO 12944 C2 environments a minimum of one topcoat at 50 microns dft is recommended. For C3 conditions we recommend two topcoats at 50 microns dft per coat.

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.

Repair of coating system

Abrade with an abrasive paper 50 mm around the repair area with an abrasive paper to remove any topcoat that may have been applied. Reinstall the specified thickness of intumescent coating by trowel or brush application of recommended products in multiple coats. Ensure that all the exposed areas of intumescent are clean and dry. Bring any thin areas of damage back to thickness using Steelmaster 60WB applied by brush or trowel.

Take care not to overlap Steelmaster 60WB in to adjacent topcoat during repair application, by proper protection.

Surface finish

Topcoat to specified total DFT.

Wherever topcoat has been specified, apply one or two coats by brush to achieve original specified DFT, after the areas repaired are "Dry to recoat".

If only the topcoat is damaged 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 dry film thickness.

Quality assurance

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

- Confirm all welding and other metal work, whether internal or external to the tank, has been completed before commencing pre-treatment and surface preparation of the substrate
- Confirm installed ventilation is balanced and has the capacity to deliver and maintain the RAQ
- Confirm the required surface preparation standard has been achieved and is held prior to coating application
- Confirm that the climatic conditions are within recommendation in the AG and held during the application
- Confirm the required number of stripe coats have been applied
- Confirm each coat meets the DFT requirements of the specification
- Confirm the coating has not been adversely affected by rain or any other agency during curing
- Observe 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°
- Observe the coating is free from defects, discontinuities, insects, spent abrasive media and other contamination
- Observe the coating is free from misses, sags, runs, wrinkles, fat edges, mud blistering, blistering, obvious pinholes, excessive dry spray, heavy brush marks and excessive film build
- Observe the uniformity and colour are satisfactory

All noted defects should 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
m²/l = square metres per litre
mg/m² = milligrams per square metre
psi = unit of pressure, pounds/inch²
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

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.