

Hardtop WF

Product description

This is a two component waterborne chemically curing aliphatic acrylic polyurethane coating. It is a versatile product for exterior use. It has a glossy finish with very good gloss retention. It has good chemical resistance. The product has good application properties with low dry spray. It is part of a complete waterborne system with a recommended Jotun waterborne primer or as a part of a hybrid system with suitable solvent borne primer.

Typical use

Protective:

Suitable for structural steel and piping to be exposed to highly corrosive environments, C5 (ISO 12944-2). Recommended for refineries, power plants, bridges, buildings, mining and EMI equipment.

Approvals and certificates

This product contributes to the Green Buildings Standard credits. Please see section Green Building Standards.

Additional certificates and approvals may be available on request.

Colours

According to colour card and Multicolor WF tinting system

Product data

Property	Test/Standard	Description
Solids by volume	ISO 3233	52 ± 2 %
Gloss level (GU 60 °)	ISO 2813	gloss (70-85)
Flash point	ISO 3679 Method 1	101 °C
Density	calculated	1.4 kg/l

Region	Regulation	Test Standard	VOC Value
China	GB 30981-2020 Limit of harmful substances of industrial protective coatings	GB/T 23986-2009 10.4	101 g/l

The provided data is typical for factory produced products, subject to slight variation depending on colour.

Gloss description: According to Jotun Performance Coatings' definition.

The VOC values refer to white colour.

Film thickness per coat

Typical recommended specification range

Airless spray:

Dry film thickness	40 - 60	µm
Wet film thickness	75 - 115	µm
Theoretical spreading rate	13 - 8.7	m ² /l

Air spray:

Dry film thickness	30 - 50	µm
Wet film thickness	60 - 95	µm
Theoretical spreading rate	17.3 - 10.4	m ² /l

Bright colours may need film thickness in the high end of the recommended specification range to achieve opacity.

Surface preparation

Surface preparation summary table

Substrate	Surface preparation	
	Minimum	Recommended
Coated surfaces	Clean, dry and undamaged compatible coating	Clean, dry and undamaged compatible coating

Application

Application methods

The product can be applied by

Spray:	Use air spray or airless spray.
Brush:	Recommended for stripe coating and small areas. Care must be taken to achieve the specified dry film thickness.
Roller:	Use a suitable roller. However when using roller application care must be taken to apply sufficient material in order to achieve the specified dry film thickness.

Product mixing ratio (by volume)

Hardtop WF Comp A	5 part(s)
Hardtop WF Comp B	1 part(s)

Thinner/Cleaning solvent

Thinner: Deionized water

Metal ions in tap water may lead to early corrosion failure.

If thinning is required, water may be added up to a maximum of 25 % for air spray and 5 % for airless spray. This shall be done after mixing of the two components.

Guiding data for airless spray

Nozzle tip (inch/1000):	13-17
Pressure at nozzle (minimum):	150 bar/2100 psi

Guiding data for air spray

Nozzle tip:	1.1-1.5
Pressure at nozzle (minimum):	2.1 bar/30 psi

Drying and Curing time

Substrate temperature	10 °C	23 °C	35 °C
Surface (touch) dry	2 h	75 min	30 min
Walk-on-dry	18 h	9 h	3 h
Dry to over coat, minimum	18 h	9 h	3 h

For maximum overcoating intervals, refer to the Application Guide (AG) for this product.

Drying and curing times are determined under controlled temperatures and relative humidity below 70 %, and at average of the DFT range for the product.

After flash-off the product can be force dried at max. 60 °C.
Walk-on-dry: 1 h

Minimum flash-off time at substrate temperatures.
10 °C: 1 h
23 °C: 45 min
35 °C: 30 min

Minimum flash-off time is the shortest time required for enough water to evaporate, before force drying.

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

Walk-on-dry: Minimum time before the coating can tolerate normal foot traffic without permanent marks, imprints or other physical damage.

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

Induction time and Pot life

Paint temperature	10 °C	23 °C	35 °C
Pot life	3 h	2 h	80 min

Heat resistance

	Temperature	
	Continuous	Peak
Dry, atmospheric	120 °C	140 °C

Peak temperature duration max. 1 hour.

The temperatures listed relate to retention of protective properties. Aesthetic properties may suffer at these temperatures.

Product compatibility

Depending on the actual exposure of the coating system, various primers and topcoats can be used in combination with this product. Some examples are shown below. Contact Jotun for specific system recommendation.

Previous coat: epoxy

Additional information

Procedure for preparation and cleaning of application equipment

To avoid solvent contamination of the waterborne paint the spraying equipment has to be conditioned before use. All equipment containing solvents in the pump, hoses and gun have to be thoroughly cleaned according to the following instructions.

If the application equipment is made in stainless steel, designed for and only used for application of waterborne coatings this preparation and cleaning procedure is not needed.

Before spraying:

Circulate Jotun Thinner No. 17 through the equipment and hoses. Then Jotun Thinner No. 4 before fresh clean water.

After spraying:

Clean the equipment and hoses with water and alkaline detergent, then circulate Jotun Thinner No. 4 and finally Jotun Thinner No. 17.

Packaging (typical)

	Volume (litres)	Size of containers (litres)
Hardtop WF Comp A	16.7	20
Hardtop WF Comp B	3.3	5

The volume stated is for factory made colours. Note that local variants in pack size and filled volumes can vary due to local regulations.

Storage

The product must be stored in accordance with national regulations. Keep the containers in a dry, shaded, cool, well-ventilated space and away from sources of heat and ignition. Containers must be kept tightly closed. Handle with care.

Protect from freezing at all times during storage and transport.
Recommended storage temperature is between 5 °C and 35 °C.

Shelf life at 23 °C

Hardtop WF Comp A	12 month(s)
Hardtop WF Comp B	24 month(s)

In some markets commercial shelf life can be dictated shorter by local legislation. The above is minimum shelf life, thereafter the paint quality is subject to re-inspection.

Green Building Standards

This product contributes to Green Building Standard credits by meeting the following specific requirements:

LEED®v4 (2013)/LEED®v4 .1 (2019):

EQ credit: Low emitting materials

- VOC content for Industrial Maintenance Coatings (250 g/l) (CARB (SCM) 2007) and emissions lower than or equal to 0.5 mg/m³ (CDPH method 1.2).

MR credit: Building product disclosure and optimization

- Material Ingredients, Option 2: Material Ingredient Optimization, International Alternative Compliance Path - REACH optimization: Fully inventoried chemical ingredients to 100 ppm and not containing substances on the REACH Authorization list – Annex XIV, the Restriction list – Annex XVII and the SVHC candidate list.

- Environmental Product Declarations. Product-specific Type III EPD (ISO 14025;21930, EN 15804).

BREEAM® International (2016)

- Mat 01: Product-specific Type III EPD (ISO 14025;21930, EN 15804).

BREEAM® International (2013)

- Hea 02: VOC content for Two-pack performance coating WB (140 g/l) (EU Directive 2004/42/CE)

This product is tested by RISE Research Institutes of Sweden/SP Technical Research Institute of Sweden or Eurofins in accordance with California Department of Public Health (CDPH) Standard Method 1.2 (2017).

The EPDs are available at www.epd-norge.no

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.

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.

Colour variation

When applicable, products primarily meant for use as primers or antifoulings may have slight colour variations from batch to batch. Such products and epoxy based products used as a finish coat may chalk when exposed to sunlight and weathering.

Colour and gloss retention on topcoats/finish coats may vary depending on type of colour, exposure environment such as temperature, UV intensity etc., application quality and generic type of paint. Contact your local Jotun office for further information.

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.
