Technical Data Sheet

Hardtop E99 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 high gloss finish and high DOI. It has excellent gloss and colour retention. It has good chemical resistance. 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 a wide range of steel structures to be exposed to corrosive environments. Recommended for general equipment, ACE machinery, railway coaches and special vehicles.

Approvals and certificates

Certified in accordance with IMO 2010 FTP code – Low Flame Spread

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	45 ± 2 %
Gloss level (GU 60 °)	ISO 2813	high gloss (85+)
Flash point	ISO 3679 Method 1	85 °C
Density	calculated	1.3 kg/l

Region	Regulation	Test Standard	VOC Value
China	GB 30981-2020 Limit of harmful substances of industrial protective coatings	GB/T 23985-2009 8.4	206 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.

This Technical Data Sheet supersedes those previously issued.
The Technical Data Sheet (TDS) is recommended to be read in conjunction with the Safety Data Sheet (SDS) and the Application Guide (AG) for this product. For your nearest local Jotun office, please visit our website at www.jotun.com

Film thickness per coat

Typical recommended specification range

Dry film thickness	30	-	60	µm
Wet film thickness	65	-	135	µm
Theoretical spreading rate	15	-	7.5	m²/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-assisted airless spray or conventional spray. Care must be taken when using 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 E99 WF Comp A	4 part(s)
Hardtop E99 WF Comp B	1 part(s)

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Thinner/Cleaning solvent

Thinner: Deionized water

If thinning is required, water may be added up to a maximum of 20%.

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: 1.2-2.0

Pressure at nozzle (minimum): 2.1 bar / 30 psi

Drying and Curing time

Substrate temperature	10 °C	23 °C	40 °C
Surface (touch) dry	3 h	75 min	30 min
Walk-on-dry	24 h	9 h	3 h
Dry to over coat, minimum	24 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: 30 min
40 °C: 20 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.

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Induction time and Pot life

Paint temperature	10 °C	23 °C	40 °C
Pot life	5 h	3 h	1 h

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

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.

Packaging (typical)

	Volume (litres)	Size of containers (litres)
Hardtop E99 WF Comp A	16	20
Hardtop E99 WF Comp B	4	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.

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Shelf life at 23 °C

Hardtop E99 WF Comp A	12 month(s)
Hardtop E99 WF Comp B	12 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.

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.

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