Hardtop Optima

Product description

This is a two component chemically curing polysiloxane resin based coating. The product does not contain isocyanates, neither does it generate di-isocyanates during hotwork / welding or fire. It has a high gloss finish with excellent gloss retention. It is a high solids product. The product is fully recoatable at any stage of curing. The product has good application properties with low dry spray. To be used as topcoat in atmospheric environments.

Typical use

Marine:
Recommended for topside, deck and superstructure.

Protective:
Recommended for offshore environments, refineries, power plants, bridges and buildings. Used as a topcoat in pre-qualified NORSOK systems.

Approvals and certificates

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

NORSOK System 1, Rev.5

When used as part of an approved scheme, this material has the following certification:
- Low Flame Spread in accordance with EU Directive for Marine Equipment. Approved in accordance with parts 5 and 2 of Annex 1 of IMO 2010 FTP Code, or Parts 5 and 2 of Annex 1 of IMO FTPC when in compliance with IMO 2010 FTP Code Ch. 8

Consult your Jotun representative for details.

Additional certificates and approvals may be available on request.

Other variants available

Hardtop Optima Alu

Refer to separate TDS for each variant.

Colours

according to colour card and Multicolor Industry tinting system (MCI)

Product data

Property	Test/Standard	Description
Solids by volume	ISO 3233	76 ± 2 %
Gloss level (GU 60 °)	ISO 2813	high gloss (85+)
Flash point	ISO 3679 Method 1	30 °C
Density	calculated	1.4 kg/l
VOC-US/Hong Kong	US EPA method 24 (tested) (CARB(SCM)2007, SCAQMD rule 1113, Hong Kong)	215 g/l
VOC-EU	IED (2010/75/EU) (theoretical)	147 g/l
VOC-China	GB/T 23985-2009 (tested)	194 g/l

VOC-Korea	Korea Clean Air Conservation Act (tested) (Max. thinning ratio included)	195 g/l

The provided data is typical for factory produced products, subject to slight variation depending on colour.
All data is valid for mixed paint.
Gloss description: According to Jotun Performance Coatings' definition.

The VOC values refer to white colour.

Film thickness per coat

Typical recommended specification range

Dry film thickness	60	-	100	µm
Wet film thickness	80	-	130	µm
Theoretical spreading rate	12.7	-	7.6	m²/l

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

Surface preparation

To secure lasting adhesion to the subsequent product all surfaces shall be clean, dry and free from any contamination.

Surface preparation summary table

	Surface preparation	
Substrate	**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:	Recommended for stripe coating and small areas. Care must be taken to achieve the specified dry film thickness.

Product mixing ratio (by volume)

Hardtop Optima Comp A	4 part(s)
Hardtop Optima Comp B	1 part(s)

Thinner/Cleaning solvent

Thinner: Jotun Thinner No. 7 / Jotun Thinner No. 17 / Jotun Thinner No. 10

Thinning is not normally required. Consult the local representative for advice during application in extreme conditions. Do not thin more than allowed by local environmental legislation.

Guiding data for airless spray

Nozzle tip (inch/1000):	13-19
Pressure at nozzle (minimum):	150 bar/2100 psi

Guiding data for air spray

Nozzle tip:	HVLP: 11-19 (inch/1000) / Pressure pot: 1.1-1.9 (mm)
Pressure at nozzle (minimum):	HVLP: 2.1 bar/30 psi / Pressure pot: 2.1 bar/30 psi

Drying and Curing time

Substrate temperature	0 °C	5 °C	10 °C	23 °C	40 °C
Surface (touch) dry	20 h	10 h	5 h	3 h	2 h
Walk-on-dry	48 h	12 h	7 h	4 h	3 h
Dry to over coat, minimum	32 h	12 h	7 h	4 h	3 h
Dried/cured for service	20 d	15 d	10 d	5 d	3 d

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 85 %, and above 30 %, and at average of the DFT range for the product.

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.

Dried/cured for service: Minimum time before the coating can be permanently exposed to the intended environment/medium.

Induction time and Pot life

Paint temperature	23 °C
Pot life	6 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, epoxy mastic
Subsequent coat:	polysiloxane

Packaging (typical)

	Volume (litres)	Size of containers (litres)
Hardtop Optima Comp A	4/16	5/20
Hardtop Optima Comp B	1/4	1/5

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, cool, well ventilated space and away from sources of heat and ignition. Containers must be kept tightly closed. Handle with care.

Shelf life at 23 °C

Hardtop Optima Comp A	48 month(s)
Hardtop Optima 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)
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 1.1).
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).

LEED® (2009)
- IEQ Credit 4.2: The VOC requirements of Green Seal Standard GC-03, 1997.

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 Coatings SB (500 g/l) (EU Directive 2004/42/CE).

BREEAM® NOR (2012)
- Hea 9: VOC content for Two-pack performance Coatings SB (500 g/l) (EU Directive 2004/42/CE) and emission demands (ISO 16000-9/10).
- Mat 1.5: This product Safety Data Sheet confirms that the product does not contain any substances on the Norwegian A20 list.

This product is tested by RISE Research Institutes of Sweden/SP Technical Research Institute of Sweden or Eurofins in accordance with ISO 16000-series and CDPH method 1.1 (2010)/1.2 (2017), and passes the demands of the French AFSSET (2011), German AgBB (2017), Belgian decree (2014) and Finnish M1.

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.