

## Penguard EXA II

### Product description

This is a two component polyamine cured pure epoxy coating. It is a fast drying, high solids, high build product. Can be used as primer, mid coat or finish coat in atmospheric and immersed environments. Suitable for properly prepared aluminium, carbon steel, galvanized steel, shop primed steel, stainless steel substrate and aged coating surfaces. It can be applied at sub zero surface temperatures. A micaceous iron oxide (MIO) pigmented variant is available.

### Typical use

Protective:  
Suitable for structural steel and piping to be exposed to corrosive environments up to very high and immersed. Recommended for offshore environments, refineries, power plants, bridges and buildings.

### Approvals and certificates

Certified in accordance with IMO Res.215(82) – PSPC Water Ballast Tanks  
Certified in accordance with IMO Res.288(87) – PSPC Crude Oil Tanks

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.

### Colors

aluminum, Aluminum red toned, grey, grey XO, red, off-white, black

### Product data

Property	Test/Standard	Description
Solids by volume	ISO 3233	75 ± 2 %
Gloss level (GU 60 °)	ISO 2813	matt (0-35)
Flash point	ISO 3679 Method 1	95 °F (35 °C)
Density	calculated	1.4 kg/l
VOC-US/Hong Kong	US EPA method 24 (tested) (CARB(SCM)2007, SCAQMD rule 1113, Hong Kong)	2 lbs/gal

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

## Film thickness per coat

### Typical recommended specification range

Dry film thickness	4 mils (100 µm)	10 mils (250 µm)
Wet film thickness	5 mils (133 µm)	13 mils (333 µm)
Theoretical spreading rate	310 ft <sup>2</sup> /gal (7.5 m <sup>2</sup> /l)	120 ft <sup>2</sup> /gal (3 m <sup>2</sup> /l)

## Surface preparation

### Surface preparation summary table

Substrate	Surface preparation	
	Minimum	Recommended
Carbon steel	St 2 (ISO 8501-1) or SSPC SP-2	Sa 2½ (ISO 8501-1) or NACE No. 2 / SSPC SP-10
Stainless steel	The surface shall be hand or machine abraded with non-metallic abrasives or bonded fibre machine or hand abrasive pads to impart a scratch pattern to the surface.	Abrasive blast cleaning to achieve a surface profile using non-metallic abrasive media which is suitable to achieve a sharp and angular surface profile.
Aluminum	The surface shall be hand or machine abraded with non-metallic abrasives or bonded fibre machine or hand abrasive pads to impart a scratch pattern to the surface.	Abrasive blast cleaning to achieve a surface profile using non-metallic abrasive media which is suitable to achieve a sharp and angular surface profile.
Galvanized steel	The surface shall be clean, dry and appear with a rough and dull profile.	Sweep blast-cleaning using non-metallic abrasive leaving a clean, rough and even pattern.
Shop primed steel	Dry, clean and intact shop primer.	Sweep blasted or alternatively blasted to Sa 2 (ISO 8501-1) or SP 6 / NACE No. 3 (SSPC-VIS 1) of at least 70 % of the surface.
Coated surfaces	Clean, dry and undamaged compatible coating	Sa 2½ (ISO 8501-1) or NACE No. 2 / SSPC SP-10

## Application

### Application methods

The product can be applied by

Spray:	Use airless spray.
Brush:	Recommended for stripe coating and small areas. Care must be taken to achieve the specified dry film thickness.
Roller:	May be used for small areas. Not recommended for first primer coat. Care must be taken to achieve the specified dry film thickness.

### Product mixing ratio (by volume)

Penguard EXA II Comp A	3 part(s)
Penguard EXA II Comp B	1 part(s)

### Thinner/Cleaning solvent

Thinner: Jotun Thinner No. 17

### Guiding data for airless spray

Nozzle tip (inch/1000):	17-27
Pressure at nozzle (minimum):	150 bar/2100 psi

## Drying and Curing time

Temperatures:  
-10°C = 14°F / -5°C = 23°F / 0°C = 32°F / 5°C = 41°F / 10°C = 50°F / 15°C = 59°F / 23°C = 73°F / 35°C = 95°F / 40°C = 104°F / 100°C = 212°F

Substrate temperature	-10 °C	-5 °C	0 °C	5 °C	10 °C	23 °C	40 °C
Surface (touch) dry	26 h	14 h	10 h	6 h	5 h	2 h	1 h
Walk-on-dry	96 h	48 h	30 h	16 h	10 h	5 h	2 h
Dried to over coat, minimum	42 h	24 h	18 h	10 h	7 h	4 h	2 h
Dried/cured for service			21 d	14 d	10 d	7 d	3 d
Dried/cured for immersion	18 d	9 d	5 d	4 d	3 d	2 d	1 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 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.

Dried/cured for immersion: Minimum time before the coating can be permanently immersed in sea water.

## Induction time and Pot life

Temperatures: 15°C = 59°F / 23°C = 73°F

Paint temperature	23 °C
Induction time	5 min
Pot life	1.5 h

## Heat resistance

	Temperature	
	Continuous	Peak
Dry, atmospheric	120 °C	140 °C
Immersed, sea water	50 °C	60 °C
Immersed, crude oil	60 °C	70 °C

Peak temperature duration max. 1 hour.

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

Note that the coating will be resistant to various immersion temperatures depending on the specific chemical and whether immersion is constant or intermittent. Heat resistance is influenced by the total coating system. If used as part of a system, ensure all coatings in the system have similar heat resistance.

## 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: inorganic zinc silicate shop primer, epoxy, zinc epoxy, zinc silicate  
Subsequent coat: acrylic, alkyd, epoxy, polyurethane, polysiloxane, vinyl epoxy, epoxy mastic

## Packaging (typical)

	Volume (liters)	Size of containers (liters)
Penguard EXA II Comp A	15	20
Penguard EXA II Comp B	5	5

The volume stated is for factory made colors. 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 73°F (23 °C)

Penguard EXA II Comp A	24 month(s)
Penguard EXA II 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.

## Note

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.

## Color variation

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

Color and gloss retention on topcoats/finish coats may vary depending on type of color, 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.