Penguard Express MIO

Product description

This is a two component amine cured epoxy coating. It is a fast drying, micaceous iron oxide (MIO) pigmented, high solids, high build product. Specially designed for new construction where short dry to handle and over coating times are required. Can be used as primer, mid coat, finish coat or as single coat system in atmospheric environments. Suitable for properly prepared carbon steel, stainless steel, aluminium and concrete substrates. It can be applied at sub zero surface temperatures.

Typical use

Suitable for structural steel and piping to be exposed to highly corrosive environments, C5I or C5M (ISO 12944-2). Recommended for offshore environments, refineries, power plants, bridges, buildings and mining equipment.

Other variants available

Penguard Express
Penguard Express ZP
Penguard Express CF

Refer to separate TDS for each variant.

Colours

grey, red

Product data

Property	Test/Standard	Description
Solids by volume	ISO 3233	74 ± 2 %
Gloss level (GU 60 °)	ISO 2813	matt (0-35)
Flash point	ISO 3679 Method 1	32 °C
Density	calculated	1.6 kg/l
VOC-US/Hong Kong	US EPA method 24 (tested) (CARB(SCM)2007, SCAQMD rule 1113, Hong Kong)	256 g/l
VOC-EU	IED (2010/75/EU) (theoretical)	271 g/l
VOC-China	GB/T 23985-2009 (tested)	240 g/l
VOC-Korea	Korea Clean Air Conservation Act (tested) (Max. thinning ratio included)	263 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.

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	75	-	250	µm
Wet film thickness	100	-	340	µm
Theoretical spreading rate	9.9	-	3	m²/l

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

Substrate	Surface preparation	
	Minimum	Recommended
Carbon steel	St 2 (ISO 8501-1)	Sa 2½ (ISO 8501-1)
Galvanised steel	Cleanliness corresponding to description of Sa 1 (ISO 8501-1)	Cleanliness corresponding to description of Sa 1 (ISO 8501-1)
Aluminium	Cleanliness corresponding to description of Sa 1 (ISO 8501-1)	Cleanliness corresponding to description of Sa 1 (ISO 8501-1)
Shop primed steel	Clean, dry and undamaged approved shop primer (ISO 12944-4 5.4)	Clean, dry and undamaged approved shop primer (ISO 12944-4 5.4)
Coated surfaces	Clean, dry and undamaged compatible coating	Clean, dry and undamaged compatible coating
Concrete	Low pressure water washing to a rough, clean, dry and laitance free surface.	Minimum 4 weeks curing. Moisture content maximum 5 %. Low pressure water washing to a rough, clean, dry and laitance free surface.

Optimum performance, including adhesion, corrosion protection, heat resistance and chemical resistance is achieved with recommended surface preparation.

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.

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Product mixing ratio (by volume)

Penguard Express MIO Comp A	4 part(s)
Penguard Express Comp B	1 part(s)

Thinner/Cleaning solvent

Thinner: Jotun Thinner No. 17

Guiding data for airless spray

Nozzle tip (inch/1000):	13-23
Pressure at nozzle (minimum):	150 bar/2100 psi

Drying and Curing time

Substrate temperature	-5 °C	0 °C	5 °C	10 °C	23 °C	40 °C
Surface (touch) dry	16 h	11 h	4 h	2 h	1 h	30 min
Walk-on-dry	38 h	24 h	10 h	6 h	3 h	2 h
Dry to over coat, minimum	24 h	14 h	8 h	4 h	2 h	1 h
Dried/cured for service		21 d	13 d	8 d	4 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 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	2 h

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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:	inorganic zinc silicate shop primer, epoxy, epoxy mastic, zinc epoxy, zinc silicate, organic shop primer
Subsequent coat:	acrylic, epoxy, polyurethane, polysiloxane

Packaging (typical)

	Volume (litres)	**Size of containers (litres)**
Penguard Express MIO Comp A	4/16	5/20
Penguard Express 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

Penguard Express MIO Comp A	24 month(s)
Penguard Express 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.

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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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