Penguard WF

Product description

This is a two component waterborne epoxy coating for corrosion protection. It is a versatile, fast drying product containing flash rust inhibitors. It cures down to 5 °C. 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, aluminium, concrete and galvanised steel substrates. Available with hardener for application at low substrate temperatures.

Typical use

Suitable for structural steel and piping to be exposed to corrosive environments up to high. Recommended for offshore environments, refineries, power plants, bridges, buildings and mining equipment. Suitable for over coating with waterborne acrylics, waterborne epoxy and suitable solvent borne coatings.

Approvals and certificates

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

Meets VOC content requirements for Estidama
Meets VOC content requirements for GSAS
Meets requirements for China Environmental Label
Fire test approved for use under SteelMaster 1200WF

Additional certificates and approvals may be available on request.

Colours

grey, grey XO, red

Product data

Property	Test/Standard	Description
STANDARD GRADE		
Solids by volume	ISO 3233	51 ± 2 %
Gloss level (GU 60 °)	ISO 2813	matt (0-35)
Flash point	ISO 3679 Method 1	62 °C
Density	calculated	1.3 kg/l

Region	Regulation	Test Standard	VOC Value
US	CARB(SCM)2020 / SCAQMD rule 1113	Calculated	66 g/l
Hong Kong	Air Pollution Control (VOC) Regulation	Calculated	66 g/l
EU	European Paint Directive 2004/42/CE	Calculated	64 g/l
EU IED	Industrial Emission Directive 2010/75/EU	Calculated	64 g/l
Korea	Korea Clean Air Conservation Act	Calculated	66 g/l
China	GB 30981-2020 Limit of harmful substances of industrial protective coatings	GB/T 23986-2009 10.4	69 g/l

WINTER GRADE

Solids by volume	ISO 3233	51 ± 2 %
Flash point	ISO 3679 Method 1	62 °C
Density	calculated	1.3 kg/l

Region	Regulation	Test Standard	VOC Value
US	CARB(SCM)2020 / SCAQMD rule 1113	Calculated	69 g/l
Hong Kong	Air Pollution Control (VOC) Regulation	Calculated	69 g/l
EU	European Paint Directive 2004/42/CE	ISO 11890	65 g/l
EU IED	Industrial Emission Directive 2010/75/EU	Calculated	67 g/l
Korea	Korea Clean Air Conservation Act	Calculated	69 g/l
China	GB 30981-2020 Limit of harmful substances of industrial protective coatings	GB/T 23986-2009 10.4	57 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 grey colour.

Film thickness per coat

Typical recommended specification range

STANDARD GRADE

Dry film thickness	75	-	150	µm
Wet film thickness	145	-	295	µm
Theoretical spreading rate	6.8	-	3.4	m²/l

WINTER GRADE

Dry film thickness	75	-	150	µm
Wet film thickness	145	-	295	µm
Theoretical spreading rate	6.8	-	3.4	m²/l

Surface preparation

Surface preparation summary table

Substrate	Surface preparation	
	Minimum	Recommended
Carbon steel	St 2 (ISO 8501-1)	Sa 2½ (ISO 8501-1)
Aluminium	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.
Galvanised 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.
Concrete	Minimum 4 weeks curing. Moisture content maximum 5 %. Mechanically prepare the existing concrete surface by scabbling, needle gun, mechanical disc grinding.	Minimum 4 weeks curing. Moisture content maximum 5 %. Prepare the surface by means of enclosed blast shot or diamond grinding and other appropriate means to abrade the surrounding concrete and to remove laitance.

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 but is not recommended for first primer coat. 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)

STANDARD GRADE

Penguard WF Comp A	2 part(s)
Penguard WF Comp B	1 part(s)

WINTER GRADE

Penguard WF Comp A	2 part(s)
Penguard WF Wintergrade Comp B	1 part(s)

Thinner/Cleaning solvent

Thinner:	Fresh water
Cleaning solvent:	Jotun Thinner No. 17 / Jotun Thinner No. 4

Jotun Thinner No. 28 can replace Jotun Thinner No. 4 as an alternative cleaning solvent.

When thinners are used as a cleaning solvent, the use must be in accordance with prevailing local regulations.

Guiding data for airless spray

Nozzle tip (inch/1000):	19-23
Pressure at nozzle (minimum):	150 bar/2100 psi

Drying and Curing time

Substrate temperature	5 °C	10 °C	23 °C	40 °C
STANDARD GRADE				
Surface (touch) dry			1.5 h	30 min
Walk-on-dry			10 h	4 h
Dry to over coat, minimum			4.5 h	2.5 h
Dried/cured for service			7 d	5 d
WINTER GRADE				
Surface (touch) dry	1.5 h	1.5 h	1 h	
Walk-on-dry	3 d	1 d	8 h	
Dry to over coat, minimum	15 h	5 h	3.5 h	
Dried/cured for service	21 d	14 d	7 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	10 °C	23 °C	40 °C
STANDARD GRADE			
Induction time	15 min	15 min	15 min
Pot life	1.5 h	1.5 h	1 h
WINTER GRADE			
Pot life	1 h	1 h	

Visible end of pot life.
Induction time is for Standard variant. Winter grade variant can be used immediately after thorough mixing.

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

Packaging (typical)

	Volume (litres)	**Size of containers (litres)**
Penguard WF Comp A	10	20
Penguard WF Comp B	5	5
Penguard WF Wintergrade Comp B	5	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.

Shelf life at 23 °C

Penguard WF Comp A	12 month(s)
Penguard WF Comp B	24 month(s)
Penguard WF Wintergrade 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 emission 0.5 - 5.0 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).

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 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 v1.1-2010.

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.

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