# Technical Data
# Penguard Pro GF

## Product description
A high solid, two component, abrasion resistant epoxy coating reinforced with glass flakes. May be applied in high film thickness.

## Recommended use
A universal primer specifically designed for use in new construction situations on steel to be exposed to harsh conditions. May be used by itself or in combination with other compatible products as part of a complete coating system. Offers excellent protection against corrosion and has excellent abrasion resistance. If a cosmetic finish is required, it should be used together with a topcoat.

## Film thickness and spreading rate

| | Minimum | Maximum | Typical |
|---|---|---|---|
| **Film thickness, dry (µm)** | 150 | 600 | 250 |
| **Film thickness, wet (µm)** | 200 | 800 | 333 |
| **Theoretical spreading rate ($m^2/l$)** | 5 | 1,3 | 3 |

## Comments
Thinning may be necessary at lower DFT.

## Physical properties

| | |
|---|---|
| **Colour** | Limited colour |
| **Solids (vol %)*** | 75 ± 2 |
| **Flash point** | 32ºC ± 2 (Setaflash) |
| **VOC** | 2 lbs/gal (240 gms/ltr) USA-EPA Method 24<br>200 gms/ltr UK-PG6/23(97). Appendix 3 |
| **Gloss** | Semigloss |
| **Gloss retention** | Fair |
| **Water resistance** | Excellent |
| **Abrasion resistance** | Excellent |
| **Solvent resistance** | Good |
| **Chemical resistance** | Good |
| **Flexibility** | Good |
| **Compatibility with cathodic protection** | Very good |

*Measured according to ISO 3233:1998 (E)

Hong Kong rules:
Category of paints - Other vessel coatings; VOC 240 gms/ltr HK EPD method (Ready to use); Exempt compound - N/A; Specific gravity: 1.37 (A+B); Both VOC and Specific gravity values provided are typical values, subject to changes when different colour involved.

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## Surface preparation

All surfaces should be clean, dry and free from contamination. The surface should be assessed and treated in accordance with ISO 8504.

**Bare steel**
Cleanliness: Blast cleaning to min. Sa 2½ (ISO 8501-1:2007) or for previously coated surfaces UHPWJ to WJ2 (NACE No.5/SSPC-SP 12). Roughness: using abrasives suitable to achieve grade Fine to Medium G (30-85 µm, Ry5) (ISO 8503-2). Power tool cleaning to min. St 2 (ISO 8501-1:2007) may be acceptable, subject to exposure.

**Shopprimed steel**
Clean, dry and undamaged approved shopprimer.

**Coated surfaces**
Clean, dry and undamaged compatible primer. Please contact your local Jotun office for more information.

**Other surfaces**
The coating may be used on other substrates. Please contact your local Jotun office for more information.

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## Condition during application

The temperature of the substrate should be minimum -5°C and at least 3°C above the dew point of the air, temperature and relative humidity measured in the vicinity of the substrate. Good ventilation is usually required in confined areas to ensure proper drying. The coating should not be exposed to water, chemicals or mechanical stress until cured.

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## Application methods

| | |
|---|---|
| **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 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. |

## Application data

| | |
|---|---|
| **Mixing ratio (volume)** | 3:1 |
| **Mixing** | 3 parts Comp. A (base) to be mixed thoroughly with 1 part Penguard Pro, Comp. B (curing agent). |
| **Induction time** | 10 minutes. |
| **Pot life (23°C)** | 1 hour (reduced at higher temperatures). |
| **Thinner/Cleaner** | Jotun Thinner No. 17 |
| **Guiding data airless spray** | |
| **Pressure at nozzle** | 15 MPa (150 kp/cm², 2100 psi) |
| **Nozzle tip** | 0.63-1.09 mm (0.025-0.043") |
| **Spray angle** | 40-80° |
| **Filter** | Filters are to be removed prior to spraying. |

## Drying time

Drying times are generally related to air circulation, temperature, film thickness and number of coats, and will be affected correspondingly. The figures given in the table are typical with:

* Good ventilation (Outdoor exposure or free circulation of air)
* Typical film thickness
* One coat on top of inert substrate

| **Substrate temperature** | **-5°C** | **0°C** | **10°C** | **23°C** | **40°C** |
|---|---|---|---|---|---|
| **Surface dry** | 10 h | 8 h | 6 h | 3 h | 1 h |
| **Through dry** [1] | 38 h | 22 h | 12 h | 6 h | 4 h |
| **Cured** | | 21 d | 12 d | 10 d | 7 d |
| **Dry to recoat, minimum** [2] | 24 h | 16 h | 7 h | 3 h | 2 h |
| **Dry to recoat, maximum** [3] | 14 d | 14 d | 14 d | 14 d | 10 d |

| **Substrate temperature** | **5°C** |
|---|---|
| **Surface dry** | 7 h |
| **Through dry** [1] | 18 h |
| **Cured** | 14 d |
| **Dry to recoat, minimum** [2] | 10 h |
| **Dry to recoat, maximum** [3] | 14 d |

1. The earliest time for exposure to mechanical strain, i.e. to walk on the coated surface.

2. The earliest time for recoating with the same generic type of paint. Note that the paint film is not hard at this time and can not withstand mechanical strain.
3. Provided the surface is free from chalking and other contamination prior to application, there is normally no overcoating time limit. Best intercoat adhesion occurs, however, when the subsequent coat is applied before preceding coat has cured. If the coating has been exposed to direct sunlight for some time, special attention must be paid to surface cleaning and mattening/removal of the surface layer in order to obtain good adhesion.

The given data must be considered as guidelines only. The actual drying time/times before recoating may be shorter or longer, depending on film thickness, ventilation, humidity, underlying paint system, requirement for early handling and mechanical strength etc. A complete system can be described on a system sheet, where all parameters and special conditions could be included.

## Typical paint system

**Atmospheric conditions:**

| | | |
|---|---|---|
| Barrier Plus | 1 x 60 µm | (Dry Film Thickness) |
| **Penguard Pro GF** | **1 x 150 µm** | **(Dry Film Thickness)** |
| Hardtop AX / Hardtop Optima | 1 x 75 µm | (Dry Film Thickness) |
| **Penguard Pro GF** | **2 x 250 µm** | **(Dry Film Thickness)** |
| Hardtop Optima | 1 x 75 µm | (Dry Film Thickness) |

**Submerged:**

| | | |
|---|---|---|
| **Penguard Pro GF** | **2 x 250 µm** | **(Dry Film Thickness)** |

**Other systems may be specified, depending on area of use**

## Storage

The product must be stored in accordance with national regulations. Storage conditions are to keep the containers in a dry, cool, well ventilated space and away from source of heat and ignition. Containers must be kept tightly closed.

## Handling

Handle with care. Stir well before use.

## Packing size

20 litre unit: 15 litres Comp. A (base) in a 20 litre container and 5 litres Penguard Pro, Comp. B in a 5 litre container.

## Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not breathe or inhale 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.

**For detailed information on the health and safety hazards and precautions for use of this product, we refer to the Material Safety Data Sheet.**



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