PPG SIGMALINE™ 403 HS

DESCRIPTION

Two-component, high-solids polyamine cured epoxy flow coating

PRINCIPAL CHARACTERISTICS

- Reduces the frictional resistance of the inside of steel pipes for the transportation of purified natural gas
- High volume solids
- Good anticorrosive properties
- Meets API RP 5L2 fourth edition
- Meets the requirements of EN10301

COLOR AND GLOSS LEVEL

- Redbrown
- Gloss

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.5 kg/l (12.1 lb/US gal)
Volume solids	78 ± 2%
VOC (Supplied)	Directive 2010/75/EC, SED: max. 165.0 g/kg max. 239.0 g/l (approx. 2.0 lb/US gal)
Recommended dry film thickness	50 - 100 µm (2.0 - 4.0 mils) depending on surface preparation
Theoretical spreading rate	15.6 m^2/l for 50 µm (626 ft^2/US gal for 2.0 mils)
Dry to touch	3.5 hours
Overcoating Interval	Minimum: 8 hours Maximum: 2 months
Full cure after	7 days
Shelf life	Base: at least 12 months when stored cool and dry Hardener: at least 12 months when stored cool and dry

Notes:

- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Curing time

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RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions

- Steel; blast cleaned to ISO-Sa2½ or SSPC-SP10, blasting profile (Rz) 30 – 80 µm (1.2 – 3.2 mils) (*)
- During the curing time coated pipes should be protected against adverse weather conditions such as condensation, rain, fog and snow

Note:

- (*) It must be noted that the main purpose of a flowcoat is not the anticorrosive protection, but the reduction of friction during the transport of gas. As such it is important to have a smooth finish. The applied DFT needs to be adjusted to the obtained blasting profile. We recommend to apply a nominal DFT which is always at least 20µm higher than the blasting profile (Rz). ISO 19840:2012 shall be used for the determination of DFT.

Substrate temperature and application conditions

- Ambient temperature during application should be between 5°C (41°F) and 40°C (104°F)
- Substrate temperature during application and curing should be above 5°C (41°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point
- Relative humidity during application and curing should not exceed 80%

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 4:1

- The temperature of the paint should preferably be above 5°C (41°F), otherwise extra thinner may be required to obtain application viscosity
- Adding too much thinner results in reduced sag resistance and slower cure
- Thinner should be added after mixing the components

Application

- Visco base: 5 - 10 Poise
- Visco hardener: 3 - 5 Poise
- Visco set: 4 – 7 Poise
- Weight solids: 79 ± 2%
- Ash content: 37 ± 2%
- Bucholz hardness: 104 ± 10

Induction time

0 minute

Note:

- No induction time required

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Pot life

3 hours at 20°C (68°F)

Note:

- See ADDITIONAL DATA – Pot life

Airless spray

Recommended thinner

THINNER 21-06

Volume of thinner

0 - 3%, depending on required thickness and application conditions

Nozzle orifice

Approx. 0.48 – 0.64 mm (0.019 – 0.025 in)

Nozzle pressure

16.0 - 22.0 MPa (approx. 160 - 220 bar; 2321 - 3191 p.s.i.)

Brush/roller

- Only for touch-up and spot repair
- Multicoat roller or brush application is not recommended. Maximum DFT achievable by brush or roller is 50 µm (2.0 mils)

Recommended thinner

THINNER 21-06

Volume of thinner

0 – 3%

Cleaning solvent

- THINNER 90-53

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ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
50 µm (2.0 mils)	15.6 m^2/l (626 ft^2/US gal)
75 µm (3.0 mils)	10.4 m^2/l (417 ft^2/US gal)
100 µm (4.0 mils)	7.8 m^2/l (313 ft^2/US gal)

Curing time for DFT up to 75 µm (3.0 mils)			
Substrate temperature	**Dry to touch**	**Dry to handle**	**Full cure**
5°C (41°F)	9 hours	16 hours	21 days
10°C (50°F)	7 hours	14 hours	14 days
20°C (68°F)	3.5 hours	8 hours	7 days
25°C (77°F)	2.5 hours	6 hours	6 days
30°C (86°F)	2 hours	5 hours	5 days

Notes:

- Adequate ventilation must be maintained during application and curing
- During the curing period precautions must be taken to avoid contact of the coating with moisture, otherwise blushing may occur

Pot life (at application viscosity)	
Mixed product temperature	**Pot life**
5°C (41°F)	6 hours
10°C (50°F)	4 hours
20°C (68°F)	3 hours
30°C (86°F)	2 hours
40°C (104°F)	1 hour

Product Qualifications

PPG SIGMALINE™ 403 HS

- SigmaLine 403 HS meets both requirements of API RP 5L2 fourth edition as well as BS EN 10301:2003
- The glass transition temperature (Tg) of SigmaLine 403 HS is determined as 16°C (DSC according to ISO 11357-2:2013)
- SigmaLine 403 HS is suitable for dry sweet gas cargoes with a maximum service temperature range up to 120°C
- SigmaLine 403 HS is suitable for wet sour gas however at different temperature ranges. In the event of the cargo being wet sour gas, the composition, concentration etc. of the cargo will have to be provided in order for PPG to make a recommendation on the maximum temperature range

SAFETY PRECAUTIONS

- See Safety Data Sheet and product label for complete safety and precaution requirements
- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes

WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective & Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

REFERENCES

- Information sheet | Explanation of product data sheets

WARRANTY

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