SIGMATHERM™ 230

DESCRIPTION

Two-component, high-build, heat-resistant epoxy phenol novolac coating

PRINCIPAL CHARACTERISTICS

- Provides a corrosion resistant barrier on carbon steel and stainless steel under thermal insulation
- Suitable as heat resistant system under insulation up to 230°C (450°F)
- Suitable for use in cryogenic conditions
- Excellent protection and resistance against corrosion and severe chemicals
- Excellent resistance to thermal shock during rapid wet & dry cycling
- Meets CS-1, 3 and 4 for carbon steels under thermal insulation according to NACE SP0198-10
- Meets SS-1, 2 and 3 for stainless steels under thermal insulation according to NACE SP0198-10
- No post-curing is required to obtain mechanical strength
- Can be applied on hot substrate up to 150°C (302°F), please contact your PPG representative for detail

COLOR AND GLOSS LEVEL

- Pink, gray
- Eggshell

Note: Epoxy coatings will chalk and fade upon exposure to sunlight, elevated temperatures, or chemical exposure. Discoloration and normal chalking does not impact performance. Light colors will darken over time. Some batch-to-batch variation in color is to be expected. Color matches are approximate.

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.7 kg/l (14.2 lb/US gal)
Volume solids	68 ± 2%
VOC (Supplied)	Directive 1999/13/EC, SED: max. 195.0 g/kg max. 329.0 g/l (approx. 2.7 lb/US gal) EPA Method 24: 310.0 g/ltr (2.6 lb/USgal)
Recommended dry film thickness	100 - 150 µm (4.0 - 6.0 mils)
Theoretical spreading rate	4.5 m^2/l for 150 µm (182 ft^2/US gal for 6.0 mils)
Dry to touch	3 hours
Overcoating Interval	Minimum: 8 hours Maximum: 14 days
Full cure after	3 days

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Data for mixed product	
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 – Overcoating intervals
- See ADDITIONAL DATA – Curing time
- To avoid crack in elevated temperature, it is recommended that the total average dry film thickness not exceed 350 µm (14 mils) and locally 400 µm (16 mils)

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions

- Steel; blast cleaned to ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
- The substrate must be perfectly dry before and during application of SIGMATHERM 230
- Stainless steel ; degrease with solvent and sweep blast, SSPC SP-16 with blasting profile 40 – 100 µm (1.5 – 4.0 mils)

Substrate temperature and application conditions

- 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

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 87:13

- The temperature of the mixed base and hardener should preferably be above 15°C (59°F), otherwise extra thinner may be required to obtain application viscosity
- Adding too much thinner results in reduced sag resistance
- Thinner should be added after mixing the components

Induction time

Allow induction time before use

Mixed product induction time	
Mixed product temperature	**Induction time**
5°C (41°F)	20 minutes
10°C (50°F)	15 minutes
15°C (59°F)	10 minutes

Pot life

2 hours at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

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Air spray

Recommended thinner
THINNER 91-92 for ambient temperature ; THINNER 21-25 for application to hot surfaces

Volume of thinner
5 - 10%, depending on required thickness and application conditions

Nozzle orifice
2.0 mm (approx. 0.079 in)

Nozzle pressure
0.3 MPa (approx. 3 Bar; 44 p.s.i.)

Airless spray

Recommended thinner
THINNER 91-92 for ambient temperature ; THINNER 21-25 for application to hot surfaces

Volume of thinner
5 - 10%, depending on required thickness and application conditions

Nozzle orifice
Approx. 0.46 – 0.53 mm (0.018 – 0.021 in)

Nozzle pressure
15.0 MPa (approx. 150 bar; 2176 p.s.i.)

Brush/roller

Recommended thinner
THINNER 91-92

Volume of thinner
0 – 5%

Cleaning solvent
THINNER 90-53

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ADDITIONAL DATA

Overcoating interval for DFT up to 150 µm (6.0 mils)						
Overcoating with...	**Interval**	**5°C (41°F)**	**10°C (50°F)**	**15°C (59°F)**	**20°C (68°F)**	**30°C (86°F)**
itself	Minimum	24 hours	20 hours	14 hours	8 hours	6 hours
	Maximum	28 days	25 days	21 days	14 days	7 days

Note: Surface should be dry and free from any contamination

Curing time for DFT up to 150 µm (6.0 mils)			
Substrate temperature	**Dry to touch**	**Dry to handle**	**Full cure**
5°C (41°F)	28 hours	60 hours	7 days
10°C (50°F)	12 hours	30 hours	5 days
15°C (59°F)	6 hours	15 hours	4 days
20°C (68°F)	3 hours	5 hours	3 days
30°C (86°F)	2 hours	4 hours	48 hours

Note: Adequate ventilation must be maintained during application and curing (please refer to INFORMATION SHEETS 1433 and 1434)

Pot life (at application viscosity)	
Mixed product temperature	**Pot life**
5°C (41°F)	8 hours
10°C (50°F)	6 hours
15°C (59°F)	4 hours
20°C (68°F)	2 hours
30°C (86°F)	1 hour

SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- 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 and 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.

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REFERENCES

• CONVERSION TABLES	INFORMATION SHEET	1410
• EXPLANATION TO PRODUCT DATA SHEETS	INFORMATION SHEET	1411
• SAFETY INDICATIONS	INFORMATION SHEET	1430
• SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD – TOXIC HAZARD	INFORMATION SHEET	1431
• SAFE WORKING IN CONFINED SPACES	INFORMATION SHEET	1433
• DIRECTIVES FOR VENTILATION PRACTICE	INFORMATION SHEET	1434
• CLEANING OF STEEL AND REMOVAL OF RUST	INFORMATION SHEET	1490
• SPECIFICATION FOR MINERAL ABRASIVES	INFORMATION SHEET	1491
• RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE	INFORMATION SHEET	1650

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