SIGMAGUARD™ 425

DESCRIPTION

Two-component, solvent-free, polyamine-cured epoxy coating

PRINCIPAL CHARACTERISTICS

- Provides long-term protection for ballast tanks and steel structures, with excellent resistance against corrosion and seawater
- Suitable for block stage application
- Good edge-covering capacity
- Reduces explosion risk and fire hazard in confined spaces
- Can be applied by single-feed, airless spray equipment

COLOR AND GLOSS LEVEL

- Gray, green
- Gloss

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.4 kg/l (11.7 lb/US gal)
Volume solids	98 ± 2%
VOC (Supplied)	Directive 1999/13/EC, SED: max. 47.0 g/kg max. 66.0 g/l (approx. 0.6 lb/US gal)
Recommended dry film thickness	250 µm (10.0 mils)
Theoretical spreading rate	3.9 m^2/l for 250 µm (157 ft^2/US gal for 10.0 mils)
Dry to touch	12 hours
Overcoating Interval	Minimum: 24 hours Maximum: 7 days
Shelf life	Base: at least 12 months when stored cool and dry Hardener: at least 24 months when stored cool and dry

Notes:
- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals
- See ADDITIONAL DATA – Curing time

SIGMAGUARD™ 425

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

IMO-MSC.215(82) requirements for water ballast tanks

- Steel; ISO 8501-3:2006 grade P2, with all edges treated to a rounded radius of minimum 2 mm (0.079 in) or subject to three pass grinding or at least equivalent process before painting
- Previous coat of approved coating must be dry and free from any contamination
- Dust quantity rating "1 for dust size class "3", "4" or "5", lower dust size classes to be removed if visible on the surface to be coated without magnification (ISO 8502-3:1992)

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
- Relative humidity during application and curing should not exceed 80%

SYSTEM SPECIFICATION

- SYSTEMS FOR BALLAST TANKS – SYSTEM SHEET 3106 (spec. 7)

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 80:20 (4:1)

- When mixing, the temperature of the base and hardener should be at least 20°C (68°F)
- At lower temperature, the viscosity will be too high for spray application
- No thinner should be added

Induction time

None

Pot life

1 hour at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

SIGMAGUARD™ 425

Airless spray

Recommended thinner
No thinner should be added

Nozzle orifice
Approx. 0.53 mm (0.021 in)

Nozzle pressure
At 20°C (68°F) paint temperature min. 28.0 MPa (approx. 280 bar; 4061 p.s.i.). At 30°C (86°F) min. 22.0 MPa (approx. 220 bar; 3191 p.s.i.)

Notes:
- Use heavy-duty, single-feed, airless spray equipment, preferably 60:1 pump ratio and suitable high-pressure hoses
- In-line heating or insulated hoses may be necessary to avoid cooling down of paint in hoses at low air temperature
- The paint lines should be as short as possible

Brush/roller
- For stripe coating and spot repair only

Recommended thinner
No thinner should be added

Cleaning solvent
THINNER 90-83 (preferred) or THINNER 90-53

Note: All application equipment must be cleaned immediately after use. Paint inside the spraying equipment must be removed before the pot life has been expired.

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	**Theoretical spreading rate**
250 µm (10.0 mils)	3.9 m^2/l (157 ft^2/US gal)
300 µm (12.0 mils)	3.3 m^2/l (131 ft^2/US gal)

Note: Maximum DFT when brushing: 100 µm (4.0 mils)

Measuring wet film thickness
- A difference is often obtained between the measured apparent WFT and the real applied WFT. This is due to the thixotropy and the surface tension of the paint, which retards the release of air, trapped in the paint film for some time
- A practical recommendation is to apply a WFT, which is equal to the specified DFT plus 60 µm (2.4 mils)

SIGMAGUARD™ 425

Maximum dry film thickness

- Because of low initial hardness the DFT cannot be measured for some days (depending on ambient temperature) after application, due to the penetration of the measuring device into the paint film
- The DFT should be measured using a calibration foil of known thickness placed in between the coating and the measuring device

Overcoating interval for DFT up to 250 µm (10.0 mils) for spot repair and strip coating only						
Overcoating with...	**Interval**	**5°C (41°F)**	**10°C (50°F)**	**20°C (68°F)**	**30°C (86°F)**	**40°C (104°F)**
itself	Minimum	3 days	48 hours	24 hours	16 hours	12 hours
	Maximum	11 days	9 days	7 days	5 days	3 days

Note: Surface should be dry and free from any contamination

Curing time for DFT up to 250 µm (10.0 mils)			
Substrate temperature	**Dry to touch**	**Dry to handle**	**Full cure**
5°C (41°F)	48 hours	3 days	21 days
10°C (50°F)	24 hours	48 hours	14 days
20°C (68°F)	12 hours	24 hours	7 days
30°C (86°F)	8 hours	16 hours	3 days
40°C (104°F)	6 hours	12 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**
20°C (68°F)	1 hour
30°C (86°F)	30 minutes

Note: Due to exothermic reaction, temperature during pot life may increase up to 60°C (140°F) at gel point

SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- Spray mist is not harmless, a fresh air mask and gloves should be used during spraying
- Ventilation should be provided in confined spaces to maintain good visibility

SIGMAGUARD™ 425

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.

REFERENCES

• 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
• PPG PROTECTIVE & MARINE COATINGS' BALLAST TANK WORKING PROCEDURES NEW-BUILDING		

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