



New Guard Coatings Group

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NORTH • SOUTH EAST • MIDLANDS • NORTH WEST • HULL • SCOTLAND

SIGMASHIELD™ 1200

DESCRIPTION

Two-component, abrasion-resistant, solvent-free, amine-cured phenolic epoxy coating

PRINCIPAL CHARACTERISTICS

- Single coat system designed for under water hull of ice going and ice breaking vessels
- Recognised by Lloyd's register as an abrasion resistant ice coating
- Excellent abrasion and impact resistance
- Resistant to well designed cathodic protection
- Low coefficient of friction
- Suitable for new construction and for maintenance/repair
- Also suitable for tanks and other structures requiring abrasion resistance
- Excellent resistance to crude oil up to 120°C (250°F)
- Excellent water resistance
- Good chemical resistance against a wide range of chemicals and solvents
- Can be applied by heavy-duty, single-feed, airless spray equipment (60:1)
- Reduced explosion risk and fire hazard

COLOR AND GLOSS LEVEL

- Light Gray, dark gray, redbrown, black (other colors available on request)
- Gloss

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.5 kg/l (12.5 lb/US gal)
Volume solids	100%
VOC (Supplied)	Directive 1999/13/EC, SED: max. 97.0 g/kg max. 143.0 g/l (approx. 1.2 lb/US gal) EPA Method 24: 100.0 g/ltr (0.8 lb/USgal)
Recommended dry film thickness	400 - 750 µm (16.0 - 30.0 mils)
Theoretical spreading rate	2.5 m ² /l for 400 µm (100 ft ² /US gal for 16.0 mils) 1.3 m ² /l for 750 µm (53 ft ² /US gal for 30.0 mils)
Dry to touch	6 hours
Overcoating Interval	Minimum: 24 hours Maximum: 2 months
Full cure after	5 days

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Data for mixed product

Shelf life	Base: at least 24 months when stored cool and dry Hardener: at least 24 months when stored cool and dry
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Notes:

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

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions

- Steel; blast cleaned to a minimum of ISO-Sa2½, blasting profile 50 – 100 µm (2.0 – 4.0 mils)
- Surface must be dry and free from any contamination

Substrate temperature and application conditions

- Substrate temperature during application should be above 10°C (50°F)
- Substrate temperature during application and curing should be at least 3°C (5°F) above dew point

SYSTEM SPECIFICATION

- The DFT of one layer should not exceed 1100 µm (44.0 mils) on overlap areas in order to avoid sagging
- For abrasion resistant ice coating for ships, 400-500 µm (16.0-20.0 mils) dft is recommended

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)
- No thinner should be added
- At lower temperature, the viscosity will be too high for spray application

Induction time

None

Pot life

1 hour at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life



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Airless spray

- Heavy-duty, single-feed airless spray equipment preferably 60:1 pump ratio and suitable high-pressure hoses
- Can be applied with plural component equipment
- Consult PPG Protective & Marine Coatings for further details

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.)

Brush/roller

- For stripe coating and spot repair only

Recommended thinner

No thinner should be added

Cleaning solvent

THINNER 90-53 or THINNER 90-83

Notes:

- 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
400 µm (16.0 mils)	2.5 m ² /l (100 ft ² /US gal)
500 µm (20.0 mils)	2.0 m ² /l (80 ft ² /US gal)
750 µm (30.0 mils)	1.3 m ² /l (53 ft ² /US gal)

Note: Maximum recommended dft for complex structures is 1100 µm (44.0 mils)

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Overcoating interval for DFT up to 500 µm (20.0 mils)				
Overcoating with...	Interval	10°C (50°F)	20°C (68°F)	30°C (86°F)
itself, SIGMACOVER 555 and SIGMACOVER 456	Minimum	36 hours	24 hours	16 hours
	Maximum exposed to direct sunshine	22 days	14 days	7 days
	Maximum NOT exposed to direct sunshine	3 months	2 months	1 month
SIGMADUR 550	Minimum	36 hours	24 hours	16 hours
	Maximum exposed to direct sunshine	14 days	7 days	4 days
	Maximum NOT exposed to direct sunshine	3 months	2 months	1 month

Note: Surface should be dry and free from any contamination

Curing time for DFT up to 500 µm (20 mils)		
Substrate temperature	Dry to handle	Full cure
10°C (50°F)	30 hours	7 days
20°C (68°F)	16 hours	5 days
30°C (86°F)	10 hours	3 days

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)	45 minutes

Note: Due to exothermic reaction, temperature during and after mixing may increase

SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- Although this is a solvent-free paint, care should be taken to avoid inhalation of spray mist, as well as contact between the wet paint and exposed skin or eyes
- Ventilation should be provided in confined spaces to maintain good visibility

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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

• 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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