

# 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 <sup>2</sup> /l for 400 µm (100 ft <sup>2</sup> /US gal for 16.0 mils) 1.3 m <sup>2</sup> /l for 750 µm (53 ft <sup>2</sup> /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

### 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.)

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## **Brush/roller**

- For stripe coating and spot repair only

## **Recommended thinner**

No thinner should be added

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## **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

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## **ADDITIONAL DATA**

<b>Spreading rate and film thickness</b>	
<b>DFT</b>	<b>Theoretical spreading rate</b>
400 µm (16.0 mils)	2.5 m <sup>2</sup> /l (100 ft <sup>2</sup> /US gal)
500 µm (20.0 mils)	2.0 m <sup>2</sup> /l (80 ft <sup>2</sup> /US gal)
750 µm (30.0 mils)	1.3 m <sup>2</sup> /l (53 ft <sup>2</sup> /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

## WARRANTY

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