

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, with mechanical anti-fouling properties (easy to clean)
- Recognised by Lloyd's register as an abrasion resistant ice coating
- Excellent abrasion and impact resistance
- Highly durable deck system, which needs heavy impact and abrasion resistance such as cattle decks of livestock carriers and car decks of Ro-Ro vessels
- Low coefficient of friction
- Resistant to well designed cathodic protection
- 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)
- 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
- Service life is expected more than 20 years when dried film is not seriously damaged

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 2010/75/EU, 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/US gal)
Recommended dry film thickness	300 - 750 µm (12.0 - 30.0 mils)
Theoretical spreading rate	3.3 m ² /l for 300 µm (134 ft ² /US gal for 12.0 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
Shelf life	Base: at least 24 months when stored cool and dry

SIGMASHIELD™ 1200

Data for mixed product	
	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
- Coated steel; hydrojetted to VIS WJ2/3 L (blasting profile 50 – 100 µm (2.0 – 4.0 mils))
- Suitable primer when blasting profile is < 50 µm (2.0 mils): SIGMACOVER 280 50 - 75 µm (2.0 - 3.0 mils)

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 (37°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 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

0 minute

Note:

- No induction time required



SIGMASHIELD™ 1200

Pot life

1 hour at 20°C (68°F)

Note:

- See ADDITIONAL DATA – Pot life
-

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

SIGMASHIELD™ 1200

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	Theoretical spreading rate
300 µm (12.0 mils)	3.3 m ² /l (134 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)

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



SIGMASHIELD™ 1200

Curing time for DFT up to 500 µm (20.0 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

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

- Read all label and Safety Data Sheet (SDS) information prior to use
- 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

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

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer from recovery under this warranty.



SIGMASHIELD™ 1200

LIMITATIONS OF LIABILITY

IN NO EVENT WILL PPG BE LIABLE UNDER ANY THEORY OF RECOVERY (WHETHER BASED ON NEGLIGENCE OF ANY KIND, STRICT LIABILITY OR TORT) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO, ARISING FROM, OR RESULTING FROM ANY USE MADE OF THE PRODUCT. The information in this sheet is intended for guidance only and is based upon laboratory tests that PPG believes to be reliable. PPG may modify the information contained herein at any time as a result of practical experience and continuous product development. All recommendations or suggestions relating to the use of the PPG product, whether in technical documentation, or in response to a specific inquiry, or otherwise, are based on data, which to the best of PPG's knowledge, is reliable. The product and related information is designed for users having the requisite knowledge and industrial skills in the industry and it is the end-user's responsibility to determine the suitability of the product for its own particular use and it shall be deemed that Buyer has done so, as its sole discretion and risk. PPG has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Therefore, PPG does not accept any liability arising from any loss, injury or damage resulting from such use or the contents of this information (unless there are written agreements stating otherwise). Variations in the application environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results. This sheet supersedes all previous versions and it is the Buyer's responsibility to ensure that this information is current prior to using the product. Current sheets for all PPG Protective & Marine Coatings Products are maintained at www.ppgmc.com. The English text of this sheet shall prevail over any translation thereof.

The PPG logo, and all other PPG marks are property of the PPG group of companies. All other third-party marks are property of their respective owners.

