



New Guard Coatings Group

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

SIGMASHIELD™ 220

DESCRIPTION

Two-component, reinforced high solids polyamine adduct cured epoxy primer

PRINCIPAL CHARACTERISTICS

- General-purpose primer for coating systems for steel
- Good abrasion resistance
- Outstanding sea water resistance
- Excellent corrosion resistance
- Good resistance against chemically-polluted water
- Resistant to well designed/controlled cathodic protection

COLOR AND GLOSS LEVEL

- Yellow/green
- 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	78 ± 2%
VOC (Supplied)	Directive 1999/13/EC, SED: max. 176.0 g/kg max. 262.0 g/l (approx. 2.2 lb/US gal)
Recommended dry film thickness	125 µm (5.0 mils)
Theoretical spreading rate	6.2 m ² /l for 125 µm (250 ft ² /US gal for 5.0 mils)
Dry to touch	4 hours
Overcoating Interval	Minimum: 3.5 hours Maximum: 14 days
Full cure after	5 days
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

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RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Immersion exposure

- Steel; blast cleaned to ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
 - Steel with approved zinc silicate shop primer; sweep blasted to SPSS-Ss or powertool cleaned to SPSS-Pt3
 - Surface must be dry and free from any contamination
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Atmospheric exposure conditions

- Steel; blast cleaned to ISO-Sa2 or ISO-Sa2½, blasting profile 40 – 70 µm (1.6 – 2.8 mils)
 - Steel; hydrojetted to VIS WJ2/3L
 - Steel with approved shop primer; power tool cleaned to SPSS-Pt2
 - Surface must be dry and free from any contamination
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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 85%
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SYSTEM SPECIFICATION

- ANTICORROSIVE SYSTEMS FOR UNDERWATER AND BOOTTOP - SYSTEM SHEET 3101
 - SYSTEMS FOR BOOTTOP AND TOPSIDE - SYSTEM SHEET 3102
 - SYSTEMS FOR DECKS - SYSTEM SHEET 3103
 - SYSTEMS FOR CARGO HOLDS - SYSTEM SHEET 3107
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INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 75:25 (3:1)

- The temperature of the paint 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 and slower cure
 - Thinner should be added after mixing the components
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Induction time

None

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

Volume of thinner

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

Nozzle orifice

1.5 - 3.0 mm (approx. 0.060 - 0.110 in)

Nozzle pressure

0.2 - 0.4 MPa (approx. 2 - 4 bar; 29 - 58 p.s.i.)

Airless spray

Recommended thinner

THINNER 91-92

Volume of thinner

0 - 10%, depending on required thickness and application conditions

Nozzle orifice

Approx. 0.53 - 0.69 mm (0.021 - 0.027 in)

Nozzle pressure

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

Brush/roller

- Only for touch-up and spot repair

Recommended thinner

THINNER 91-92

Volume of thinner

0 - 5%

Cleaning solvent

THINNER 90-53

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ADDITIONAL DATA

Spreading rate and film thickness	
DFT	Theoretical spreading rate
100 µm (4.0 mils)	7.8 m ² /l (313 ft ² /US gal)
125 µm (5.0 mils)	6.2 m ² /l (250 ft ² /US gal)

Note: Maximum DFT when brushing: 80 µm (3.1 mils)

Overcoating interval for DFT up to 150 µm (6.0 mils)						
Overcoating with...	Interval	5°C (41°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
epoxy coatings	Minimum	14 hours	7 hours	3.5 hours	2 hours	1.5 hours
	Maximum	28 days	28 days	14 days	7 days	4 days
polyurethanes	Minimum	22 hours	14 hours	10 hours	6 hours	4 hours
	Maximum	28 days	28 days	14 days	7 days	4 days

Notes:

- Adequate ventilation must be maintained during application and curing (please refer to INFORMATION SHEETS 1433 and 1434)
- Surface should be dry and free from any contamination

Curing time for DFT up to 150 µm (6.0 mils)			
Substrate temperature	Dry to handle	Service- water immersion	Full cure
5°C (41°F)	14 hours	10 days	17 days
10°C (50°F)	7 hours	7 days	14 days
20°C (68°F)	3.5 hours	5 days	7 days
30°C (86°F)	2 hours	4 days	5 days
40°C (104°F)	1.5 hours	3 days	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
10°C (50°F)	3 hours
20°C (68°F)	2 hours
30°C (86°F)	1 hour

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SAFETY PRECAUTIONS

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

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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