

**SIGMASHIELD 220****(SIGMA MULTIGUARD PRIMER)**

4 pages

September 2005  
Revision of January 2003**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 cathodic protection**COLOURS AND GLOSS** yellow/green - gloss**BASIC DATA AT 20°C** (1 g/cm<sup>3</sup> = 8.25 lb/US gal; 1 m<sup>2</sup>/l = 40.7 ft<sup>2</sup>/US gal)  
(data for mixed product)

Mass density	1.5 g/cm <sup>3</sup>
Volume solids	80 ± 2%
VOC (supplied)	max. 176 g/kg (Directive 1999/13/EC, SED) max. 262 g/l (approx. 2.2 lb/gal)
Recommended dry film thickness	125 µm
Theoretical spreading rate	6.4 m <sup>2</sup> /l for 125 µm *
Touch dry after	4 hours
Overcoating interval	min. 3.5 hours * max. 14 days *
Full cure after	5 days *

(data for components)

Shelf life (cool and dry place) at least 12 months  
Flash point base 26°C, hardener 26°C

\* see additional data

**RECOMMENDED  
SUBSTRATE CONDITIONS  
AND TEMPERATURES**

- **for immersion exposure:**
  - steel; blast cleaned to ISO-Sa2½
  - steel with approved zinc silicate shop primer; sweep blasted to SPSS-Ss or power tool cleaned to SPSS-Pt3
- **for atmospheric exposure conditions:**
  - steel; blast cleaned to ISO-Sa2 or ISO-Sa2½
  - steel; hydrojetted to VIS WJ2/3 L
  - steel with approved shop primer; power tool cleaned to SPSS-Pt2
- maximum relative humidity during application and curing is 85%
- substrate temperature should be at least 5°C and at least 3°C above dew point during application and curing

**SYSTEM SPECIFICATION** marine system sheets 3101, 3102, 3103, 3107

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**INSTRUCTIONS FOR USE**

mixing ratio by volume: base to hardener 75 : 25

- the temperature of the mixed base and hardener should preferably be above 15°C, otherwise extra solvent may be required to obtain application viscosity
- too much solvent results in reduced sag resistance and slower cure
- thinner should be added after mixing the components

Induction time

none

Pot life

2 hours at 20°C \*

\* see additional data

**AIRLESS SPRAY**

Recommended thinner

Sigma thinner 91-92

Volume of thinner

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

Nozzle orifice

approx. 0.53 - 0.68 mm (= 0.021 - 0.027 in)

Nozzle pressure

15 MPa (= approx. 150 bar; 2130 p.s.i.)

**AIR SPRAY**

Recommended thinner

Sigma thinner 91-92

Volume of thinner

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

Nozzle orifice

1.5 - 3 mm

Nozzle pressure

0.2 - 0.4 MPa (= approx. 2 - 4 bar; 28 - 57 p.s.i.)

**BRUSH**

Recommended thinner

only for touch up and spot repair

Volume of thinner

Sigma thinner 91-92

0 - 5%

**CLEANING SOLVENT**

Sigma thinner 90-53

**SAFETY PRECAUTIONS**

for paint and recommended thinners see safety sheets 1430, 1431 and relevant material safety data sheets

this is a solvent based paint and care should be taken to avoid inhalation of spray mist or vapour as well as contact between the wet paint and exposed skin or eyes

**ADDITIONAL DATA*****Film thickness and spreading rate***

theoretical spreading rate m <sup>2</sup> /l	8	6.4
dft in µm	100	125

max. dft when brushing:

80 µm

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**Overcoating table for SigmaShield 220 for dft up to 150 µm**

	substrate temperature	5°C	10°C	20°C	30°C	40°C
with epoxy coatings	minimum interval	14 hours	7 hours	3.5 hours	2 hours	1.5 hour
with polyurethanes	minimum interval	22 hours	14 hours	10 hours	6 hours	4 hours
	maximum interval	28 days	28 days	14 days	7 days	4 days

- surface should be dry and free from any contamination
- adequate ventilation must be maintained during application and curing (please refer to sheet 1433 and 1434)

**Curing table for dft up to 150 µm**

substrate temperature	dry to handle	full cure for immersion in seawater	full cure *
5°C	14 hours	10 days	17 days
10°C	7 hours	7 days	14 days
20°C	3.5 hours	5 days	7 days
30°C	2 hours	4 days	5 days
40°C	1.5 hour	3 days	3 days

- adequate ventilation must be maintained during application and curing (please refer to sheet 1433 and 1434)

**Pot life (at application viscosity)**

10°C	3 hours
20°C	2 hours
30°C	1 hour

**Worldwide availability**

Whilst it is always the aim of Sigma Coatings to supply the same product on a worldwide basis, 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	see information sheet 1411
Safety indications	see information sheet 1430
Safety in confined spaces and health safety	
Explosion hazard - toxic hazard	see information sheet 1431
Safe working in confined spaces	see information sheet 1433
Directives for ventilation practice	see information sheet 1434

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## LIMITATION OF LIABILITY

The information in this data sheet is based upon laboratory tests we believe to be accurate and is intended for guidance only. All recommendations or suggestions relating to the use of the products made by Sigma Coatings, whether in technical documentation, or in response to a specific enquiry, or otherwise, are based on data which to the best of our knowledge are reliable. The products and information are designed for users having the requisite knowledge and industrial skills and it is the end-user's responsibility to determine the suitability of the product for its intended use.

Sigma Coatings has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Sigma Coatings does therefore not accept any liability arising from loss, injury or damage resulting from such use or the contents of this data sheet (unless there are written agreements stating otherwise).

The data contained herein are liable to modification as a result of practical experience and continuous product development. This data sheet replaces and annuls all previous issues and it is therefore the user's responsibility to ensure that this sheet is current prior to using the product.

The English text of this document shall prevail over any translation thereof.

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