

**SIGMASHIELD 1200****(SIGMA NOVASHIELD)**

5 pages

September 2005  
Revision of January 2003**DESCRIPTION**

two component abrasion resistant solvent free amine cured phenolic epoxy coating

**PRINCIPAL CHARACTERISTICS**

- one or two coat system for tanks and other structures requiring abrasion resistance
- suitable for underwater hull of ice going vessels
- excellent abrasion and impact resistance
- resistant to well designed cathodic protection
- excellent resistance to crude oil up to 70°C
- excellent water resistance
- good chemical resistance against a wide range of chemicals and solvents
- glossy and smooth appearance
- easy to clean
- can be applied by heavy duty single feed airless spray equipment (60:1)
- eliminates explosion risk and fire hazard

**COLOURS AND GLOSS**

light and dark grey - 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

100%

VOC (supplied)

max. 97 g/kg (Directive 1999/13/EC, SED)

max. 143 g/l (approx. 1.2 lb/gal)

see information sheet 1411

Recommended dry film  
thickness

400 - 500 µm

Theoretical spreading rate

2.5 m<sup>2</sup>/l for 400 µm, 2 m<sup>2</sup>/l for 500 µm \*

Touch dry after

6 hours

Overcoating interval

min. 24 hours \*

max. 2 months \*

Full cure after

5 days \*

(data for components)

Shelf life (min. 10°C, dry place)

at least 12 months

Flash point

base and hardener above 65°C

\* see additional data

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**RECOMMENDED  
SUBSTRATE CONDITIONS  
AND TEMPERATURES**

- steel; blast cleaned to a minimum of ISO-Sa2½, blasting profile ( $R_z$ ) 50 - 100  $\mu\text{m}$
- substrate temperature should be above 10°C and at least 3°C above dew point during application and curing
- steel with suitable primer (Sigma Phenguard 930) which must be dry, clean and free from any contamination

**INSTRUCTIONS FOR USE**

mixing ratio by volume: base to hardener 80 : 20

- when mixing the temperature of the base and hardener should be at least 20°C
- at lower temperature the viscosity will be too high for spray application
- no thinner should be added

Induction time

none

Pot life

1 hour at 20°C \*

\* see additional data

**AIRLESS SPRAY**

- heavy duty single feed airless spray equipment with a minimum of 60:1 pump ratio and suitable high pressure hoses
- in-line heating or insulated hoses may be necessary to avoid cooling down of paint in hoses at low air temperature
- length of hoses should be as short as possible

Recommended thinner

no thinner should be added

Nozzle orifice

approx. 0.53 mm (= 0.021 in)

Nozzle pressure

at 20°C (paint temperature) min. 28 MPa (= approx. 280 bar; 4000 p.s.i.)  
 at 30°C (paint temperature) min. 22 MPa (= approx. 220 bar; 3000 p.s.i.)

**BRUSH/ROLLER**

for stripe coating and spot repair only

Recommended thinner

no thinner should be added

**CLEANING SOLVENT**

Sigma thinner 90-83 (preferred) or Sigma thinner 90-53

- all application equipment must be cleaned immediately after use
- paint inside the spraying equipment must be removed before the pot life time has been expired

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## SAFETY PRECAUTIONS

for paint and recommended thinners see safety 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

## ADDITIONAL DATA

### *Film thickness and spreading rate*

theoretical spreading rate m <sup>2</sup> /l	2.5	2	1.7
dft in µm	400	500	600

max. dft when brushing:

150 µm

### **measuring wet film thickness**

- a deviation is often obtained between the measured apparent wft and the real applied wft
- this is due to the thixotropy and the surface tension of the paint which retards the release of air trapped in the paint film for some time
- recommendation is to apply a wft which is equal to the specified dft plus 60 µm

### **measuring dry film thickness**

- because of low initial hardness the dft cannot be measured within some days due to the penetration of the measuring device into the soft paint film
- the dft should be measured using a calibration foil of known thickness placed in between the coating and the measuring device

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**overcoating table with itself, SigmaCover 515 and SigmaCover 456**

substrate temperature	10°C	20°C	30°C
minimum interval	36 hours	24 hours	16 hours
maximum interval when not exposed to direct sunshine	3 months	2 months	1 month
maximum interval when exposed to direct sunshine	22 days	14 days	10 days

- surface should be dry and free from any contamination

**Curing table**

substrate temperature	dry to handle	full cure
10°C	30 hours	7 days
20°C	16 hours	5 days
30°C	10 hours	3 days

- although the paint is solvent free adequate ventilation must be maintained during application and curing (please refer to sheet 1433 and 1434)

**Pot life (at application viscosity)**

20°C	60 min.
30°C	45 min.

- due to exothermic reaction, temperature during and after mixing may increase

**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.

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## 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
Cleaning of steel and removal of rust	see information sheet 1490

## 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.

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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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