

SIGMAGUARD 1091

5 pages

April 2009
Revision of September 2005

DESCRIPTION	two component solvent free polyamine cured, quartz reinforced sprayable epoxy compound
PRINCIPAL CHARACTERISTICS	<ul style="list-style-type: none"> - seamless water impermeable polymer mortar with excellent anticorrosive properties - suitable for the protection of steel and concrete - excellent resistance against impact and wear - excellent adhesion under dry and wet exposure conditions - resistant to water and splash of mild chemicals - can be exposed to water within 30 minutes after application - application areas are chemical process plants, steelmills, pulp and paper mills, sewage lines and receivers, waste water treatment plants, power plants, textile mills - texture of surface is rough - extended pot life - easy application - discolours when exposed to UV
COLOURS AND GLOSS	light grey - flat
BASIC DATA AT 20°C	(1 g/cm ³ = 8.25 lb/US gal; 1 m ² /l = 40.7 ft ² /US gal) (data for mixed product)
Mass density	1.8 g/cm ³
Volume solids	100%
VOC (supplied)	max. 58 g/kg (Directive 1999/13/EC, SED) max. 104 g/l (approx. 0.9 lb/gal) see information sheet 1411
Recommended dry film thickness	3 mm
Theoretical spreading rate	0.2 m ² /l for 5000 µm (= approx. 10 kg/m ²) 0.3 m ² /l for 3000 µm (= approx. 6 kg/m ²)
Touch dry after	6 - 8 hours
Overcoating interval	1 - 7 days, depending on type of paint
Curing time	7 days *
	(data for components)
Shelf life (cool and dry place)	at least 6 months
Consistency	base - paste, hardener - mobile liquid * see additional data
RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES	<ul style="list-style-type: none"> - steel; blast cleaned to ISO-Sa2½, surface roughness 75 - 100 µm - concrete; free from laitance by blast cleaning - moisture content of concrete should be max. 4% - substrate temperature should be above 5°C and at least 3°C above dew point

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INSTRUCTIONS FOR USE

mixing ratio by volume: base to hardener 85 : 15

- **do not prepare more material than can be used within 30 minutes**
- the temperature of base and hardener when mixing the components should be approx. 20°C
- use always mechanical mixing equipment
- add the hardener while stirring the base
- mix thoroughly and quickly until a homogeneous material is obtained

Induction time

none

Pot life

approx. 2 hours at 20°C *

* see additional data

APPLICATION

A sprayable polymer mortar is a heavy material which has to be transported from the container with mixed material to the mortar spray gun or airless spray gun.

Care should be taken that hoses are of sufficiently large diameter, are as short as possible and that no obstructions are present; otherwise the binder will be pressed out of the mortar leaving dry (untransportable) material behind.

So preferably 3/4 - 1 inch hoses should be used (for the airless spraying, just before the spraygun 5/8 inch).

APPLICATION WITH LOW PRESSURE PUMP

Nozzle orifice

approx. 5.6 mm, preferably with internal mix atomisation

Nozzle pressure

0.4 - 0.6 MPa (= approx. 4 - 6 bar; 57 - 85 p.s.i.)

equipment such as Swinger Pump (11 : 1 ratio motor Air Tech spray equipment, Houston, TX)

Nozzle orifice

approx. 6.5 - 10 mm preferably with internal mix atomisation

Nozzle pressure

0.4 - 0.6 MPa (= approx. 4 - 6 bar; 57 - 85 p.s.i.)

APPLICATION BY PRESSURE VESSEL

- pressure vessel with bottom outlet and pressure lid
- vessel should not contain more than 25 litres
- before use vessel and hoses have to be wetted with white spirit
- hoses (diameter 25 mm = approx. 1 inch) not longer than 7 metres, preferably in two lengths of 3.5 metres
- at low temperature hoses have to be insulated

Nozzle orifice

approx. 6.5 - 10 mm preferably with internal mix atomisation

Nozzle pressure

0.4 - 0.6 MPa (= approx. 4 - 6 bar; 57 - 85 p.s.i.)

APPLICATION BY DISPLACEMENT FEED PUMP

Nozzle orifice

equipment such as 'quick spray', carousel pump and spraying equipment (Quickspray Inc., Port Clinton, Ohio, U.S.A.)

Nozzle pressure

approx. 3.5 - 5 mm

0.4 - 0.6 MPa (= approx. 4 - 6 bar; 57 - 85 p.s.i.)

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APPLICATION BY TROWEL TOUCH UP

SigmaGuard 1091 can be applied and compacted by trowels

- damaged areas should be reblasted and repaired with SigmaGuard 1091 by means of filling knives
- porosity, blow holes and crevices in concrete should be filled with SigmaGuard 1091 by hand (trowel/filling knife)
- larger areas can be resprayed with a beaker spray unit (e.g. Putzmeister) suitable for spraying materials like coarse filled mortars

other application methods may be possible, please contact the nearest PPG Protective & Marine Coatings sales office

CLEANING SOLVENT AND CLEANING PROCEDURE

Thinner 90-83 (preferred) or Thinner 90-53

- all application equipment must be cleaned immediately after use
- insert a cellulose sponge into the hose inlet and force through with Thinner 90-53, repeat if necessary

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
- protective clothing and spray masks should be provided to avoid any dermatitic or toxic hazard

ADDITIONAL DATA

Overcoating table for solvent borne coatings

substrate temperature	10°C	20°C	30°C
minimum interval	3 days	1 day	1 day
maximum interval	7 days	7 days	7 days

- surface should be dry and free from any contamination
- for outside exposure the maximum overcoating time may not exceed 3 days otherwise mechanical abrading is essential to obtain adhesion for the subsequent coat

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Overcoating table for solvent free coatings

substrate temperature	10°C	20°C	30°C
minimum interval	1 day or immediately wet on wet		
maximum interval	7 days	7 days	7 days

- surface should be dry and free from any contamination
- the data concerning the recoatability can be influenced by the exposure condition before overcoating
- for outside exposure the maximum overcoating time may not exceed 3 days otherwise mechanical abrading is essential to obtain adhesion for the subsequent coat

Curing table for dft up to 3000 µm

substrate temperature	touch dry	dry to handle	full cure
10°C	10 - 12 hours	48 hours	12 days
20°C	6 - 8 hours	24 hours	7 days
30°C	4 - 6 hours	24 hours	4 days

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

Pot life (at application viscosity)

10°C	3 hours
20°C	2 hours
30°C	1 hour

PHYSICAL DATA OF CURED MATERIAL

Abrasion resistance (Taber Abraser)	180 mg/1000 revs. (CS 17-1000 g weight)
Porosity (Isotest II R.T.)	no sparks at 35 KV at dft of 2 mm
Impact resistance Adhesion on steel (ISO-DIS 4624)	12 Nm (no break down with impact, ball Ø is 10 mm) 4 N/mm ²
Tensile strength (ASTM D638)	14 N/mm ²
Bending strength (ASTM D790)	22 N/mm ²
Pressure strength (ASTM D695)	24 N/mm ²
Elongation at break (ASTM D638)	approx. 2.0%
Shore hardness (ASTM 2240)	approx. 65

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Worldwide availability

Whilst it is always the aim of PPG Protective & Marine 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
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 Sigma Coatings products made by PPG Protective & Marine 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.

PPG Protective & Marine 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. PPG Protective & Marine 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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