

PPG SIGMA SHIELD™ 1090

DESCRIPTION

Two-component, ultra high-build, flint-reinforced, solvent-free, polyamine-cured, epoxy compound

PRINCIPAL CHARACTERISTICS

- Solvent free sprayable epoxy cladding
- Seamless water impermeable layer 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
- Texture of surface is rough
- Suitable for decks exposed to heavy impact and abrasion

COLOR AND GLOSS LEVEL

- White (other colors available on request)
- Flat

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	2.0 kg/l (16.7 lb/US gal)
Volume solids	100%
VOC (Supplied)	Directive 2010/75/EC, SED: max. 35.0 g/kg max. 68.0 g/l (approx. 0.6 lb/US gal)
Recommended dry film thickness	3000 - 5000 µm (120.0 - 200.0 mils)
Theoretical spreading rate	0.3 m²/l for 3000 µm (13 ft²/US gal for 120.0 mils)
Dry to touch	8 hours
Overcoating Interval	Minimum: 4 days Maximum: 30 days
Full cure after	7 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

Substrate conditions

- Steel; blast cleaned to ISO Sa2½, blasting profile 75 – 100 µm (3.0 – 4.0 mils)
- Concrete; free from laitance by blast cleaning

Substrate temperature and application conditions

- Substrate moisture content of concrete should not exceed 4% (Carbide method)
- 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 (37°F) above dew point

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 9.4:1

- Do not prepare more material than can be used within 30 minutes
- The temperature of the mixed base and hardener when mixing the components should be approx. 20°C (68°F)
- Use always mechanical mixing equipment
- Add the hardener while stirring the base
- Mix thoroughly and quickly until a homogeneous material is obtained

Note:

- Refer to application guide "Working Procedure SIGMA SHIELD 1090"

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
- Preferably 19 mm – 25 mm (0.75 – 1 inch) hoses should be used
- 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

Induction time

0 minute

Pot life

30 minutes at 20°C (68°F)

Note:

- See ADDITIONAL DATA – Pot life

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Low pressure pump

- Equipment such as 'Swinger Pump' Fizom A112 tech spray system U.S.A.

Nozzle orifice

6.5 – 10.0 mm (approx. 0.256 – 0.394 in) preferably with internal mix atomization

Nozzle pressure

0.4 - 0.6 MPa (approx. 4 - 6 bar; 58 - 87 p.s.i.)

Displacement feed pump

- Equipment such as "quick spray" caroussel pump and spraying equipment (Quickspray Inc. Port Clinton, Ohio, U.S.A.)
- MAI 2 PUMP PICTOR
- Graco T. Max 506 or 675
- BPM 6 screw pump

Nozzle orifice

4.0 – 5.0 mm (approx. 0.157 – 0.197 in)

Nozzle pressure

0.4 - 0.6 MPa (approx. 4 - 6 bar; 58 - 87 p.s.i.)

Pressure vessel

- Pressure vessel with bottom outlet and pressure lid
- Vessel should not contain more than 25 liters (6 US gallon)
- Before use, vessel and hoses have to be wetted with white spirit
- Hoses (diameter 25 mm = approximately 1 in) not longer than 7 meters (23 ft), preferably in two lengths of 3.5 meters (11.5 ft)
- At low temperature, hoses have to be insulated

Nozzle orifice

6.5 – 10.0 mm (approx. 0.256 – 0.394 in) preferably with internal mix atomization

Nozzle pressure

0.4 - 0.6 MPa (approx. 4 - 6 bar; 58 - 87 p.s.i.)

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Trowel

- Damaged areas should be reblasted and repaired with SIGMA SHIELD 1090 by means of filling knives
- Porosity, blow holes and crevices in concrete should be filled with SIGMA SHIELD 1090 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

Note:

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

Cleaning solvent

- THINNER 90-53 or THINNER 90-83
- 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

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	Theoretical spreading rate
3000 µm (120.0 mils)	0.3 m ² /l (13 ft ² /US gal)
5000 µm (200.0 mils)	0.2 m ² /l (8 ft ² /US gal)

Overcoating interval for DFT up to 4000 µm (160.0 mils)					
Overcoating with...	Interval	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
SIGMADUR 520 and SIGMADUR 550	Minimum	7 days	4 days	24 hours	24 hours
	Maximum	30 days	30 days	30 days	30 days
solvent-free epoxies	Minimum	24 hours	24 hours	24 hours	24 hours
	Maximum	30 days	30 days	30 days	30 days

Notes:

- Minimum interval with solvent-free epoxies is 1 day or immediately wet on wet
- Surface should be dry and free from any contamination

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Curing time for DFT up to 4000 µm (160.0 mils)

Substrate temperature	Dry to touch	Dry to handle	Full cure
10°C (50°F)	10 - 12 hours	48 hours	12 days
20°C (68°F)	6 - 8 hours	24 hours	7 days
30°C (86°F)	4 - 6 hours	16 hours	4 days
40°C (104°F)	4 hours	12 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)	30 minutes
30°C (86°F)	15 minutes

SAFETY PRECAUTIONS

- 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
- See Safety Data Sheet and product label for complete safety and precaution requirements
- 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

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