

SIGMASHIELD™ 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 1999/13/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 m ² /l for 3000 µm (13 ft ² /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

SIGMASHIELD™ 1090

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 (5°F) above dew point

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 90.4:9.6

- 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 SIGMASHIELD 1090"

Induction time

None

Pot life

30 minutes at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

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

SIGMASHIELD™ 1090

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" carousel 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

Approx. 6.5 – 10 mm (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.)

Trowel

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

SIGMASHIELD™ 1090

Cleaning solvent

THINNER 90-53 or THINNER 90-83

Notes:

- 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:

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

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 hours - 12 hours	48 hours	12 days
20°C (68°F)	6 hours - 8 hours	24 hours	7 days
30°C (86°F)	4 hours - 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 (please refer to INFORMATION SHEETS 1433 and 1434)

Pot life (at application viscosity)

Mixed product temperature	Pot life
20°C (68°F)	30 minutes
30°C (86°F)	15 minutes

SIGMASHIELD™ 1090

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
- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- Ventilation should be provided in confined spaces to maintain good visibility

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
• SURFACE PREPARATION OF CONCRETE (FLOORS)	INFORMATION SHEET	1496
• RELATIVE HUMIDITY – SUBSTRATE TEMPERATURE – AIR TEMPERATURE	INFORMATION SHEET	1650

WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

LIMITATIONS OF LIABILITY

IN NO EVENT WILL PPG BE LIABLE UNDER ANY THEORY OF RECOVERY (WHETHER BASED ON NEGLIGENCE OF ANY KIND, STRICT LIABILITY OR TORT) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO, ARISING FROM, OR RESULTING FROM ANY USE MADE OF THE PRODUCT. The information in this sheet is intended for guidance only and is based upon laboratory tests that PPG believes to be reliable. PPG may modify the information contained herein at any time as a result of practical experience and continuous product development. All recommendations or suggestions relating to the use of the PPG product, whether in technical documentation, or in response to a specific inquiry, or otherwise, are based on data, which to the best of PPG's knowledge, is reliable. The product and related information is designed for users having the requisite knowledge and industrial skills in the industry and it is the end-user's responsibility to determine the suitability of the product for its own particular use and it shall be deemed that Buyer has done so, as its sole discretion and risk. PPG has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Therefore, PPG does not accept any liability arising from any loss, injury or damage resulting from such use or the contents of this information (unless there are written agreements stating otherwise). Variations in the application environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results. This sheet supersedes all previous versions and it is the Buyer's responsibility to ensure that this information is current prior to using the product. Current sheets for all PPG Protective & Marine Coatings Products are maintained at www.ppgpmc.com. The English text of this sheet shall prevail over any translation thereof.

The PPG logo, and all other PPG marks are property of the PPG group of companies. All other third-party marks are property of their respective owners.

