

SIGMACOVER™ 456

DESCRIPTION

Two-component, high-build, polyamide-cured recoatable epoxy coating

PRINCIPAL CHARACTERISTICS

- General-purpose epoxy buildcoat or finish in protective coating systems, for steel and concrete structures exposed to atmospheric land or marine conditions
- Easy application, both by airless spray and brush
- Cures even at temperatures down to -10°C (14°F)
- A high relative humidity (maximum 95%) during application and curing does not influence the quality of the coating
- Good adhesion on most aged, sound alkyd, chlorinated rubber and epoxy coatings
- Can be recoated with various two-component and conventional coatings, even after long weathering periods
- Resistant to water and splash of mild chemicals
- Excellent corrosion resistance
- Tough, with long-term flexibility

COLOR AND GLOSS LEVEL

- Standard and custom colors
- Semi-gloss

Note: Epoxy coatings will characteristically chalk and fade upon exposure to sunlight

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Mass density	1.4 kg/l (11.7 lb/US gal)
Volume solids	65 ± 2%
VOC (Supplied)	Directive 1999/13/EC, SED: max. 250.0 g/kg max. 344.0 g/l (approx. 2.9 lb/US gal)
Recommended dry film thickness	75 - 150 µm (3.0 - 6.0 mils) depending on system
Theoretical spreading rate	6.5 m ² /l for 100 µm (261 ft ² /US gal for 4.0 mils)
Dry to touch	2 hours
Overcoating Interval	Minimum: 3 hours Maximum: Unlimited
Full cure after	4 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



SIGMACOVER™ 456

RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

Substrate conditions

- Compatible previous coat must be dry and free from any contamination
-

Substrate temperature

- Substrate temperature during application and curing down to -10°C (14°F) is acceptable; provided the substrate is free from ice and dry
 - 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 82:18

- Adding too much thinner results in reduced sag resistance
 - The temperature of the mixed base and hardener should be above 10°C (50°F), otherwise extra thinner may be required to obtain application viscosity
 - Thinner should be added after mixing the components
-

Induction time

None

Pot life

5 hours at 20°C (68°F)

Note: See ADDITIONAL DATA – Pot life

Air spray

Recommended thinner

THINNER 91-92

Volume of thinner

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

Nozzle orifice

2.0 – 3.0 mm (approx. 0.079 – 0.110 in)

Nozzle pressure

0.3 - 0.4 MPa (approx. 3 - 4 bar; 44 - 58 p.s.i.)

SIGMACOVER™ 456

Airless spray

Recommended thinner

THINNER 91-92

Volume of thinner

0 - 5%, depending on required thickness and application conditions

Nozzle orifice

Approx. 0.48 - 0.58 mm (0.019 - 0.023 in)

Nozzle pressure

15.0 MPa (approx. 150 bar; 2176 p.s.i.)

Brush/roller

Recommended thinner

THINNER 91-92

Volume of thinner

0 - 5%

Cleaning solvent

THINNER 90-53

ADDITIONAL DATA

Spreading rate and film thickness	
DFT	Theoretical spreading rate
75 µm (3.0 mils)	8.7 m ² /l (348 ft ² /US gal)
100 µm (4.0 mils)	6.5 m ² /l (261 ft ² /US gal)
150 µm (6.0 mils)	4.3 m ² /l (174 ft ² /US gal)

Note: Maximum DFT when brushing: 60 µm (2.4 mils)

SIGMACOVER™ 456

Overcoating interval for DFT up to 150 µm (6.0 mils)							
Overcoating with...	Interval	-5°C (23°F)	5°C (41°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
PPG VIKOTE 46, SIGMADUR 550, SIGMADUR 520 and SIGMARINE 40	Minimum	3 days	24 hours	16 hours	8 hours	5 hours	3 hours
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
SIGMACOVER 435 and SIGMACOVER 456	Minimum	36 hours	10 hours	4 hours	3 hours	2 hours	2 hours
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
PPG VIKOTE 56 and SIGMARINE 48	Minimum	3 days	24 hours	16 hours	8 hours	5 hours	3 hours
	Maximum	17 days	14 days	10 days	7 days	4 days	48 hours

Notes:

- Finishes require a corresponding undercoat
- Surface should be dry and free from any contamination
- SIGMACOVER 456 should not be overcoated with coal tar epoxy coatings
- Color of SIGMACOVER 456 should be adapted to the color of PPG VIKOTE 56 or SIGMARINE 48

Curing time for DFT up to 150 µm (6.0 mils)		
Substrate temperature	Dry to handle	Full cure
-10°C (14°F)	24 hours - 48 hours	20 days
-5°C (23°F)	24 hours - 30 hours	14 days
0°C (32°F)	18 hours - 24 hours	10 days
5°C (41°F)	18 hours	8 days
10°C (50°F)	12 hours	6 days
15°C (59°F)	8 hours	5 days
20°C (68°F)	6 hours	4 days
30°C (86°F)	4 hours	3 days
40°C (104°F)	3 hours	48 hours

Notes:

- Adequate ventilation must be maintained during application and curing (please refer to INFORMATION SHEETS 1433 and 1434)
- In exceptional cases SIGMACOVER 456 may be applied at lower substrate temperatures (down to -15°C (5°F)) provided that the surface is free from ice and other contamination. In such cases special care must be taken to avoid thick film application as this may lead to checking/crazing or solvent entrapment. It should be clear that application at lower temperatures will require additional thinning to obtain application viscosity, however this will affect the sag resistance of the applied coating and can induce solvent retention. Optimal curing and designed product properties will only be achieved when minimum required substrate temperature is reached

Pot life (at application viscosity)	
Mixed product temperature	Pot life
10°C (50°F)	12 hours
20°C (68°F)	5 hours
30°C (86°F)	4 hours
40°C (104°F)	2 hours

SIGMACOVER™ 456

SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes

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

• 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
• CONVERSION TABLES	INFORMATION SHEET	1410
• 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.

