# PPG VERSAFLEX® 380 FR Polyurea

## formerly sold as Versaflex VF380 FR

### DESCRIPTION

Two-component, 100% solids, fast set, elastomeric polyurea protective coating for industrial applications

### PRINCIPAL CHARACTERISTICS

- Flexible when cured
- Fast return to service
- Can be applied to concrete, steel, masonry or geotextile fabric substrates
- Operating temperature range of -40°F (-40°C) to 350°F (177°C)
- Low cure stress and low shrinkage
- Especially resistant to hydrocarbon exposure

### TYPICAL USES

- Primary or secondary containment applications
- Waterproofing membranes
- Not recommended for direct contact with extremely high or low pH chemicals

### COLOR AND GLOSS LEVEL

- Tan
- Part A can vary in color from Clear to Amber
- Semi-gloss

Note:

- Color changes can occur under UV-exposure without negative impact on the product performance

### BASIC DATA AT 75°F (24°C)

| Data for mixed product | |
|---|---|
| **Number of components** | Two |
| **Mass density** | 8.7 lb/US gal (1.0 kg/l) |
| **Volume solids** | 100 ± 2% |
| **VOC (Supplied)** | EPA Method 24: 0.0 lb/US gal (0.0 g/l) |
| **Recommended dry film thickness** | 10.0 – 200.0 mils (250 – 5,080 µm) per coat |
| **Theoretical spreading rate** | 160 $ft^2$/US gal for 10.0 mils (3.9 $m^2$/l for 250 µm)<br>8 $ft^2$/US gal for 200.0 mils (0.2 $m^2$/l for 5,080 µm) |
| **Dry to touch** | 9 minutes |
| **Dry to walk on** | 2 hours |
| **Curing time** | 2 hours |
| **Full cure after** | 14 days |
| **Shelf life** | Part A: at least 12 months when stored cool and dry |

# PPG VERSAFLEX® 380 FR Polyurea

## formerly sold as Versaflex VF380 FR

| Data for mixed product | |
|---|---|
| | Part B: at least 12 months when stored cool and dry |

Notes:

- Curing time reflects ready for service time
- "Full cure after" time reflects maximum chemical resistance at 75°F (24°C)
- May be top-coated with non-solvent based coatings after curing for 30 minutes
- Material should be stored in dry conditions, out of direct sunlight, in unopened original factory containers, at temperatures above 55°F (13°C) and below 95°F (35°C).
- See ADDITIONAL DATA - Drying/Curing details for gel time and tack-free time
- See ADDITIONAL DATA – Spreading rate and film thickness
- See ADDITIONAL DATA – Overcoating intervals

### RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

- Substrate temperature during application should be between -20°F (-29°C) and 140°F (60°C)
- Substrate temperature during application should be at least 5°F (3°C) above dew point
- Do not install over damp, wet, or saturated substrates

#### Geotextile fabric

- Ensure the surface is clean, dry, and free of deleterious matter prior to the application
- Only apply to the 'ironed' side of the geotextile
- Non-woven or spun-woven geotextiles are recommended

#### Steel (atmospheric/non-immersion service)

- Remove all surface contaminants, oil and grease in accordance with SSPC-SP 1
- Abrasive blast with an angular abrasive to an SSPC SP-10 cleanliness or higher. Achieve a surface profile of 3.0 mils (76 µm) or higher
- Ensure surface is dust free after blasting

#### Concrete / Masonry

- All surfaces must be sound, dry, clean, free of oil, grease, dirt, mildew, curing compounds, loose and flaking paint, and other foreign substances
- Prepare in accordance with SSPC-SP13 guidelines to achieve a surface profile equivalent to CSP 3 to CSP 5 in accordance with ICRI 310.2R-2013
- Maximum moisture content of 3 lb / 1,000 $ft^2$/24 hours per ASTM F1869
- Moisture content should not exceed 5%

#### Non-ferrous metals

- Abrasive blast in accordance with SSPC-SP 16 guidelines
- Abrasive blast with non-metallic abrasive

# PPG VERSAFLEX® 380 FR Polyurea

## formerly sold as Versaflex VF380 FR

### SYSTEM SPECIFICATION

**Primer**

- Primers for concrete/masonry: PPG RAVEN® 175 Primer, PPG RAVEN® 171FS Primer, PPG VERSAFLEX® 915 Primer, or PPG VERSAFLEX® 920 Primer
- Primers for Carbon Steel: PPG AQUATAPOXY® 190 primer, PPG VERSAFLEX® 901 primer
- Primers for non-ferrous metals: PPG VERSAFLEX® 901 Primer
- Primers for wood/fiberglass: PPG VERSAFLEX® 920 Primer, PPG VERSAFLEX® 915 Primer

**Recommended DFTs**

- Recommended DFT for Geotextile fabrics: 60-80 mils (1525-2030 µm)
- Recommended DFT for Concrete: 80-100 mils (2030-2540 µm)
- Recommended DFT for Steel (Carbon): 60-80 mils (1525-2030 µm)

### INSTRUCTIONS FOR USE

- Installation requires heated plural component set-up with direct impingement application equipment that is capable of maintaining 2,000 psi (14 MPa) dynamic spray pressure
- A and B liquid components shall be a minimum of 70°F (21°C) prior to use

**Mixing ratio by volume: 1:1 (Part A to Part B)**

- Part B component must be thoroughly agitated prior to use
- Mix Part B using three-tier, collapsible blade power mixer through the center bung hole
- Mixer diameter should be 1/3 of the diameter of the container
- Pre-mix Part B component for at least 30 minutes. When properly pre-mixed, material with have a uniform color with no dark or light spots

**Application**

- Apply in a uniform manner to desired thickness
- Application thickness is determined by spray gun configuration and speed of application
- Lower output configurations are recommended for vertical and overhead appications to avoid runs, drips, and sags.

# PPG VERSAFLEX® 380 FR Polyurea

## formerly sold as Versaflex VF380 FR

**Airless spray – Plural component**

- Material requires heated plural component spray set-up with impingement gun
- Material supply capacity should be 4 times the material output of the selected spray gun configuration
- Heated hoses are required
- Processing equipment should be capable of maintaining set temperatures and pressure at rest and during operation
- Part A should be maintained at temperature of 160°F (71°C) - Part B should be maintained at temperature of 160°F (71°C)
- Heated hose temperature: 160 (71°C)

**Recommended thinner**

No thinner should be added

Note:

- Contact your PPG technical services representative for equipment and set-up recommendations

### ADDITIONAL DATA

| Physical data of cured material | |
|---|---|
| **Characteristic** | **Value** |
| Tensile Strength (ASTM D638) | 3,200 psi (22.0 MPa) |
| Tensile Elongation (ASTM D638) | 550% |
| 100% Modulus (ASTM D638) | 850 psi (5.9 MPa) |
| 200% Modulus (ASTM D638) | 1,100 psi (7.6 MPa) |
| 300% Modulus (ASTM D638) | 1,450 psi (10.0 MPa) |
| Tear Strength (Die C, ASTM D624) | 430 pli |
| Hardness, Shore A (ASTM D2240) | 88 |
| Hardness, Shore D (ASTM D2240) | 42 |
| Adhesion to Steel (ASTM D4541) | >500 psi (>3.5 MPa) |
| Adhesion to Concrete (ASTM D7234) | >200 psi (>1.4 MPa) |

Notes:

- The value ranges stated in this Product Data Sheet are based on system processing under laboratory conditions. These are typical values and should not be considered product specifications for a specific field application. Equipment configurations and/or field application conditions may produce variances in final system values.
- Concrete bond strength is highly dependent on the age and condition of the concrete substrate. Actual field conditions of concrete substrate may result in lower values. Refer to contract document requirements and/or PPG's published documentation for additional information.

# PPG VERSAFLEX® 380 FR Polyurea

## formerly sold as Versaflex VF380 FR

| Spreading rate and film thickness | |
|---|---|
| **DFT** | **Theoretical spreading rate** |
| 10.0 mils (250 µm) | 160 $ft^2$/US gal (3.9 $m^2$/l) |
| 60.0 mils (1524 µm) | 27 $ft^2$/US gal (0.7 $m^2$/l) |
| 80.0 mils (2032 µm) | 20 $ft^2$/US gal (0.5 $m^2$/l) |
| 100.0 mils (2540 µm) | 16 $ft^2$/US gal (0.4 $m^2$/l) |
| 125.0 mils (3175 µm) | 13 $ft^2$/US gal (0.3 $m^2$/l) |
| 200.0 mils (5280 µm) | 8 $ft^2$/US gal (0.2 $m^2$/l) |

| Overcoating interval | | | |
|---|---|---|---|
| **Overcoating with...** | **Interval** | **72°F (22°C)** | **75°F (24°C)** |
| itself | Minimum | 45 seconds | |
| | Maximum | 60 days | |

Notes:

- When overcoating with itself, product can be overcoated as soon as it has gelled or when it no longer leaves residue with touched with a gloved finger.
- If overcoat time is exceeded, ensure that surface is clean, dry and free from all deleterious material. Then treat with PPG VERSAFLEX® 960 surface activator as a reactivating adhesion promoter

| Curing Time | | | |
|---|---|---|---|
| **Substrate temperature** | **Gel time** | **Tack free time** | **Open to Foot Traffic** |
| 75°F (24°C) | 45 seconds | 9 minutes | 2 hours |

### DISCLAIMER

- PPG Protective & Marine Coatings does not accept any responsibility or liability for any odor, taste or contamination imparted to the drinking water from the coatings or products retained in the coating
- For industrial or professional use only
- This product is specifically suitable for use on the substrates mentioned in this document. For application on any other substrates, please always contact your PPG representative for specific instructions and in order to make sure that the product performance can be safeguarded.

### SAFETY PRECAUTIONS

- Read all label and Safety Data Sheet (SDS) information prior to use

# PPG VERSAFLEX® 380 FR Polyurea

## formerly sold as Versaflex VF380 FR

### 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

### 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.**