

CFFS POLYUREA-350™

Product Description

CFFS Polyurea-350 is a two-component, 98% solids, VOC Compliant Polyurea that was developed as a primer/basecoat for a variety of coating systems. This coating provides exceptional adhesion to a large number of substrates and performs well in a wide range of temperatures and climate conditions. Extended working time makes it a great choice for both residential and commercial applications.

Product Features

- ❖ Displays moderate cure times with excellent adhesion characteristics to a variety of substrates / coatings.
- ❖ Patent-Pending Adjustable Cure Rate Technology™ simplifies installations in all temperatures by maintaining consistent cure times and material pot life.
- ❖ Can be spray or roll applied at temperatures ranging from 0-110°F and in high humidity.
- ❖ Long "open times" allow for self leveling capabilities and increased hiding power as well as consistent broadcasts of decorative aggregate.
- ❖ Emits virtually no odors and can be applied indoors with minimal disturbance contributed to high VOC levels that are found in most epoxies and polyurethanes.
- ❖ Can be applied to vertical surfaces as a primer/basecoat or stand-alone coating.
- ❖ Easy to mix 1:2 ratio.

Primary Applications

- ❖ Wall coating over sheetrock, wood, and concrete
- ❖ Primer / Basecoat for use on concrete, wood, and block
- ❖ Aircraft hangar floors
- ❖ Automotive shops
- ❖ Maintenance facilities
- ❖ Offshore platforms
- ❖ Industrial shop floors
- ❖ Car washes or wash bays
- ❖ Bathrooms and locker rooms
- ❖ Sidewalks and walkways
- ❖ Wastewater treatment applications
- ❖ Bridge decks and pillars

Product is sold CLEAR. It can be custom colored through the use of tint packs which are sold separately. Contact CFFS for available colors and mixing ratios.

Typical Physical Properties

| | | |
|---------------------------|------------|--------------------------|
| Tensile Strength | ASTM D412 | 3600 |
| Elongation | ASTM D412 | 198 |
| Tear Strength (PLI) | ASTM 2240 | 350 |
| Modulus of Elasticity | | 47,900 psi |
| Flexibility, 1/8" Mandrel | ASTM D1737 | Pass |
| Tabor Abrasion mg loss | ASTM D4060 | 31 |
| Impact Resistance | ASTM D2794 | 250 in. lbs. Direct |
| Impact Resistance | ASTM D2794 | 285 in. lbs. Indirect |
| Radiant Flux (CRF) | ASTM E 648 | 1.14 W/cm ² |

Typical Processing Properties

| | |
|----------------------------|---------------------------|
| 1:2 Summer Blend | 2-4 Hours - Tack Free |
| 1:2 Arctic Blend | 1-3 Hours - Tack Free |
| Relative Humidity-72°F-54% | Hard dry-2-4 hours |
| | Mar free-4-6 hours |
| | Recoat - 12 hours Max. |
| | Foot Traffic - 8-12 Hours |

Coverage: 1,600 square feet, per gallon, per mil.

Recommended Coverage

| | | |
|---------------|----------------|----------------|
| Over Concrete | 250-350 sf/gal | @5.3 mils DFT |
| Over Wood | 80-120 sf/gal | @12.8 mils DFT |
| Over Tile | 80-120 sf/gal | @12.8 mils DFT |

VOC compliant in all 50 states and Canada

Adhesion Results

ASTM D-4541 Elcometer

| | | |
|-----------------------|--------------------|----------|
| Concrete-no primer | concrete failure | >500psi |
| Concrete-primer | concrete failure | >550psi |
| Steel - PR-511 primer | delamination | >1800psi |
| Wood-no primer | wood failure/shear | >400psi |

Surface Preparation

Concrete

Old concrete - Sandblasting, shot blasting, diamond grinder w/30 grit or coarser, or water blasting is highly recommended to remove surface contaminants. Any oils or fats must be removed prior to product application. Acid etching may be required (followed by a thorough rinsing) to open the pores of the concrete to accept a primer. Do not apply to wet substrates. Chloride, moisture and pH levels should be checked prior to application.

New Concrete - The concrete should be allowed to cure for a minimum of 30 days unless using CFFS Ultra-Hydro Stop Primer™. Shot-blasting, sand blasting, diamond grinder w/30 grit or coarser or acid etching is required to remove the surface laitance that appeared during the curing process. A primer should be used to reduce out gassing and promote adhesion.

Aluminum, Galvanized Steel, Non-Ferrous Metals

All metals must be prepared to a near white surface that is equivalent to SSPC 10 or NACE 2. For immersion service, a 3 mil blast profile is recommended. A 2 mil profile is generally accepted. CFFS PR-511 Primer must be used as the adhesive primer prior to applying CFFS Polyurea-350.

Fiberglass

The gel coat must be abraded to allow a mechanical bond of the coating. Sanding using 40-60 grit sandpaper is generally acceptable. Remove all latent dust and clean the surface to be coated using a solvent such as acetone or xylene. CFFS PR-511 Primer may be used as the adhesive primer prior to applying CFFS Polyurea-350.

Wood

Sand entire surface to remove any burs or rough spots that may affect the finish of the coatings. Make sure all nail/screw holes and joints are detailed using either RSP Fast Patch or CFFS Fortification Formula prior to coating. Cotton mesh may be used to help bridge joints in moving substrates. In this case it will be embedded in PR-511 Primer while still tacky. Primer will be either CFFS PR-511 or CFFS Polyurea-350 depending on the desired finish.

Substrate Repairs

All spalls and cracks should be chased out and repaired to ICRI standards using CFFS-Fortification Formula. Expansion joints should be honored. Horizontal saw-cut control joints can be filled with CFFS Polyflex-93. Custom coloring of repair materials is available upon request. Contact CFFS for available colors and finishes.

Primer Requirements

Please consult your product supplier for job specific recommendations. In most cases the acceptable primers will be CFFS PR-511, CFFS Polyurea-350, CFFS RG-50, or CFFS Level-Hard.

Installation Recommendations

CFFS Polyurea-350 adheres well to several sound substrates and coatings including but not limited to; concrete, fiberglass, wood, epoxy, urethanes, and polyureas. All surfaces should be free of loose particles, rust, voids, and spalls. It is recommended that this product be applied in a multi-directional (north, south, east and west) motion to help ensure proper coating thickness.

Application Information

Mixing

Material should be pre-conditioned to a minimum of 50°F (10°C) prior to use. Thoroughly mix both the A and B side components using separate paddle mixers and a drill for a minimum of 2 minutes to place the solids content evenly in suspension. This should be done prior to every use before combining the two components. Following the mix ratio of 1A:2B, combine the two components in a calibrated mixing container and blend together with a paddle style mixer and drill for at least 1 minute. CFFS recommends a maximum batch size of 1-2 gallons, however larger quantities can be mixed depending on the scope of the project. Never mix more material than can be placed and finished in 20-25 minutes.

Roller

Use only phenolic core, solvent resistant, natural or synthetic fiber roller covers. ¼" to 3/8" nap are acceptable, thicker nap may cause bubbling of the coating.

Brush

Inexpensive natural fiber chip brushes are suggested - 2" to 4" width depending on the application. These will be one-time use items.

Spray or Squeegee Application

Contact a CFFS representative for recommendations.

Thinner

CFFS Polyurea-350 can be thinned using Acetone or Xylene at rates up to but not exceeding 20% by total volume mixed. This will affect the application technique, contact CFFS for information. Use CFFS RG-50™ if a thinner material is required.

Clean Up

Use Acetone or Xylene before product cures.

Application Conditions

Temperature

-20°F - 120°F (-29°C - 49°C)

CFFS Patent Pending Adjustable Cure Rate Technology™ makes it possible to apply this material and have reliable cure times at any temperature. Extreme cold applications may slow the cure time so plan accordingly.

Shelf Life and Storage

Twelve months in factory delivered unopened drums and buckets. Keep away from extreme heat, cold and moisture. Maintain at a proper storage temperature of 50-90° F. Keep out of direct sunlight and away from fire hazards.

Repairs and Maintenance

Small repairs to cuts in the coating can be made with CFFS Polyurea-350. This material can be caulked or brushed on the surface after scuffing. Re-application of the product after 12 hours of initial application requires the use of a primer and/or sanding and solvent wiping to achieve optimum adhesion. Contact CFFS for site specific recommendations.

Safety and Handling

See MSDS sheets

Packaging

Available in 3 gallon kits, 5 gallon pails and 55 gallon drums.

Compatible Coatings

Primers

| | |
|-----------------------|-----------------------------------|
| CFFS PR-511 | (Moisture Cure Urethane) |
| CFFS Ultra-Hydro Stop | (Epoxy MVT Primer) |
| CFFS RG-50 | (Aliphatic Polyaspartic Polyurea) |
| CFFS Level-Hard | (Epoxy Hybrid) |

Intermediates

| | |
|-------------------|-----------------------------------|
| CFFS RG-50 | (Aliphatic Polyaspartic Polyurea) |
| CFFS RG-80 | (Aliphatic Polyaspartic Polyurea) |
| CFFS PG-100 | (Aliphatic Polyaspartic Polyurea) |
| CFFS Polyurea-350 | (Polyurea) |
| CFFS Level-Hard | (Epoxy Hybrid) |

Clear Finish Topcoats

| | |
|---------------|---------------------------------------|
| CFFS RG-50 | (Aliphatic Polyaspartic Polyurea) |
| CFFS RG-80 | (Aliphatic Polyaspartic Polyurea) |
| CFFS PG-100 | (Aliphatic Polyaspartic Polyurea) |
| CFFS Poly-One | (Single Component Aliphatic Polyurea) |

Accelerator

Patent-Pending Adjustable Cure Rate Technology™ determines the cure time of the material. No additional catalyst is required.

Recommended Systems

Ferrous Metals

| | |
|----------------------------|--------------------------|
| CFFS PR-511 | 2.0-4.0 mils DFT |
| CFFS Polyurea-350 | 4.5-12.0 mils DFT |
| Optional: | |
| Decorative Media Broadcast | 10.0-15.0 mils DFT |
| CFFS RG-80 | <u>6.4-12.8 mils DFT</u> |
| Total System Thickness | 22.9-43.8 mils DFT |

Concrete

| | |
|----------------------------|--------------------------|
| CFFS PR-511 | 2.0-4.0 mils DFT |
| CFFS Polyurea-350 | 4.5-12.0 mils DFT |
| Optional: | |
| Decorative Media Broadcast | 10.0-15.0 mils DFT |
| CFFS RG-80 | <u>6.4-12.8 mils DFT</u> |
| Total System Thickness | 22.9-43.8 mils DFT |

| | |
|------------------------|-------------------------|
| CFFS PR-511 | 2.0-4.0 mils DFT |
| CFFS Polyurea-350 | 4.5-12.0 mils DFT |
| CFFS Poly-One | <u>3.2-5.2 mils DFT</u> |
| Total System Thickness | 9.7-21.2 mils DFT |

| | |
|------------------------|--------------------------|
| CFFS Polyurea-350 | 4.5-12.0 mils DFT |
| CFFS PG-100 | <u>5.3-16.0 mils DFT</u> |
| Total System Thickness | 9.8-28.0 mils DFT |

| | |
|----------------------------|--------------------------|
| CFFS Polyurea-350 | 4.5-14.0 mils DFT |
| Optional: | |
| Decorative Media Broadcast | 10.0-15.0 mils DFT |
| CFFS PG-100 | <u>5.3-16.0 mils DFT</u> |
| Total System Thickness | 19.8-45.0 mils DFT |

Wood

| | |
|----------------------------|--------------------------|
| CFFS Polyurea-350 | 4.5-16.0 mils DFT |
| Optional: | |
| Decorative Media Broadcast | 10.0-15.0 mils DFT |
| CFFS RG-80 | <u>6.4-12.8 mils DFT</u> |
| Total System Thickness | 19.9-43.8 mils DFT |

| | |
|------------------------|-------------------------|
| CFFS Polyurea-350 | 4.6-16 mils DFT |
| CFFS RG-80 | 3.2-5.2 mils DFT |
| CFFS RG-80 | <u>3.2-5.2 mils DFT</u> |
| Total System Thickness | 11.0-26.4 mils DFT |

Fiberglass

| | |
|------------------------|-------------------------|
| CFFS PR-511 | 2.0-4.0 mils DFT |
| CFFS Polyurea-350 | 4.5-16.0 mils DFT |
| CFFS RG-80 | <u>3.2-5.2 mils DFT</u> |
| Total System Thickness | 9.7-25.2 mils DFT |

*Multiple other systems available upon request.

Chemical Resistance

| Chemical | Result (25°C) |
|-------------------------|---------------|
| Acetic Acid 100% | C |
| Acetone | C |
| Ammonium Hydroxide 50% | RC |
| Benzene | C |
| Brine saturated H2O | RC |
| Chlorinated H2O | R |
| Clorox(10%) H2O | R |
| Diesel fuel | RC |
| Gasoline | RC |
| Gasoline/5% MTBE | RC |
| Gasoline/5% Methanol | RC |
| Hydrochloric Acid 20% | RC |
| Hydrofluoric Acid 10% | NR |
| Hydraulic fluid (oil) | RC |
| Isopropyl Alcohol | R |
| Lactic Acid | RC |
| MEK | NR |
| Methanol | R |
| Methylene Chloride | C |
| Mineral Spirits | RC |
| Motor Oil | R |
| MTBE | C |
| Muriatic Acid 10% | R |
| NaCl/H2O 10% | RC |
| Nitric Acid 20% | NR |
| Phosphoric Acid 10% | R |
| Phosphoric Acid 50% | NR |
| Potassium Hydroxide 10% | R |
| Potassium Hydroxide 20% | R, Dis |
| Propylene Carbonate | RC |
| Skydral | C |
| Sodium Hydroxide 25% | R |
| Sodium Hydroxide 50% | R, Dis |
| Sodium Hypochlorite 10% | R |
| Sodium Bicarbonate | RC |
| Stearic Acid | R |
| Sugar/H2O | R |
| Sulfuric Acid 10% | R |
| Sulfuric Acid >50% | NR |
| Toluene | RC |
| 1,1,1-Trichloroethane | C |
| Trisodium Phosphate | RC |
| Vinegar/H2O 5% | R |
| H2O | R |
| H2O 14 days at 82° C | R |
| Xylene | RC |

Chemical Resistance: Chart Key

R=recommended/little or no visible damage
 RC=recommended conditional/some effect, swelling or discoloration
 C=Conditional/Cracking-wash within one hour of spillage to avoid affects
 NR=Not recommended
 Dis=discolorative

LEED Credits

Most CFFS products contribute to LEED Credits. See our LEED Credit Bulletin for more information.

Coverage Calculations

| General Coating Thickness (@100% Solids) | Sq.Ft/gal |
|--|-----------|
| 1 mils | 1600 |
| 5 mils | 320 |
| 10 mils | 160 |

Certifications

VOC Compliant in all 50 states, Canada, Australia and Various Countries in Europe (National Standards - IMC)
 USDA and FDA certified food safe for incidental food contact.
 Radiant Flux Tested and Certified.

Safety Precautions

DANGER!! Vapor and Atomized liquids are harmful. Overexposure may cause lung damage, allergic skin reactions, or respiratory reactions. Effects may be permanent, may affect the brain or nervous system causing dizziness, headaches, or nausea. Use only in well ventilated areas, wear approved respirators when necessary. Keep out of reach of children. See MSDS for First Aid recommendations.

Shipping Information

| | |
|---------------------|------------------------|
| Flash Point: | 140°C (284°F) |
| Weight/Gallon: | 9.9 ±1.0 lbs. |
| DOT HAZARD CLASS | N / A |
| DOT PACKAGING GROUP | II |
| DOT LABEL | N / A |
| DOT SHIPPING NAME | Paint Related Material |
| DOT PLACARD | N / A |
| UN / NA NUMBER | N / A |

Warranty

The technical data and any other printed information furnished by CFFS are true and accurate to the best of our knowledge. CFFS Polyurea-350™ conforms to in house quality control procedures and should be considered free of defects. The data provided is believed to be reliable and is offered solely for evaluation. The use of this product is beyond the control of the seller, therefore the buyer assumes all risks of use and handling whether done in a matter that is in accordance with the provided posted directions or not. CFFS makes no warranty; expressed or implied, of its products and shall not be liable for indirect or consequential damage in any event.