

## ALIPHATIC POLYUREA ELASTOMER

### Description

VFI-277 is an Aliphatic Polyurea Elastomer Coating. It is characterized by great physical properties, good chemical and solvent resistance, with good durability, gloss and color retention. It is composed of aliphatic Isocyanate quasi-prepolymers which are reacted with amine prepolymers to form a polyurea elastomer. Both components are low viscosity fluids which react very quickly to form a tough polymer when mixed and applied using heated plural component spray equipment.

### Usage

This product would be used where color stability is important. Some applicable uses would include, but not be limited to the following:

- Protection of polyurethane foam roofing from damage by hail, birds, traffic and ice build-up.

- Sealing of metal building seams and fasteners.
- Sanitary coatings for lining meat, poultry and other food processing facilities.
- Protective finish for exterior structural steel such as bridges, buildings, tanks, equipment, etc.
- Exterior rehabilitation of structures made from fiberglass or metal, on both horizontal and vertical surfaces
- Coat expanded polystyrene board to provide both physical and chemical protection.
- Waterproofing for exterior block and concrete surfaces, when color stability is needed.

### Color

Standard color is White. Custom colors upon request.

## Physical Properties

### Hardness

ASTM D-2240	
Shore A	90-93
Shore D	44-46

### Tensile Properties

ASTM D-412	
Strength	2049 psi
Elongation	407% min
Elastic Modulus	4681 psi
Yield Strength	599 psi
Permanent Set	25% max

### Tear Strength

ASTM D-624	264 pli
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### Cold Temperature Flexibility

ASTM D-3111  
Pass 1 inch mandrel @ -40°F

### Solid Material Density

67.01 pcf

## Weather & Environmental Performance

### Service Temperature

-50° to 180°F

### Weatherability

ASTM G-53  
No significant color change, loss of gloss, cracking, checking or loss of integrity after 2000 hours

### Hydrolytic Properties

- **Water absorption**  
ASTM D-471  
24 hours at room temp 1.3%

### Water Vapor Permeability

ASTM E-96  
100% R.H. @ 73°F 34 mil film: 0.93 perms

### Chemical Resistance

ASTM D-1308 Method 6.2  
When compared to aromatic polyurea, solvent resistance is slightly inferior, chemical resistance is similar and water resistance is better.

### Fire Resistance

Not rated

## Liquid Component Properties

- **Ratio**  
Volume 1 to 1
- **Solids**  
Weight: 100%  
Volume: 100%
- **Coverage or Yield**  
Sq. Ft. / Gal. / Mil 1600
- **Viscosity**  
Poly Component: 800 cps @ 77°F  
(White) Colors may vary  
Iso Component: 1200 cps @ 77°F
- **Liquid Density & Specific Gravity**  
Poly Component: (White) 9.55 lbs/gal  
Will vary with color (SG 1.146 g/ml)  
Iso Component: 8.32 lbs / gal (SG 0.999 g/ml)
- **VOC's**  
Contains no Volatile Organic Compounds
- **Toxicity**  
Iso component contains aliphatic Isocyanate requiring fresh air respirator, gloves, eye protection and protective clothing during application.
- **Storage Stability or Shelf Life**  
Poly side 12 months in unopened containers @ 50°- 90°F  
ISO side 6 months in unopened containers @ 50°- 90°F
- **Reactivity**
  - **Gel Time:** Gel in 3-10 seconds
  - **Tack Free:** in 1-5 minutes depending upon thickness and temperature
  - **Recoat Time:** Re-coatable for up to 8 hours
  - **Place-Into-Service Time:** 4 hours for light duty and 48 hours for heavy duty service
  - **Cure Time:** 2 - 7 days

## Application

- **Equipment**  
VFI-277 requires heated plural component spray equipment capable of producing a minimum of 2000 psi and heat to 140°F. Higher pressures to 2500 psi spraying pressure may provide better mixing with enhanced physical properties for the end product. Contact VFI's Technical department for more specific spray gun recommendations. Self-purging impingement mixing spray guns are required.
- **Material Preparation**  
The product must be over 70° F for proper mixing and application.
- **Mixing**  
VFI-277 must be mixed less than 2 hours before using. The product must mix for 20 min. at 70° F.
- **Precautions**  
See Material Safety Data Sheet for complete safety data. Fresh air supply breathing equipment is recommended for protection from Aliphatic products. Protect from exposure to moisture. Water will cause the "A" component (ISO) to generate carbon dioxide with resulting high pressure in closed containers.
- **Substrate Preparation**  
See VFI's specification for your specific substrate.
- **Clean-up Solvent**  
Xylene, MEK. For reduced fire hazard use glycol ethers or environmentally acceptable chlorinated solvents.
- **Limitations**  
Contact your VFI representative for the appropriateness of this product for your specific application.
- **Thinning**  
Not recommended
- **Packaging**  
5 gallon pails  
15 gallon ponies  
55 gallon drums  
270 gallon totes

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