VOLATILEFREE INC
MANUFACTURERS OF HIGH PERFORMANCE POLYMERS

Data Sheet
VFI-277

ALIPHATIC POLYUREA SPRAY ELASTOMER SYSTEM

Description

VFI-277 is an Aliphatic Polyurea Elasto-Plastic Polymer. It is characterized by good 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 hot plural component airless spray equipment.

Usage

Some applicable uses would include, but not be limited to the following:

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

Physical Properties

Tensile

ASTM D-412

Strength:	2049 psi min.
Elongation:	407% min.
Permanent Set:	26% max.

Tear

ASTM D-624

Strength:	264 pli

Weatherability

ASTM G-53

No significant color change, loss of gloss, cracking, checking or loss of integrity after 2000 hours.

Service Temperature

-50° to 180°F.

Abrasion Resistance

Taber abrasor, 1 Kg load, 1000 cycles H-18 wheel, -300 mg loss.

Hardness

ASTM D-2240

Shore A	92
Shore D	45

Cold Temperature Flexiblity

ASTM D-3111

Pass 1 inch mandrel @ -40°F.

Chemical Resistance

When compared to aromatic polyureas, solvent resistance is slightly inferior, chemical resistance is similar and water resistance is better. See V.F.I. Polyurea & Polyurea Hybrid Chemical Resistance Chart.

Water Vapor Permeability

ASTM E-96

Procedure BW 100% R.H.

Difference @ 73°F

34 mil film:	0.93 perm In.

Water Absorption

ASTM D-471

24 hours @ room temp.:	1.3%

Liquid Component Properties

Coverage
1600 mil square feet per gallon.

Solids
"A" 100% by weight and volume.
"B" 100% by weight and volume.

Volatile Organic Compounds
None.

Flash Point
Above 200°F.

Viscosity
"A" Component:
600-900 cps @ 77°F.
"B" Component:
900-1200 cps @ 77°F.

Shelf Life
"A" One year @ 50° - 90°F.
"B" One year @ 20° - 100°F.

Thinner
Not recommended.

Cure Time
Gel in 3-10 seconds. Cure to handle in 1-5 minutes depending upon thickness and temperature. Develops chemical resistance and physical properties in 24 hours. Recoatable for up to 8 hours.

Mix Ratio
1:1 by volume.

Clean Up Solvent
Toluene, Xylene, M.E.K. For reduced fire hazard use glycol ethers or environmentally acceptable chlorinated solvents.

Application

Equipment
VFI-277 requires hot airless plural component equipment capable of producing a minimum of 2000 psi and heat to 140°. Higher pressures to 2500 psi may provide better mixing with enhanced physical properties for the end product. Contact Volatile Free, Inc. for more specific spray gun recommendations. Self-purging impingement mixing spray guns are required.

Mixing Requirements
VFI-277 must be mixed every day before use. Not more than 2 hr before using. The product must mix for 20 min. at 70˚ F.

Primer
Self-priming on most surfaces. Exhibits excellent adhesion to aromatic polyureas if less than 24 hours old. VFI #12 Primer is recommended where enhanced adhesion is needed. Please contact Volatile Free, Inc. for specific recommendations.

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.

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