

POLYUREA-HYBRID PROTECTIVE LINING SYSTEM

■ Description

VFI-210 is a high performance, 100% solids, spray applied, aromatic polyurea-hybrid elastoplastic polymer. It is characterized by high physical properties, outstanding chemical, solvent and abrasion resistance. Can usability be applied under wide climatic conditions with outstanding durability. It is composed of isocyanate prepolymers which are reacted with an amine and polyols, to form a polyurea-hybrid elastomer. Both components are low viscosity fluids at 77°F which react very quickly to form a tough polymer when mixed and applied using heated, plural component airless spray equipment. VFI-210 can also be made with excellent release properties.

■ Usage

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

- Lining of rail freight cars to provide abrasion resistance, improve sanitation and enhanced slip for easier more complete discharge of loads.
- Protective lining for bulk materials handling equipment to provide abrasion resistance, thermal protection and enhanced slip to aid material transfer.
- Lining of steel, masonry or wood tanks, silos, pipes and flumes.
- Applications to geotextiles to form ponds, contain spills, prevent escape of effluents and prevent loss of water or petroleum products.
- Provides a tough, abrasion, chemical and corrosion-resistant liner for dump truck beds and dump trailers.
- May be used to repair or replace existing containment liners.
- Lining of cargo holds on ships to provide abrasion resistance or for sanitation and ease of cleaning.

Physical Properties

■ Tensile

ASTM D-412	
Strength:	2918 psi min.
Elongation:	252% min.
Permanent Set:	33% max.
Flexural Modulus:	45 (K) psi
Density PCF:	66
Gardner Impact:	310 in/lbs

■ Tear

ASTM D-624	
Die C	328 pli

■ Hardness

ASTM D-2240	
Shore A	94 - 96
Shore D	46 - 50

■ Abrasion Resistance

Taber abrasor, 1 Kg load, 1000 cycles H-18 wheel, -115 mg loss.

■ Adhesion

ASTM D-4541.
Strength: 650 lbs./in.² – with cohesive failure at the adhesive.

■ Weatherability

ASTM G-53
No cracking, checking or loss of integrity after 2000 hours. Light colors will exhibit significant yellowing.

■ Service Temperature

-40° to 180°F.

■ Cold Temperature Flexibility

ASTM D-3111
Pass 0.25 inch mandrel @ -40°F.

■ Chemical Resistance

See V.F.I. Polyurea & Polyurea Hybrid Chemical Resistance Chart.

■ Water Vapor Permeability

ASTM E-96
Procedure BW. 100% R.H.
Difference @ 73°
30 mil film: 0.02 perm In.

■ Water Absorption

ASTM D-471
1 week @ room temp.: 1.0%

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:

700 ± 200 cps @ 77°F.

"B" Component:

700 ± 300 cps @ 77°F.

■ Shelf Life

"A" One year @ 50° - 90°F.

"B" Two years @ 20° - 100°F.

■ Thinner

Not recommended.

■ Mix Ratio

1:1 by volume.

■ NOTE

The Polyol ("B") component will solidify at temperatures below 68°F (20°C) and must be reheated to 77°F (25°C) to re-liquefy.

■ Cure Time

Gel in 3-5 seconds. Cure to handle in 30-40 seconds. Develops chemical resistance and physical properties in 4 hours. Recoatable for up to 15 minutes.

■ Clean Up Solvent

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

Application

■ Equipment

VFI-210 requires hot airless plural component equipment capable of producing a minimum of 2000 psi higher pressures to 2500 psi may provide better mixing with enhanced physical properties for the end product. Contact Volatile Free, Inc. for specific spray gun recommendations. Self-purging impingement mixing spray guns are required.

■ Primer

Sealing porous surfaces with VFI-1007 is recommended. VFI #11 Epoxy Primer is recommended for cementations and masonry surfaces where enhanced adhesion is needed. VFI-1003 Primer is recommended for maximum adhesion to blasted steel surfaces. Please contact Volatile Free, Inc. for more specific preparation recommendations.

■ Precautions

B-side will start to solidify at temperatures lower than 68°F; Product must be reheated above 77°F while mixing, as to insure product protection. The product temperature must be maintained during application. See Material Safety Data Sheet for complete safety data. 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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