



Environmentally Safe Polymers, Inc.

Technical Data

Updated 11/2004

POLYEPS #21 POLYUREA URETHANE FIRE RETARDANT ELASTOMER

PRODUCT DESCRIPTION AND USAGE:

PolyEps #21 is a high performance polyurea urethane elasto-plastic polymer. It is characterized by high physical properties, outstanding chemical and solvent resistance, usability under wide climatic conditions with outstanding durability. It is composed of isocyanate prepolymers which are reacted with amine and polyols to form a polyurea urethane 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. Some applicable uses would include, but not be limited to the following:

- Sanitary coatings for lining meat, poultry and other food processing facilities.
- Lining of steel, masonry or wood tanks, silos, pipes and flumes.
- Application to geotextiles to form ponds, contain spills, prevent escape of effluents and prevent loss of water or petroleum products.
- Provide protection for rigid urethane foam insulation.
- Coat expanded polystyrene board to provide both physical and chemical protection.
- Can be applied over open-cell flexible foam to seal the surface and provide a good wear surface.
- Provides a tough, abrasion, chemical and corrosion-resistant liner for truck beds and under carriages.
- Suitable for automobile and pedestrian traffic deck surfacing and waterproofing.
- May be used to repair or replace existing containment liners.
- Provides a stable surface for decorative items such as artificial landscapes, stage props, art objects, etc.
- Production of plastic articles by spraying into open (one sided) molds.
- Lining of cargo holds on ships to provide abrasion resistance or for sanitation and ease of cleaning.
- Lining of rail freight cars to provide abrasion resistance, improve sanitation and enhanced slip for easier more complete discharge of loads.
- Encapsulation of asbestos and other environmentally undesirable materials.
- Abrasion resistant surfaces for snow plows, salt and sand spreaders.
- Sealing and corrosion protection of sewer manholes.
- Lining of hot asphalt dump trucks.

- 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 PROPERTIES:

ASTM D-412

Strength: 2200 psi minimum
Elongation: 200% minimum
Permanent Set: 30% maximum

TEAR RESISTANCE:

ASTM D-624

Die C 400 pli

SERVICE TEMPERATURE:

-40° to 300°F.

WEATHERABILITY:

ASTM G-53

No cracking, checking or loss of integrity after 2000 hours. Light colors exhibit yellowing when exposed to U.V. light.

ABRASION RESISTANCE:

Taber abrasor, 1 Kg load, 1000 cycles H-18 wheel, -100 mg loss.

HARDNESS:

ASTM D-2240

Shore A 90 - 95
Shore D 47 - 53

COLD TEMPERATURE FLEXIBILITY:

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

CHEMICAL RESISTANCE:

See E.S.P. Chemical Resistance Chart.

WATER VAPOR PERMEABILITY:

ASTM E-96 procedure BW.

100% R.H. differences @ 73°F
0.02 perm In. 30 mil film

WATER ABSORPTION:

ASTM D-471 24 hours @ room temperature 1.5%

COVERAGE:

1600 mil square feet per gallon.

POLYEPS #21

SOLIDS:

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

LIQUID PROPERTIES

V.O.C.:

Contains no Volatile Organic Compounds.

FLASH POINT:

Above 200°F.

VISCOSITY:

"A" Component: 700-900 cps @ 77°F.
"B" Component: 600-800 cps @ 77°F.

SHELF LIFE:

"A" One year @ 50-90°F.
"B" Two years @ 20-100°F.

THINNER:

Not recommended.

CURE TIME:

Gel in 3-5 seconds. Cure to handle in 30-40 seconds.
Develops chemical resistance and physical properties in 8 hours. Recoatable for up to 12 hours.

MIX RATIO:

1:1 by volume.

CLEAN UP SOLVENT:

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

APPLICATION

EQUIPMENT:

PolyEps #21 requires hot airless plural component equipment capable of producing a minimum of 1000 psi and heat to 140°F. Higher pressures to 2500 psi may provide better mixing with enhanced physical properties for the end product. Contact your E.S.P. Representative for specific spray gun recommendations. Self-purging impingement mixing spray guns are required.

PRIMER:

Self-priming on most surfaces. PolyPrime #01 or PolyPrime #06 Primer is recommended where enhanced adhesion is needed. Please contact Environmentally Safe Polymers, Inc. for specific recommendations.

PRECAUTIONS:

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.

Our data is based on information from lab and field testing which we believe to be reliable and accurate. Environmentally Safe Polymers, Inc. makes no warranties, expressed or implied of the products use or its results, and assumes no obligation or liability in connection therewith.