



Environmentally Safe Polymers, Inc.

Technical Data

Updated 11/2004

POLYSTEEL #89 ALIPHATIC POLYUREA INDUSTRIAL POLYMER

PRODUCT DESCRIPTION AND USAGE:

PolySteel #89 is a 100% solids, high performance, aliphatic polyurea industrial polymer. PolySteel #89 was specifically developed as a color stable top coat exhibiting high physical properties, outstanding chemical and solvent resistance, outstanding durability 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, airless spray equipment.

PHYSICAL PROPERTIES

TENSILE PROPERTIES:

ASTM D-412
Strength: 2100 psi minimum
Elongation: 450% minimum
Permanent Set: 25% maximum

TEAR RESISTANCE:

ASTM D-624 Die C 500 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 350°F.

ABRASION RESISTANCE:

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

HARDNESS:

ASTM D-2240
Shore D 50
Shore A 95

COLD TEMPERATURE FLEXIBILITY:

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 E.S.P. Chemical Resistance Chart.

WATER VAPOR PERMEABILITY:

ASTM E-96 procedure BW.
100% R.H. differences @ 73°F.
0.05 perm inches 30 mil film

WATER ABSORPTION:

ASTM D-471 24 hours at room temperature 1.0%

LIQUID PROPERTIES

COVERAGE:

1600 mil square feet per gallon.

SOLIDS:

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

V.O.C.:

Contains no Volatile Organic Compounds.

FLASH POINT:

Above 200°F.

VISCOSITY:

"A" component 400-600 cps @ 77°F.
"B" component 500-700 cps @ 77°F.

SHELF LIFE:

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

THINNER:

Not recommended.

CURE TIME:

Gel in 3-10 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, MEK. For reduced fire hazard use glycol ethers or environmentally acceptable chlorinated solvents.

POLYSTEEL #89

APPLICATION

EQUIPMENT:

PolySteel #89 requires heated airless plural component equipment capable of producing a minimum of 2000 psi and heat to 140°F. Higher pressures to 2500 psi may provide better mixing with enhanced physical properties for the end product. Contact Environmentally Safe Polymers, Inc. for specific spray gun recommendations. Self-purging impingement mixing spray guns are required.

PRIMER:

Self-priming on most surfaces. Exhibits excellent adhesion to aromatic polyureas if less than 24 hours old. Please contact Environmentally Safe Polymers, Inc. for specific recommendations.

PRECAUTIONS:

See Material Safety Data Sheet for complete safety data. Fresh air supply breathing equipment is recommended for protection from isocyanate. 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.