



Environmentally Safe Polymers, Inc.

Technical Data

Updated 11/2004

POLYSTEEL #83 POLYUREA URETHANE HIGH ABRASION POLYMER

PRODUCT DESCRIPTION AND USAGE:

PolySteel #83 is a high performance, 100% solids, spray applied, 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 prepolymers 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 heated, plural component airless spray equipment. PolySteel #83 was specifically developed for use as a highly abrasion resistant industrial finish for the protection of steel.

COLOR:

Black and gray. Contact your E.S.P. Representative for other colors.

PHYSICAL PROPERTIES

TENSILE PROPERTIES:

ASTM D-412
Strength: 3600 ± 200 psi minimum
Elongation: 340% minimum
Permanent Set: 20% maximum
Flexural Modulus: 30 (K) psi
Density PCF: 66
Gardner Impact: 310 in/lbs

TEAR RESISTANCE:

ASTM D-624
Die C 600 ± 50 pli

WEATHERABILITY:

ASTM G-53
No cracking, checking or loss of integrity after 2000 hours.

SERVICE TEMPERATURE:

-40 to 350°F.

ABRASION RESISTANCE:

Taber abrasor, 1 Kg load, 1000 cycles H-18 wheel, ~150 mg loss.

HARDNESS:

ASTM D-2240
Shore A 95
Shore D 57 ± 2

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 inches 30 mil film

WATER ABSORPTION:

ASTM D-471
1 week 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 700-900 cps @ 77°F.
"B" component 800-1000 cps @ 77°F.

SHELF LIFE:

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

THINNER:

Not recommended.

POLYSTEEL #83

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 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.

APPLICATION

EQUIPMENT:

PolySteel #83 requires hot 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. PolyPrime #01 and PolyPrime #06 are 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.