



# Environmentally Safe Polymers, Inc.

## Technical Data

Updated 11/2004

### **POLYSTEEL #81 POLYUREA INDUSTRIAL POLYMER**

#### **PRODUCT DESCRIPTION AND USAGE:**

PolySteel #81 is a 100% solids, plural component, one to one by volume, polyurea polymer. It is characterized by high physical properties, outstanding chemical and solvent resistance, usability under wide climatic conditions with outstanding durability. 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 #81 was specifically developed for use as an industrial finish for the protection of steel against light abrasion and chemical attack.

#### **COLOR:**

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

#### **PHYSICAL PROPERTIES**

##### **TENSILE PROPERTIES:**

ASTM D-412  
Strength: 2500 psi minimum  
Elongation: 275% minimum  
Permanent Set: 20% maximum

##### **TEAR RESISTANCE:**

ASTM D-624 Die C 400 pli

##### **WEATHERABILITY:**

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

##### **SERVICE TEMPERATURE:**

-40 to 300°F.

##### **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 inches @ 30 mil film

#### **WATER ABSORPTION:**

ASTM D-471 24 hours @ room temperature 1.5%

#### **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 350-450 cps @ 77°F.  
"B" component 350-450 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 20-30 seconds depending upon thickness and temperature. 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.

## **POLYSTEEL #81**

### **APPLICATION**

#### **EQUIPMENT:**

PolySteel #81 requires heated 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 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.

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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.