



# POLYSHIELD E-II™

## ELASTOMERIC POLYUREA

Revised 07.14.11

### DESCRIPTION

POLYSHIELD E-II™ is a high-performance, spray-applied, plural-component, pure polyurea elastomer exhibiting very high elongation. This system is based on amine-terminated polyether resins, amine chain extenders and prepolymers. It provides an extremely flexible, resilient, tough, monolithic membrane with water and chemical resistance.

### FEATURES

- 100% solids. No solvents. No VOCs.
- Fast-set: handle within five minutes or less.
- High dry temperature stability to 175° F (79 °C) with intermittent temperatures to 200° F (93 °C).
- High elongation for crack bridging.
- Excellent encapsulation characteristics.

### RECOMMENDED USES

- Earthen containment lining used with or without geotextile
- "Hard coating" or encapsulation material for EPS or other types of flotation materials
- Liner for concrete tanks, ponds, lagoons, reservoirs, dikes, irrigation ditches, tunnels, barges, etc.
- Encapsulation material for asbestos, lead paint, or other dry hazardous materials (Consult SPI)
- Rock shield for pipelines
- Roof systems
- Replace or repair failed existing sheet membrane liners
- Steel tanks, silos, and pipes
- Protective elastomer for sprayed-in-place urethane foam

### COLORS

POLYSHIELD E-II™ is available in SPI standard colors (Sand, Medium Grey, and Black). Custom colors available upon request. It should be noted that POLYSHIELD E-II™ is an aromatic polyurea; therefore, as with all aromatics color change and superficial oxidation will occur.

POLYSHIELD E-II™ is available in a high-pigment, UV inhibited formulation for stand-alone applications, such as roofs and containment liners.

Aliphatic urethane, polyurea, and other suitable aliphatic topcoats can be used where long-term color stability and increased longevity in full sun exposure are of critical importance.



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 Serving the Plural-Component Industry  
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### WET PROPERTIES @ 77°F (25°C)

<b>Solids by Volume</b>	100%
<b>Solids by Weight</b>	100%
<b>Volatile Organic Compounds</b>	0 lbs/gal (0g/l)
<b>Theoretical Coverage DFT</b>	100 sq. ft. @ 16 mils/gal.
<b>Weight per gallon (approx.)</b>	8.55 lbs. (3.87 kg)
<b>Number of Coats</b>	1-2
<b>Mix Ratio</b>	1 "A": 1 "B"
<b>Viscosity (cps) @ 77° F (25 °C)</b>	A: 500 approx. B: 400 approx.
<b>Shelf Life Unopened Containers @ 60-90°F (15-32°C)</b>	Six months

Minimum material/container temperature for POLYSHIELD E-II™ application is 70°F (21°C).

### DRY PROPERTIES @ 38 mils (1mm)\*

<b>Tensile Strength</b> ASTM D 638	2950 psi (20.50 mpa)
<b>Elongation @ 77°F (25°C)</b>	623% ± 50
<b>Hardness (Shore A)</b> ASTM D 2240	95 ± 5%
<b>Hardness (Shore D)</b> ASTM D 2240	44 ± 5%
<b>100% Modulus</b> ASTM D 412	939 psi (6.5 mpa) ± 100
<b>300% Modulus</b> ASTM D 412	1521 psi (10.6 mpa) ± 100

### CURING SCHEDULE

<b>Gel</b>	6± sec.
<b>Tack Free</b>	12± sec.
<b>Post Cure**</b>	24 hours
<b>Recoat</b>	0-12 hours
<b>Tear Resistance</b> ASTM D 624	498 PLI (87 KN/m) ± 50
<b>Service Temperature</b>	-50°F – 250°F (-45°C - 121°C)

\*All cured film properties are approximate since processing parameters, ad-mixture types, and quantities change physical properties of the cured elastomer. All samples for above tests were force cured or aged for more than three weeks. It is recommended that the user perform their own independent testing.

\*\*Complete polymerization to achieve final strength can take up to several weeks, depending on a variety of conditions. The samples for tests were sprayed @ 2600 psi. Primaries/Hose Heat 170°F (71°C) Gap Pro Gun w/"00" mixing chamber.

### GENERAL APPLICATION INSTRUCTIONS

Apply POLYSHIELD E-II™ to only clean, dry, sound surfaces free of loose particles or other foreign matter. A primer may be required, subject to type and/or condition of the substrate. Consult technical service personnel for specific primer recommendations and substrate preparation procedures.

POLYSHIELD E-II™ can be sprayed over a broad range of ambient and substrate temperatures. The limitations are in the ability of the application equipment to provide adequate material pressure and heat. Contact technical service personnel for specific recommendations, pricing, and availability of spray and auxiliary equipment.

**Product & Equipment Technical Assistance**

## 24 hours / 7 days a week (800) 627-0773

It is recommended that POLYSHIELD E-II™ be sprayed in multi-directional (north-south /east-west) passes to ensure uniform thickness.

The polyol "B" component must be thoroughly power mixed each day, prior to use. Contact a SPI technician regarding proper mixing equipment.

Follow instructions attached to "A" and "B" containers.

### RECOMMENDED EQUIPMENT SETTINGS

- Standard 1:1 ratio, heated, plural-component equipment developing a minimum of 2000 psi (10.4 mpa) dynamic pressure with heating capabilities to 175°F (79°C) will adequately spray this product. These include Graco 20/35, 20/35 Pro, H-2000, H-3500, HV-20/35, Reactor A-20, E-XP1, E-XP2, H-25, H-40, H-XP2, H-XP3, and SPI Gusmer 25/25. Gun models include Fusion MP, Gap Pro, Gusmer D7, GX-7 DIGX-8 Pro, and SPI D7 gun.
- Pre-heater temperature should be at 160-170°F (71-76°C).
- Hose temperature should be at 160-170°F (71-76°C). A hose thermometer inserted under the insulation near the gun should read a minimum of 145-155°F (63-68°C).
- Physical properties will be enhanced when sprayed at higher pressure (2000 psi or more) (13.9 mpa), utilizing an impingement mix gun such as the Gusmer GX7 gun, Gusmer GX7-400, Gusmer GX8 gun, or Gusmer Gap Pro.

### MIXING AND THINNING

Thinning is not required. Using any thinner may adversely affect product performance.

### GENERAL SAFETY, TOXICITY & HEALTH DATA

Material Safety Data Sheets are available for this coating material. Any individual who may come in contact with these products should read and understand the M.S.D.S. **CHEMTREC EMERGENCY NUMBER 1-800-424-9300**

**WARNING:** Contact with skin or inhalation of vapors may cause an allergic reaction. Avoid eye contact with the liquid or spray mist. Hypersensitive persons should wear protective clothes, gloves and use protective cream on face, hands and other exposed areas.

**CLEAN UP:** Use DPM, NMP, and Polyclean.

**CONTAMINATION:** Avoid moisture contamination in containers. Containers should not be resealed if contamination is suspected, carbon dioxide created pressure can develop. Do not attempt to use contaminated material.

**EYE PROTECTION:** Safety glasses, goggles, or a face shield are recommended.

**SKIN PROTECTION:** Chemical resistant gloves are recommended. Cover as much of the exposed skin area as possible with appropriate clothing.

**RESPIRATORY PROTECTION:** Use a respirator approved for isocyanates and organic vapors. If you are not sure or not able to monitor levels, or if you are spraying in an enclosed/indoor area, use MSHA/NIOSH approved supplied air respirator. Consider the

application and environmental concentrations in deciding if additional protective measures are necessary.

**INGESTION:** Do not take internally. It is believed that ingestion of polymeric isocyanates would not be fatal to humans, but may cause inflammation of mouth and stomach tissue.

### LIMITATIONS

- This product is for professional use only.
- Liquid temperature in drums during application 70°F (21°C) – 100°F (38°C).
- Apply POLYSHIELD E-II™ when surface and air temperatures are above 40°C (5°C) and rising, and 7°F (-13°C) above dew point.
- Minimum material/container temperature for spray application is 70°F (21 °C).
- Avoid moisture contamination in containers. Containers should not be resealed if contamination is suspected, CO<sub>2</sub> created pressure can develop. Do not attempt to use contaminated material.
- Undried air exposed to liquid components will reduce physical properties of the cured coating.

**Note:** The material supplied is two components (Component "A"/Component "B") used to formulate POLYSHIELD E-II™. The quality and characteristics of the finished polymer is determined by the mixture and application of the two components.

### WARRANTY & DISCLAIMER

Specialty Products, Inc. has no role in the manufacture of the finished polymer other than to supply its two components. It is vital that the person applying this product understands the product and is fully trained and certified in the use of plural-component equipment.

Specialty Products, Inc., an Alaska corporation, warrants only that the two components of this product shall conform to the technical specifications published in the product literature.

The quality and fitness of the product are dependent upon the proper mixture and application of the components by the applicator. There are no warranties that extend beyond the description on the face of this instrument.

**SPECIALTY PRODUCTS, INC. MAKES NO WARRANTY OF MERCHANTABILITY OF THE PRODUCT OR OF FITNESS OF THE PRODUCT FOR ANY PARTICULAR PURPOSE.**

Specialty Products, Inc. makes no warranty as to the quality of any product modified, supplemented, tinted, or altered in any way after it leaves the manufacturing plant. Specialty Products, Inc. does not warrant that this product is suitable for use as a liner for potable water containers. Use of this product in a potable water container could be hazardous to health if it is improperly processed or applied.

The liability of Specialty Products, Inc. for any nonconformity of the product to its technical specifications shall be limited to replacement of the product.

The sole exclusive remedy of buyer, which is to have Specialty Products, Inc. replace any nonconforming product at no cost to buyer, is conditioned upon buyer notifying Specialty Products, Inc. or its distributor in writing of such defect within thirty days of the discovery of such defect.

Specialty Products, Inc. shall not be liable for any direct, incidental, or consequential damages resulting from any breach of warranty.

The data presented herein is not intended for non-professional applicators or those persons who do not purchase or utilize this product in the normal course of their business.

The potential user must perform any pertinent tests in order to determine the product's performance and suitability in the intended application, since final determination of fitness of the product for any particular use is the responsibility of the buyer.

The aforementioned data on this product is to be used as a guide and is subject to change without notice.

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procedures shall relieve Specialty Products, Inc. of all liability with respect to the materials and the use thereof.

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