



# Polyshield Hi-E

## ELASTOMERIC POLYUREA

Revised 0102

### DESCRIPTION

Polyshield Hi-E is a second generation, high performance, sprayed, 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 good water and chemical resistance.

### FEATURES

- 100% solids. No solvents, no VOC's
- Fast set: Handle within five minutes or less
- Hydrophobic and therefore affected very little by damp, cool surfaces during application. It can be built up to any thickness in one application
- High temperature stability up to 250° F (121 °C) with intermittent temperatures up to 300° F (148 °C)
- High elongation for crack bridging
- Excellent encapsulation characteristics

### RECOMMENDED USES

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

### COLORS

It should be noted that Polyshield Hi-E is an aromatic polyurea; therefore, as with all aromatics over a period of time color change as well as superficial oxidation will occur.

Polyshield Hi-E is available in a high-pigment, U-V inhibited formulation for stand-alone applications, such as roofs and containment liners.

Aliphatic urethane and other suitable topcoats can be used where long-term aesthetics and increased longevity are of critical importance.

### 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 @ 16 mils (0.4mm)</b> | 100 sq. ft. (9.1 m <sup>2</sup> /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: 450 approx.<br>B: 400 approx.      |
| <b>Shelf Life @ 60-90°F (15-32°C)</b>             | Six months                            |

### DRY PROPERTIES @ 55 mils (1.5mm)\*

|   |                                  |
|---|----------------------------------|
| <b>Tensile Strength</b> ASTM D 412      | 2500 psi (16.25 mpa)             |
| <b>Elongation @ 77°F (25°C)</b>         | 720% ± 50                        |
| <b>Hardness (Shore A)</b>               | 81 ± 5%                          |
| <b>Hardness (Shore D)</b>               | 39 ± 5%                          |
| <b>100% Modulus</b> ASTM D 412          | 780 psi (5.4 mpa) ± 100          |
| <b>300% Modulus</b>                     | 1240 psi (8.6 mpa) ± 100         |
| <b>Tear Resistance</b> ASTM D 624       | 400 PLI (70 KN/m) ± 50           |
| <b>Service Temperature</b>              | -60°F – 300°F<br>(-50°C - 150°C) |
| <b>Flame Spread @ 20 mils</b> ASTM E84  | 10                               |
| <b>Smoke Density @ 20 mils</b> ASTM E84 | 10                               |

*\*All dry film properties are approximate because of processing parameters, as well as add mixture types and quantities will change physical properties of 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.*

### CURING SCHEDULE

|             |            |
|-------------|------------|
| Gel         | 6± sec.    |
| Tack Free   | 35± sec.   |
| Post Cure** | 24 hours   |
| Recoat      | 0-12 hours |

*\*\*Complete polymerization to achieve final strength can take up to several weeks, depending on a variety of conditions. The samples for tests were sprayed with Gusmer FF-1600 @ 1200 psi (8,3mpa). Primaries/Hose Heat 160°F (71°C) D Gun w/#55 mixing chamber.*

### GENERAL APPLICATION INSTRUCTIONS

Apply Polyshield Hi-E 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 Hi-E 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.

It is recommended that Polyshield Hi-E be sprayed in multi-directional (north-south /east-west) passes to insure uniform thickness.

The polyol "B" component must be thoroughly power mixed each day, prior to use. Contact an 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 1500psi (10.4 mpa) dynamic pressure with heating capabilities to 175°F (79°C) will adequately spray this product. These include SPI-Gusmer 18/18, SPI-Gusmer 25/25 HP, and Gusmer 20/35. Gun models include Gusmer/SPI D7, GUSMER GX7, GUSMER GX7-400, and GUSMER GX8.
- 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 or Gusmer GX8 gun.

### 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 on 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, 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.
- 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 HI-E. 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 is 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.

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