POLYSHIELD HT™ 100F is a fast-set, high performance, spray-applied, plural component, 100% pure polyurea elastomer. This system is based on amine-terminated polyether resins, amine chain extenders, and prepolymer. It provides a cost effective flexible, tough, resilient monolithic membrane with water and chemical resistance.

**DESCRIPTION**

POLYSHIELD HT™ 100F is a fast-set, high performance, spray-applied, plural component, 100% pure polyurea elastomer. This system is based on amine-terminated polyether resins, amine chain extenders, and prepolymer. It provides a cost effective flexible, tough, resilient monolithic membrane with water and chemical resistance.

**FEATURES**

- Fast setting to allow final coating thickness to be achieved in one application.
- 100% solid, no solvents, and zero VOCs.
- High dry temperature stability to 250°F (121°C) with intermittent temperatures to 300°F (149°C).
- High abrasion resistance.
- High elongation for bridging cracks.
- Excellent encapsulation characteristics.
- Compliant with FDA/USDA for incidental food contact. Contact SPI for more information.

**RECOMMENDED USES**

- Coating for all types of steel infrastructures, including pipes, bridges, power line poles and structures, transportation and rail systems, and other urban applications such as re-bar, guardrails, signage, grates, valves, and tanks, to protect from corrosion.
- Coating over geotextile for such applications as earthen containment, primary and secondary containment, etc.
- Can be used as liner(s) for concrete tanks, floors, ponds, reservoirs, dikes, tunnels, bridges, and other concrete infrastructure.
- Apply as a topcoat to existing membranes, or use to repair inferior or degraded membranes.
- Encapsulate asbestos, lead paint, or other dry hazardous materials (consult SPI).
- Re-coat over other polymer based substrates and/or coatings.
- Concrete parking decks, garages, and other structures.
- Repair polyurea, polyurethane hybrid, and other lining types (consult SPI).
- Rock shield for pipelines.
- Wastewater infrastructure, such as protecting pipelines, tank basins, and manholes from H2S gas.
- Onshore and offshore marine and high salt environment corrosion and current protection.

**TYPICAL PHYSICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 mils ± 20 (1.7 mm)</td>
<td></td>
</tr>
<tr>
<td>Tensile Strength ASTM D412-06a</td>
<td>&gt; 4,250 psi (29.3 MPa)</td>
</tr>
<tr>
<td>Elongation ASTM D412-06a</td>
<td>&gt; 350%</td>
</tr>
<tr>
<td>Hardness (Shore A) ASTM D2240</td>
<td>97 ± 5</td>
</tr>
<tr>
<td>Hardness (Shore D) ASTM D2240</td>
<td>47 ± 5</td>
</tr>
<tr>
<td>100% Modulus ASTM D412-06</td>
<td>1,250 psi ± 100 (8.6 MPa)</td>
</tr>
<tr>
<td>300% Modulus ASTM D412-06</td>
<td>2,300 psi ± 100 (15.8 MPa)</td>
</tr>
<tr>
<td>Tear Resistance ASTM D624</td>
<td>420 PLI ± 50 (73 KN/m)</td>
</tr>
<tr>
<td>Exposure Temperature**</td>
<td>-60 - +250°F (~-50 - +121°C)</td>
</tr>
</tbody>
</table>

**CURING SCHEDULE**

<table>
<thead>
<tr>
<th>State</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gel</td>
<td>± 6 sec.</td>
</tr>
<tr>
<td>Tack Free</td>
<td>± 9 sec.</td>
</tr>
<tr>
<td>Post Cure**</td>
<td>24 hour</td>
</tr>
<tr>
<td>Recoat</td>
<td>0 - 12 hours</td>
</tr>
</tbody>
</table>

* All cured film properties are approximate since processing parameters, ad-mixture types, and quantities change physical properties of the cured elastomer. Elevated temperatures will accelerate the curing process and shorten the re-coat window.

** Test performed in a dry, static environment.

*** Complete polymerization to achieve final strength can take up to several days or weeks, depending on a variety of conditions or product type. All samples for above tests were force cured 48 hours or aged for more than three weeks. It is recommended that the user perform their own independent testing.

The samples for tests were sprayed with Graco HXP3 @ 2,800 psi 19 MPa dynamic pressure at the gun. Proportioning machine primary heater and hose heat 170°F (77°C) Graco MP Fusion gun with 29/29 mixing chamber with .040 ceramtip.
Thoroughly agitate the “B” components of this product prior to application. Use a SPI folding blade mixer, or equivalent equipment approved by SPI. Install mixer through the extra air specific 2” bung hole provided on all “B” drums. Care must be taken not to cross contaminate the individual components with the mixing equipment; for best mixing results, supply the SPI mixer with 25 cfm of air at 100 psi. Thinning is not required. Using any thinner may adversely affect product performance.

**COMMON SUBSTRATES:**

STEEL: 4-5 mil anchor profile is best for maximum adhesion and varies per application and conditions; adhere to proper SSPC standards.

NON-FERROUS METALS: Prepare surface in accordance to SSPC-SP16 (Brush-off Blast Cleaning of Non-Ferrous Metals). It is imperative that the user perform their own adhesion tests. Contact SPI technical service personnel for more information.

WOOD: Apply polyurea onto a clean, dry, and sanded surface; free from burrs, splinters and loose debris. (It is recommended to prime wood and other porous surfaces before application of heated, fast-set polyureas to reduce pin holing).

CONCRETE: Prepare concrete in accordance with SSPC/NACE Standards and SPI Concrete Prep Guide.

PREVIOUSLY APPLIED COATINGS: SPI recommends UB” (ULTRA BOND”) products over existing coatings that are past the recoat window and/or application over other coatings. Contact SPI for additional information and to learn more about UB” products.

On all above listed substrates and others, please contact SPI Sales or Technical Support for more information specific to your application, including industry standards such as SSPC and NACE. Adhesion tests are always recommended prior to application.

**MIXING & THINNING**

Thoroughly agitate the “B” components of this product prior to application. Use a SPI folding blade mixer, or equivalent equipment approved by SPI. Install mixer through the extra air specific 2” bung hole provided on all “B” drums. Care must be taken not to cross contaminate the individual components with the mixing equipment; for best mixing results, supply the SPI mixer with 25 cfm of air at 100 psi. Thinning is not required. Using any thinner may adversely affect product performance.

**PROCESSING EQUIPMENT & SETTINGS**

**MACHINES:**

<table>
<thead>
<tr>
<th>GRACO (Gusmer, Glasscraft)</th>
<th>H-50*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-25*</td>
<td>HV-20/35</td>
</tr>
<tr>
<td>A-XP1</td>
<td>H-XP2</td>
</tr>
<tr>
<td>E-10 HP</td>
<td>H-XP3</td>
</tr>
<tr>
<td>E-20*</td>
<td>Reactor2 H-XP2</td>
</tr>
<tr>
<td>E-30*</td>
<td>Reactor2 H-XP3</td>
</tr>
<tr>
<td>E-XP1</td>
<td>Reactor2 E-30*</td>
</tr>
<tr>
<td>E-XP2</td>
<td>Reactor2 H-30*</td>
</tr>
<tr>
<td>H-20/35 Pro</td>
<td>Reactor2 H-40*</td>
</tr>
<tr>
<td>H-25*</td>
<td>Reactor2 H-50*</td>
</tr>
<tr>
<td>H3500</td>
<td></td>
</tr>
<tr>
<td>H-40*</td>
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</table>

Apply POLYSHEILD HT™ 100F only to clean, dry, sound surfaces free of loose particles or other foreign matter. POLYSHEILD HT™ 100F can be sprayed over a broad range of ambient and substrate temperatures. It is recommended that POLYSHEILD HT™ 100F be sprayed in multi-directional (north/south - east/west) passes to ensure uniform thickness.

Contact SPI technical service personnel for specific surface preparation for your application.
If you own a machine that is not listed above please contact EQUIP & MFG SPRAY FOAM PMC AP-2

<table>
<thead>
<tr>
<th>PMC</th>
<th>PH-2*</th>
<th>PH-25*</th>
<th>PH-40*</th>
<th>PHX-2</th>
<th>PHX-25</th>
<th>PHX-40</th>
<th>PMCA-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPRAY FOAM EQUIP &amp; MFG</td>
<td>5/12K*</td>
<td>6/12K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*2,000 psi machines

**GUNS:**

- **GRACO (Gusmer, Glass-**
- **craft)**
  - Fusion AP
  - Fusion MP
  - GAP Pro
  - GX7-DI
  - GX-8 Pro
  - GX7-400
  - P2
  - P2 Elite
  - P2 Elite “C”
  - D7

- **PMC**
  - Boss

- **SPRAY FOAM EQUIP & MFG**
  - AP-2

**PARAMETERS & LIMITATIONS**

- Standard 1:1 ratio, heated, plural-component equipment developing a minimum of 1700 psi (11.72 MPa) dynamic pressure at the gun with heating capabilities to 170°F (77°C) will adequately spray POLYSHIELD HT™ 100F.
- Machines capable of producing a higher dynamic psi may be required depending on the service environment the POLYSHIELD HT™ 100F will be exposed to. Consult SPI technical service personnel for additional information.
- Proportioning machine primary heater temperature 160-170°F (71-77°C)
- Hose temperature 160-170°F (71-77°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 (3000 psi or more); utilizing an impingement mix gun such as MP Fusion or GX7-DI gun.
- Do not use mixing chambers with output greater than 1.5 gallons per minute. Consult SPI technical service personnel for additional information.

If you own a machine that is not listed above please contact your SPI representative for information and instructions.

**GENERAL SAFETY, TOXICITY, & HEALTH**

Safety Data Sheets are available for this coating material. Any individual who may come in contact with these products should read and understand the S.D.S. CHEMTREC EMERGENCY NUMBER 1-800-424-9300 INT’L 703-527-3887.

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

**CONTAMINATION:** Avoid moisture contamination in containers. Containers should not be resealed if contamination is suspected. CO₂ created pressure can develop. Do not attempt to use contaminated material.

**EYE PROTECTION:** Safety eye wear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield.

**SKIN PROTECTION:** Personal protective equipment for the body should be selected based on the task being performed, the risks involved, and should be approved by an industrial hygiene specialist before handling this product. Chemical resistant gloves complying with applicable health and safety standards shall be worn when handling this product. Cover as much of the exposed skin area as possible with appropriate clothing. Refer to safety data sheet (SDS).

**RESPIRATORY PROTECTION:** Harmful if inhaled and may cause allergy or asthma symptoms. Ensure adequate ventilation. If the respirator is the sole means of protection, use a full-face supplied respirator. Use respirators and components tested and approved under appropriate government standards such as OSHA 29CFR 1910.134, NIOSH (US), or CEN (EU). Consider the application and environmental concentrations when 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.
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