SPI SPECIALTY PRODUCTS, INC.
SEAMLESS SOLUTIONS FOR OVER 40 YEARS

POLYSHIELD HT™ 100F

ELASTOMERIC POLYUREA

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 prepolymers. 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 H^2S gas.
- Onshore and offshore marine and high salt environment corrosion and current protection.

TYPICAL PHYSICAL PROPERTIES*

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

CURING SCHEDULE

Gel	± 6 sec.
Tack Free	± 9 sec.
Post Cure***	24 hour
Recoat	0 - 12 hours

* 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.

TEST INFORMATION

Abrasion Resistance ASTM D4060 1000 g - 1000 cycles	CS-17	8.6 mg loss
	H-18	161 mg loss
Flame Spread Smoke Density ASTM E84 @ 40 mils	23.3 61 Class I	
Water Vapor Transmission ASTM E96	1.48	
Thermal Conductivity ASTM E1530-06	0.15 W/m*K	

WET PROPERTIES

Solids by Volume	100%
Solids by Weight	100%
Volatile Organic Compounds	0 lbs./gal. (0 g/l)
Theoretical Coverage DFT	100 sq. ft. @ 16 mils/gal
Weight per gallon (approx.)	8.8 lbs. (4.0 kg)
Number of coats	1 - 2 as needed
Mix Ratio	1 "A" : 1 "B"
Viscosity	A: 450 ± 50 mPa.s B: 350 ± 50 mPa.s
Shelf Life Unopened Containers at 60 - 90°F (15 - 32°C)	12 Months

Minimum material/container temperature for application is 70°F (21°C).

COLORS

POLYSHIELD HT™ 100F is available in SPI standard colors (Sand, Medium Grey, and Black). Custom colors available upon request. Note: POLYSHIELD HT™ 100F is an aromatic polyurea. Therefore, with all aromatics, color change and superficial oxidation will occur. SPI Aliphatic polyurea, urethane, polyaspartics, and other suitable topcoats can be used where long-term color stability and increased longevity in full sun exposure are of critical importance.

PACKAGING

This product is sold in standard 110 gallon drum sets and 550 gallon tote sets. Available in other container sizes. Contact sales representative for further information. Non-standard containers may require a longer lead time.

GENERAL APPLICATION INSTRUCTIONS

Apply POLYSHIELD HT™ 100F only to clean, dry, sound surfaces free of loose particles or other foreign matter. POLYSHIELD HT™ 100F can be sprayed over a broad range of ambient and substrate temperatures. It is recommended that POLYSHIELD 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.

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 imparative 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:		
GRACO (Gusmer, Glass-craft)	• A-25* • A-XP1 • E-10 HP • E-20* • E-30* • E-XP1 • E-XP2 • H-20/35 Pro • H-25* • H3500 • H-40*	• H-50* • HV-20/35 • H-XP2 • H-XP3 • Reactor2 E-XP2 • Reactor2 H-XP2 • Reactor2 H-XP3 • Reactor2 E-30* • Reactor2 H-30* • Reactor2 H-40* • Reactor2 H-50*

PMC	• GH-25* • GH-40* • PA-25* • PAX-25 • PH-2* • PH-25*	• PH-40* • PHX-2 • PHX-25 • PHX-40 • PMCA-20
SPRAY FOAM EQUIP & MFG	• 5/12K* • 6/6K*	• 6/12K
*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	• AP-2	
SPRAY FOAM EQUIP & MFG	• Boss	

- 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.

PARAMETERS & LIMITATIONS

- POLYSHIELD HT™ 100F is for professional use only. User must be proficient in the application of POLYSHIELD HT™ 100F and the use of the high pressure heated plural component equipment used to apply it.
- POLYSHIELD HT™ 100F must be stored at temperatures between 60—90°F (15—32°C).
- Liquid temperature in containers/drums during application 70—100°F (21—38°C).
- Apply POLYSHIELD HT™ 100F when surface and air temperatures are above 40°F (5°C) and the surface temperature is at least 5°F (3°C) above dew point and rising.
- 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_2 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 a two component system (component "A"/component "B", which is used to formulate this product. The quality and characteristics of the finished polymer is determined by the mixture and application of the two components by the person applying the polymers.

For the most up to date technical data sheet and/or safety data sheet visit our website at www.specialty-products.com.

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, CO_2 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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WARRANTY & DISCLAIMER

VF Specialty Products 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. VF Specialty Products 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. Failure to apply the product within the parameters stated on this document shall void the warranty. VF SPECIALTY PRODUCTS MAKES NO WARRANTY OF MERCHANTABILITY OF THE PRODUCT OR OF FITNESS OF THE PRODUCT FOR ANY PARTICULAR PURPOSE. VF Specialty Products makes no warranty as to the quality of any product modified, supplemented, tinted, or altered in any way after it leaves the manufacturing plant. VF Specialty Products 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 VF Specialty Products 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 VF Specialty Products replace any nonconforming product at no cost to buyer, is conditioned upon buyer notifying VF Specialty Products or its distributor in writing of such defect within thirty days of the discovery of such defect. VF Specialty Products shall not be liable for any direct, incidental, or consequential damages resulting from any breach of warranty. The data presented herein is intended for professional applicators or those persons who 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. The information herein is believed to be reliable, but unknown risks may be present. VF Specialty Products makes no warranties, expressed or implied, including patent warranties or warranties of merchantability or fitness of use, with respect to products or information set forth herein. Nothing contained herein shall constitute permission or recommendation to practice any invention covered by a patent without a license from the owner of the patent. Accordingly, the buyer assumes all risks whatsoever as to the use of these materials and buyer's exclusive remedy as to any breach of warranty, negligence, or other claim shall be limited to the purchase price of the materials. Failure to adhere to any recommended procedures shall relieve VF Specialty Products of all liability with respect to the materials and the use thereof.

SPI The Single Source Solution Since 1974
Serving the Plural-Component Industry

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SPI Media

SSPC The Society For Protective Coatings

PMC POLYMAC-USA POLYURETHANE MACHINERY CORPORATION

GRACO

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