PolyGhard 1000

Two Component
Aliphatic Polyurea Coating

PolyGhard 1000 is a fast setting, rapid curing, 100% solids, flexible, aliphatic, two component spray polyurea with excellent color retention. It can be applied to suitably prepared inter or exterior concrete and metal surfaces.It has extremely fast gel time making it suitable for applications down to -20°F (-28.89°C). It may be applied in single or multiple applications without appreciable sagging and is relatively insensitive to moisture and temperature allowing application in most temperatures. PolyGhard 1000 offers a tack free time of less than two seconds and exhibits 220% elongation upon curing with 50 Shore D hardness.

FEATURES & BENEFITS

- Zero VOC (100% Solids)
- Seamless
- Excellent Thermal Stability
- Elastomeric
- Low Temperature Flexibility
- Odorless
- Good Chemical Resistance
- Meets USDA Criteria
- Coats Carbon or Mild Steel Metals Without Primer
- Installed With or Without Reinforcement in Transitional Areas

TYPICAL USES

- Airports
- Refineries
- Fertilizer Plants
- Mining Operations
- Marine Environments
- Food Processing Plants
- Secondary Containment
- Walkways and Balconies
- Parking Garage Decks
- Water and Wastewater Treatment Plants
- Industrial and Manufacturing Facilities
- Power Plants
- Structural Steel
- Warehouse Floors
- Cold Storage Facilities
- Paper and Pulp Mills
- Landfill Containment

Color

Clear/Neutral. Custom colors are available upon request. Color Packs, when used, must be added to Side-B. Due to its aromatic composition, PolyGhard 1000 will tend to yellow or darken in color and will become flat after exposure to UV light. A topcoat can be applied to PolyGhard 1000 within six hours of application with an aliphatic polyurethane/polyurea coating for a colorfast finish.

Coverage

PolyGhard 1000 may be applied at any rate to achieve desired thickness. Theoretical coverage for 1 mil (0.254 microns) thickness is one gallon per 1600 sqft (3.78 liters per 149 sqm). Estimating Formula: (1600 sqft per gal /Dry Mil Thickness) x Solids Content = Application Rate per gallon

SURFACE PREPARATION

In general, coating performance and adhesion are directly proportional to surface preparation. Most failures in the performance of surface coatings can be attributed to poor surface preparation. Polyurea coatings rely on the structural strength of the substrate to which they are applied. All surfaces must be free of dust, dirt, oil, grease, rust, corrosion and other contaminants. When coating previously used substrates, it is important to consider the possibility of substrate absorption, which may affect the adhesion of the coating system, regardless of the surface preparation. Ghemco recognizes the potential for unique substrates from one project to another. The following information is for general reference. For projectspecific questions, contact Ghemco.

New and Old Concrete

Refer to SSPC-SP13/NACE 6, or ICRI 03732: CSP 3-5. New concrete must be cured for 28 days

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prior to product application. Surface must be clean, dry, sound and offer sufficient profile for product adhesion. Remove all dust, dirt, oil, form release agents, curing compounds, salts, efflorescence, laitance and other foreign matter by shotblasting and/or suitable chemical means, in accordance with local chemical regulations. Rinse thoroughly, to achieve a pH between 8.0 and 11.0. Allow to dry completely. If old concrete has a surface that has deteriorated to an unacceptably rough surface, DuraGhard Base Coat II or a mixture of WMC Primer and sand should be used as a repair agent for cracks, spalls, bug holes and voids. Upon full cure of the repair agent, prime the entire surface intended for coating.

CONCRETE SURFACE PREPARATION REFERENCE

ASTM D4258 - Standard practice for cleaning concrete. ASTM D4259 - Standard practice for abrading concrete. ASTM D4260 - Standard practice for etching concrete. ASTM F1869 - Standard test method for measuring moisture vapor emission rate of concrete. ICRI 03732 - Concrete surface preparation.

WOOD

All wood should be clean, dry and free of any knots, splinters, oil, grease or other contaminants. Splintered or rough areas should be sanded. Knots should be repaired using DuraGhard Base Coat II with sand. Upon full cure of the repair agent, prime the entire surface intended for coating.

STEEL (ATMOSPHERIC AND IMMERSION EXPOSURE)

Remove all oil, grease, weld spatters and round off any sharp edges from surface. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Optimum surface profile is 2-3 mils. Prime and shoot PolyGhard 1000 on to any bare metal the same day as it is cleaned to minimize any potential flash rusting.

ALUMINUM

Aluminum should be blasted with aluminum oxide or sand, and not with steel or metal grit. Excessive blasting may result in a warped or deformed surface. After blasting, wash aluminum with a commercially available aluminum cleaner. Allow to dry, then prime.

BRASS AND COPPER

Brass and copper should be blasted with sand, and not with steel or metal grit. Remove all dust and grease prior to applying primer.

GALVANIZED SURFACES

Clean and degrease any contaminated surfaces before priming. Do not blast galvanized surfaces with an abrasive grit. An adhesion test is recommended prior to starting the project.

FIBERGLASS REINFORCED PLASTIC

The gel coat should be lightly blasted or sanded with 80 grit sandpaper and cleaned.

PLASTIC FOAMS

Enhanced adhesion is obtained when the foam is mechanically abraded. When coating polystyrene, do not use a solventbased primer.

TEXTILES, CANVAS, FABRICS

Adhesion to most fabrics, geothermal membranes and textiles does not require a primer.

STAINLESS STEEL

Stainless steel may be grit blasted and degreased before priming. Some stainless steel alloys are so inert that it is not possible to achieve a satisfactory bond. An adhesion test is recommended prior to starting the project.

NEW AND OLD CAST IRON

Blast with a steel grit and degrease before priming. Old cast iron is difficult to prepare for a satisfactory bond. It can absorb oil and water soluble contaminants that will keep returning to the surface after the coating system has been applied and affect the coating system adhesion. An adhesion test is recommended prior to starting the project.

ALL OTHER SURFACES

An adhesion test is recommended prior to starting the project.

MIXING

PolyGhard 1000 may NOT be diluted under any circumstances. Thoroughly mix PolyGhard 1000 Side-B (Resin side) with air driven power equipment until a homogeneous mixture and color is achieved.

APPLICATION

Both Side-A and Side-B materials should be preconditioned to 75-80°F (24-27°C) before application. Recommended surface temperature must be at least 5°F (3°C) above the dew point. PolyGhard 1000 should be applied using a plural component, heated, high pressure 1:1 spray mixing equipment like Graco's Reactor, Glass Craft or other equivalent machine may be used. Both Side-A and Side-B materials should be sprayed at a minimum of 2000 psi and at temperatures above 150°F (66°C). Adequate pressure and temperature should be maintained at all times. PolyGhard 1000 should be sprayed in smooth, multidirectional passes to improve uniform thickness and appearance.

TECHNICAL DATA

Packaging	**10-gallon kit** 5 gallons (18.9 liters) Side-A (Isocyanate side) and 5 gallons (18.9 liters) Side-B (Resin side) **100-gallons kit** 50 gallons (189 liters) Side-A (Isocyanate side) and 50 gallons (189 liters) Side-B (Resin side)
Coverage Rate per gallon	Theoretical coverage for 1 mil (0.254 microns) thickness is one gallon per 1600 sqft (3.78 liters per 149 sqm).
Color	Clear /Neutral. Custom colors are available upon request. Color Packs, when used, must be added to Side-B.
Mix Ratio by Volume	1A : 1B
Pot Life @ 75ºF (24ºC), 50% R.H.	4-8 Seconds
Tack Free Time (thickness & substrate temperature dependent)	6-120 seconds
Recoat Time	0-6 hours
Viscosity at 150-160°F (66.5-71°C) Side-A Side-B	 120 ± 20 cps 40 ± 20 cps
Density (Side A & B Combined)	8.50 lbs/gal
Flash Point	> 200°F (93.3°C)
Hardness, ASTM D-2240	50 ± 5 Shore D
Tensile Strength, ASTM D-412*	3300 ± 300 psi, 24.1 ± 1.4 MPa
Elongation, ASTM D-412*	300 ± 50%
Tear Resistance, ASTM D-412*	400 ± 50 pli, 70.1 ± 3.5 kNm
Service Temperature - Dry	-40°F to 250°F, -40°C to 121°C
Service Temperature - Wet	40°F to 120°F, 4.44°C to 48.89°C
Water Vapor Permeability, ASTM E-96	0.361 perm-inch
Volatile Organic Compounds, (Side-A & B combined) ASTM D-2369-81	0 lbs/gal, 0 gm/liter
Recommended Applied Thickness	> 2 mm
Return to Service: Foot Traffic	2 - 4 hours
Return to Service: Full Service	> 24 hours
Taber Abrasion Resistance, ASTM D4060 (CS17 wheel, 1000 cycles, 1 kg load) (maximum)	33mg loss
Water Absorption, ASTM D471 (maximum 74°F or 23°C, 24 hours	< 0.5%
Crack Bridging, ASTM C836 (-13°F or -25°C, 1.6mm crack, 25 cycles)	Pass
Impact Resistance @ 77°F or 25°C (ASTM G14)	> 200 lbs
Pull-Off Strength (minimum), ASTM D4541: Inter-Coat Adhesion (within recoat time)	Excellent
Concrete (Shot blasted profile), substrate failure occurred	>500 psi (3.4MPa)
Concrete (Primed), substrate failure occurred	>500 psi (3.4MPa)
Steel (90 um blast profile)	>900 psi (6.2MPa)
Lineal Shrinkage	1 - 2%
Flexibility (1/8" 3mm Mendrel Bend Test), ASTM D1737	Pass
Resistance to Weathering, ASTM G-23 (Type QUV Weatherometer-3000 hrs exposure)	No cracking orblistering. Colorchange, gloss reduction& chalking are noted.

(*These physical properties from sample sprayed with Graco Foam Cat 200 @ 2000 psi minimum, with Gusmer GX7-400 mechanical purge gun @ 150-160°F (65°C to 71°C) blistering. Color change, gloss reduction & chalking are noted. Different machine and parameter will change these properties. User should perform their own independent testing as properties are approximate).

STORAGE

PolyGhard 1000 has a shelf life of 1 year from date of manufacture in original, factory-sealed containers when stored indoors at a temperature between 60-95°F (15-35°C).Side-A and Side-B drums are recommended to be stored above 60°F (15°C). Avoid freezing temperatures. Store drums on wooden pallets to avoid direct contact with the ground. If stored for a long period of time, rotate Side-A and Side-B drums regularly.

Limitations

Do not open until ready to use. Both Side-A and Side-B containers must be fitted with a desiccant device during use.

Warning

This product contains Isocyanates and Curative Material.