



Product Description

PipeShield HAR is a direct-to-metal, quick-set, two component, 100% solids polyurethane designed to protect pipelines from corrosion and abrasion. It is especially formulated for **Water Transmission Piping** and **Piping ID/OD** applications.

PipeShield HAR is a high performance 100% solids structural polyurethane which is designed specifically for steel, ductile iron, and concrete pipe. Persistent adhesion and high abrasion resistance allows it to be utilized in the severest environments.

Approvals

Meets the requirements of AWWA C222-18.

Certified to NSF/ANSI Standard 61 by NSF for lining portable water tanks, pipes, valves, and fittings

Pipes > 4"; Valves and Fittings > 4"; Tanks > 1000 gallons (3785 liter): thickness of 20-120 mils (508-3048 microns)

Features

- 1:1 Mix Ratio
- High Abrasion and Impact Resistant
- Excellent adhesion directly to steel and ductile iron
- Fast Curing for increased productivity and short turn-around time
- High Tensile Strength
- Horizontal Surface Application
- Low Temperature Flexibility
- Plural Component Spray Application
- Quick Gel Time
- Unlimited film build with single multi-pass application (25 to 35 mils for most steel applications)
- Zero VOC (100% Solids)

Typical Uses

- Buried Tank Exteriors
- Penstocks
- Piping ID/OD
- Power Plants
- Steel Piling
- Steel Power Poles (above & below ground)
- Storage Tanks (interior linings & exterior corrosion protection)
- Water Transmission Piping ID/OD

Packaging

10-gallon pail kit	5 gallons (18.9 liters) Side-A and 5 gallons (18.9 liters) Side-B
100-gallon drum kit	50 gallons (189 liters) Side-A and 50 gallons (189 liters) Side-B
540-gallon tote kit	270 gallons (1022 liters) Side-A and 270 gallons (1022 liters) Side-B

Technical Data (Based on Draw Down Film)

Initial Setting Time @70°F (20°C)	<5 minutes (set time may be adjusted depending on production needs)
Curing Time Before Handling @70°F (20°C)	5-20 minutes
Ultimate Cure @70°F (20°C)	< 7 days
Recoat Time (Temp/Thickness Dependent) @70°F (20°C)	1 – 3 hours
% Solids Content by Volume	100%
Theoretical Coverage	1604 sqft/US gal/mil (1000 sqm/liter/micron)
Adhesion to Steel, ASTM D4541	> 1,500 psi
Hardness, ASTM D2240 Shore D	77 ± 3 Shore D
Flexibility, ASTM D522	No Cracking or Delamination - 2" Mandrel
Abrasion Resistance (CS17, 1000 grams weight, 1000 revolutions), ASTM D4060	42 mg
Resistance to Cathodic Disbondment, ASTM G95-07(13)	< 5 mm average results
Chemical Resistance, ASTM D543	< 5% Change in mass, length and width (10% Sulfuric Acid, 30% Sodium Chloride, 30% Sodium Hydroxide, No.2 Diesel Fuel)
Dielectric Strength, ASTM D149	845 volts per mil
Tensile Strength	4500 ± 500 psi (31 ± 3.45 MPa)
Elongation	5% ± 2
Tear Resistance	300 + 50 pli (53.5 + 8.7 kN/m)
Volatile Organic Compounds, (Side-A & B combined) ASTM D2369-81	0 lbs/gal 0 gm/liter
Impact Resistance, ASTM G14	>117 in. lbs.
Accelerated Weathering, ASTM G154	No Cracking; some chalking & darkening
Water Absorption, ASTM D570	1.40 %

Colors

Blue, black, grey, and white.

Coverage

PipeShield HAR 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

Ensure the surface is clean, dry and uncontaminated in accordance with SSPC-SP1. Continue only if the substrate temperature is more than 5°F (3°C) above the dew point

temperature during surface preparation and coating application.

Abrasive blast clean with angular media (sand, aluminum oxide, garnet or steel grit G40 or coarser). DO NOT USE steel shot or non-angular products or slag-based media.

Steel Surfaces: blast to a Near White Blast (SSPC-SP10; NACE 2; SA 2.5):

minimum 3 - 4 mil (75 – 100 microns) profile for immersion; buried pipe and tanks.

minimum 2.0 mil (50 microns) profile for atmospheric service.

Ductile Iron Surfaces: abrasive blast to achieve a surface anchor profile of 2-5 mils or greater. Remove all rust and loose oxides.

Concrete Surfaces: abrasive blast to remove any surface laitance.

Galvanized Steel Surfaces: contact a Polycoat representative See Polycoat Application Instructions for additional details.

For project-specific questions, contact Polycoat.

Mixing

PipeShield HAR may NOT be diluted under any circumstances. Agitate individual components thoroughly before use to disperse pigments and assure homogeneity. DO NOT thin or mix Side-A and Side-B together.

Application

Spray apply PipeShield HAR using a plural component, 1:1 mix ratio, heated airless spray unit.

See below for suggested application settings and conditions:

Condition	Material	Surface	Ambient	Humidity
Optimum	130-140°F (54-60°C)	70-90°F (21-32°C)	70-90°F (21-32°C)	0-50%
Minimum	125°F (53°C)	40°F (4°C)	35°F (2°C)	0%
Maximum	140°F (60°C)	140°F (60°C)	120°F (49°C)	85%

Surface should be clean, dry, and more than 5°F (3°C) above the dew point.

High film thickness can be obtained in one continuous coating operation, using one of several techniques. Contact a Polycoat representative for more details.

For coating on a conveyor line, a uniform pipe temperature of between 70°F (20°C) and 120°F (55°C) to enable the coating to cure quickly.

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A second coat may be applied over the first, so long as it is applied within the recoat window. Otherwise, it will be necessary to roughen the surface to ensure good intercoat adhesion. Contact your Polycoat representative for details on recoating windows.

Cure

Condition	Dry to Touch (75°F)	Dry to Handle (75°F)
Quick-Set	50-60 seconds	4-5 minutes
Medium-Set	70-90 seconds	6-9 minutes
Slow-Set	2.5-3 minutes	13-15 minutes

Storage

PipeShield HAR has a shelf life of one (1) year from date of manufacture in original, factory-sealed containers when stored indoors at a temperature between 50-79.9°F (10-26.6°C). Please keep the ISO from freezing when shipping and storing.

This material will react with humidity and moisture. Keep containers tightly sealed and in dry conditions. For clean-up, use MEK or 50/50 MEK/Xylene.

Limitations

Provide ample ventilation in confined areas. Protect skin by wearing rubber gloves, safety goggles and other appropriate PPE. Wear NIOSH approved cartridge type face mask and fresh air respirator in the spray area. Review Application Guidelines for additional information and consult with your Polycoat representative for additional safety information.

Warning

This product contains Isocyanates and Curative Material.