

DESCRIPTION

Polywater[®] AFT™ Sealant blocks water and gas in electrical and telecommunication environments. The two-part, closed-cell AFT Sealant is durable and has excellent adhesion to a variety of conduits.

AFT seals conduits with quick, easy installation. The two-part aerosol seals any size void and cures without additional moisture or exposure to air. AFT expands and cures to a rigid, closed-cell structure in minutes, creating an airtight, watertight seal. AFT protects from insects, rodents, moisture, dust, and gases. The package is reusable, and the seal is fire retardant.

SEAL STRENGTH

AFT Sealant is an excellent water block. A hydrostatic test is used to determine water blocking performance. AFT is installed into a conduit according to standard procedure. Water is added to the system and then pressurized to create a “water head” for 24 hours. The seal passes if there is no leakage observed.

CONDUIT	WATER HEAD	RESULT
PVC	11 feet (3.4 m)	Pass
Rigid Steel	6 feet (1.8 m)	Pass

AFT Sealant seals out manhole gases. To test air pressure performance, AFT is installed into a conduit according to standard procedure. Conduit is then pressurized with air using a regulator to monitor pressure. Seal passes if there is no leakage for a test duration of 48 hours.

CONDUIT	AIR PRESSURE	RESULT
PVC	2 psi (0.14 bar)	Pass



Convenient AFT package creates a reliable seal.

PRODUCT FEATURES

- **Easy Installation:** 2 minute or shorter application time.
- **Durable:** Wide service temperature range.
- **Multiple-Use Can:** Good for several seals in all types of ducts and openings.
- **Removable:** Remove if needed to replace cable.
- **Reliable:** Holds 11 feet (3.4 m) continuous water head pressure.

STANDARDS

Creates a watertight gastight seal.

Complies with NEC and CEC National Electric Code Articles for Raceway Seals

Complies with NESC National Electric Safety Code for Exterior Penetrations

Complies with DIN Standards for Conduit Sealing

Complies with ITU and TIA Standards for Sealing Communication Ducts

APPROVALS

UL Recognized

Passes UL 94

Class HBF fire retardant rating



COMPONENT PHYSICAL PROPERTIES

AFT Sealant is a two-part, urethane foam. The liquid Parts A and B are mixed using a unique actuator and nozzle aerosol design.

PROPERTY	PART A	PART B
Color	Amber/brown	Dark purple
Form	Liquid	Liquid
VOC	0 g/L	0 g/L

CURED RESIN PROPERTIES

AFT Sealant cures to solid, closed-cell foam.

PROPERTY	RESULT
Appearance	Light purple color with small, even cells
Density	2.5 lb/ft ³ (0.1 g/cm ³)
Moisture Absorption (ASTM D2842)	<4%
Compressive Strength (ASTM D1621)	25 psi (0.17 N/mm ²)
Tensile Strength (ASTM D1623)	97 psi (0.67 N/mm ²)
Seal Strength – Water	11 ft (3.4 m)
Seal Strength – Air	2 psi (0.14 bar)

SEAL TIGHTNESS

AFT does not allow the passage of gas. AFT is installed using standard procedure. Conduit type and wire fill as noted. A manometer was used to measure air pressure.

CONDITION	RESULT
4-inch PVC, 10 - 2/0 AL XHHW Wires	Pass Holds 0.007 cfh (0.2 lph)
1-inch PVC, 10 – 14 AWG THHN Wires	Pass Holds 0.007 cfh (0.2 lph)

Seal tightness testing is based on UL 1203 Section 88, Leakage of Sealing Fitting Test.

CABLE PULLOUT TESTING

AFT adheres to cable jacket, creating a strong seal measured by cable pullout strength.

CABLE JACKET	AVERAGE PULLOUT FORCE/CABLE SURFACE
MDPE	320 Lb _f /in ² (2.2 N/mm ²)
XLPE	180 Lb _f /in ² (1.2 N/mm ²)
Nylon (THHN)	150 Lb _f /in ² (1.0 N/mm ²)

A standard application of AFT is used to seal cable into conduit. Force to pull out each cable is measured.

CABLE COMPATIBILITY

AFT Sealant is compatible with common cable insulation and jacket materials. The cured foam is an inert solid that does not affect cable components.

ENVIRONMENTAL RESISTANCE

AFT Sealant withstands the rigors of the conduit exposure environment.

In Service Temperature Use Range

-20°F to 200°F (-30°C to 95°C)

AFT Sealant does not lose function in direct sunlight. Reacted foam that is exposed to UV will yellow. This discoloration does not affect performance. The foam seal retains its hardness and continues to act as a duct block.

The foam sealant can be protected with a weather proofing paint. Both urethane and epoxy-based products have been tested with good results and excellent adhesion to the foam.

CHEMICAL RESISTANCE

AFT Sealant is chemically resistant to gasoline, oils, dilute acids and bases, and most unsaturated hydrocarbons.

Cured AFT cubes were soaked in chemical for 14 days. After soaking, cubes were cleaned, rinsed, and dried at 70°F (21°C) for 48 hours. Cube compression strength was measured in triplicate according to ASTM D1621. Compression strength was compared to unaged control as noted.

CHEMICAL EXPOSURE	Δ% STRENGTH	RESULT
Methane Gas	104	Good
Bleach, 6.0%	98	Good
Hydrogen Peroxide	95	Good
Dielectric Fluid	90	Good
Sodium Hydroxide (1N)	98	Good
Sulfuric Acid (1N)	97	Good
Mineral Oil	94	Good
Gasoline	83	Fair

APPLICATION

Quick Installation

To install AFT, insert dam about 6 inches (150 mm) into the conduit. Shake can for 60 seconds to mix. Lift hinge and insert dispensing nozzle so that it aligns with hinge arrow. Invert can and insert nozzle into the seal space. Squeeze hinge to spray sealant between cables.

The hinge must be fully depressed, and foam should be a uniform color.

Fill conduit three-fourths full. Place a dam on the outside of conduit to allow the foam to fully expand around all the cables and completely fill the conduit. Remove nozzle after application. A new nozzle must be used for each application if not done back to back. It takes about 2 to 3 minutes for foam to fully rise.

Application Temperature

Working temperature for Polywater AFT Sealant is 45°F to 95°F (4°C to 35°C).

At lower temperatures (<68°F/20°C) product may not mix well. Inconsistent or pale-yellow color foam indicates poor mixing. Keep can warm for use in cold environments.

Water in Duct

AFT Sealant will cure and seal duct with damp surfaces. Water should not be flowing and should be relatively clean. Any excess water will weaken the seal.

For full installation information, please see AFT use instructions. (www.polywater.com/AFT-INSTRUCTIONS.pdf)

CURE RATE

The AFT Sealant can be used in temperatures down to 45°F (4°C). At lower temperatures, the reaction slows, but the sealant will completely foam and cure with time. AFT foam expands two times its volume as it is dispensed. Full expansion is complete in under 2 minutes at 70°F (21°C). It will take 3 to 5 minutes to be tack free. During this time, do not move cables or touch foam.

REENTERABILITY AND REMOVAL

AFT Sealant can be mechanically removed with some effort. Use a long screwdriver to carve out pieces of the cured seal. Use care around existing cables.

TROUBLE SHOOTING

AFT Sealant should be an even, light purple color. If foam is coming out cream or dark purple, it is not properly mixed. Be sure to hold the can upside down and firmly press the hinge applicator. These are the two most common application issues. If the foam is not properly mixed, remove and reinstall.

STORAGE AND HANDLING

Protect can from sunlight. Do not expose the cartridge to temperatures exceeding 122°F (50°C). Do not spray near an open flame or other ignition source. Do not pierce or burn can, even after use.

Product shelf life is 12 months. Can may be used for one month after the product has been deployed.

SAFETY

AFT Sealant is a two-part urethane foam containing reactive chemicals. Polyurethanes are common in the construction industry and have been used for many years. Some individuals may become sensitized to components in the unreacted resin. Precautions must be observed during use and handling of these materials.

Once reacted, the foam is solid, closed-cell polyurethane. The finished product is non-toxic. See SDS for more information.

Combustion of Cured Foam

Irritating and toxic smoke and vapors may form during combustion of cured AFT Foam Sealant. If burning the sealant material cannot be avoided, provide appropriate ventilation/respiratory protection against decomposition products during exposure to flame.

CLEAN-UP

Any unreacted material may be cleaned from surfaces with a solvent wipe such as Polywater's Type HP™ Cleaner/Degreaser. The part A amber resin will react with water if surfaces are washed with a soap and water solution. Once reacted, the foam has strong adhesion and may be scraped or cut from surface.

MODEL SPECIFICATION

The statement below may be inserted into a customer specification to help maintain engineering standards and ensure work integrity.

Duct sealant shall be Polywater AFT™ Foam Sealant. Duct sealant shall be a 2-part, closed-cell urethane foam. It shall expand and set in 5-8 minutes at 70°F (21°C). It shall be capable of sealing 3/4" to 10" (20 mm to 250 mm) conduits with multiple cable configurations. Duct sealant shall be reenterable. It shall be capable of withstanding temperatures from -20°F to 200°F (-29°C to 93°C); and be chemically resistant to gasoline, oils, dilute acids, and bases. Duct sealant shall not affect the physical or electrical properties of wire and cable.

Duct sealant shall have good adhesion to duct and cable jacket surfaces with good structural strength. It shall have 25 psi (170 kPa) compressive strength (ASTM D1621). It shall have less than 4% water absorption (ASTM D2842). Duct sealant shall be capable of holding 11 ft. (0.33 bar) water head pressure continuous. It shall meet NEC codes for raceway seals, meet UL 94 fire rating HBF, and be UL recognized.

ORDER INFORMATION

CAT #	PACKAGE DESCRIPTION
AFT-16P4	1 – 16-oz. can; 2 – actuators (4 Units/Case)
AFT-16	1 – 16-oz. can; 2 – actuators (15 Units/Case)
AFT-SAE10	10-pack of actuators with standard extension tube (1 Unit/Case)
AFT-FAE10	10-pack of actuators with flexible extension tube (1 Unit/Case)

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IMPORTANT NOTICE: The statements here are made in good faith based on tests and observations we believe to be reliable. However, the completeness and accuracy of the information is not guaranteed. Before using, the end- user should conduct whatever evaluations are necessary to determine that the product is suitable for the intended use.

American Polywater expressly disclaims any implied warranties and conditions of merchantability and fitness for a particular purpose. American Polywater's only obligation shall be to replace such quantity of the product proven to be defective. Except for the replacement remedy, American Polywater shall not be liable for any loss, injury, or direct, indirect, or consequential damages resulting from product's use, regardless of the legal theory asserted.

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