

## DESCRIPTION

Polywater<sup>®</sup> IceFree<sup>™</sup> is a specialty, non-freezing gel. IceFree prevents ice formation and protects fiber optic cable. Ice pressure damages fiber by crushing the cable and creating microbends within the fiber, which results in signal degradation. Typical locations susceptible to this damage include bridge crossings, vehicle overpasses, and ducts buried above the frost line. IceFree is also used to prevent freezing of mechanical valves used in fire suppression or critical infrastructure fire protection systems.

## PRODUCT BENEFITS

- Prevents Ice Formation – Fills conduit and cavities to prevent water ingress
- Protects Key Assets – Surrounds cables and valves with a gel that does not freeze
- Easy Reentry – Soft gel allows for cable removal for repair or upgrade
- Reduces Downtime – Safeguards cable from ice-pressure induced microbends
- Compatible with Cable – Gel is fully compatible with cable—no jacket swelling or cracking

## PERFORMANCE PROPERTIES

### Concentrated:

IceFree is formulated to perform long-term for multi-year protection. IceFree is a thick gel which prevents it from escaping from the conduit if a crack or leak occurs. IceFree absorbs small amounts of water and ice with minimal impact on the performance.

### Combustibility:

IceFree has no flash point. Its dried residue is non-flammable and will not support combustion and spread flame.

## PHYSICAL PROPERTIES

PROPERTY	PERFORMANCE
Appearance	Transparent-red, thick gel
Viscosity (Brookfield)	Thick gel viscosity (120,000–180,000 cps @ 10 rpm)
pH	6.5–7.5 (neutral)
% Nonvolatile solids	2.0
VOC Content	490 g/L

## CABLE COMPATIBILITY

IceFree is compatible with common cable jacket materials.

It does not cause stress cracking jackets commonly used on fiber optic cables. MDPE and HDPE jacket materials were tested according to ASTM standard method.<sup>1</sup> After 168 hours exposure, none of the test specimens showed failures.

<sup>1</sup> ASTM Test Method D1693, *Environmental Stress-Cracking of Ethylene Plastics*.

APPLICATION PROPERTIES

IceFree is a thick gel and requires special pumping and installation procedures. Pumping can be achieved with a high-pressure grease pump or a high-volume air compressor using a high-pressure hose. The Polywater LP-D5 drill pump can be used to pump short distances up to 20 feet (6 m). To prevent IceFree from slowly migrating, or from exposure to water, the IceFree must be sealed using either IceFree Chemical Duct Block or FST Duct Sealant.

For full installation information, please see [IceFree Installation Instructions](#).

Volume Estimates:

To estimate the quantity of IceFree required, calculate the volume of the conduit and subtract the volume of the cable.

GALLONS PER 100 FEET (LITERS PER 10 METERS)			
DUCT SIZE	CABLE SIZE		
	1/2-INCH (15 MM)	3/4-INCH (20 MM)	1-INCH (25 MM)
1-inch (25 mm)	3.1 gallons (3 Liters)	1.8 gallons (2 Liters)	NA
1-1/4-inch (32 mm)	5.3 gallons (6 Liters)	4.1 gallons (5 Liters)	2.3 gallons (3 Liters)
2-inch (50 mm)	15.3 gallons (18 Liters)	14.0 gallons (16 Liters)	12.2 gallons (15 Liters)
4-inch (100 mm)	64.3 gallons (78 Liters)	63.0 gallons (75 Liters)	61.2 gallons (74 Liters)

$$Gallons\ per\ 100\ Feet = 16.3 \left[ \left( \frac{ID}{2} \right)^2 - \left( \frac{OD}{2} \right)^2 \right]$$

$$Liter\ per\ 10\ Meters = 0.314 \left[ \left( \frac{ID}{2} \right)^2 - \left( \frac{OD}{2} \right)^2 \right]$$

Cleanup

IceFree is non-toxic, non-sensitizing, and safe to use. It does not stain and can be cleaned with water.

In-Service Temperature Use:

IceFree can be used at temperatures between -50°F (-45°C) and 120°F (50°C).

Temperature Stability:

IceFree will not phase-out or separate after five freeze/thaw cycles or 5-day exposure at 120°F (50°C). There is no more than a 30% change in Brookfield viscosity from -20°F to 100°F (-30°C to 40°C).

STORAGE AND HANDLING

Store tightly sealed, away from direct sunlight. IceFree shelf life is 24 months.

CONTACT US

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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.