American Polywater® Corporation

POLYWATER® WX WAX LUBRICANT

DESCRIPTION

Polywater® WX Lubricant is a wax-based, cable pulling lubricant with superior friction reducing properties. It is an excellent choice for hot weather, porous conduits, or other difficult installation conditions. Polywater WX has a creamy gel texture that is easy to apply. It evenly coats the cable. Polywater WX will cling to cable through long pulls and under high shear. It is effective through water.

Polywater WX is temperature stable and does not liquefy or drop off after high temperature exposure. It is slow drying with low solids content. Polywater WX leaves less residue in the conduit to block future cable pulls or cable removal.

Polywater WX coats cable to lower friction

FRICTION TESTING

Lubricity: Polywater WX Lubricant shows excellent friction reduction on a variety of jacket types. Typical friction coefficients at 200 lbs/ft (2.91 kN/m) normal pressure are shown. Results are based on the method described in the white paper, “Coefficient of Friction Measurement on Polywater’s Friction Table, 2007” (polywater.com/FTable.pdf). Values are averages based on cable jacket and conduit materials from multiple manufacturers.

CABLE JACKET	CONDUIT TYPE		
	EMT	PVC	STEEL
XLPE	.14	.07	.11
PVC	.12	.10	.11
THHN	.10	.09	.11

Coefficient of friction data on additional or specific cable jackets or conduits can be obtained from American Polywater Corporation.

PRODUCT FEATURES

- **Excellent Friction Reduction:** Lowers pulling tension and increases installation distances.
- **Temperature Stable:** Can be applied at higher temperatures without separating.
- **Slow Drying:** Works longer when pulling cable in high temperatures.
- **Compatible:** Suitable for most cable jackets.
- **High Cling Factor:** Stays on cable jacket.

END USE

Use for all types of cable installations, including:

- Overhead and vertical cable installations
- Heavy cable or pulls through concrete or other porous surfaces
- Hot weather installations

APPROVALS

UL Listed
UL Listed to Canadian safety standards

CABLE COMPATIBILITY

Polyethylene Stress Cracking:
Polywater WX shows no stress cracking on LDPE cable jacket when tested per IEEE Standard 1210[1].

Tensile and Elongation Effects:
LLDPE, XLPE, and PVC cable jacket materials aged in Polywater WX per IEEE Standard 1210[1] meet the tensile and elongation performance requirements of that standard.

Volume Resistivity:
There are no significant changes in the conductive properties of XLPE semi-conducting compounds when volume resistivity is tested according to IEEE Standard 1210[1].

[1] *IEEE Std 1210-2004; IEEE Standard Tests for Determining Compatibility of Cable-Pulling Lubricants with Wire and Cable.*
.

PHYSICAL PROPERTIES

PROPERTY	RESULT
Appearance	Yellow-colored, thick waxy gel
Percent nonvolatile solids	4.5–6.5
VOC content	0 gms/liter
Viscosity	66,000–94,000 cps @ 10 rpm
pH	6.5–8.0

PERFORMANCE PROPERTIES

Cling Factor:
Cling factor is a measure of the ability to apply the lubricant and have it stay on the jacket while the cable enters the conduit.

A 6-inch length (152 mm) of a 1-inch (25 mm) diameter cable will hold at least 125 grams of Polywater Lubricant WX for one minute when held vertically at 70°F (21°C).

Coatability:
Coatability is a measure of the lubricant's ability to coat the cable jacket as a thin film for continued lubricity on longer pulls.

Polywater WX will wet out evenly on cable jacket surfaces. It will not bead up or rub off the jacket sample. A 1-inch (25 mm) diameter XLPE cable dipped 6 inches (152 mm) into Polywater WX, then withdrawn and held vertically, will retain at least 15 grams of Polywater Lubricant WX for one minute at 70°F (21°C).

Water Performance:
No more than a 20% loss of lubricant (by weight) after 30 minutes of cable immersion in water at 23°C (76°F).

APPLICATION PROPERTIES

Temperature Use Range:
20°F to 122°F (-5°C to 50°C).

Temperature Stability:
No phase-out after 5 freeze/thaw cycles or 5-day exposure at 140°F (60°C).

Cleanup:
Nonstaining. Complete cleanup possible with water.

Storage and Shelf Life:
Store tightly sealed, away from direct sunlight. Lubricant shelf life is 24 months past the date of manufacture.

APPLICATION SYSTEMS

Polywater WX has a thick gel consistency that is easy to hand apply. It can also be pumped directly into the conduit or onto the cable using specialty lubricant pumps.

Polywater WX can be pumped using the Polywater LP-D5 specialty lubricant pump. Pumping will not change the gel character of Polywater WX lubricant. The LP-D5 allows hands-free transfer and consistent application of lubricant. It supports a lubricant application rate of 1–2 gallons (4–8 liters) per minute.

Pull-Planner™ Tension Calculation Software is available from Polywater. Pulling tension estimations can ensure the use of appropriate pulling equipment and that the cable is installed within safe limits.

DIRECTIONS FOR USE

Polywater WX can be squeezed, pumped, or hand applied directly onto the wire or cable. Conduit should be clean and in good condition.

To prelubricate for long or difficult pulls, squirt a liberal amount of Polywater WX into the conduit before the pull begins and use a mandrel or a swab on the winch line to spread the lubricant during the pull.

For cleanup, use a rag to squeegee the end of the cable, tightly gripping the cable with a rag. The remaining residue will evaporate quickly.

Recommended Lubricant Quantity:

$$Q = k \times L \times D$$

Where:

Q = quantity in gallons (liters)
L = length of conduit run in feet (meters)
D = ID of the conduit in inches (mm)
k = 0.0015 (0.0008 if metric units)

The appropriate quantity for use on any given pull can vary from this recommendation by 50%, depending on the complexity of the pull. Consider the following factors:

Cable weight and jacket hardness
(Increase quantity for stiff, heavy cable)

Conduit type and conditions
(Increase quantity for old, dirty, or rough conduits)

Conduit fill
(Increase quantity for high percent conduit fill)

Number of bends
(Increase quantity for pulls with several bends)

Pulling environment
(Increase quantity for high temperatures)

MODEL SPECIFICATION

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

The cable pulling lubricant shall be Polywater WX Lubricant. It shall contain wax. It shall produce a low coefficient of friction on a wide variety of cable jacket materials and have no adverse physical or electrical effects on these materials. The lubricant shall have low solids content and the residue shall retain its slippery character. It shall not have a flash point and the dried residue shall be nonconductive.

No substitutions are permitted without certification from an officer of the manufacturer that the substitute product meets the requirements of this specification.

ORDER INFORMATION

CAT #	PACKAGE DESCRIPTION
WX-35	1-qt. squeeze bottle (0.95 liter) 12/case
WX-128	1-gal. pail (3.78 liter) 4/case
WX-640	5-gal. pail (18.9 liter)

CONTACT US

1-800-328-9384 Toll Free | 1-651-430-2270 Main | 1-651-430-3634 Fax | email: support@polywater.com