

Polywater[®] SPY Cable Lubricant



TECHNICAL SPECIFICATION

Description:

Polywater[®] SPY Spray Lubricant is a high performance, thin liquid cable pulling lubricant. Lubricant SPY is highly concentrated and works with only a thin coating. Polywater[®] SPY can be sprayed for easy application, yet has excellent cling and wetting to the cable. Lubricant SPY works even after it has dried. The residue is a thin, slippery film that retains lubricity for months after use.

Polywater[®] SPY Spray Lubricant is recommended for spray or wipe lubrication with no mess. The lubricant is suitable for all types of cable installations.

Innovation and Function:

Polywater[®] Lubricant SPY is a thin, concentrated liquid that can be sprayed into the duct or wiped on the cable. Industrial sprayers are available for automatic spraying application. Polywater[®] SPY is based on unique lubricant chemistry and technology. Much like a paint, the lubricant thins as it is sprayed or wiped. Once on the cable or conduit surface, it thickens to stay coated.

Polywater[®] SPY reduces friction effectively and compares favorably with the other high-quality Polywater[®] Lubricants. It has been successfully tested for a variety of uses:

- Lubricating fiberglass rods for easier and longer insertions during fishing.
- Spraying holes in wood studs to reduce tension in hand-pulled Romex wire.
- Eliminating need to fish by allowing shorter runs of wire to be pushed.
- Lowering tension on traditional building wire pulling into EMT or PVC conduits.
- Pressurized spraying for no-mess underground cable installation.



Product Benefits:

- Easy spray or wipe application
- Lubricates with a thin film
- Excellent friction reduction
- Continues to lubricate after drying
- Compatible with cable jackets
- Clean and non-staining
- Convenient

End Use:

Use for all types of cable installations, including:

- General construction
- Hands-free installations
- Automated spray application
- Cables with friction-enhanced jackets

Official Approvals:

UL and C-UL Approved

Cable Compatibility:

Polyethylene Stress Cracking:

Polywater® SPY shows no stress cracking on LLDPE cable jacket when tested per IEEE Standard 1210¹.

Tensile and Elongation Effects:

LLDPE, XLPE, and PVC cable jacket materials aged in Polywater® Lubricant SPY per IEEE Standard 1210¹ meet the tensile and elongation retention requirements of that standard.

Volume Resistivity:

There are no significant changes in the conductive properties of XLPE and EPR semi-conducting compounds when volume resistivity is tested according to IEEE Standard 1210¹.

Building Wire Testing:

THHN and XLPE building wire meet UL tensile, elongation, and voltage withstand requirements after exposure to Polywater® SPY Lubricant as tested by UL requirements².

Corrosivity:

Lubricant is non-corrosive to steel, copper, or aluminum. Passes UL 267² corrosion testing on zinc-coated EMT.

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

² UL Subject 267, Investigation for Wire-Pulling Compounds.

Physical Properties:

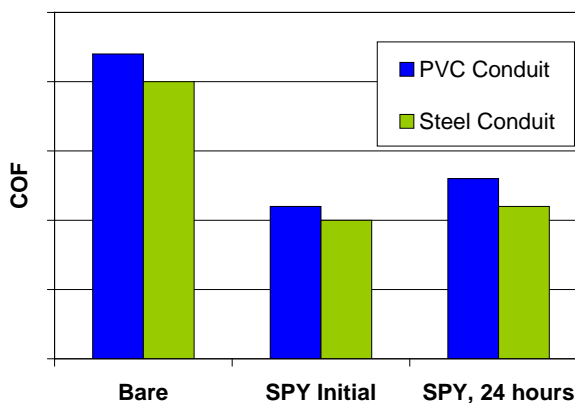
<u>Property</u>	<u>Result</u>
Appearance:	Slightly thickened, white liquid
Percent Non-Volatile Solids:	4%
VOC Content:	0 gms/liter
Viscosity:	250-750 cps @10rpm
pH:	7.5 – 9.0

Performance Properties

Dry lubrication

Dry lubrication measurements indicate the capability of thin-film lubricants to continue to lubricate when dry.

Polywater® SPY Lubricant continues to work even after it dries. Coefficient of friction values measured on cable coated and then dried for 24 hours are within 20% of the initial “wet” value. Measurements were done using the Friction Table Method described in the white paper, “Coefficient of Friction Measurement on Polywater’s Friction Table, 2007.” (polywater.com/FTable.pdf).



Wetting – Continuous Coat:

Wetting is a measure of the lubricant’s ability to coat the jacket as a thin film for continued lubricity on longer pulls.

Polywater® SPY Lubricant will wet out evenly on cable surfaces. It will not bead up or rub off of the cable jacket. Lubricant will completely coat a one-inch diameter THHN or PVC-jacketed cable dipped six inches (152 mm) into the lubricant and then withdrawn after 10 seconds. The lubricant coating shall cover 100% of the immersed cable jacket without dripping off, non-wetting, or drawing back from the edges as the cable is held horizontally for one minute at 70° F (21° C).

Combustibility:

Lubricant has no flash point and dried residue is non-flammable.

Spraying Characteristics:

Low viscosity lubricant allows product to flow through airless spray heads. Lubricant will not clog valves or atomizers on the sprayer.

Application Properties:

Application Systems:

Polywater® SPY Lubricant can be applied in several unique and innovative ways. This thin liquid can be sprayed or wiped directly on the cable jacket. Shorter cable runs can be pushed once the cable is coated with Polywater® SPY. The slightly gelled character of Lubricant SPY helps it to coat and wet the cable for more difficult and complex cable pulls as well.

Wipe Application: For small cables, use the SPY-D20 towelette to wipe the lubricant on the cable jacket. This pre-saturated wipe lays down a thin, even coat of lubricant. The towel material will release the lubricant without a mess.

Trigger Spray Bottle: Use the trigger sprayer on the SPY-35LR bottle to spray Polywater® SPY Lubricant directly on the cable or into the conduit. The bottle can be refilled for multiple uses.

Pressurized Sprayer: For larger installations, apply Polywater® SPY Lubricant from a “pump-up” pressurized commercial sprayer (Cat #: IS-3). Spraying allows for the controlled and consistent, hands-free application of lubricant.

The IS-3 Sprayer can feed up to 0.5 gallon (2 liters) of lubricant per minute. This corrosion-resistant sprayer has a 3-gallon capacity poly container, an 18-inch curved brass extension, a 10-foot flexible heavy-duty hose, and a brass fan-spray nozzle.



Hand Wiping



Pressurized Spraying

Temperature Use Range:

Polywater® SPY:

20° F to 120° F (-5° C to 50° C).

Polywater® WSPY (wintergrade version):

-20° F to 120° F (-30° C to 50° C)

Temperature Stability:

No phase-out after five freeze/thaw cycles or 5-day exposure at 120° F (50° C). *Will not phase out or separate during the shelf life of lubricant.*

Clean-Up:

Non-staining. Complete clean-up is possible with water.

Storage and Shelf Life:

Store Polywater® SPY in a tightly sealed container away from direct sunlight. Lubricant shelf life is one year.

Directions for Use:

Polywater® SPY Lubricant can be sprayed or wiped directly onto the cable as it enters the conduit. Coat the entire cable jacket for best friction reduction.

For short runs, spray an appropriate amount of Polywater® SPY into the conduit before the pull, so the cable will pick up the lubricant as it is pulled.

Polywater® SPY leaves a light, clean residue. Any 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 = 0.0005 (0.0004 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 specific job specification to help maintain engineering standards and ensure project integrity.

The cable pulling lubricant shall be Polywater® Lubricant SPY. Lubricant has a sprayable viscosity and will not clog valves or applicators. It shall coat and cling to the cable. It shall be non-staining.

Lubricant shall produce a low coefficient of friction on a wide variety of cable jacket materials and shall lubricate at low coating thickness. Lubricant shall continue to reduce friction after it has dried. It shall conform to the physical and electrical requirements of IEEE 1210. It shall not contain solvents and shall not have a flash point.

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

Order Information:

<u>Cat #</u>	<u>Package Description</u>
	Regular
SPY-D20	20-count wipe canister
SPY-35LR	1-quart spray bottle (0.95 Liter)
SPY-128	1-gallon pail (3.78 Liter)
SPY-640	5-gallon pail (18.9 Liter)
	Wintergrade
WSPY-35LR	1-quart spray bottle (.95 Liter)
WSPY-128	1-gallon pail (3.78 Liter)
WSPY-640	5-gallon pail (18.9 Liter)

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Lit-SPYTech/REV000

Makers of Polywater® and Dyna-Blue® Cable Lubricants
and Pull-Planner™ 3000 Software



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