Premise *Loop*™ Lubricant RL Communications Lubricant

American Polywater® Corporation

TECHNICAL SPECIFICATION

Description:

Premise *Loop*™ Lubricant RL is a silicone-enhanced, gel lubricant that is easy-to-apply. It is formulated for lightweight fiber-optic, coaxial, and other types of premise data cable.

Premise *Loop*™ Lube is a clean, slow-drying pulling compound that offers excellent friction reduction and universal compatibility on communication cables, including all polyethylene types. It coats evenly and clings well to cable. Premise *Loop*™ Lube leaves a lubricating film after its water-base has evaporated. It is an economical gel silicone choice.

Friction Testing:

Friction is determined using a standard Telcordia test procedure[1]. The duct is wrapped 420° around a three-foot-diameter cylinder. A 25-lb incoming weight is attached to the cable as it is pulled at a set rate of 65 feet per minute. A load cell takes pulling tension data which is used to determine a "dynamic" friction coefficient. Below is typical data.

	Cable Jacket Type	
	Fiberoptic	Premises
Conduit Type	MDPE	PVC
Polyethylene	.08	.08
Smoothwall PVC	--	.09
Corrugated PVC	.13	.06

[1] Telcordia Standard TR-NWT-002811, Section 4.1.3 and 4.1.4; Generic Requirements for Cable Placing Lubricants.

Further friction testing was done using the method described in the white paper, “Coefficient of Friction Measurement on Polywater’s Friction Table, 2007” (polywater.com/FTable.pdf). Typical value at 200 lbs/ft (2.91 kN/m) normal pressure are shown.

COF based on Friction Table Method	
Premise Cable (PVC Jacket) on Schedule 40 PVC Conduit	.10

Premise *Loop*™ Lube shows excellent friction reduction.

Product Benefits:

- Silicone enhanced for superior friction reduction
- Good gel cling for hand application
- Suitable for premise cable
- Compatible with cable jackets—including polyethylene
- Clean and non-staining
- Slow drying for continuous lubricity

End Use:

Use for all types of cable installations, including:

- Vertical-up runs at beginning of pull
- Silicone-lined and prelubricated ducts
- Lightweight cable, building construction

Performance Properties

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.

Premise *Loop*™ Lube will wet out evenly on cable jacket surfaces. It will not bead up or rub off of the jacket sample. A ½-inch (13 mm) diameter MDPE fiber cable dipped six inches (152 mm) into the Premise *Loop*™ Lube, when withdrawn and held vertically will retain at least 10 grams of Premise *Loop*™ Lube for one minute at 70° F (21° C).

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 six-inch length (152 mm) of a ½-inch (13 mm) diameter fiber cable will hold at least 25 grams of Premise *Loop*™ Lube for one minute when held vertically at 70° F (21° C).

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

Cable Compatibility:

Polyethylene Stress Cracking:
Premise *Loop*™ Lube does not cause environmental stress cracking of polyethylene jackets commonly found on communications cables. Untreated polyethylene (Union Carbide DYNK) and MDPE jacket material were both tested according to ASTM standard method.[1] After 168 hours exposure none of the test specimens showed failures.

Polycarbonate Stress Cracking:
Premise *Loop*™ Lube will not stress crack polycarbonate. Polycarbonate bars are bent to a defined strain and exposed to lubricant as described in the Telcordia standard[2], Section 8.2, Stress Cracking of Polycarbonate. After 48 hours, none of the test specimens showed signs of crazing or cracking.

[1] *ASTM Test Method D1693, Environmental Stress-Cracking of Ethylene Plastics.*

[2] *Telcordia Standard TR-NWT-002811; Generic Requirements for Cable Placing Lubricants.*

Physical Properties:

Property	Result
Appearance:	Opaque-white, stringy liquid
Percent Non-Volatile Solids:	3 %
VOC Content:	0 gms/liter
Viscosity:	40,000 – 70,000 cps @10rpm
pH:	6.5 – 7.5

Application Properties:

Temperature Use Range:
20°F to 120°F (-5°C to 50°C).

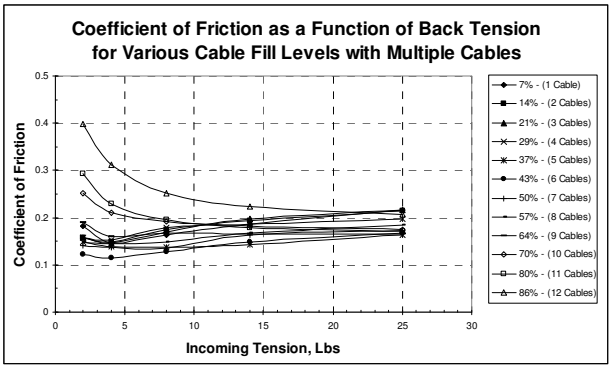
Temperature Stability:
No phase-out after five freeze/thaw cycles or 5-day exposure at 120°F (50°C). *Will not phase out or separate during the shelf life of lubricant.*

Clean-Up:
Non-staining. Complete clean-up with water.

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

Cable Fill Study:

Communication cables are often pulled in large bundles. To study this installation method, Premise *Loop*™ Lube was coated onto bundles of premises wire, and the effects of cable fill on tension and friction was measured. Testing was completed using the BellCore Test Procedure. Larger bundles of cable increase friction and, therefore tension as detailed in the graph below.



More information can be found in the paper, "The Effect of Conduit Fill on Premises Cabling". (LINK) At higher fill levels, friction increases. Use of lubricant becomes necessary to lower tension.

Directions for Use:

Premise *Loop*™ Lube can be can be squeezed, pumped or hand applied directly onto the wire or cable. Directly lubricate the cable or wire during the entire portion of the pull. It is best to coat the entire cable or wire as it enters the conduit.

Premise *Loop*™ Lube may be pumped into conduit using the LP-D5 automatic pump, allowing the lubricant to fully coat the outside of the cable. SureGrip™ Nonslip Cable Handling Gloves offer maximum grip for pulling slippery, lubricant-covered wires and cable into or out of conduit.

For clean-up, 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 X L X 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 quantity that is appropriate for any given pull can vary from this recommendation by 50%, depending on the complexity of the pull. Consider the following factors:

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

Conduit condition
(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)

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 Premise *Loop*™ Lube. The lubricant shall be a thick gel that is easy to handle and adheres well to the cable. It shall have good wetting (coating) properties and will not bead or rub off of the cable jacket. It shall have <3% solids and shall continue to reduce friction once dry.

It shall conform to the physical and performance requirements of Telcordia Standard, TR-NWT-002811, Generic Requirements for Cable Placing Lubricants. The lubricant shall not stress crack polyethylene when tested by ASTM 1693. The lubricant shall have a neutral pH and shall be non-toxic, non-sensitizing. It shall be non-staining.

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:

Cat #	Package Description
RL-128	1-gallon pail (3.78 Liter) 4/case
RL-640	5-gallon pail (18.9 Liter)

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