Dyna-Blue®
Heavy Duty Cable Lubricant

American Polywater® Corporation

TECHNICAL SPECIFICATION

Description:

Dyna-Blue® Cable Pulling Lubricant is a clean, slow-drying, easy-to-apply gel lubricant. This thick gel lubricant was developed with "clingability" for easy handling and hand application. Dyna-Blue® Lubricant is a good lubricant for everyday use in general electrical and communication applications.

Dyna-Blue® Lubricant is popular for commercial and institutional pulling because it is non-staining and easy to clean up in these environments.

Dyna-Blue® Cable Pulling Lubricant is slow drying. It effectively reduces friction and continues to lubricate for the full length of the pull. Its dried residue is non-conductive and non-combustible.

Dyna-Blue® Cable Pulling Lubricant is harmless to humans, environmentally safe, compatible with cable jacket materials and easy to handle.

Friction Testing:

Lubricity: Dyna-Blue® Lubricant shows good friction reduction across a broad class of jacket types. Typical values at 200 lbs/ft (2.91 kN/m) normal pressure are shown. Test 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 compiled from testing on multiple cable jacket and conduit materials from multiple manufacturers.

	Conduit Type		
Cable Jacket	EMT	PVC	Steel
XLPE	.18	.08	.18
LLDPE	.14	.11	.17
PVC	.11	.11	.19
CPE	.23	.21	.24
THHN	.23	.09	.21

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

Product Benefits:

- Excellent cling for easy hand application
- Clean and non-staining
- Good friction reduction
- Compatible with cable jacket materials
- Temperature stable
- Combines effectiveness with economy

End Use:

Use for all types of cable installations, including:

- General electrical or communication use
- Overhead and vertical installations
- Indoor or building construction
- Heavy cable

Official Approvals:

UL Approved
CSA Listed

Cable Compatibility:

Tensile and Elongation Effects:
XLPE, LLDPE, VLDPE, PVC, and CPE cable jacket materials aged in Dyna-Blue® Lubricant per IEEE Standard 1210[1] meet the tensile and elongation retention requirements of that standard.

Polyethylene Stress Cracking:
Dyna-Blue® Lubricant shows no stress cracking on LLDPE, MDPE, or HDPE cable jacket when tested per IEEE Standard 1210[1].

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 1210[1].

Building Wire Testing:
THHN and XLPE building wire meet UL tensile, elongation, and voltage withstand requirements after exposure to Dyna-Blue® Lubricant as tested by UL requirements[2].

Cable Approvals:
Dyna-Blue® Lubricant is approved by most cable manufacturers. Contact American Polywater for further information.

[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.*

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 six-inch length (152 mm) of a one-inch (25 mm) diameter cable will hold at least 75 grams of Dyna-Blue® Lubricant for one minute when held vertically at 70°F (21°C).

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

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

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

Physical Properties:

Property	Result
Appearance:	Thick, light blue gel
Wax, Grease and Silicone Content:	None
Non-Volatile Solids (%):	3.0%
VOC Content:	0 gms/L
Viscosity:	70,000 – 110,000 cps @10rpm
pH:	6.5 – 8.5

Application Properties:

Application Systems:
Dyna-Blue® Lubricant has a thick gel consistency that makes it easy to hand apply.

Dyna-Blue® Lubricant can also be pumped directly into the conduit or onto the cable using the Polywater® LP-3 or LP-D5 specialty lubricant pumps. Pumps allow hands-free transfer and consistent application of lubricant. However, the thick gel consistency limits the length of the discharge hose and the pumping rate. The LP-3 supports Dyna-Blue® Lubricant application rates up to 0.9 gallon (3.5 liters) per minute and LP-D5 supports Dyna-Blue® Lubricant application rates of 0.1 to 0.3 gallon (0.4 to 1.2 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.

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).

Clean-Up:
Dyna-Blue® Lubricant is non-staining. Complete clean-up is possible with water.

Storage and Shelf Life:
Store Dyna-Blue® Lubricant in a tightly sealed container away from direct sunlight. Lubricant shelf life is one year.

Directions for Use:

Dyna-Blue® Lubricant can be squeezed, pumped or hand applied directly onto the wire or cable. The thick clingy gel character allows Dyna-Blue® to be applied to vertical installations. Conduit should be clean and continuous.

To prelubricate for long or difficult pulls, squirt a liberal amount of Dyna-Blue® Lubricant 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.

Clean-up by wiping off any excess lubricant with a rag.

Recommended Lubricant Quantity

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

Where:
- Q = quantity in gallons (liters)
- L = length of conduit 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 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 Engineering 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 Dyna-Blue® Lubricant. The cable pulling lubricant shall produce a low coefficient of friction on a wide variety of cable jacket materials. The lubricant shall be UL listed. It shall be easy to handle and adhere well to the cable.

The lubricant shall pass the IEEE 1210, Standard Tests for Determining Compatibility of Cable-Pulling Lubricants with Wire and Cable. It shall pass physical compatibility tests on LLDPE, XLPE, CPE, and PVC cable jacket or sheath materials. It shall not stress crack polyethylene per ASTM Standard 1693. There shall be no significant changes in the conductive properties of XLPE and EPR semi-conducting compounds when the lubricant's effect on volume resistivity is tested according to IEEE Standard 1210.

Order Information:

Cat #	Package Description
D-35	1-quart squeeze bottle (0.95 liter)
D128	1-gallon pail (3.78 liter)
D-640	5-gallon pail (18.9 liter)
D-Drum	55-gallon drum (208 liter)

Lit-DBTech/9-08/Internal/9-08

Makers of Polywater® and Dyna-Blue® Cable Lubricants and Pull-Planner™ 300 Software

American Polywater® Corporation

P.O. Box 53
Stillwater, MN 55082
U.S.A
1-800-328-9384
1-651-430-2270
fax 1-612-430-3634
www.polywater.com(URL) custserv@polywater.com(e-mail)