TECHLUBE
CABLE PULLING LUBRICANTS

Description

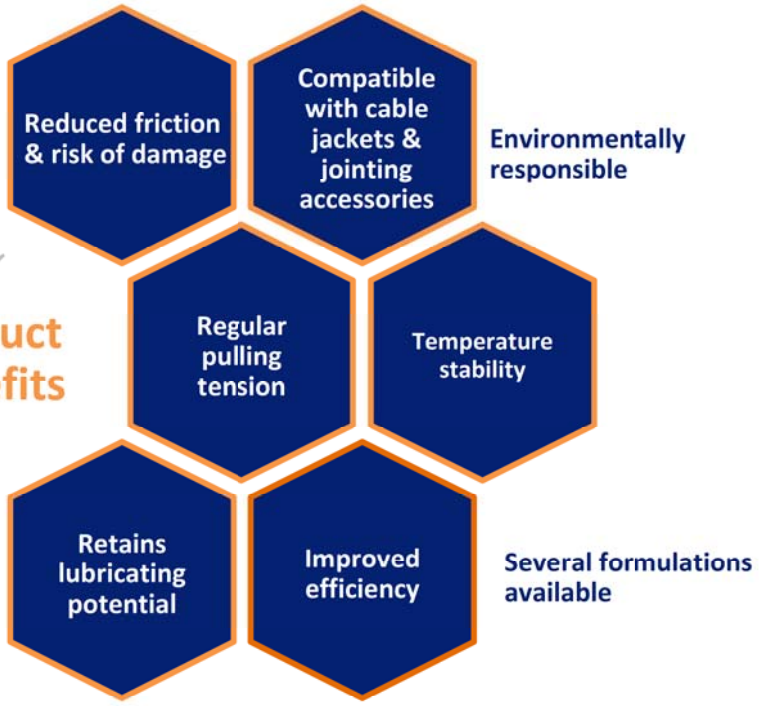
Techlube is a range of water-based underground Power & Communication cable pulling lubricants designed to provide superior friction reduction and reduce the risk of cable damage during cable installation, which is the primary cause of 90% of cable damage.

Image is representative of standard 20L packaging

All Techlube cable lubricants share similar chemistries and characteristics:

- 'Cling & String' consistency of Techlube PHD, FO & M ensures strong adhesion to the duct wall / cable
- Perfect adhesion to cable in wet weather
- Resistance to wash off, allowing lubrication even in flooded ducts
- Slow drying, leaving a thin film which keeps its lubricating potential for several months, assisting with additional cable pulls to the same duct, and preventing 'cementing' of the cable
- Substantially biodegradable* & non-flammable
- Water polymer lubricants with low conductivity

Product Benefits



Techlube Range

HD	Heavy duty cable lubricant for heavy cables & difficult cable pulls
PHD	Pourable lubricant for lighter cable installations
MULTI	Multi-purpose cable lubricant
FO	Fibre optic & sub duct installation lubricant with high elasticity for reduced consumption
M	Cable lubricant with microspheres, specially designed for the Telecom industry

Uses:

- Cable pulling installations
- Duct pre-lubrication

Friction Reduction

The ability to reduce friction between the cable jacket and the conduit provides the means to evaluate performance of cable lubricants.

Friction Theory:

The coefficient of friction, μ is a dimensionless value that is a proportionality constant between the frictional force, F, and the normal force, N.

$\mu = F / N$

μ_s: the static coefficient of friction, is defined as the minimal force required to start an object in motion divided by the normal force.

μ_k:the kinetic coefficient of friction, is defined as the minimal force required to keep an object in motion divided by the normal force.

Note: *laboratory measured coefficients may not be accurate when used to predict actual cable pulling tensions.*

Compatibility

Techlube does not contain any salt, detergent, paraffin or grease which can degrade cable jackets or cause hot spots, and has passed compatibility testing with materials commonly used in power cable accessories, joints & cable jackets including HDPE, LLDPE, Natural Rubber, CPE, CSPE, EPR, XLPE, PVC and Neoprene.

* *Excluding microspheres in Techlube M*

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Viscosity (cPs)

HD	PHD	MULTI	FO	M
5400-7400	2000-3500	5400-7400	2000-3500	1800-2800

Directions for use

Techlube products are easy to apply through a variety of methods:

- Hand
- Manual Pouring
- Pumping
- Cone Feeder Systems

Recommended Lubricant Quantity

These quantities are given for reference and guidance only. Every installation is different depending on complexity, route, cable and duct variables.

- For plastic conduit (PVC, Polyethylene) use the following equation:
  Q = 0.0064 x L x D (HD, PHD, MULTI)
  Q = 0.0080 x L x D (FO)
  Q = 0.0004 x L x D (M)

- For multiple concrete, clay tile, fibre cement, fibre filled & wooden conduit use the following equation:
  Q = 0.0098 x L x D (HD, PHD, MULTI)
  Q = 0.0120 x L x D (FO)
  Q = 0.0006 x L x D (M)

Q = Quantity of Techlube
L = The total length of the pull in meters
D = The inside diameter of the conduit in centimeters

Physical Properties

Appearance:	Viscous liquid
VOC:	0% or 0 g/l
PH:	>=5.0 - <8.0

Health & Safety

- Substantially biodegradable*, non-toxic & water-based
- Non-flammable
- Not irritating to the skin under normal use
- No unpleasant odour
- Protective clothing not required under normal use
- No threat to the environment

Temperature Stability

Standard grade Techlube will not lose performance qualities in hot weather or after undergoing freeze/thaw cycles.

Clean Up

Good working practice in accordance with local & EU regulations.

Standard Packaging

- 20 litre buckets / 24 buckets per pallet
- 1 litre bottles (PHD only)/ 12 bottles per case/ 36 cases per pallet
- 2 litre pre-lube bags (HD only) / 10 bags per bucket

Storage & Shelf-Life

Store tightly sealed in adequately ventilated premises. Shelf life is one year from the manufacturing date.

General Requirements for Cable Lubricants

- **Cable & Duct Compatibility:** prolonged exposure to the lubricant should not adversely affect the cable or duct performance for the life of the cable.
- **Friction Reduction:** the initial installation should not expose the cable to excessive pulling forces or generate damaging heating effects and when completely dried, the lubricant should not 'cement' the cable in place.
- **Environmental Safety:** the chemical consistency of the lubricant should not adversely affect the users or environment into which it is placed.
- **Fire Resistance:** the lubricant deposits should not continually burn or spread a flame along the length of the duct/ cable.
- **Electrical considerations:** the lubricant should not affect the volume resistivity of the semi-conducting cable jacket when used in conjunction with power cables.

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