



## High Performance Lubricants for Electrical Connectors for Hybrid and Battery Electric Vehicles

### Product Information

As the automotive market moves towards electrification many designers are discovering the value of Krytox™ high performance synthetic lubricants from Chemours. To meet the needs of the emerging electric vehicle connector application, Krytox™ lubricants can reduce friction, resist water, and are dielectric (insulating). These attributes can help maintain the high performance of your electric vehicle charging system.

#### Description

Krytox™ perfluoropolyether (PFPE) oils without additives are good insulators. The typical dielectric properties are shown in the table. There is no difference in the electrical properties of different grades of oils, as their chemical properties are identical, and the primary difference is viscosity.

#### Typical Dielectric Properties of Krytox™ Oil and Greases

Dielectric Breakdown Voltage, ASTM D877, kV/0.1 in	45
Specific Resistivity, ASTM D257, ohm-cm	$0.6-4.0 \times 10^{-14}$
Dielectric Constant, ASTM D150 at 102-105 Hz	2.1-2.2
Dielectric Constant, ASTM D924 at 60 Hz, 25 °C (77 °F)	2.2-2.4
Dissipation Factor, ASTM D150 at 102-105 Hz	$3.0-7.0 \times 10^{-3}$
Volume Resistivity, ohm-cm, ASTM D1169, 25 °C (77 °F), 500 V	$2.3-550 \times 10^{12}$

#### Applications

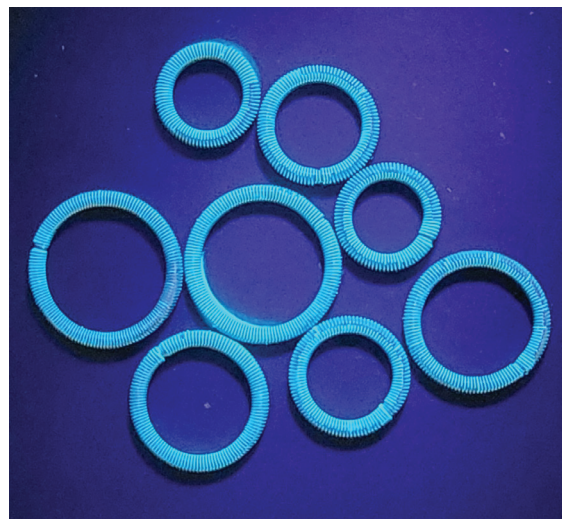
Krytox™ lubricants can be used to reduce friction for assembly and sealing purposes

- O-rings
- Seals
- Latches
- Interconnect springs
- Screw point

#### Design Advantages with Krytox™ Lubricants

- Non-volatile
- Nonflammable
- Non-migrating
- No varnish
- Nonconductive
- No water washout
  - ASTM D1264 measures grease lost in a rotating bearing where a water stream impinges on the lubricated areas. The unique chemistry of Krytox™ makes for a product that is not soluble in water or displaced easily by it.
- High temperature stability
- Indefinite shelf life
- Chemically inert and non-reactive
  - Does not harm vulnerable amorphous thermoplastics
  - Does not harm EPDM-based elastomers
  - Usable with most metals up to 288 °C (550 °F)

ASTM D1264 Water	
Temp °C	% Loss
38	0.26
79	0.28

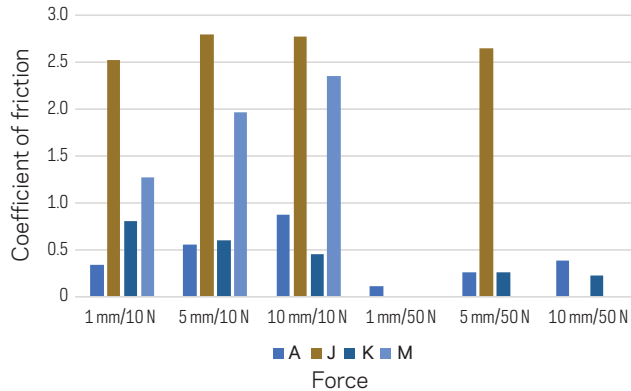


Round Springs with UV Trace Krytox™ Oil

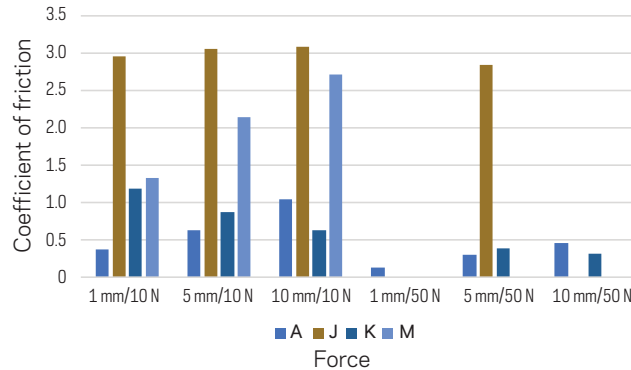
### Friction Reduction

- PFPE based lubricants reduces friction significantly at all speeds and forces
- Pure PTFE is only efficient at low speed and low force

### Dynamic



### Static



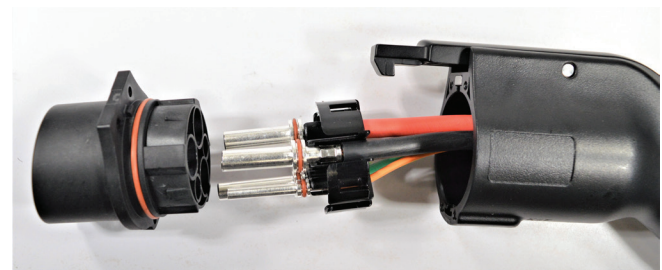
A- Krytox™ Grease  
 J- Non-lubricated  
 K- Krytox™ Oil  
 M- PTFE Coatings  
 No bar = the friction too high for the machine

Several grades of Krytox™ oil and grease are suitable for assembly/sealing aids, depending on the application type and temperature range encountered (see table below).

Krytox™ Grade	Viscosity, cSt	Temperature Range, °C (°F)
<b>Oil</b>		
GBO 14	50	-50 to 180 (-58 to 356)
AUT U14-UV trace for QC	50	-50 to 180 (-58 to 356)
GPL105	160	-36 to 210 (-33 to 410)
AUT U15-UV trace for QC	160	-36 to 210 (-33 to 410)
<b>Grease</b>		
GPL203	30	-60 to 154 (-76 to 309)
GPL205	160	-36 to 210 (-33 to 410)
GPL255-UV trace for QC	160	-36 to 210 (-33 to 410)



Electric Vehicle Charger Pins



Electric Vehicle Charger Assembly

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For product information, industry applications, technical assistance, or global distributor contacts, visit [krytox.com](http://krytox.com) or within the U.S. and Canada, call 1-844-773-CHEM/2436 or outside of the U.S., call 1-302-773-1000.