Krytox™ GPL 106, 206, 216, 226

Performance Lubricants

High performance grease and oil for bearings, valves, seals, and other applications over a wide temperature range

Product Information

Krytox™ oils and greases are based on perfluoropolyether (PFPE) oils. This series of synthetic fluorinated lubricants are used in extreme conditions, such as continuous high temperatures up to 260 °C (500 °F), and will survive short-term peak temperatures of up to 270 °C (518 °F). Chemically inert and safe for use around most chemicals, these lubricants are nonflammable and are also safe for use in oxygen service. Krytox™ oils and greases do not damage plastics or elastomers, nor cause corrosion to metals. They are commonly used as lubricants in aerospace, automotive, industrial, and semiconductor applications, as well as in solving many other routine lubrication problems. In addition, they provide exceptionally long lifetimes in sealed-for-life bearings and extend re-lubrication intervals in bearings that require re-lubrication.

Krytox™ GPL 106 Oil

Krytox™ GPL 106 oil is a clear, colorless, fluorinated synthetic oil that is non-reactive, nonflammable, safe in chemical and oxygen service, and is long lasting. Krytox™ is a PFPE—also called perfluoroalkylether (PFAE) or perfluoropolyalkylether (PFPAE)—with the following chemical structure:

$$F\text{-}(CF\text{-}CF_2\text{-}O)_n\text{-}CF_2CF_3 \quad \text{where } n = 10\text{–}60$$
$$\quad\;\; | \qquad\qquad\qquad\qquad\quad$$
$$\quad\;\; CF_3$$

The polymer chain is completely saturated and contains only carbon, oxygen, and fluorine. On a weight basis, a typical Krytox™ oil contains 21.6% carbon, 9.4% oxygen, and 69.0% fluorine.

Krytox™ GPL 206 Grease

Krytox™ GPL 206 grease is PTFE thickened, contains no additives, and can be used on components that come in contact with chemicals. Typical applications include valves, instruments, or bearings in contact with chemicals, including alcohols, ammonia, solvents, steam, acids and bases, and oxygen systems, such as LOX and GOX. They are commonly used as seal and O-ring lubricants, and are compatible with all types of seals.

Krytox™ GPL 216 Grease

Krytox™ GPL 216 grease contains molybdenum disulfide for extreme pressure (EP) conditions and should be used for slow speed or heavily loaded applications, where there is no danger of the molybdenum disulfide additive reacting with chemicals or causing contamination.

Krytox™ GPL 226 Grease

Krytox™ GPL 226 grease contains an anti-corrosion/anti-wear inhibitor and is ideal for corrosive environments, where there is no danger of the sodium nitrite additive reacting with chemicals or causing contamination problems. Typical applications are automotive bearings, sealed pump bearings, electric motor bearings, and general-purpose bearings.

Krytox™ oils and greases are silicone free. They do not contain any VOC materials or chlorine, and are not hazardous to the atmosphere or ozone layer. They are biologically and environmentally inert.

The fully fluorinated Krytox™ high-temperature stability provides bottom-line savings from improved reliability, and a reduction in grease usage and manpower through extended re-lubrication intervals. Excellent film strength reduces wear to reduce maintenance costs. Under high loads, the viscosity increases to provide support and absorb the pressure.

Preparing the Application for Krytox™

New components often have organic rust preventive oils or greases on them to prevent damage while they are in storage before use. New bearings should be inspected for damage and cleanliness before use. The components must be completely cleaned of greases or preservative oils when using Krytox™ as a lubricant. Failure to do so could result in reduced bearing life. Bearing life tests on un-cleaned bearings have shown reduced life in high temperature, high speed tests, where the bearing was filled with a minimum

amount of grease. The preservatives coat the metal surface to prevent rusting; so, they can also prevent the grease from adhering, causing them to be thrown off by the action of the bearing. They could also oxidize and harden, and can create debris that will contaminate the grease.

These greases are compatible with other PFPE/PTFE greases, but PFPE lubricants should not be mixed with other common types of lubricants.

Storage and Shelf Life

Because of the inert, non-oxidizing nature of the ingredients, Krytox™ grease and oil lubricants have an indefinite shelf life, if unopened and stored in a clean, dry location. Greases might show oil separation after extended storage, but mixing the free oil back into the grease will return the grease to normal useable condition.

Product Properties of Krytox™ GPL Lubricants

Typical Properties	GPL 106	GPL 206	GPL 216	GPL 226
Anti-Corrosion Additive	No	No	No	Yes
Extreme Pressure Additive	No	No	Yes	No
Anti-Rust Rating, ASTM D1743	NA	NA	NA	Pass
Appearance	Clear Oil	White, Creamy Consistency	Black, Creamy Consistency	White, Creamy Consistency
4 Ball Wear, ASTM D4172 (Oil)/D2266 (Grease) 40 kg, 1200 rpm, 1 hr at 75 °C (167 °F)	0.66 mm	0.97 mm	1.29 mm	0.81 mm
4 Ball EP, ASTM D2783 (Oil)/2596 (Grease) LWI/Weld Load	108.2/400 kg	139.4/800 kg	139.0/620 kg	199.9/Above 800 kg*
Estimated Useful Temperature Range	–36– 260 °C (–33–500 °F)			
Base Oil Viscosity, cSt 20 °C (68 °F) 40 °C (104 °F) 100 °C (212 °F) 204 °C (400 °F)	822 243 25 4.1			
Oil Viscosity Index	134			
Oil Separation, wt% after 30 hr, 99 °C (210 °F)	4			
Max. Oil Volatility, % in 22 hr, D2595 121 °C (250 °F) 204 °C (400 °F)	<1 <3			
Dropping Point	NA			
Standard NLGI Grade (Others Available on Special Request)	—	2	2	2
Specific Gravity at 0 °C (32 °F), g/cc	1.94	1.98	2.12	1.99
Food Contact Approval	None	NSF H-1	None	NSF H-1

These values are typical properties and not specifications

*Grease exceeded maximum capacity of machine. Theoretical load wear index based on 10 loads.

For product information, industry applications, technical assistance, or global distributor contacts, visit 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.

Replaces: K-20067-3
C-10398 (11/15)