

# Mobil Glygoyle Series

## Polyalkylene Glycol (PAG) Gear, Bearing and Compressor Lubricant

### Product Description

Mobil Glygoyle Series lubricants are high performance gear, bearing and compressor oils designed to provide outstanding benefits in terms of efficiency, long oil life, and equipment protection. These fully synthetic, Polyalkylene Glycol (PAG) lubricants were developed for use under operating conditions beyond the capabilities of other synthetic lubricants and mineral oils. Their low pour points provide excellent low-temperature fluidity. The ISO 150 to 1000 grades are approved for USDA/NSF H-1 foodgrade use. The unique formulation is designed to provide:

- Exceptional EP/antiwear protection for critical equipment components
- A high level of micropitting protection for sensitive gear systems
- Protection against rust and corrosion in-service
- Resistance against foam buildup
- Excellent lubricity inherent to this fully synthetic lubricant
- Low traction coefficient resulting in increased energy efficiency and reduced bulk oil/system temperatures
- Very good thermal and oxidative stability to reduce sludge formation and deposits

### Features and Benefits

The Mobil Glygoyle Series of fully synthetic oils is specifically designed to outperform mineral and PAO synthetic lubricants in gear and hydrocarbon gas compression applications. In worm gears, the unique properties of these oils allows for more torque to be put through the reducer, while in many cases lowering the operating oil sump temperature. Reduced temperatures can result in longer seal, oil and gearbox life. In gas compressors, the limited solubility of hydrocarbons in the Mobil Glygoyle Series allows for reduced lubricant dilution and enhanced equipment protection.

### Features compared to other mineral, synthetic, and PAG lubricants:

**General:** There are various types of PAG base oils. The inherent properties of these oils can differ depending on the raw materials and processes used in their manufacture. Some of the features that can differ among various PAG oils include their traction coefficient (energy efficiency), thermal conductivity, solubility with hydrocarbon oils, tendency to attract water and low temperature properties.

**High Efficiency:** ExxonMobil researchers have selected PAG base oils that provide high levels of energy efficiency relative to mineral, PAO's, and other PAG oils. This coupled with an increased thermal conductivity of about 10% over mineral and PAO oils can lead to lower operating temperatures and longer component life.



**Wide Temperatures:** The Mobil Glygoyle Series has very high VI ranging from 170 for the ISO 68 to 285 for the ISO 1000. High VI is indicative of a wide operating temperature range, typically beyond that of mineral and PAO lubricants.

**Rust Protection:** PAG lubricants which are designed to be immiscible with hydrocarbon oils, tend to absorb more water than mineral or PAO oils. Because of the potential for high water-in-oil levels, care must be taken to prevent the formation of rust on equipment. Mobil Glygoyle Series oils pass major rust tests such as ASTM D665A, Bethlehem Steel Rust Test Parts A/B, and receives 0,0 ratings in DIN 51802 EMCOR rust test with distilled water. In addition, they show good yellow metal compatibility with a 1B rating for ASTM D130. Mobil Glygoyle Series is not recommended for use in areas where saltwater contamination is expected.

**Foam Control:** Foam control is important, especially in gearboxes that are "Sealed for Life". Mobil Glygoyle Series provides excellent results in all three sequences of ASTM D892 Foam Test.

**EP/antiwear:** Having the right blend of EP/AW protection is important, especially in worm gears that contain bronze and other yellow metals. Glygoyle Series lubricants show excellent EP/antiwear protection with typical results of 12+ for DIN 51354-2 FZG scuffing test, very low cage and roller wear for DIN 51819-3 FAG FE8 test, and excellent micropitting protection with a result of >10-high for the FVA 54 micropitting test (ISO 320).

<b>Features</b>	<b>Advantages and Potential Benefits</b>
High thermal and oxidative stability as well as excellent antiwear protection	Provides outstanding gear protection under severe load factor situations  Increased production because of extended lubricant life, reducing scheduled and unscheduled downtime for routine lubricant changes
Low coefficients of friction and traction	Lower maintenance costs and replacement expenditures Improved gear efficiency and lower oil operating temperatures for lower operating (power) costs and longer seal life.
High thermal conductivity	Lowers operating temperatures at the gear mesh and in the bulk oil by improved heat dissipation
High viscosity index, low pour point and absence of wax	Easy start-up because of excellent low-temperature fluidity – especially important for successful operation of remotely located equipment
Very good resistance to corrosion and rusting	Excellent equipment protection, even during downtime, provides long equipment life and smooth start-up, with associated labor and material cost savings
Multipurpose industrial equipment capability	Potential to use less products and reduced inventory costs
Superb thermal and oxidative stability and sludge resistance as well as excellent antiwear protection	Provides outstanding gear protection under severe load factor situations

Due to continual product research and development, the information contained herein is subject to changes without notification. Additional important health and safety information on this product can be found in the Material Safety Data Sheet which is available at [www.imperialoil.ca](http://www.imperialoil.ca) or by contacting the Imperial Oil Technical Help Desk at: 1-800-268-3183.

## Applications

The Mobil Glygoyle Series is specifically designed for the lubrication of worm gears, especially for heavy-duty, severe service applications, in applications where USDA/NSF H-1 approved lubricants are required and for many non food-grade applications. Additionally, the product family has also proven to be an excellent lubricant for many types of industrial gears and anti-friction bearing applications in severe service conditions. Additionally, their poor miscibility with hydrocarbons makes the lower viscosity grades especially effective in hydrocarbon gas compression applications, because of the reduced viscosity dilution that occurs in this application versus hydrocarbon based compressor oils.

The Mobil Glygoyle Series is used for the lubrication of filled for life gearboxes and heavy-duty worm gears, other industrial gearing in a wide variety of applications, lubrication of plain and rolling contact bearings, and most types of compressors.

### Specific applications include:

- Filled for life gearboxes, especially high ratio/low-efficiency worm gears
- Worm gear applications such as those used in conveyers, escalators, material handling, press drives, packaging machinery, ski lifts, agitators and mixers.
- Other gear and bearing applications in the cement, metalworking, plastics, food and textile finishing industries.
- Gas Compression utilizing reciprocation, rotary, screw, and centrifugal type compressors in operating conditions beyond the capabilities of other synthetic lubricants and mineral oils.

## Application notes

Polyalkylene Glycol (PAG) based lubricants have some excellent inherent lubrication properties imparted by the PAG base oil. However, PAG based lubricants do have limitations with respect to compatibility with seal and coating materials, some varieties of light metal alloys and other lubricants. Before applying any PAG lubricant, contact the original equipment manufacturer for specific advice on the application.

### Compatibility with other lubricants

The Mobil Glygoyle Series is not compatible with mineral oils and most other synthetic lubricants. Additionally, depending on the specific type of PAG base fluid, they may not be compatible with other PAG type lubricants. Mobil Glygoyle 11, 22 and 30 and Mobil Glygoyle ISO VG Series are not miscible and therefore considered incompatible. Mobil Glygoyle Series is not generally recommended for use in systems previously filled with mineral oils, or PAO based synthetic lubricants. It is further recommended to check compatibility when topping up or replacing existing PAG filled equipment with Mobil Glygoyle Series. Generally the preference is to avoid mixtures by draining, thoroughly flushing out the existing lubricant (with the Glygoyle fluid chosen), cleaning out any residues where possible and refilling with the appropriate Mobil Glygoyle grade.

For further details please contact your Imperial Oil representative.

### Water

Mobil Glygoyle Series is hygroscopic and it will absorb more water than mineral oils or synthetic hydrocarbons. Therefore extra care should be taken not to expose PAG oils to excessive moisture. Due to their inherent high specific gravity, water does not drop to the bottom of reservoirs, but stays on top of the lubricant.

### Seal compatibility

PAG based lubricants are not compatible with most standard seal materials used for mineral oils or synthetic hydrocarbons. Incompatible materials are likely to shrink or swell, thus causing severe leakage or seizure of the seal. When converting from mineral oil or synthetic hydrocarbons to Mobil Glygoyle Series, seal compatibility must be considered. FKM and VMQ are generally suitable for use with PAG. NBR materials may be used but have restricted temperature ranges. In all cases, operating conditions and the variability of elastomer properties from different manufactures should be considered. For best results, consult the equipment supplier or seal manufacturer for specific recommendations.

### Light Metal Alloys

Mobil Glygoyle Series PAG lubricants are well suited for gear applications with ferrous and most non ferrous materials. However, Mobil Glygoyle Series PAG lubricants are not recommended for use with light metal alloys containing Aluminum or Magnesium. The use of PAG lubricants can lead to increased wear with light metal alloys of this nature. Please consult the original equipment manufacturer for additional information.

### Other Materials

Paints, coatings and some plastics are not suitable for use with PAG lubricants. In general two component paints (reactive paints, epoxy resins) are suitable for use as interior coatings in contact with PAG's. Otherwise, interiors in contact with the lubricant should be left uncoated. Materials used for oil level gages, inspection doors etc., should preferably be made of natural glass or polyamide materials. Other transparent plastics, (e.g. Plexiglas), may deteriorate and crack under stress.

### Typical Properties

Mobil Glygoyle Series	68	100	150	220	320	460	680	1000
ISO VG grade	68	100	150	220	320	460	680	1000
Viscosity, ASTM D 445								
cSt @ 40°C	68.0	100.0	150.0	220.0	320.0	460.0	680.0	1000.0
cSt @ 100°C	11.8	17.3	26.1	38.1	55.2	77.2	112.4	165.8
Viscosity Index, ASTM D 2270								
	170	190	210	225	240	250	265	285
Density 15 °C ASTM D4052								
	1.079	1.079	1.078	1.077	1.077	1.076	1.076	1.076
Pour Point, ASTM D 97, °C								
	-30	-30	-33	-33	-33	-33	-33	-33
Flash Point, ASTM D 92, °C								
	265	265	265	265	265	265	265	260

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Mobil Glygoyle Series	68	100	150	220	320	460	680	1000
Copper Strip Corrosion, ASTM D 130 100 °C, 24 hours	1B	1B	1B	1B	1B	1B	1B	1B
Rust Protection, ASTM D 665 distilled water	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Four Ball Wear, ASTM D 4172, mm Wear Scar Diameter	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FZG Scuffing Test, ISO Fail Load Stage	10	12+	12+	12+	12+	12+	12+	12+

Please note that not all grades are available in all regions. Check with your supply source for local availability.

## Precautions

The products described on this data sheet are manufactured from high quality petroleum base stocks, carefully blended with selected additives. As with all petroleum products, good personal hygiene and careful handling should always be practiced. Avoid prolonged contact to skin, splashing into the eyes, ingestion or vapour inhalation. Please refer to the Material Safety Data Sheet for further information.

Note: The products described on this data sheet are NOT controlled under Canadian WHMIS legislation.

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