# Mobil Glygoyle™ Series

Mobil Industrial , New Zealand

Polyalkylene Glycol (PAG) Gear, Bearing and Compressor Lubricant

## Product Description

Mobil Glygoyle™ Series lubricants are superior 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 ensure excellent low-temperature fluidity. The ISO 150 to 1000 grades are NSF H1 registered lubricants and also comply with Title 21 CFR 178.3570 by the Food and Drug Administration (USA) for lubricants with incidental food contact.

- 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

Mobil Glygoyle Series will not contribute to MOAH content in food when used in accordance with FDA 21CFR178.3570 limitations.

## 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 correlating to 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. Features that can differ among various PAG oils include their traction coefficient (energy efficiency), thermal conductivity, and solubility with hydrocarbon oils, tendency to attract water, and low temperature properties.

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

Wide Temperatures: The Mobil Glygoyle Series has very high VIs ranging from 170 for the ISO 68 to 285 for the ISO 1000. This leads to a wide operating temperature range, beyond that of mineral and PAO lubricants.

Rust Protection: PAG lubricants, which are designed to be immiscible with hydrocarbon oils, tend to absorb water more 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 the ASTM D665A and Bethlehem Steel rust test parts A/B, and receives 0,0 ratings in the DIN 51802 Emcor rust test with distilled water. In addition, they show good yellow metal compatibility with a 1B rating in the ASTM D130 test. Mobil Glygoyle Series is not recommended for use in areas where saltwater contamination is expected.

Foam Control: Foam control is important, especially in boxes that are "Sealed for Life". Mobil Glygoyle Series provides excellent results in all three sequences of ASTM D 892 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. The Glygoyle Series of lubricants show excellent EP/antiwear protection with typical results of 12+ in the DIN 51354-2 FZG scuffing test, very low cage and roller wear in the DIN 51819-3 FAG FE8 test, and excellent micropitting protection with a result of ›10-high in the FVA 54 micropitting test (ISO 320).

| Features | Advantages and Potential Benefits |
|---|---|
| High thermal and oxidative stability as well as excellent antiwear protection | Provides outstanding gear protection under severe load factor situations<br>Increased production because of extended lubricant life, reducing scheduled and unscheduled downtime for routine lubricant changes<br>Lower maintenance costs and replacement expenditures |
| Low coefficients of friction and traction | 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 |

## Applications

The Mobil Glygoyle Series is specifically designed for the lubrication of worm gears, especially for heavy-duty, severe service applications, both in food-grade and 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 under 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

Polyalkyleneglycol (PAG) based lubricants have some inherent excellent 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 orginal 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. (e. g. Mobil Glygoyle No Series and Mobil Glygoyle ISO VG Series are not miscible). The 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 fillings with Mobil Glygoyle Series, generally the preference is to avoid mixtures by draining, flushing and refilling.

When changing from mineral oil or other synthetic products to Mobil Glygoyle Series, it is critical to clean the system thoroughly and flush with suitable fluids prior to conversion. For further details please contact your ExxonMobil representative.

Water

Mobil Glygoyle Series oils, along with all PAG based lubricants, are hygroscopic and absorb more water than mineral oils or synthetic hydrocarbons before. 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 normally suitable for use with PAG. NBR materials may be used but have restricted temperature range. 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 and PAG lubricants are well suited for gear applications with ferrous and most non ferrous materials. However, Mobil Glygoyle Series and PAG lubricants are not recommended for use with light metal alloys containing Aluminum or Magnesium. PAG lubricants can lead to increased wear when used 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 for interior coatings in contact with the lubricant. 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.

## Specifications and Approvals

| This product has the following approvals: | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
|---|---|---|---|---|---|---|---|
| SEW-Eurodrive | | | X | | | | |

| This product is recommended for use in applications requiring: | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
|---|---|---|---|---|---|---|---|
| Fives Cincinnati P-39 | | | X | | X | | |

| This product is registered to the requirements of: | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
|---|---|---|---|---|---|---|---|
| NSF H1 | | X | X | X | X | X | X |

| This product meets or exceeds the requirements of: | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
|---|---|---|---|---|---|---|---|

| This product meets or exceeds the requirements of: | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
|---|---|---|---|---|---|---|---|
| DIN 51517-3:2018-09 | X | X | X | X | X | X | |
| FDA 21 CFR 178.3570 | | X | X | X | X | X | X |
| ISO L-CKPG (ISO 12925-1:2018) | X | X | X | X | X | X | X |

### Properties and Specifications

| Property | 68 | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
|---|---|---|---|---|---|---|---|---|
| Grade | ISO 68 | ISO 100 | ISO 150 | ISO 220 | ISO 320 | ISO 460 | ISO 680 | ISO 1000 |
| Copper Strip Corrosion, 24 h, 100 C, Rating, ASTM D130 | 1B | 1B | 1B | 1B | 1B | 1B | 1B | 1B |
| Density @ 15.6 C, g/cm3, ASTM D4052 | 1.079 | 1.079 | 1.078 | 1.077 | 1.077 | 1.076 | 1.076 | 1.076 |
| FZG Scuffing, Fail Load Stage, A/8.3/90, ISO 14635-1 | 10 | 12+ | 12+ | 12+ | 12+ | 12+ | 12+ | 12+ |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 260 |
| Four-Ball Wear Test, Scar Diameter, 20 kg, 1800 rpm, 1 h, 54 C, mm, ASTM D4172 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Kinematic Viscosity @ 100 C, mm2/s, ASTM D445 | 11.8 | 17.3 | 26.1 | 38.1 | 55.2 | 77.2 | 112 | 165 |
| Kinematic Viscosity @ 40 C, mm2/s, ASTM D445 | 68 | 100 | 150 | 220 | 320 | 460 | 680 | 1000 |
| Pour Point, °C, ASTM D97 | -30 | -30 | -33 | -33 | -33 | -33 | -33 | -33 |
| Rust Characteristics, Procedure A, ASTM D665 | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Viscosity Index, ASTM D2270 | 170 | 190 | 210 | 225 | 240 | 250 | 265 | 285 |

### Health and Safety

Health and Safety recommendations for this product can be found on the Material Safety Data Sheet (MSDS) @ http://www.msds.exxonmobil.com/psims/psims.aspx

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