ExxonMobil

# Mobilgrease 28

ExxonMobil Aviation , Australia

Synthetic Aviation Grease

## Product Description

Mobilgrease 28 is a supreme performance, wide-temperature, antiwear grease designed to combine the unique features of a polyalphaolefin (PAO) synthetic base fluid with an organo-clay (non-soap) thickener. Its consistency is between an NLGI No. 1 and No. 2 grease. It offers outstanding performance over a wide temperature range. The wax-free nature of the synthetic base fluid, together with its high viscosity index compared to mineral oils, provide excellent low temperature pumpability, very low starting and running torque, and can help reduce operating temperatures in the load zone of rolling element bearings.

The clay thickener gives Mobilgrease 28 a high dropping point value of around 300°C, which provides excellent stability at high temperatures. Mobilgrease 28 resists water washing, provides superior load-carrying ability, reduces frictional drag, and prevents excessive wear. Tests show that Mobilgrease 28 lubricates effectively rolling element bearings under conditions of high speeds and temperatures. Mobilgrease 28 has also shown excellent ability to lubricate heavily loaded sliding mechanisms, such as wing flap screw jacks.

For more than 30 years, Mobilgrease 28 has been the multi-purpose grease of choice for military and related aviation applications, worldwide.

## Features and Benefits

A particular requirement of aviation greases is the need to resist high temperature stresses, while providing excellent starting and low torque at low-temperature. To meet this combination of needs ExxonMobil product formulation scientists chose synthetic hydrocarbon base oils for Mobilgrease 28 because of their low volatility, exceptional thermal/oxidative resistance, and superb low-temperature capability. Formulators chose specific thickener chemistry and a proprietary additive combination which helps maximize the benefits of the synthetic base oils.

Mobilgrease 28 meets the requirements of key military and commercial aviation specifications and has built up a superb reputation for performance and reliability among users around the world.

Mobilgrease 28 provides the following advantages and potential benefits:

| Features | Advantages and Potential Benefits |
|---|---|
| High viscosity index (VI) synthetic base stock with no wax content | Allows wide operating temperature range - outstanding high and low temperature performance<br>Provides thicker fluid films protecting against wear of equipment parts operating at high temperature<br>Causes low resistance during start-up at very low temperatures |
| Excellent protection against wear and corrosion | Superb bearing protection and helps extend bearing life and reduce bearing replacement costs |
| Extreme-pressure protection characteristics | Avoids excessive wear, even under shock load |
| High thermal/oxidative stability | Long relubrication intervals |
| High resistance to water washout | Maintains excellent grease performance in adverse weather and other water-exposure conditions |

## Applications

Mobilgrease 28 is designed for the lubrication of plain and rolling bearings at low to high speeds, and splines, screws, worm gears, and other mechanisms where high friction reduction, low wear, and low lubricant friction losses are required. The recommended operating temperature range is -54°C to 177°C (-65°F to 350°F) with appropriate relubrication intervals.

Mobilgrease 28 is recommended for use in landing wheel assemblies, control systems and actuators, screw jacks, servo devices, sealed-bearing motors, oscillating bearings, and helicopter rotor bearings on military and civil aircraft. Subject to equipment manufacturer approvals, it can also be used on naval shipboard auxiliary machinery and where superseded specifications MIL-G-81322 (WP), MIL-G-7711A, MIL-G-3545B, and MIL-G-25760A are recommended.

Mobilgrease 28 is also recommended for industrial lubrication, including sealed or repackable ball and roller bearings wherever extreme temperature conditions, high speeds, or water washing resistance are factors. Typical industrial applications include conveyor bearings, small alternator bearings operating at temperatures near 177°C (350°F), high-speed miniature ball bearings, and bearing applications where oscillatory motion, and vibration create problems.

Mobilgrease 28 is qualified by the U.S. Military under Specification MIL-PRF-81322, General-Purpose, Aircraft, and Specification DOD-G-24508A (Navy) for shipboard auxiliary machinery. It is a U.S. Military Symbol WTR and NATO Code Number G-395 grease.

## Specifications and Approvals

| This product has the following approvals: |
|---|
| NATO G-395 |
| MIL-PRF-81322G |
| MIL-PRF-24508B |

## Properties and Specifications

| Property | |
|---|---|
| Grade | NLGI 1.5 |
| Base Oil Viscosity of Greases @ 100 C, mm2/s, AMS 1700 | 5.7 |
| Base Oil Viscosity of Greases @ 40 C, mm2/s, AMS 1697 | 29.3 |
| Bomb Oxidation, Pressure Drop, 100 h, kPa, ASTM D942 | PASS |
| Color, Visual | Dark Red |
| Copper Strip Corrosion, 24 h, 100 C, Rating, ASTM D4048 | 1B |
| Dirt, # particles 25u to 74 u, FTM 3005 | Pass |
| Dirt, # particles 75u or larger, FTM 3005 | 0 |
| Dropping Point, °C, ASTM D2265 | 307 |
| Evaporation Loss, 22 h, 177 C, mass%, ASTM D2595 | 6 |
| Falex Block on Ring Oscillating Wear Scar, 35k cycles, 90 deg angle, Al/bronze block, mm, ASTM D3704 | PASS |

| Property | |
|---|---|
| Four-Ball Wear Test, Scar Diameter, mm, ASTM D2266 | 0.6 |
| Load Carrying Capacity, Load-Wear Index, kgf, ASTM D2596 | 40 |
| Low Temperature Torque, Running @ -54 C, 60 min, Nm, ASTM D1478 | 0.05 |
| Low Temperature Torque, Starting @ -54 C, Nm, ASTM D1478 | 0.43 |
| Lubrication Life @ 177 C, h, ASTM D3336 | PASS |
| NBR-L, AMS 3217/2 Compat, 70C 158 h, vol %, FTM 3603 | 6 |
| Oil Separation, 30 h @ 177 C, mass%, ASTM D6184 | 3.5 |
| Oxidation Stability, Pressure Drop, 500 h, kPa, ASTM D942 | PASS |
| Pen Worked X 100,000, 1/16" holes, 0.1 mm, FTM 313 | 303 |
| Penetration, Worked, 60X, 0.1 mm, ASTM D217 | 293 |
| Rust Protection, 48 h @ 125 F, Rating, ASTM D1743 | PASS |
| Texture, VISUAL | Smooth, buttery |
| Thickener, wt%, AMS 1698 | Clay |
| Water Washout, Loss @ 41 C, wt%, ASTM D1264(mod) | 1 |

### 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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Due to continual product research and development, the information contained herein is subject to change without notification. Typical Properties may vary slightly.

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