ExxonMobil

# Mobilgrease™ 33

ExxonMobil Aviation , Portugal

Synthetic Aviation Grease

## Product Description

Mobilgrease 33 is a high-performance lithium-complex grease designed for general-purpose aircraft use. Its consistency is between the NLGI grades 1 and 2. Mobilgrease 33 utilizes a 100% polyalphaolefin base oil and premium additives which ensure outstanding lubrication performance over a wide temperature range and operating conditions.

## Features and Benefits

The lithium complex thickener system provides excellent structural stability and resistance to water wash-out. Polyalphaolefin base oil is used in Mobilgrease 33 because of its exceptional thermal/oxidative resistance potential, low volatility, and superb low-temperature capability, without the potential vulnerability of an ester base oil to degradation from reaction with water. The synthetic polyalphaolefin base oil offers excellent low-temperature mobility/pumpability and very low starting and running torque values. In addition, the state-of-the art additive system in Mobilgrease 33 provides superior rust and wear protection and load-carrying capacity compared to aviation greases that meet the minimum requirements of the MIL-PRF-23827 specification.

Mobilgrease 33, with its unique features, provides the following advantages and potential benefits:

| Features | Advantages and Potential Benefits |
|---|---|
| High viscosity index polyalphaolefin basestock | Very wide operating temperature range - outstanding high and low temperature performance.<br>Excellent lubricant film protection at high temperatures |
| Good storage stability | Grease structure integrity maintained - low oil separation |
| Exceptional resistance to thermal and oxidative degradation | Long grease and lubricated part service life |
| Low volatility | Little vulnerability to significant base oil loss by evaporation in service |
| Resistance to degradation by water (hydrolysis) | No risk of corrosion induced by acidic base oil degradation products |
| Excellent protection against wear, corrosion, and rusting | Excellent bearing and component protection |
| Extreme-pressure characteristics | Prevention of excessive wear, even under shock load |
| High resistance to water washout | Excellent grease performance in adverse weather and other water-exposure conditions |

## Applications

Mobilgrease 33 is a true multipurpose aviation grease intended for use in highly loaded anti-friction bearings, gears, and actuators as well as instruments, high speed bearings (though not recommended for wheel bearings), and general airframe lubrication, over operating temperatures from –100°F to 250°F (–73°C to 121°C). It can be used in all applications for which the aircraft manufacturer specifies U.S. Military Specification MIL-PRF-23827, Type I (Grease, Aircraft and Instrument, Gear and Actuator Screw, Grease thickened with metallic soap), Boeing BMS 3-33C (Grease, Aircraft, General Purpose), and Airbus AIMS09-06-002/SAE AMS3052 (Grease, General Purpose, Airframe, Low Temperature Range, Lithium Thickened). Mobilgrease 33 is listed in the Qualified Products List of Airbus, Boeing, and the U.S. Military for these specifications. The NATO Code Number for Mobilgrease 33 is G-354.

## Specifications and Approvals

| This product has the following approvals: |
|---|
| AIRBUS AIMS 09-06-002 |
| BOEING BMS 3-33C Type 1 |
| MIL-PRF-23827C |
| NATO G-354 |

| This product meets or exceeds the requirements of: |
|---|
| SAE AMS3052 |

## Properties and Specifications

| Property | |
|---|---|
| Grade | NLGI 1.5 |
| Al/Ni Bronze Corrosiveness, 24 h, 100 C, Rating, SAE AMS3058 3.2.7.b | PASS |
| Base Oil Viscosity of Greases @ 100 C, mm2/s, AMS 1700 | 3.2 |
| Base Oil Viscosity of Greases @ 40 C, mm2/s, AMS 1697 | 12.5 |
| Boeing Dynamic Bearing Life, cycles, BMS 3-33 | PASS |
| Bomb Oxidation, Pressure Drop, 100 h, kPa, ASTM D942 | 11 |
| Color, Visual | Blue Green |
| Copper Strip Corrosion, 24 h, 100 C, Rating, ASTM D4048 | 1B |
| Dirt, # particles 25u to 74 u, FTM 3005 | 0 |
| Dirt, # particles 75u or larger, FTM 3005 | 0 |
| Dropping Point, °C, ASTM D2265 | 255 |
| EMCOR Rust, 3% NaCl, IP 220 | 0,0 |
| Evaporation Loss, 22 h, 100 C, mass%, ASTM D2595 | 1 |
| Evaporation Loss, 500 h, 121 C, mass %, ASTM D2595 | 8.7 |
| Four-Ball Extreme Pressure Test, Weld Load, kgf, ASTM D2596 | 700 |
| Four-Ball Wear Test, Scar Diameter, mm, ASTM D2266 | 0.4 |
| Fretting Wear, mg, ASTM D4170 | 0.6 |
| Gear Wear Test, 2.3 kg load, 1000 cycles, gear wt loss, mg, FTM 335 (mod) | 1.1 |

| Property | |
|---|---|
| Gear Wear Test, 4.5 kg load, 1000 cycles, gear wt loss, mg, FTM 335 (mod) | 1.6 |
| High Temperature Performance, Hrs at 121 C, h, ASTM D3336 | 2,200+ |
| Load Carrying Capacity, Load-Wear Index, kgf, ASTM D2596 | 110 |
| NBR-L, AMS 3217/2 Compat, 70C 158 h, vol %, FTM 3603 | 12.6 |
| Odor, OLFACTORY | PASS |
| Oil Separation, 30 h @ 100 C, mass%, ASTM D6184 | 4 |
| Oxidation Stability, Pressure Drop, 500 h, kPa, ASTM D942 | 25 |
| Penetration, 60X, 0.1 mm, ASTM D217 | 292 |
| Penetration, Unworked, 0.1 mm, ASTM D217 | 285 |
| Rust Protection, 48 h @ 125 F, Rating, ASTM D1743 | 0,0,0 |
| Texture/Consistency, VISUAL | PASS |
| Timken OK Load, lb, ASTM D2509 | 55 |
| Water Washout, Loss @ 38 C, wt%, ASTM D1264 | 3 |
| Water Washout, Loss @ 79 C, wt%, ASTM D1264 | 6 |
| Pen Worked X 100,000, 1/16" holes, 0.1 mm, FTM 313 | 330 |
| Low Temperature Torque, Starting @ -73 C, Nm, ASTM D1478 | 0.52 |
| Low Temperature Torque, Running @ -73 C, Nm, ASTM D1478 | 0.06 |

### 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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Exxon Mobil Corporation
22777 Springwoods Village Parkway
Spring TX 77389
For additional technical information or to identify the nearest U.S. ExxonMobil supply source, call +1 800 662-4525.
http://www.exxonmobil.com

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