# Mobil SHC Cibus™ Series

Mobil Industrial , South Korea

High Performance NSF H1 Registered Lubricants for Food Machinery

Performance as described below*

## Product Description

Mobil SHC Cibus™ Series lubricants are outstanding performance hydraulic, compressor, gear and bearing oils designed to provide outstanding equipment protection, long oil life and problem-free operation in the food and beverage processing and packaging industries. They are formulated from FDA and NSF registered hydrocarbon base fluids and additives. The combination of the naturally high viscosity index and the proprietary additive system enables the Mobil SHC Cibus series lubricants to provide outstanding performance in a wide range of service applications at high and low temperatures, high loading and in areas of high wash-down well beyond the capabilities of typical mineral oils.

Mobil SHC Cibus lubricants 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. Also, the Mobil SHC Cibus Lubricants are manufactured at ISO 22000 certified facilities that also meet the requirements of ISO 21469 helping to ensure that the highest levels of product integrity are maintained. They are also suitable for Kosher and Halal food preparation for multi faith applications and to offer processing engineers maximum flexibility during operations. The products are pale in color with low odour and are formulated to be free of animal derived materials and allergens from nuts, wheat or gluten.

The Mobil SHC Cibus Series products have low traction coefficients, derived from the molecular structure of the base stocks used. This results in low fluid friction in the load zone of non-conforming surfaces. Low fluid friction produces lower operating temperatures and improved equipment efficiency, which potentially translates into reduced power consumption. The carefully engineered products also help to extend the service life of machinery components and allow for more economical equipment design. Moreover, the additive system used in these oils has been selected to provide good wear protection, excellent oxidation stability, protection against rust and corrosion even in moist environments and provide good system cleanliness. The Mobil SHC Cibus Series oils are also compatible with seals and other construction materials used in equipment normally lubricated with mineral oils.

The Mobil SHC Cibus Series oils can be used as hydraulic, gear, bearing and circulating oils in all areas within the food processing plant and can be included as part of a HACCP plan. The products meet the most rigorous performance requirements of a range of component manufacturers using various multi-metallurgy designs that help allow a single product series to lubricate effectively. Because they offer productivity and NSF H1 registration benefits, the Mobil SHC Cibus products can be used both above and below the processing line to reduce inventory costs and reduce the risks of non H1 registered lubricants being dispensed in high contamination risk areas.

Through outstanding traction properties, Mobil SHC Cibus Series lubricants have demonstrated the potential to provide significant energy savings — 3.6% in gear applications* and 3.5% in hydraulic applications** — versus conventional oils in statistically validated field and laboratory tests.

Mobil SHC Cibus 150-460 will not contribute to MOAH content in food when used in accordance with FDA 21CFR178.3570 limitations.

## Features and Benefits

The Mobil SHC brand of lubricants is recognised and appreciated around the world for innovation and outstanding performance. These molecular designed products based on synthetic materials symbolise the continuing commitment to use advanced technology to provide outstanding lubricant products. Not least among the benefits is the potential for efficiency improvements compared to mineral oils.

The Mobil SHC Cibus Series oils offer the following features and potential benefits.

| Features | Advantages and Potential Benefits |
|---|---|
| NSF H1 registered lubricants | Allows use in food and beverage packaging and processing applications |
| Manufactured in facilities that are ISO 22000 certified and registered to ISO 21469 | Product integrity assurance through independent verification. |
| High viscosity index | Maintains viscosity and film thickness at high temperatures to help protect equipment<br>Exceptional low temperature performance, including low power consumption at start-up |
| High load carrying capability | Helps protect equipment and extend life<br>Minimizes unexpected downtime and extends service periods |
| Good seal compatibility | Helps reduce potential oil leakage |
| Excellent oxidation stability | Provides long oil and helps extend equipment life |
| Excellent water separation and good corrosion protection | Helps prevent internal systems from corrosion even where large quantities of water are present<br>Maintains lubrication performance even after high pressure wash downs |
| Meets a wide range of equipment requirements | Multi-service applications - One product can replace several<br>Helps minimize inventory requirements and reduces potential for product misapplication |

## Applications

Handling and Storage Recommendations

It is recommended that Mobil SHC Cibus lubricants should be stored inside and segregated from other non NSF H1 lubricants. Ideally, they should be stored in a clearly signed, separate, designated inside area. Drums and pails should not be stacked below or above other non NSF H1 lubricants. New packaging should be free from damage with an unbroken seal. Record the delivery date, batch number and expiration date. Record the date of initial seal breakage and use the contents in time by suitable stock rotation. Close all package openings after use. Do not replace unused oil in the container. Use clearly labeled dedicated equipment for internal transportation. Label machinery with the name of the correct NSF H1 lubricant where appropriate.

Lubricant Changeover

While the Mobil SHC Cibus Series may be physically compatible with other NSF H1 or non NSF H1 registered mineral oil based products, a mixture may detract from their performance and also from their registration status. Consequently it is recommended that before changing systems from non H1 lubricants to the Mobil SHC Cibus Series, or even for brand new equipment, the system should be thoroughly cleaned out and flushed to achieve the

maximum performance benefits and to comply with H1 registration.

Applications

Mobil SHC Cibus Series lubricants are recommended for use in a wide variety of hydraulic, compressor, gear and bearing applications within food and beverage processing, packaging and pharmaceuticals. The products are effective in many applications including those where maintenance costs of component replacement, system cleaning and lubricant changes are high.

- Mobil SHC Cibus 32, 46 and 68 are high performance fluids intended for hydraulic, circulating, compressor and vacuum pump applications

- Mobil SHC Cibus 100, 150, 220, 320 and 460 are intended for gear, bearing and circulating systems

A suitable used oil analysis program, such as Mobil Serv Lubricant Analysis from ExxonMobil, can help monitor the concentration of wear metals and provide information on appropriate actions.

Incidental Food Contact Only per FDA 21CFR 178.3570

Mobil SHC Cibus series lubricants are registered to the requirements of NSF H1 for incidental food contact only which means a limitation of 10ppm oil in food product per FDA 21CFR 178.3570. They are not to be used as direct food contact lubricants.

Specifications and Approvals

| This product has the following approvals: | MOBIL SHC CIBUS 32 | MOBIL SHC CIBUS 46 | MOBIL SHC CIBUS 68 | MOBIL SHC CIBUS 100 | MOBIL SHC CIBUS 150 | MOBIL SHC CIBUS 220 | MOBIL SHC CIBUS 320 | MOBIL SHC CIBUS 460 |
|---|---|---|---|---|---|---|---|---|
| Arburg Hydraulic Fluid | | X | | | | | | |
| Halal | X | X | X | X | X | X | X | X |
| Kosher & Parve | X | X | X | X | X | X | X | X |

| This product is registered to the requirements of: | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NSF H1 | X | X | X | X | X | X | X | X |

| This product meets or exceeds the requirements of: | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Canadian Food Inspection Agency Acceptance | | | | | X | X | X | X |
| DIN 51506:2017-08 VDL | X | X | X | X | | | | |
| DIN 51517-2:2018-09 | | | | X | | | | |
| DIN 51517-3:2018-09 | | | | | X | X | X | X |
| DIN 51524-2:2017-06 | X | X | X | X | | | | |
| Eaton 35VQ25 pump test requirements per Brochure No. 03-401-2010, Rev 1 | X | X | X | | | | | |
| FDA 21 CFR 178.3570 | X | X | X | X | X | X | X | X |

## Properties and Specifications

| Property | MOBIL SHC CIBUS 32 | MOBIL SHC CIBUS 46 | MOBIL SHC CIBUS 68 | MOBIL SHC CIBUS 100 | MOBIL SHC CIBUS 150 | MOBIL SHC CIBUS 220 | MOBIL SHC CIBUS 320 | MOBIL SHC CIBUS 460 |
|---|---|---|---|---|---|---|---|---|
| Grade | ISO 32 | ISO 46 | ISO 68 | ISO 100 | ISO 150 | ISO 220 | ISO 320 | ISO 460 |
| Copper Strip Corrosion, 3 h, 100 C, Rating, ASTM D130 | 1B | 1B | 1B | 1A | 1A | 1B | 1B | 1B |
| Density @ 15 C, kg/l, ASTM D4052 | 0.843 | 0.846 | 0.851 | 0.839 | 0.843 | 0.843 | 0.854 | 0.856 |
| FZG Load Carrying Capacity, A/8.3/90, DIN ISO 14635-1 | >12 | >12 | >12 | | | | | |
| FZG Scuffing, A/8.3/90, Fail Stage, Rating, DIN 51354 | | | | | >13 | | | |
| FZG Scuffing, Fail Load Stage, A/8.3/90, ISO 14635-1 | | | | 12 | | >13 | >13 | >13 |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 244 | 244 | 258 | 270 | 226 | 274 | 284 | 294 |
| Kinematic Viscosity @ 100 C, mm2/s, ASTM D445 | 5.8 | 7.9 | 10.4 | 14.6 | 20.7 | 24.5 | 32.7 | 43.6 |
| Kinematic Viscosity @ 40 C, mm2/s, ASTM D445 | 30.7 | 46.4 | 67.5 | 100 | 162 | 222 | 311 | 458 |
| Pour Point, °C, ASTM D97 | -51 | -50 | -47 | -45 | -21 | -24 | -42 | -42 |
| Rust Characteristics, Procedure A, ASTM D665 | PASS | PASS | PASS | PASS | PASS | PASS | PASS | PASS |
| Viscosity Index, ASTM D2270 | 134 | 140 | 140 | 143 | 150 | 139 | 147 | 148 |

## 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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06-2023

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Typical Properties are typical of those obtained with normal production tolerance and do not constitute a specification. Variations that do not affect product performance are to be expected during normal manufacture and at different blending locations. The information contained herein is subject to change without notice. All products may not be available locally. For more information, contact your local ExxonMobil contact or visit www.exxonmobil.com

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