# Mobil SHC™ 800 Series

Mobil Industrial , Japan

Turbine Oils

## Product Description

Mobil SHC™ 800 Series turbine oils are designed specifically to meet the needs of the most severe industrial gas turbine applications with a nominal 10,000 hour TOST life. They are recommended for the lubrication of land-based gas turbines, particularly units under 3,000 hp used as standby power units, and in some types of total energy and combined cycle (gas/steam) systems. This product family is formulated with synthesized hydrocarbons and a unique additive system. This formula provides outstanding low temperature fluidity and exceptional resistance to degradation at high temperatures. Mobil SHC 800 Series lubricants also provide excellent antiwear properties as well as protection against rust and corrosion plus good air release performance and resistance to foaming.

These characteristics help to provide superior resistance to thermal/oxidative degradation during the heat soaking period after shutdown and permit rapid oil circulation at low temperatures during start-up. Degradation resistance is a key attribute in avoiding harmful deposits that can interfere with lubrication supply to the bearings or foul critical servo-valves. This is a particular issue when gas turbines are running in cycling mode and experience multiple thermal stress cycles. Since low temperature fluidity and high viscosity index are inherent characteristics of the fluids, they resist changes in service as a result of mechanical shearing or repeated cycling from low to high temperatures. Mobil SHC 800 Series oils are fully compatible with mineral oils, but admixture will detract from their superior performance properties.

## Features and Benefits

The Mobil SHC brand of lubricants are recognised and appreciated around the world for their innovation and outstanding performance. These Mobil SHC synthetic products, pioneered by our research scientists, symbolise the continuing commitment to using advanced technology to provide outstanding products. Mobil brand products have also been the choice for turbine operators worldwide since they were first commercialized more than one hundred years ago. During that period our technical experts have stayed in close contact with OEMs to ensure that our product offerings would provide exceptional performance in the continually evolving turbine equipment designs. Familiarity with evolving designs and operational conditions is a key input to the application of the best lubricant technology in the development of products that will provide the performance demanded by users.

One general trend over the years has been to higher power output designs, which can lead to greater thermal stress of the lubricant. This thermal exposure is exacerbated by cycling operation which is employed by gas turbine operators to manage the supply/demand balance of electrical power generation, which results in heat soak-back at each shut-down sequence. Resisting thermal degradation is thus a key property required of a modern gas turbine oil lubricant.

To combat high thermal exposure of the oil, our product formulation scientists chose proprietary synthetic base oils for Mobil SHC 800 Series oils because of their exceptional thermal/oxidative resistance capabilities. Our formulators chose specific additives that would maximize the benefits of the synthetic base oils to provide exceptional oil life and deposit control and resistance to thermal and chemical degradation, as well as the balance of the performance features. The synthetic base oil also provides outstanding low temperature fluidity characteristics unmatched by mineral turbine oils and is a key benefit for remote, low temperature ambient applications. Among the numerous benefits and features of Mobil SHC 800 are:

| Features | Advantages and Potential Benefits |
|---|---|
| Outstanding high thermal/oxidative stability and deposit control | High level of resistance to heat soak-back after turbine shutdown<br>Less deposit build-up and improved reliability and lower maintenance costs<br>Long oil charge life and lower product costs |
| Excellent low temperature fluidity | Reliable flow and lubrication during cold starts, even at very low temperatures |
| Naturally high Viscosity Index | Improved equipment protection at high temperatures |
| Very good resistance to foaming and good air release | Efficient system operation and less un-planned stoppages |

| Features | Advantages and Potential Benefits |
|---|---|
| Excellent antiwear performance | Excellent equipment protection and reduced equipment replacement costs |

## Applications

Mobil SHC 800 Series turbine oils are designed specifically to meet the needs of the most severe industrial gas turbine applications and ancillary equipment. Specific applications include:

- Severe stationary gas turbine applications, particularly units under 3,000hp, for stand-by power generation
- Industrial gas turbines operating in low ambient and remote areas
- Total energy systems

## Specifications and Approvals

| This product has the following approvals: | 824 | 825 |
|---|---|---|
| Mitsubishi Power Ltd MS04-MA-CL003(Rev.4) | X | |
| Siemens TLV 9013 04 | X | X |
| Siemens TLV 9013 05 | X | X |

| This product is recommended for use in applications requiring: | 824 | 825 |
|---|---|---|
| GE Power GEK 101941A | X | |
| GE Power GEK 28143B | X | |

| This product meets or exceeds the requirements of: | 824 | 825 |
|---|---|---|
| GE Power GEK 32568Q | X | |
| Solar Turbines ES 9-224, CLASS I | X | X |

## Properties and Specifications

| Property | 824 | 825 |
|---|---|---|
| Grade | ISO VG 32 | ISO VG 46 |
| Air Release Time, 50 C, min, ASTM D3427 | 1 | 1 |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 248 | 248 |
| Foam, Sequence I, Stability, ml, ASTM D892 | 0 | 0 |
| Foam, Sequence I, Tendency, ml, ASTM D892 | 10 | 20 |
| Kinematic Viscosity @ 100 C, mm2/s, ASTM D445 | 5.9 | 7.9 |

| Property | 824 | 825 |
|---|---|---|
| Kinematic Viscosity @ 40 C, mm2/s, ASTM D445 | 31.5 | 43.9 |
| Pour Point, °C, ASTM D97 | <-54 | -45 |
| Specific Gravity, 15.6 C/15.6 C, ASTM D1298 | 0.83 | 0.83 |
| Turbine Oil Stability Test, Life to 2.0 mg KOH/g, h, ASTM D943 | 9500 | 9500 |
| Viscosity Index, ASTM D2270 | 135 | 145 |

**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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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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