E**∦onMobi**l

Mobilgard 560 VS

ExxonMobil Marine , Belgium

Diesel Engine Cylinder Oil

Product Description

Mobilgard^M 560 VS by ExxonMobil is a high performance, marine diesel engine cylinder oil designed for use in crosshead engines running heavy fuel with sulfur from 0.5-4%. This new cylinder lubricant technology provides maximum protection from adhesive and corrosive wear at the higher operating temperatures and pre found in today's modern crosshead engines. The outstanding performance of Mobilgard 560 VS has been demonstrated at the highest peak firing pressures an temperatures.

Mobilgard 560 VS employs additives with greater thermal stability and acid-corrosion protection. It has an optimum viscosity of 20 cSt @ 100°C and low volati optimal lubricant distribution and film retention. Through the use of patented technology, the oil's higher viscosity is attained without the use of thermally un deposit-producing bright stock. Unique additive technology at the 60 TBN alkalinity level in Mobilgard 560 VS has demonstrated outstanding ring and liner prot and cleanliness under sustained operation with fuel sulphur levels below 1%.

Features and Benefits

Mobilgard 560 VS cylinder oil offers the following features and potential benefits:

| Features | Advantages and Potential Benefits |
|---|---|
| Excellent thermal and oxidation stability | Helps reduce deposits and sludge formation Clean engines reduce the lay-up time required for overhauls |
| Exceptional antiwear properties | Reduced liner and ring wear helps promote extended periods between overhauls Excellent anti-scuffing control |
| Outstanding detergency capability | Excellent engine cleanliness increases combustion efficiency Helps miminise deposit formation with use of low sulfur (<1%) fuels |
| High TBN level and retention | Effectively handles wide fuel sulfur range from 0.5-4.0% at 70 BN equivalent feed rates Helps to maximize protection against the corrosive effects of high sulphur fuels |

Applications

Mobilgard 560 VS has been developed for marine crosshead engines designed for increased power and fuel efficiency. Mobilgard 560 VS has also demons excellent performance in earlier engine designs and during slow speed steaming operation.

Specifications and Approvals

This product meets or exceeds the requirements of:

MAN Energy Solutions Copenhagen (Heritage MAN B&W) 2-Stroke engines according to manufacturer's latest operating guidelines

Japan Engine Corporation (Heritage MHI) 2-Stroke engines according to manufacturer's latest operating guidelines

Winterthur Gas and Diesel Engine (Heritage Wartsila & Sulzer) 2-Stroke engines according to manufacturer's latest operating guidelines

Mobilgard 560 VS

| Property | |
|---|--------|
| Grade | SAE 50 |
| Flash Point, Cleveland Open Cup, °C, ASTM D92 | 248 |
| Kinematic Viscosity @ 100 C, mm2/s, ASTM D445 | 20 |
| Kinematic Viscosity @ 40 C, mm2/s, ASTM D445 | 219 |
| Pour Point, °C, ASTM D97 | -20 |
| Specific Gravity, 15 C/15 C, ASTM D4052 | 0.922 |
| Total Base Number, mgKOH/g, ASTM D2896 | 60 |
| Viscosity Index, ASTM D2270 | 105 |

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.as

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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

