Mobiltherm 600 Series

Mobil Industrial , New Zealand

Heat transfer Oils

Product Description

Mobiltherm heat transfer oils are high performance products intended for use in closed indirect heating installations. They are recommended for use in cold-oil sealed, indirect heating and cooling systems in all kinds of industrial processes.

Mobiltherm heat transfer oils are formulated from highly refined base stocks that are resistant to thermal cracking and chemical oxidation. They are very thermally stable and are capable of an extremely long service life without deposit formation or viscosity increase.

Mobiltherm heat transfer oils have good heat transfer efficiency and their viscosities are such that they can be pumped readily at both start-up and operating temperatures. They demonstrate specific heat and thermal conductivities that provide more rapid heat dissipation. The flash points of these oils will not decrease significantly in service because of their resistance to thermal cracking at the operating temperatures for which they are recommended.

Features and Benefits

Mobiltherm 600 Series offer the following benefits:

Mobiltherm oils are important members of the Mobil brand of specialty fluids that have gained a reputation for performance and reliability, even in severe applications. Modern refining techniques are a key factor in providing the excellent product features.

Features	Advantages and Potential Benefits
High resistance to thermal cracking and decomposition	Free from sludge and coke deposits and minimum interference with heat transfer capability and minimized maintenance needs
Excellent thermal properties	High heat transfer rates and improved operating efficiency and lower operating costs
Good thermal and oxidative stability	Long trouble free service life and reduced downtime
Good low temperature fluidity	Easy starting of cold systems

Applications

Application Considerations: Mobiltherm heat transfer oils should not be mixed with other oils since this may impair the excellent thermal and oxidation stability resulting in a change in other properties, and complicate analyses aimed at determining useful oil life. If the oils are used above their recommended maximum temperatures, vapor lock may result unless the system is designed to operate at the higher temperature by pressurizing with an inert gas such as nitrogen. At higher temperatures, fluid life will be shortened because the rate of thermal degradation which increases markedly as temperatures rise above the recommended limit. In well-designed systems the temperature of the oil film surrounding the heating element should be about 15°C to 30°C above the bulk oil temperature. If higher than this, the service life of the oil may be shortened and sludge and coke may be deposited which would interfere with the heat transfer rates.

As with other mineral oils, Mobiltherm heat transfer oils should be used only in systems with forced circulation. Systems that depend on convection for circulation of the heat transfer medium do not provide a rapid enough flow to prevent local overheating and rapid deterioration of the oil. Further, these oils are not recommended for use in open systems where hot oil is exposed directly to the air. If they spray or escape from leakage points, hot Mobiltherm oils may spontaneously ignite.

Mobiltherm 600 series can be used in open and closed installations, where the recommended bulk oil temperature ranges are:

- Mobiltherm 603: Closed Systems (up to 285° C), Open Systems (up to 150° C)
- Mobiltherm 605: Closed Systems (up to 315° C), Open Systems (up to 180° C)
- Mobiltherm 610: Closed Systems (up to 315° C), Open systems (up to 250°C)
- Mobiltherm 611: Closed Systems (up to 315° C), Open systems (up to 275°C)

and the recommended oil film temperature ranges are:

- Mobiltherm 610: Closed Systems (up to 330° C), Open systems (up to 265°C)
- Mobiltherm 611: Closed Systems (up to 330° C), Open systems (up to 290°C)

Properties and Specifications

Property	603	605	610	611
Density @ 15 C, kg/l, ASTM D1298	0.835	0.857	0.880	0.906
Flash Point, Cleveland Open Cup, °C, ASTM D92	194	230	250	294
Kinematic Viscosity @ 100 C, mm2/s, ASTM D445	4.2	5.4	11.5	31.5
Kinematic Viscosity @ 40 C, mm2/s, ASTM D445	20.2	30.4	113	490
Pour Point, °C, ASTM D97	-15	-12	-6	-6

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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02-2024
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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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