

Mobil

Product Data Sheet

Mobiltherm

Premium Heat Transfer Oils

Product Description

Mobiltherm heat transfer oils are premium, high quality products intended for use in closed indirect heating installations. They are formulated from highly refined base stocks which are resistant to thermal cracking and chemical oxidation. They have good heat transfer efficiency and their viscosities are such that they can be pumped readily at both start-up and operating temperatures. 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.

The Mobiltherm products are very thermally stable and are capable of an extremely long service life without deposit formation or viscosity increase. They have high specific heats and thermal conductivities which provide more rapid heating and greater flexibility in a system.

Benefits

Mobiltherm heat transfer oils offer the following benefits:

- High resistance to thermal cracking and decomposition resulting in freedom from sludge and coke deposits and minimum interference with heat transfer capability
- Excellent thermal properties giving high heat transfer rates and improved operating efficiency
- Long trouble free service life
- Easy starting of cold systems

Applications

Mobiltherm heat transfer oils are recommended for use in closed, cold-oil sealed, indirect heating and cooling systems in all kinds of industrial processes operating at bulk oil temperatures up to a maximum of 320°C and at atmospheric pressure.

Mobiltherm 603 and **Mobiltherm 605** can be used in installations where the bulk oil temperature is as high as 290°C and 320°C respectively and where minimum shutdown temperatures are not below about -12°C.

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. However, at higher temperatures, fluid life will be shortened because the rate of

thermal degradation 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.

Mobiltherm heat transfer oils should not be mixed with conventional oils since this may impair the excellent thermal and oxidation stability of the Mobiltherm oils, cause a change in other properties, and complicate the interpretation of analyses made to determine the oil's useful life.

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.

Typical Properties

Mobiltherm		603	605
Product Code		970170	970767
	Test Method		
Viscosity	ASTM D445		
cSt at 40°C		20	29
cSt at 100°C		4.0	5.1
Specific Gravity	ASTM D1298	0.865	0.872
Flash Point, °C	ASTM D92	200	210
Pour Point, °C	ASTM D97	-12	-15
Color	ASTM D1500	1.0	2.0
Recommended Max bulk oil temp, °C		290	320

Health & Safety

Mobiltherm 603 and **Mobiltherm 605** are formulated from solvent refined or severely hydrotreated oils. Based on available toxicological information, these products produce no adverse effects on health when properly handled and used. No special precautions are suggested beyond attention to good personal hygiene, including laundering oil-soaked clothing and washing skin contact areas with soap and water.

Additional health and safety information on the Mobiltherm heat transfer oils, including Material Safety Data Bulletins, is available on request from your local Mobil company.