VULCAN HEAT TRANSFER OILS

VULCAN HEAT TRANSFER OILS are high quality fluids designed specifically for use in circulating hot oil systems. They are produced from high viscosity index paraffinic base stocks and specialized additives.

The additive system in **VULCAN HEAT TRANSFER OILS** provides a number of benefits. Anti-oxidants inhibit the formation of harmful sludge and varnish deposits that can impede heat transfer and clog systems. Also, special additives enhance thermal conductivity that improves heat transfer and system efficiency. **VULCAN HEAT TRANSFER OILS** resist thermal cracking and decomposition giving them the ability to operate for extended periods between change outs.

VULCAN HEAT TRANSFER OILS are recommended for open hot oil systems that operate up to 400°F and in closed systems up to 600°F. Such systems are found in a wide variety of industries such as plastics, chemicals, food, paper and road construction.

BENEFITS:

- EXCELLENT THERMAL STABILITY EXTENDS SERVICE LIFE
- INHIBITS SLUDGE AND VARNISH DEPOSITS
- OUTSTANDING THERMAL CONDUCTIVITY FOR RAPID HEAT TRANSFER AND MAXIMUM SYSTEM EFFICIENCY

TYPICAL CHARACTERISTICS

SAE Viscosity Grade	32	46	68
Product Code	15460	15461	15462
API Gravity (ASTM D-1298)	31.5	31.2	31.0
Specific gravity	0.868	0.870	0.871
Viscosity (ASTM D-445):			
cSt @ 40°C	31.9	47.0	69.0
cSt @ 100°C	5.49	6.96	8.76
SUS @ 100°F	164	242	358
SUS @ 210°F	45	50	56
Viscosity Index (ASTM D-2270)	108	104	99
Pour Point (ASTM D-97) °F (°C)	-15 (-26)	-15 (-26)	-15 (-26)
Flash Point (ASTM D-92) °F (°C)	400 (204)	415 (213)	460 (238)
Color (ASTM D-1500)	2.5	2.5	2.5

The above data is subject to usual manufacturing variation. For more information and availability, call 1-800-442-LUBE.
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Vapor Pressure

The vapor pressure of lubricating oils is very low and except for certain low vacuum or very high temperature applications, it is not a limiting factor in typical lubrication practice. Vapor pressure is a physical property not normally obtained or measured for lubricating oils and data for specific products are not available. To obtain actual data it is usually necessary to determine the boiling points at several reduced pressures, then plot and extrapolate the data to the temperatures of application.

Examples below show the order of magnitude of the vapor pressure of lubricating oils. This property may or may not correspond to Noak volatility.

Approximate Vapor Pressure Vulcan Oils (mm Hg)*

Temperature, F	150 SUS oil (aprox ISO 32)	300 SUS oil (approx ISO 68)	400 SUS Oil (less than an ISO 100)
100	4×10^{-5}	5×10^{-7}	2.5×10^{-7}
150	3×10^{-4}	7×10^{-6}	2.7×10^{-6}
250	1.5×10^{-2}	9×10^{-4}	4×10^{-4}
350	0.8	0.12	5.5×10^{-2}
450	5.8	1.5	0.7
550	35	15	7.4

* Vulcan oils are assumed to have a specific gravity of 0.868-0.871

Thermal Conductivity/Specific Heat

The thermal conductivity of petroleum liquids are calculated as

$$K = \frac{0.813}{d} [1-0.0003(t-32)]$$

where K is the thermal conductivity in Btu per hour per square foot and degree F per inch, d = specific gravity of liquid at 60/60 F and t = temperature in degrees F. The values below have an accuracy within 10 percent.

Approximate Properties for Vulcan Oils*

Temperature degrees F	Thermal Conductivity Btu per Hour, square ft and F per inch	Thermal Conductivity Calories per second cm and C per centimeter	Specific Heat Btu/lb degree F
0	0.94 to 0.95	-	0.416
32 (0 C)	-	0.00032	0.432
200	0.88 to 0.89	-	0.513
212 (100 C)	-	0.00030	0.513
392 (200 C)	-	0.00029	0.604
400	0.83 to 0.84	-	0.609
572 (300 C)	-	0.00027	0.692
600	0.77 to 0.78	-	0.705

* Vulcan oils are assumed to have a specific gravity of 0.868-0.871