SINCE 1839 Schaeffer's SPECIALIZED LUBRICANTS

TECHNICAL DATA

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ISO 9001 CERTIFIED

281M MARINE HEAT TRANSFER OIL

Marine Heat Transfer Oil is a non-corrosive, non-fouling, paraffinic heat transfer fluid formulated to provide fast and efficient heat transfer when used in open loop or closed system applications with expansion tank temperatures up to 600°F (315°C). Heat Transfer Oil's operability temperature is from 20°F (-7°C) to a maximum film temperature of 600°F (315°C).

Marine Heat Transfer Oil is specifically designed for marine hot oil systems and asphalt barges.

Heat Transfer Oil is blended from the finest select high viscosity index, severely solvent refined, severely hydro-treated base oils available to exhibit the following performance characteristics:

- **High Viscosity Index –** This results in a minimum change in viscosity over a broad temperature range.
- **High Thermal and Oxidative Stability –** This results in the product having resistance to cracking, carbon, sludge, varnish and lacquer formation during high temperature operation.
- **Low Volatility Characteristics –** The low volatility of paraffin base oils results in lower makeup requirements, eliminates vapor lock in circulating pumps and reduces the possibility of cavitation.
- **Flash and Fire Points Significantly Above 400°F (204°C) and Auto-Ignition Temperature Above 608°F (320°C).**

Marine Heat Transfer Oil also offers the following benefits:

- High thermal efficiency for rapid and efficient transfer of heat.
- Low vapor pressure at elevated temperatures and high boiling point to prevent pressure build-up.
- Non-corrosive to system parts.
- Excellent hydrolytic stability and resistance to emulsification with water.
- Excellent compatibility with other petroleum base heat transfer oils.
- Excellent compatibility with all types of seals, materials of construction and finishes commonly used in heat transfer systems.
- Non-fouling on degradation.
- Virtually odorless and essentially non-toxic.
- Long service life for proven trouble-free operation.

TYPICAL PROPERTIES

Specific Gravity 60°F	0.86
Viscosity cSt, @ 40°C	40.0-45.0
Viscosity cSt, @ 100°C	6.0-7.0
Viscosity Index (ASTM D-2270)	106
Flash Point °F/°C (ASTM D-92)	>417°/214°
Auto-ignition Temperature °F/°C	684°/330°
Pour Point °F/°C (ASTM D-97)	0°/-18°
Total Acid No. (ASTM D-664)	0.1
Copper Strip Corrosion Test (ASTM D-130)	1a
Noack Volatility (ASTM D-5800) % Evaporation Loss @ 150°C	10
Coefficient of Thermal Expansion	4.2 $X10^{-4}$/°F
Coefficient of Thermal Expansion	7.6 $X10^{-4}$/°C

Vapor Pressure @ 450°F, mmHg	2.1
Thermal Conductivity BTU-inches/hr-sq ft-°F	
32°F/-0°C	0.95
300°F/149°C	0.87
600°F/315°C	0.78
Thermal Conductivity Watt/Meter-K (W/M-°K)	
32°F/-0°C	0.137
300°F/149°C	0.125
600°F/315°C	0.112
Specific Heat BTU/lb/°F	
32°F/-0°C	0.40
300°F/149°C	0.53
600°F/315°C	0.68
Specific Heat Kilojoule/kilogram-K (kj/kg-°K)	
32°F/-0°C	1.67
300°F/149°C	2.22
600°F/315°C	2.85
Thermal Diffusivity in^2/hr	
32°F/-0°C	0.52
300°F/149°C	0.41
600°F/315°C	0.33
Thermal Diffusivity mm2/s	
32°F/-0°C	0.093
300°F/149°C	0.073
600°F/315°C	0.059