PETRO-CANADA LUBRICANTS

AN HF SINCLAIR BRAND

TECH DATA
PETRO-THERM™
HEAT TRANSFER FLUID

INTRODUCTION

Petro-Canada Lubricants PETRO-THERM is a heat transfer fluid developed for use in non-pressurized, liquid phase heat transfer systems operating at bulk fluid temperatures up to 315°C (599°F). It is specifically formulated to provide long service life and excellent thermal efficiency in a variety of industrial applications while resisting oxidative and thermal degradation.

FEATURES AND BENEFITS

Excellent thermal stability

- Resists high temperature degradation
- Long fluid life
- Low fluid make-up
- Minimizes sludge and coke formation
- Helps to lower maintenance costs

Good physical properties at an economical price

- High thermal efficiency over a wide temperature range
- Easy system start-up
- Low vapour pressure
- Resists corrosion
- Not considered a toxic[1] substance according to OSHA (United States), WHMIS (Canada) and EUCLP (Europe) criteria.

APPLICATIONS

PETRO-THERM is recommended for use in non-pressurized, liquid phase, closed heat transfer systems operating with bulk fluid temperatures up to 315°C (599°F). PETRO-THERM provides long, economical service in various industrial process applications such as asphalt plants, marine, wood processing, dry kilns and institutional laundry and heating. To inquire on a specific application or for technical service advice, contact a Petro-Canada Lubricants Technical Services Advisor.

SERVICE LIFE

PETRO-THERM is designed to provide long service life under normal operating conditions up to the fluid's maximum recommended temperature. However, actual fluid life is dependent upon system design and maintenance practices. It is recommended that the oil's condition be monitored on a regular basis as the rate of change of physical characteristics is more significant than the actual values.

DISPOSAL

Used PETRO-THERM may be responsibly disposed in the following ways[2]:

- through re-sale to used oil recycling companies
- in some jurisdictions, combined with BTU recovery systems

Empty drums are readily accepted by drum reconditioners.

[1]Non-toxic defined as non-controlled under WHMIS, non-hazardous under OSHA and non-dangerous under EUCLP.
[2]Any transport and disposal practice must be in compliance with federal, state, provincial and/or local laws and regulations.

THERMAL DATA

Property	TEMPERATURE			
	15°C (59°F)	38°C (100°F)	260°C (500°F)	316°C (600°F)
Density, kg/L (lb/ft^3)	0.869 (54.3)	0.855 (53.4)	0.714 (44.6)	0.679 (42.4)
Thermal Conductivity, W/m.K (Btu/hr.°F.ft)	0.143 (0.083)	0.142 (0.082)	0.130 (0.075)	0.128 (0.074)
Heat Capacity, kJ/kg.K (Btu/lb.°F)	1.89 (0.45)	1.97 (0.47)	2.69 (0.64)	2.88 (0.69)
Vapour Pressure, kPa (psia)	0.00 (0.00)	0.00 (0.00)	2.65 (0.39)	11.44 (1.64)

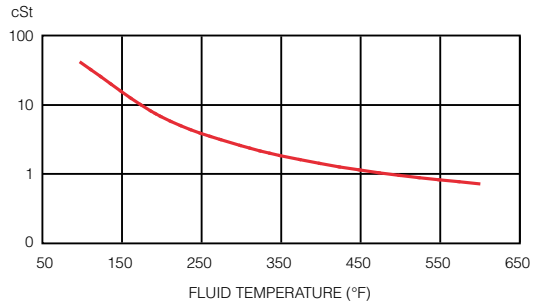
For detailed heat transfer calculations, please refer to a Petro-Canada Lubricants Technical Services Advisor.

TYPICAL PERFORMANCE DATA

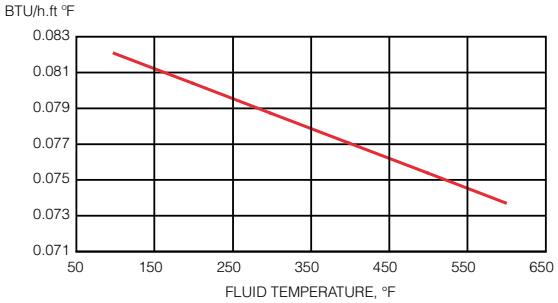
Property	Test Method	PETRO-THERM
Colour	ASTM D1500	< 0.5
Pour Point, °C (°F)	ASTM D5950	-18 (0)
Flash Point, COC, °C (°F)	ASTM D92	225 (437)
Fire Point, °C (°F)	ASTM D92	245 (473)
Autoignition Temperature, °C (°F)	ASTM E659	352 (666)
Viscosity, cSt at 40°C (104°F) cSt at 100°C (212°F) cSt at 316°C (600°F)	ASTM D445	35.8 5.7 0.7
Average Molecular Weight		379
Neutralization Value, TAN, mg/KOH/g	ASTM D664	< 0.1
Sulfur by XRF, wt%	ASTM D4294	0.0326
Conradson Carbon Residue, wt%	ASTM D189	0.03
Coefficient of Thermal Expansion, %/°C (%/°F)		0.0932 (0.0518)
Distillation Range, °C (°F) 10% 50% 90%	ASTM D2887	 376 (709) 423 (793) 471 (880)

The values quoted above are typical of normal production. They do not constitute a specification.

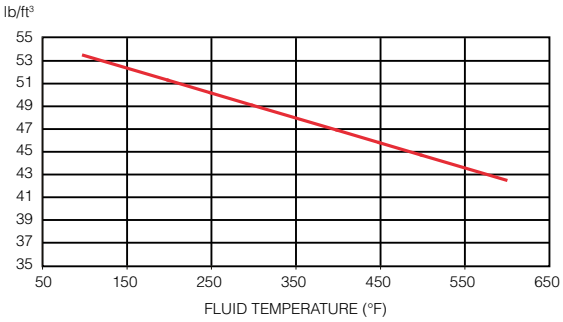
PLOT OF KINEMATIC VISCOSITY vs TEMPERATURE FOR PETRO-THERM



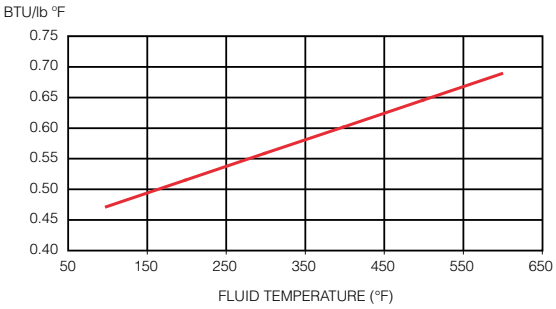
PLOT OF THERMAL CONDUCTIVITY vs TEMPERATURE FOR PETRO-THERM



PLOT OF CHANGE IN DENSITY vs TEMPERATURE FOR PETRO-THERM



PLOT OF HEAT CAPACITY vs TEMPERATURE FOR PETRO-THERM



Learn more about us: **petrocanadalubricants.com**
Contact us: **lubecsr@hfsinclair.com**

Committed to the disciplined operation of our business.

CERTIFIED
ISO 9001: 2015
ISO 14001: 2015
IATF 16949: 2016

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IM-7849E (2024.01)