



## PETRO-THERM™/PETRO-THERM PPD HEAT TRANSFER OIL

### Introduction

Petro-Therm™ is a heat transfer oil 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. Petro-Therm PPD can be used for cold start-ups at low ambient temperatures.

### 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\* substance according to OSHA (United States), WHMIS (Canada) and DPD (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). For cold start-ups at low ambient temperatures, Petro-Therm PPD is recommended. Petro-Therm will give 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 your Petro-Canada representative.

### Service Life

Petro-Therm has been 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\*\*:

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

The empty drums are readily accepted by drum reconditioners.

#### What is the HT difference?

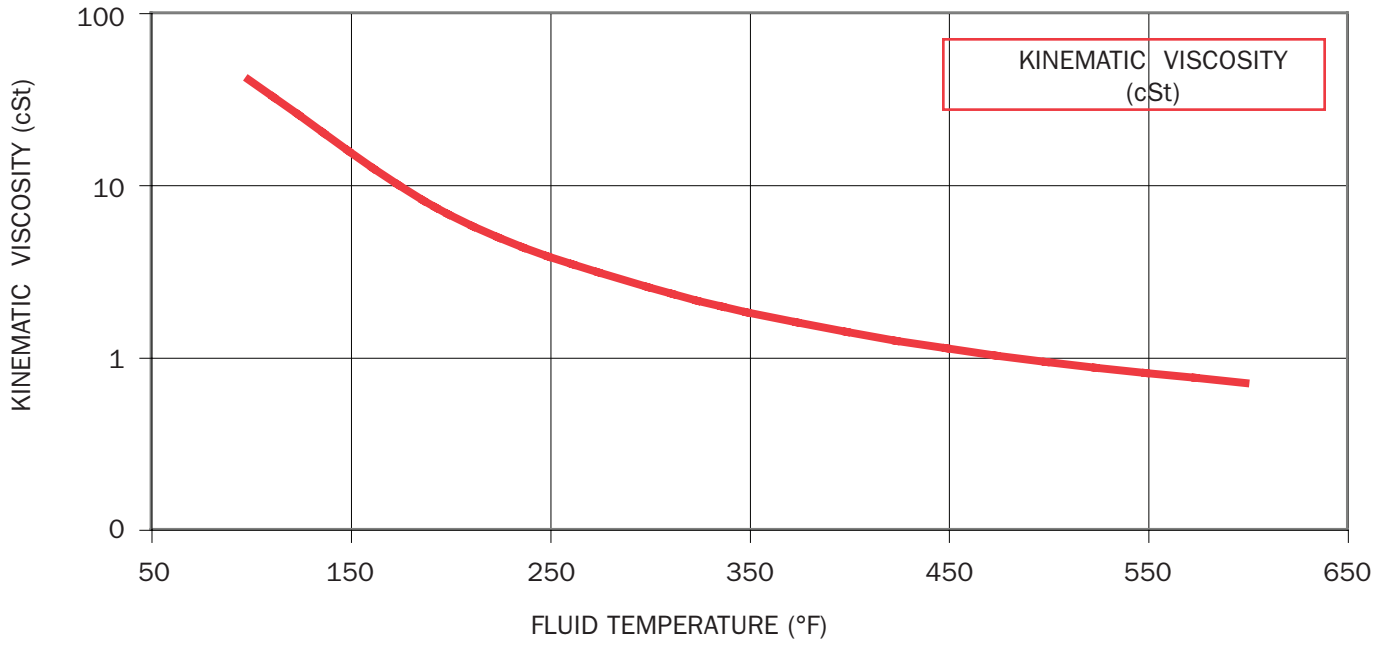
Petro-Canada starts with the HT purity process to produce water-white, 99.9% pure base oils. The result is a range of lubricants, specialty fluids and greases that deliver maximum performance for our customers.



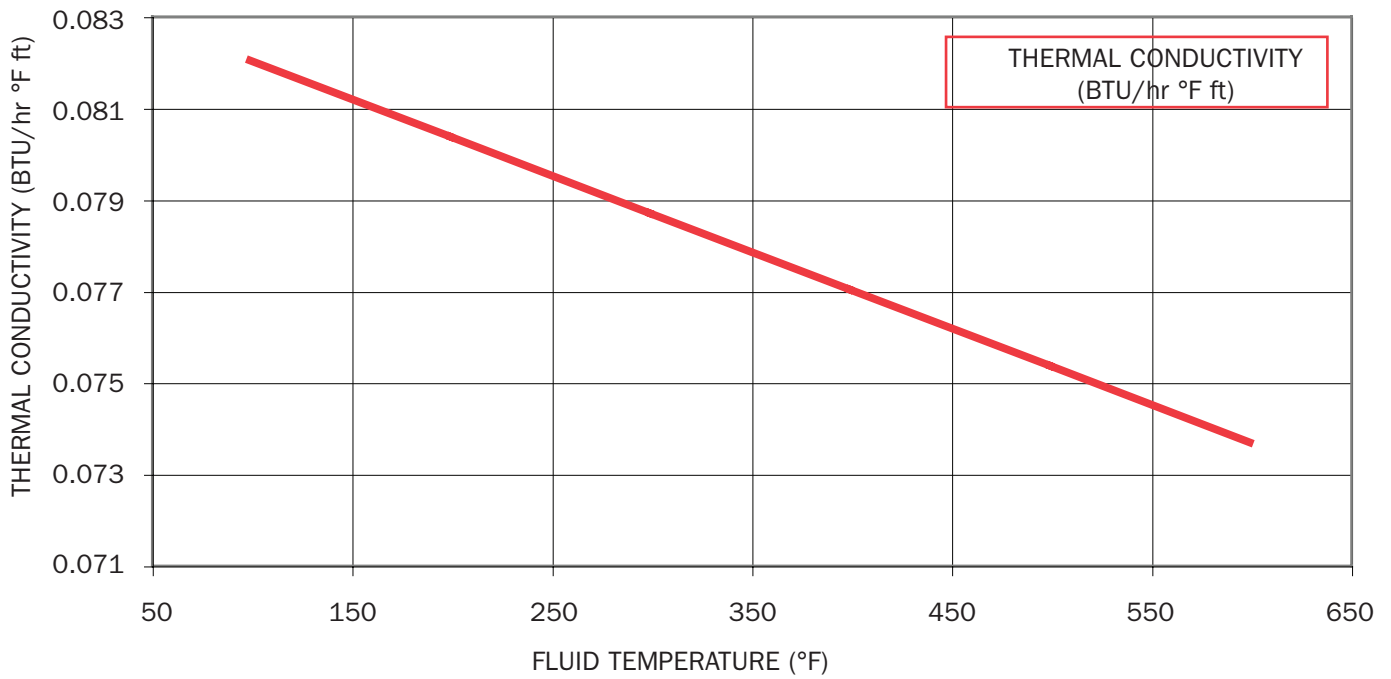
\*non-toxic defined as non-controlled under WHMIS, non-hazardous under OSHA and non-dangerous under DPD.

\*\*Any transport and disposal practice must be in compliance with federal, state, provincial and/or local laws and regulations.

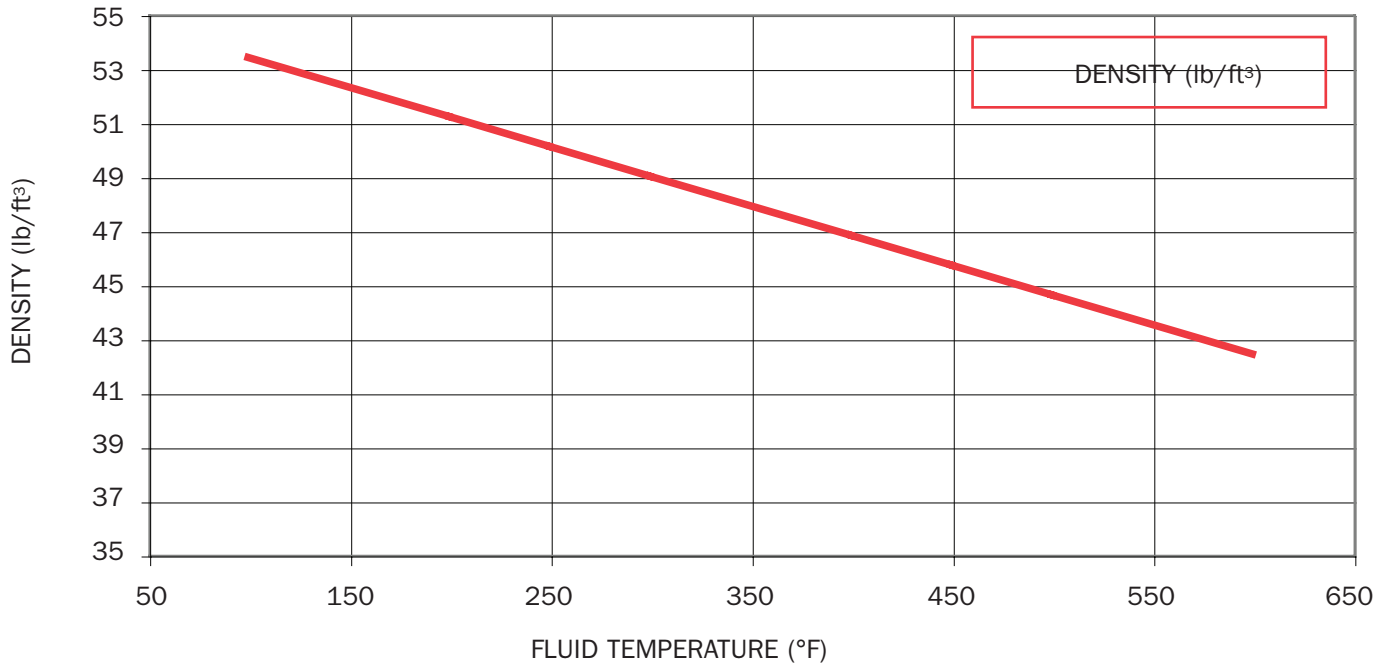
### PLOT OF KINEMATIC VISCOSITY vs TEMPERATURE FOR PETRO-THERM



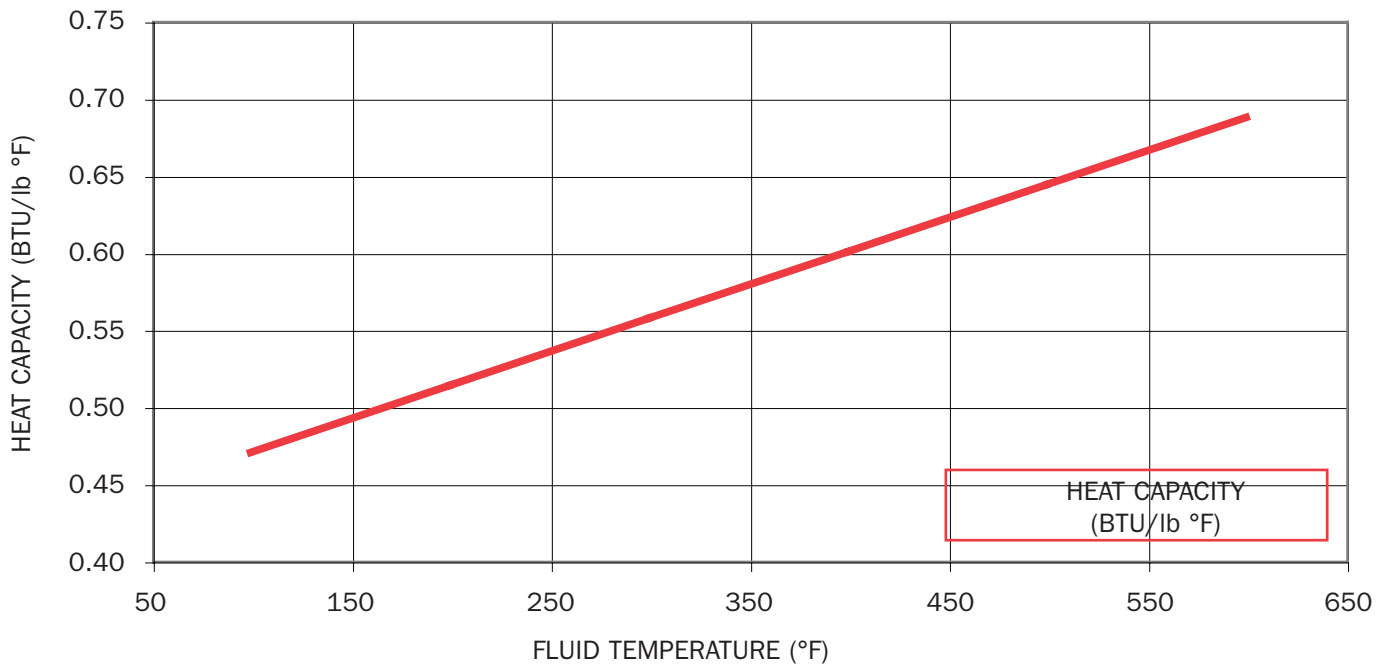
### PLOT OF THERMAL CONDUCTIVITY vs TEMPERATURE FOR PETRO-THERM



### PLOT OF CHANGE IN DENSITY vs TEMPERATURE FOR PETRO-THERM



### PLOT OF HEAT CAPACITY vs TEMPERATURE FOR PETRO-THERM



## 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 <sup>3</sup> )	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)

## Typical Performance Data

PROPERTY	TEST METHOD	PETRO-THERM	PETRO-THERM PPD
Colour	ASTM D1500	< 0.5	< 0.5
Pour Point, °C (°F)	ASTM D5950	-18 (0)	-39 (-38)
Flash Point, COC, °C (°F)	ASTM D92	225 (437)	227 (441)
Fire Point, °C (°F)	ASTM D92	245 (473)	245 (473)
Autoignition Temperature, °C (°F)	ASTM E659	352 (666)	352 (666)
Viscosity, cSt at 40°C (104°F)	ASTM D445	35.8	36.5
cSt at 100°C (212°F)		5.7	5.8
cSt at 316°C (600°F)		0.7	0.7
Average Molecular Weight		379	379
Neutralization Value, TAN, mg/KOH/g	ASTM D664	< 0.1	< 0.1
Sulfur by XRF, wt%	ASTM D4294	0.0326	0.0326
Conradson Carbon Residue, wt%	ASTM D189	0.03	0.03
Coefficient of Thermal Expansion, %/°C (%/°F)		0.0932 (0.0518)	0.0932 (0.0518)
Distillation Range, °C (°F)	ASTM D2887		
10%		376 (709)	376 (709)
50%		423 (793)	423 (793)
90%		471 (880)	471 (880)

For detailed heat transfer calculations, please refer to our Engineering Assistant software which is available at no cost from your Petro-Canada representative.

## Health and Safety

To obtain Material Safety Data Sheet (MSDS), contact one of Petro-Canada's TechData Info Lines.



## TechData Info Lines

To place an order, please call a Customer Order Management Representative at :

**Canada (English)** . . . . . Phone 1-800-268-5850  
**(French)** . . . . . Phone 1-800-576-1686  
**United States** . . . . . Phone 1-877-730-2369  
**Latin America** . . . . . Phone +1-416-730-2369  
**Europe** . . . . . Phone +1-416-730-2389  
**Asia** . . . . . Phone +1-416-730-2372  
**China** . . . . . Phone +86 (21) 6362-0066

To learn more about how Petro-Canada lubricants, specialty fluids, oils and greases can help maximize your equipment performance, savings and productivity, please contact us at :

**North America** . . . . . Phone 1-866-335-3369  
**Europe** . . . . . Phone +44 (0) 121-781-7264  
**Germany** . . . . . Phone +49 (0) 201 726-2913  
**Latin America** . . . . . Phone +1-416-730-2369  
**Asia** . . . . . Phone +1-416-730-2372  
**China** . . . . . Phone +86 (21) 6362-0066  
**Email** . . . . . sales@suncor.com

You can also e-mail us at [lubecsr@suncor.com](mailto:lubecsr@suncor.com)

Visit us on the web at [lubricants.petro-canada.ca](http://lubricants.petro-canada.ca)