

DelcoTerm® S ODB



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SYNTHETIC DIATHERMIC OIL FOR HIGH TEMPERATURES

The **DelcoTerm® S ODB** is a eutectic mixture of diphenyl oxide and biphenyl, usable as a liquid or as a boiling-condensing heat transfer medium up to 750°F (400°C). It is miscible and interchangeable with other similarly constituted diphenyl-oxide/biphenyl fluids.



A superior synthetic heat transfer fluid that delivers outstanding performance and thermal stability at continuously high operating temperatures. With low vapour pressure, high thermal conductivity and oxidation stability, **DelcoTerm® S ODB** offers excellent heat transfer properties over extended periods operating at temperatures up to 400°C. Maximum heat transmission to the process vessel or equipment will allow the use of smaller circulating system pumps, valves and heating coils. Used fluid may be disposed of through a number of environmentally acceptable methods, such as used oil recycling or heavy fuels burning. When draining hot fluid after flushing, normal safety precautions should be taken to prevent burns and the risk of fire.

DelcoTerm® S ODB is recommended for use in non-pressurized, indirectly heated, closed loop, liquid phase heat transfer systems operating at bulk fluid temperatures up to 400°C. **DelcoTerm® S ODB** is recommended for heat transfer systems operating under mild temperature conditions, where a good low temperature fluidity is required to ensure the correct flow rate during start-up. **DelcoTerm® S ODB** has low toxicity and is suitable for use in heat transfer systems of food, feed and drink plants.

As with any heat transfer oil, certain precautions should be taken to ensure satisfactory performance of **DelcoTerm® S ODB** in service. These include:

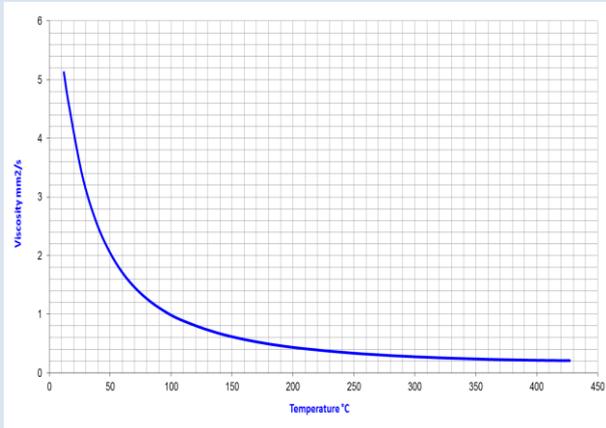
- Before full temperature is imposed, all air and water should be completely vented.
- Hot oil is rapidly oxidised by air, causing thickening and deposit formation. At places where the oil is in contact with the atmosphere, e.g. the expansion vessel, the oil should not exceed 70°C for prolonged times or the oil needs to be blanketed with inert gas. Copper and its alloys promote rapid oil degradation in the presence of air and need to be avoided at these places.
- Hot oil circulating pumps must be checked frequently to prevent air from entering. Always use fresh fluid to top off system. Fluid burped out the vent or collected in drip pans should be discarded.

While unused **DelcoTerm® S ODB** is compatible with most organic and synthetic heat transfer oils prior laboratory testing is recommended before toping-up the system with this product. Adding **DelcoTerm® S ODB** as a top-up to used fluids may help to increase fluid life (i.e., aromatic types).

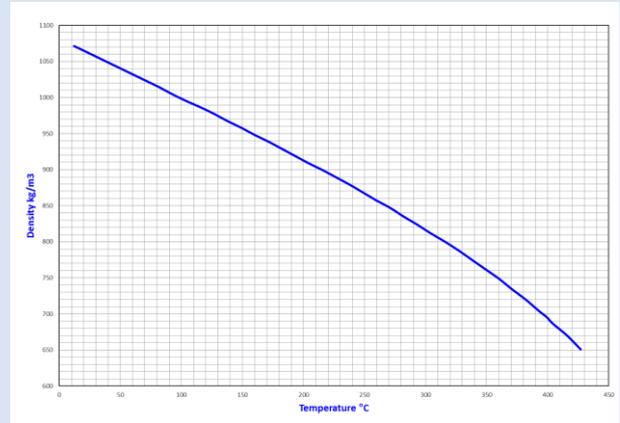
DelcoTerm® S ODB presents no hazard to health or safety under good standards of industrial and personal hygiene.

The following graphs and tables show the average properties of thermodynamic parameters in function of temperature. **(liquid phase)**

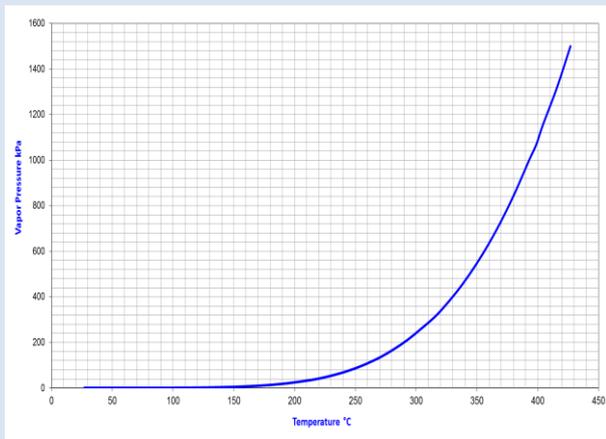
VISCOSITY VS TEMPERATURE



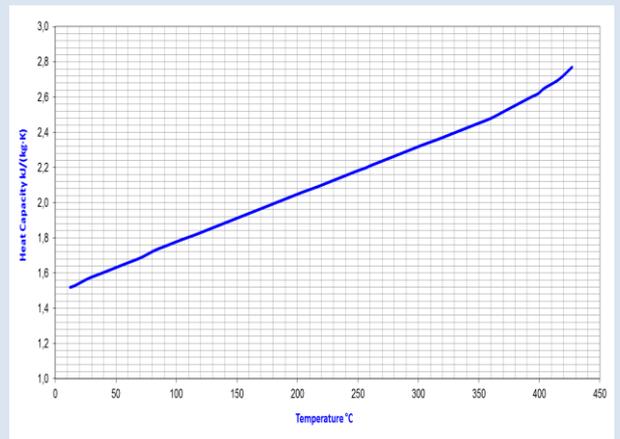
DENSITY VS TEMPERATURE



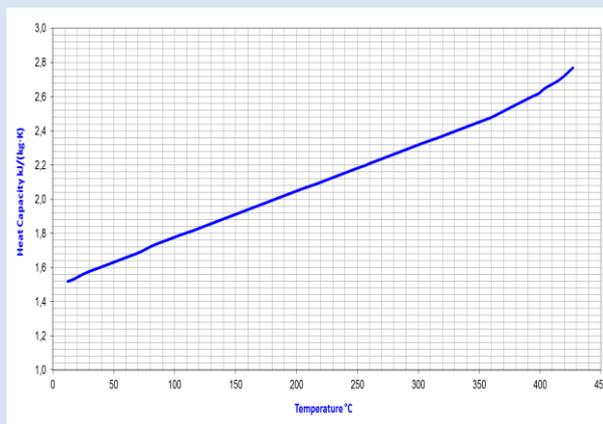
VAPOUR PRESSUR VS TEMPERATURE



HEAT CAPACITY VS TEMPERATURE

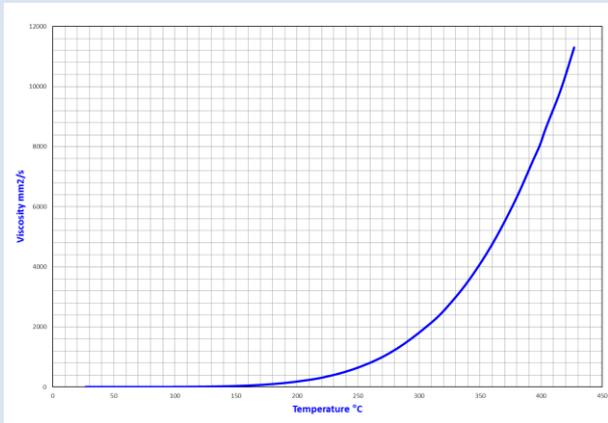


THERMAL CONDUCTIVITY VS TEMPERATURE

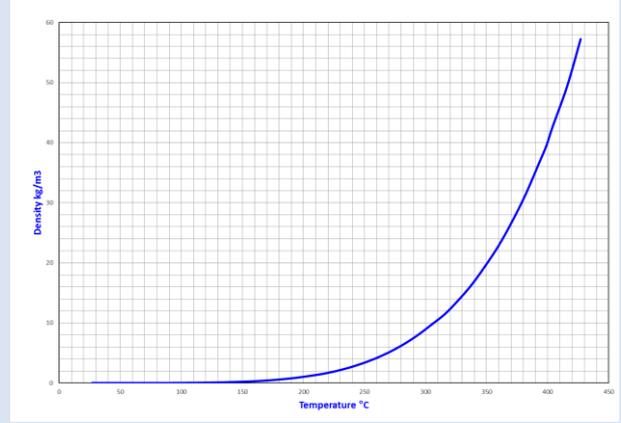


The following graphs and tables show the average properties of thermodynamic parameters in function of temperature. **(vapor phase)**

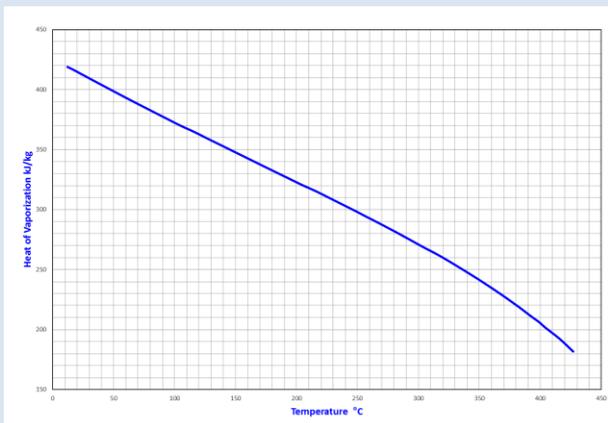
VISCOSITY VS TEMPERATURE



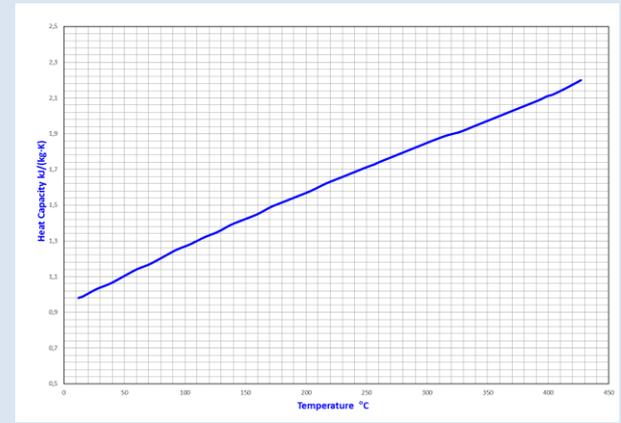
DENSITY VS TEMPERATURE



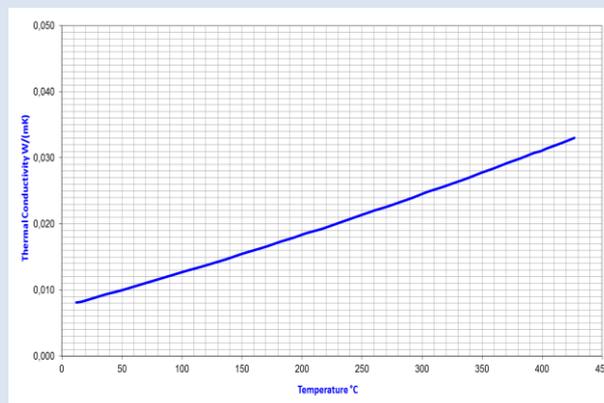
HEAT OF VAPORISATION VS TEMPERATURE



HEAT CAPACITY VS TEMPERATURE



THERMAL CONDUCTIVITY VS TEMPERATURE



<i>Parameter</i>		<i>U.d.M.</i>	<i>Typical values</i>
Appearance			Clear, water-white liquid
Composition			Biphenyl and diphenyl oxide
Moisture Content, Maximum		ppm	300
Chlorine		ppm	< 10
Sulfur		ppm	< 10
Neutralization Number		mg KOH/g	< 0,2
Copper Corrosion (ASTM D-130)			<< 1 a
Flash Point, Open Cup (ASTM D-92)		°C	124
Flash Point, Closed Cup (Pensky-Martens)		°C	110
Fire Point (ASTM D-92)		°C	127
Autoignition Temperature (ASTM E-659)		°C	621
Kinematic Viscosity	at 40 °C	mm ² /s (cSt)	2,48
	at 100 °C	mm ² /s (cSt)	0,99
Density at 25 °C		kg/m ³	1060
Specific Gravity (60 °F/60 °F)			1,069
Coefficient of Thermal Expansion at 200 °C		1/°C	0,000979
Average Molecular Weight			166
Crystallization Point		°C	12
Volume Contraction Upon Freezing		%	6,27
Volume Expansion Upon Melting		%	6,69
Surface Tension in Air at 25 °C		dyn/cm	36,6
Heat of Fusion		kJ/kg	97,3
Normal Boiling Point		°C	257
Heat of Vaporization at Maximum Use Temperature 400 °C		kJ/kg	206
Specific Resistivity at 20 °C		ohm·cm	6,4 x 10 ¹¹
Optimum Use Range	Liquid	°C	12 to 400
	Vapor	°C	260 to 400
Maximum Film Temperature		°C	425
Pseudocritical Temperature		°C	499
Pseudocritical Pressure		bar	33,1
Pseudocritical Density		kg/m ³	327