DelcoTerm®Solar E 15

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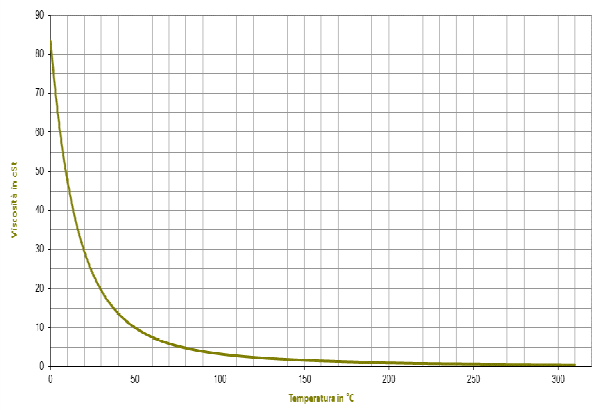
HIGH PURITY HEAT TRANSFER FLUID FOR SOLAR PLANTS

The fluid **DelcoTerm®Solar E 15** is an high quality oil, paraffinic based, transparent, colourless, odourless, selected, refined and treated with particular processes which make it meet the purity requirements requested by the Pharmacopoeia. For its specific physical-chemical characteristics it is particularly suitable to be used, only in the liquid phase, as an heat transfer fluid in oleo-thermic plants of chemical and pharmaceutical industries, cosmetic companies and production and/or packaging of products intended for feeding both human and animals and in any case in all the applications for which it is required, for regulations or for the product quality, the use of a high purity fluid. Because of its low grade of toxicity and the possible biodegradability the **DelcoTerm®Solar E 15** is particularly suitable for oleothermic plants distributed over large areas, with catch basins, not protected by any small leaks destined to end up in the ground below. It is the case of the circuits of solar concentrator panels, which use large amounts of tubes, in which a fluid with special ability to operate at high temperature (over 300° C) must flow without damages such as to undermine its operating life. Up to now, for these kind of applications, they have been used aromatic hydrocarbons based fluids, having similar thermo-technical characteristics, but they are surely more harmful to the environment in case of leaks.

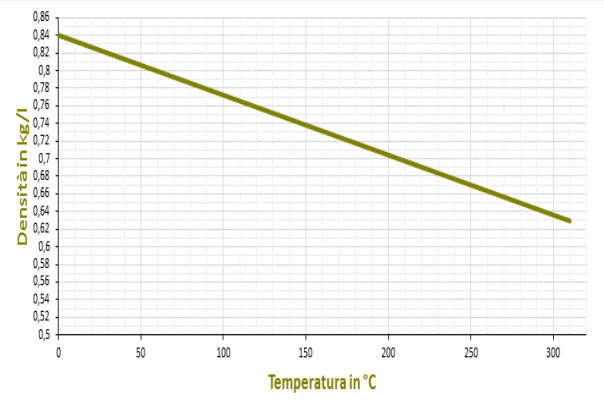
The **DelcoTerm®Solar E 15** has been studied and developed in order to respond to the needs of these kind of plants, that is to have the thermo-technical characteristics sufficient to operate on an oleo-thermic plant at the same level of an aromatic fluid. The close distillation range chosen (335°C÷455°C) makes the fluid highly resistant to cracking. The temperature at which the thermal cracking of the more easily perishable molecules occurs exceeds 350°C, which means that the fluid is capable to withstand even higher wall temperatures.

The **DelcoTerm®Solar E 15** oil has high distillation point (2%) and flash point, low vapor pressure, absolute chemical inertness against all materials used in oleo-thermic circuits, low pour point and good low temperature pumpability, that put it at the forefront of the best heat transfer oils on the market. It has excellent chemical and thermal stability, that's why it is particularly resistant to all the classic phenomena of deterioration, such as **oxidation** and **cracking**, to which an oil is normally subjected on an oleo-thermic plant. The following graphs show the trend of the main thermodynamic parameters with the change of temperature, while the final table shows the most important physical-chemical characteristics.

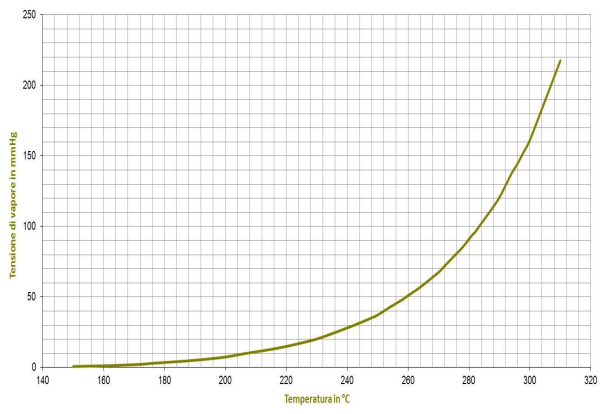
VISCOSITY VS TEMPERATURE



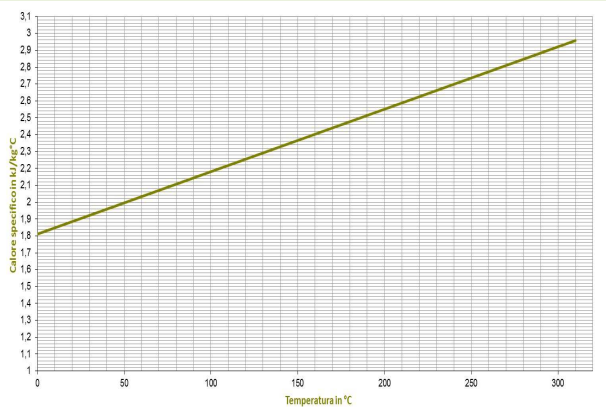
DENSITY VS TEMPERATURE



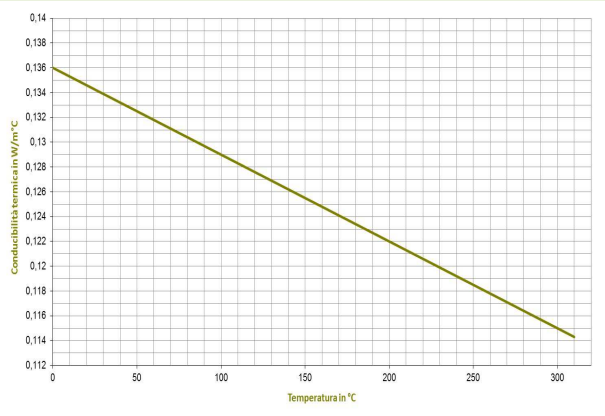
VAPOUR PRESSION VS TEMPERATURE



SPECIFIC HEAT VS TEMPERATURE



THERMAL CONDUCTIVITY VS TEMPERATURE



Parameters	*Unit of Measure*	*Typical Values*
Appearance	-	Clear
Colour	N°	Colourless
Density at 15°C	kg/lt	0,825
Kinematic viscosity at 40 °C	cSt	15 max
Kinematic viscosity at 100 °C	cSt	3,3 max
Pour point	°C	-25 max
Flash point (COC)	°C	210 min
Flash point (PM)	°C	200 min
Autoignition temperature	°C	345 min
Distillation temperature (2%) at 760 mmHg	°C	335 min
Max bulk temperature	°C	320 max
Max film temperature	°C	345 max
Carbon residue Conradson	% in weight	<0,05
Total acid number (TAN)	mgKOH/g	<0,02
Cubical expansion coefficient	1/C°	0,00065
Aromatic carbon	% mol	Absent
Sulfur content	% in weight	Absent
Purity criteria for White Oils according to FDA		Compliant

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