



## DOWTHERM™ T

**Product Type** Synthetic organic heat transfer fluid

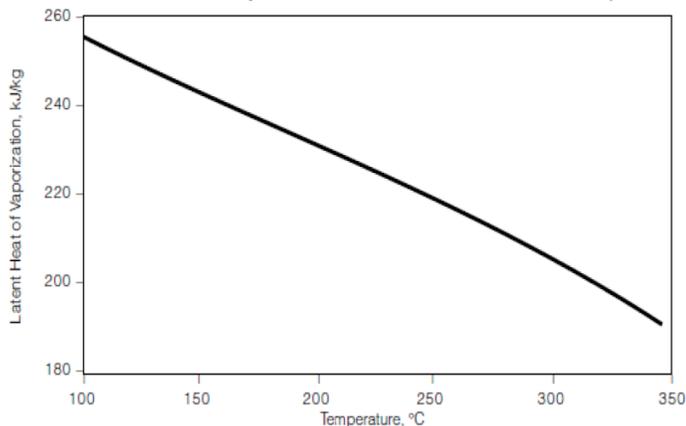
- Applications**
- Designed for use in non-pressurized systems
  - Liquid-phase operation only
  - Good low temperature properties allow for low temperature start-up
  - Has a high flash point
  - Good thermal stability at the maximum use temperature
  - Single-dose oral toxicity is considered to be extremely low, LD<sub>50</sub> in rats > 15,800 mg/kg.

**Recommended Use Temperature Range** DOWTHERM T fluid has an optimum maximum use temperature of 288°C (500°F). It can be used to an extended bulk temperature of 315°C (600°F).

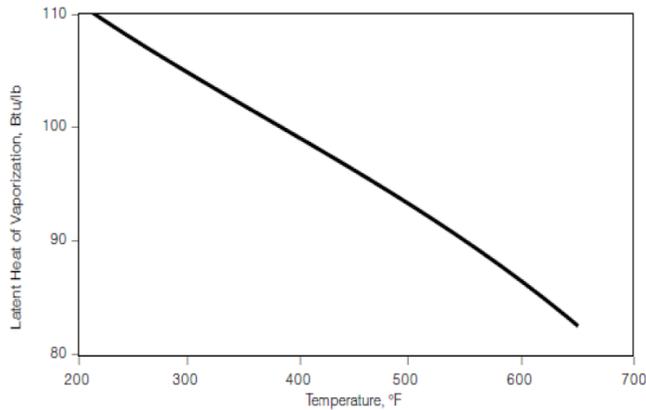
**Description** DOWTHERM™ T heat transfer fluid is a mixture of C<sub>14</sub>-C<sub>30</sub> alkyl benzenes intended for use in applications that require liquid-phase heat transfer. DOWTHERM T fluid can be used in non-pressurized systems, and is pumpable below -10° (14°F).

**Expansion Tank Design** Even though DOWTHERM T fluid can be operated in a non-pressurized system, it is recommended that the tank have an inert atmosphere. Nitrogen padding should be used on the expansion to exclude oxygen from the heat transfer system. The presence of oxygen will cause accelerated fluid degradation, which will considerably shorten the fluid lifetime. For additional system design information, please consult *Equipment for Systems using DOWTHERM Heat Transfer Fluids* (form 176-01335).

Calculated Latent Heat of Vaporization for DOWTHERM T Fluid (SI Units)



Calculated Latent Heat of Vaporization for DOWTHERM T Fluid (English Units)



**Typical Properties†**

Composition		
C <sub>14</sub> to C <sub>30</sub> alkyl benzene derivatives		
Color	Clear, yellow liquid	
Property	SI Units	English Units
<b>Distillation Range:</b>		
Initial Boiling Point	345°C	653°F
20% by Volume	352°C	665°F
Flash Point, COC	188°C	370°F
Fire Point, COC	210°C	410°F
Autoignition Temperature ASTM D-2155	375°C	707°F
Density at 25°C (77°F)	869.8 g/m <sup>3</sup>	54.36 lb./ft. <sup>3</sup>
Estimated Critical Temperature	375°C	707°F
Estimated Critical Pressure	10.3 bar	1030 kPa
Estimated Critical Volume	4.32 l/kg	0.069 ft. <sup>3</sup> /lb.
Average Molecular Weight	318	318
Heat of Combustion	42808 kJ/kg	18373 Btu/lb.

†Not to be construed as specifications.

Saturation Properties of DOWTHERM™ T Fluid (English Units)

Temperature °F	Specific Heat Btu/lb. °F	Density lb./ft. <sup>3</sup>	Thermal Conductivity Btu/hr. ft. <sup>2</sup> (°F/ft.)	Viscosity (cP)	Vapor Pressure (psia)
20	0.450	55.66	0.0813	184.8	0.0
100	0.482	53.75	0.0756	13.9	0.0
180	0.513	51.84	0.0699	3.87	0.0
260	0.545	49.93	0.0642	1.74	0.0
340	0.577	48.02	0.0585	1.00	0.0
420	0.608	46.11	0.0528	0.65	0.3
500	0.640	44.19	0.0471	0.47	1.2
580	0.672	42.28	0.0414	0.36	4.1
600	0.680	41.80	0.0400	0.33	5.4

### Saturation Properties of DOWTHERM™ T Fluid (SI Units)

Temperature °C	Specific Heat kJ/kg K	Density kg/m <sup>3</sup>	Thermal Conductivity W/m K	Viscosity mPa·s	Vapor Pressure kPa
-10	1.873	893.9	0.141	251.68	0.0
40	2.022	859.5	0.130	12.80	0.0
90	2.171	825.0	0.119	3.28	0.0
140	2.320	790.6	0.108	1.45	0.1
190	2.469	756.1	0.097	0.82	0.6
240	2.618	721.7	0.086	0.54	4.3
290	2.767	687.2	0.075	0.39	19.4
320	2.857	666.5	0.068	0.33	41.2

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