



DOWTHERM RP

Synthetic Organic Heat Transfer Fluid

DOWTHERM* RP heat transfer fluid is a diaryl alkyl intended for use in applications that require liquid phase heat transfer. DOWTHERM RP fluid can be used in non-pressurized systems, and is pumpable to 0°C (32°F).

A major advantage of DOWTHERM RP fluid is the fact that it degrades primarily to low molecular weight products, reducing the need to remove high molecular weight material from the system.

Recommended use temperature range: DOWTHERM RP fluid can be used to a maximum bulk temperature of 350°C (660°F) and a maximum film temperature of 375°C (710°F).

Features

- Can be used in non-pressurized, liquid phase systems.
- Has good low temperature properties, reducing the need for heat tracing.
- Has a high flash point.
- Exhibits excellent thermal stability at the maximum use temperature.
- Degrades primarily to low molecular weight products—no build-up of high molecular weight products that must be removed from the system.
- Has a single dose oral toxicity that is considered to be extremely low.

Expansion Tank Design: Even though DOWTHERM RP 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 tank to exclude oxygen from the heat transfer system. The presence of oxygen will considerably shorten the fluid life.

For additional system design information, please consult *Equipment For Systems Using DOWTHERM Heat Transfer Fluids* (Form No. 176-01335).

For safety and handling information, please refer to the product Material Safety Data Sheet.

Typical Properties of DOWTHERM RP Fluid†

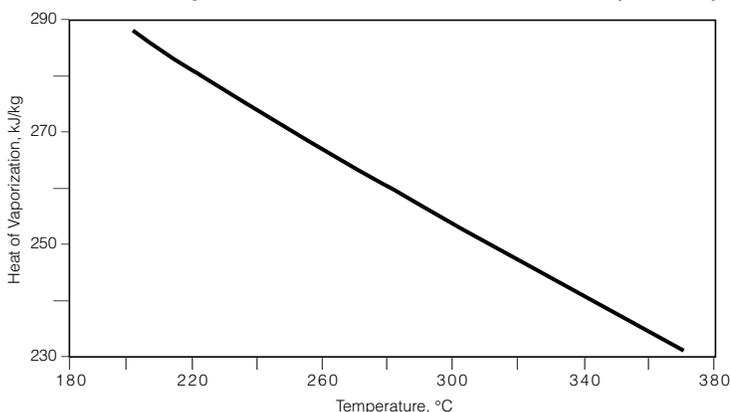
Composition: Diaryl alkyl

Color: Clear, colorless liquid

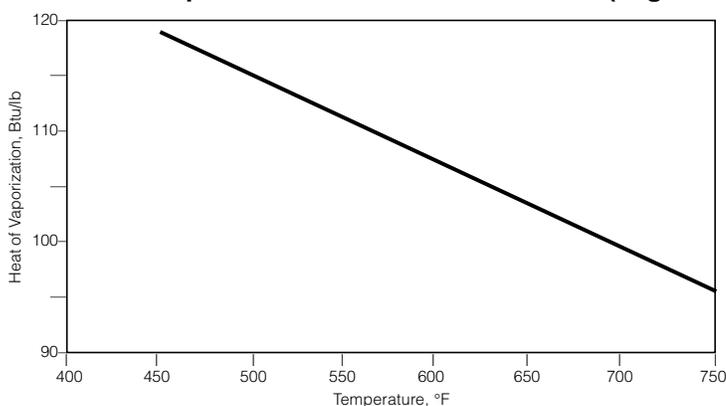
Property	SI Units	English Units
Boiling Point,	353°C	667°F
Flash Point, PMCC	194°C	381°F
Fire Point, COC	206°C	403°F
Autoignition Temperature ASTM E 659	385°C	725°F
Density @ 25°C (77°F)	1025.8 kg/m ³	8.55 lb/gal
Estimated Critical Temperature	575°C	1066°F
Estimated Critical Pressure	20.4 atm	20.7 bar
Estimated Critical Volume	3.446 l/kg	0.0552 ft ³ /lb
Average Molecular Weight	236.4	236.4
Heat of Combustion	40194 kJ/kg	17251 Btu/lb

† Not to be construed as specifications

Calculated Heat of Vaporization for DOWTHERM RP Fluid (SI Units)



Calculated Heat of Vaporization for DOWTHERM RP Fluid (English Units)



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Saturation Properties of DOWTHERM RP Fluid (SI Units)

Temperature °C	Specific Heat kJ/(kg)(K)	Density kg/m ³	Thermal Conductivity W/(m)(K)	Viscosity mPa·s	Vapor Pressure bar
10	1.591	1036.2	0.1327	88.17	
70	1.769	994.2	0.1249	5.39	
130	1.948	951.7	0.1171	1.71	
190	2.126	908.3	0.1093	0.87	0.01
250	2.305	863.8	0.1016	0.54	0.09
310	2.483	817.4	0.0938	0.38	0.41
370	2.662	768.1	0.0860	0.29	1.40

Saturation Properties of DOWTHERM RP Fluid (English Units)

Temperature °F	Specific Heat Btu/lb °F	Density lb/ft ³	Thermal Conductivity Btu/hr ft ² (°F/ft)	Viscosity cP	Vapor Pressure psia
50	0.380	64.76	0.0766	88.17	
150	0.420	62.33	0.0725	6.10	
250	0.459	59.88	0.0683	1.94	
350	0.499	57.38	0.0642	0.99	0.09
450	0.538	54.82	0.0600	0.62	0.71
550	0.578	52.18	0.0558	0.43	3.49
650	0.617	49.41	0.0517	0.32	12.20

For further information, call...

In the United States and Canada: 1-800-447-4369 • FAX: 1-989-832-1465

In Europe: +32 3 450 2240 • FAX: +32 3 450 2815

In the Pacific: +886 22 547 8731 • FAX: +886 22 713 0092

In other Global Areas: 1-989-832-1560 • FAX: 1-989-832-1465

www.dowtherm.com

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