



## Heat transfer Fluid - High Temperature

This high temperature fluid offers industry a practically non-toxic, versatile bath fluid that has proven to be cost effective and thermally stable at temperatures up to +315°C. This fluid has demonstrated excellent performance over a wide range of temperature without compromising economics or system integrity. Unlike the less stable mineral oil based fluid, our high temperature fluid provides the user with the confidence and reliability without the premium price of other fluids. Recommended temperature range +60 to +250°C.

- Benefits and features
- Low viscosity
- Improves bath uniformity and stability
- Enhanced heat-up and cool down rates
- Lower cost than glycol and silicone oil type fluids
- Safe and non-toxic
- Convenient 18 Litre (5 US gallon) containers

This fluid is not for long term (more than a few hours) continuous use above 100°C as excessive oxidation will occur.

As with most high temperature fluids, a fume hood is recommended for operating temperatures above 150°C.

This fluid should only be used with the following plastics; ABS, Epoxy, Acetal, Teflon, Viton, Kalrez, Chemraz, Fiberglass, Graphites, Fluoroelastimers.

For all other plastic types contact Techne for specific recommendations.

### Technical Information

Typical Properties – High Temperature bath fluid Catalog # FHTFHI	
Appearance	Clear, Light brown, oily liquid.
Boiling point	>330°C/626°F
Composition	Synthetic organic hydrocarbon based liquid
Fire point	210°C/410°F
Flash point	180°C/356°F
Auto ignition temperature	330°C/626°F
Specific heat	~0.50 Btu/ (lb) (°F) @ 50°C (122°F)
Viscosity	12cP @ 50°C
Minimum pumpability limit	0°C/32°F
Odour	Bland
Volumetric Expansion from 0°C to 300°C	30.5%
Thermal conductivity at 20°C/68°F	0.135 W/m.K (0.078 Btu/ft. hr. °F)
Recommended use range	60°C to 250°C (122°F to 482°F)

Techne high temperature bath fluid or its vapour, like many other heat transfer fluids, may ignite if released into the environment and exposed to hot surfaces, sparks, open flames, or other source of ignition.

### Ordering Information

FHTFHI	18 litre size
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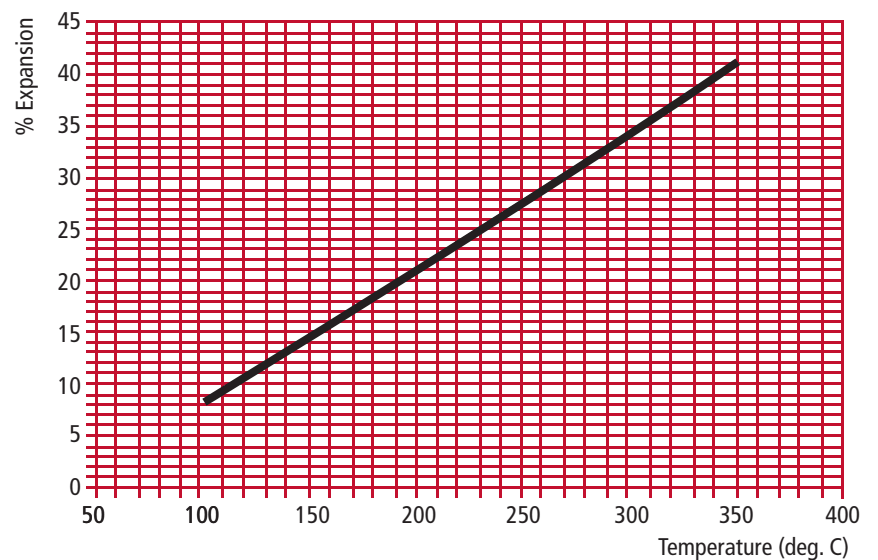
# liquid temperature calibration baths



## Physical and Chemical Properties

Temperature		Density		Specific Heat		Thermal Conductivity		Viscosity		Vapour Pressure	
°C	°F	kg/m <sup>3</sup>	lb/ft <sup>3</sup>	J9 <sup>-1</sup> K <sup>-1</sup>	Btu.lb <sup>-1</sup> .°F <sup>-1</sup>	W/m.K	Btuhr <sup>-1</sup> .ft <sup>-1</sup> .°F <sup>-1</sup>	cP	cSt	KPa	psi
-20	-4	904	55.5	1.82	0.435	0.137	0.079	720	796	-	-
0	32	890	55.6	1.89	0.451	0.136	0.078	160	180	-	-
20	68	877	54.7	1.97	0.471	0.135	0.077	37	40	-	-
40	104	863	53.9	1.97	0.487	0.134	0.007	17	20	-	-
60	140	850	53.1	2.11	0.504	0.132	0.076	8.0	9.4	-	-
80	176	836	52.1	2.19	0.523	0.130	0.075	4.4	5.3	-	-
100	212	823	51.4	2.26	0.540	0.129	0.074	2.8	3.4	-	-
120	248	810	50.6	2.33	0.557	0.127	0.073	1.9	1.8	-	-
140	284	796	49.7	2.41	0.576	0.125	0.072	1.4	1.8	-	-
160	320	783	48.9	2.48	0.592	0.124	0.071	1.1	1.4	0.138	0.02
180	356	769	48.1	2.55	0.609	0.122	0.070	0.85	1.1	0.345	0.05
200	392	755	47.1	2.62	0.626	0.121	0.070	0.66	0.87	0.897	0.13
220	428	743	46.3	2.70	0.645	0.119	0.068	0.54	0.73	2.00	0.29
240	464	729	45.5	2.77	0.662	0.118	0.068	0.44	0.60	4.00	0.58
260	500	716	44.8	2.84	0.678	0.116	0.067	0.36	0.50	7.66	1.11
280	536	702	43.8	2.92	0.697	0.114	0.066	0.30	0.43	13.79	2.00
300	572	688	43.0	2.99	0.714	0.112	0.064	0.26	0.38	23.52	3.41

Temperature		Coefficient of Thermal Expansion		Volume Thermal Expansion
°C	°F	(10 <sup>3</sup> /K)	(10 <sup>3</sup> /R)	%
0	32	-	-	-
100	212	0.790	0.439	7.9
150	302	0.942	0.532	14.1
200	392	0.900	0.500	18
250	482	1.004	0.558	25.1
300	572	1.063	0.591	31.9
350	662	1.183	0.657	41.4





# liquid temperature calibration baths



## Heat Transfer Fluid - Low Temperature

The low temperature heat transfer fluid is engineered to offer non-toxic and low odour qualities at an affordable price.

This fluid will satisfy the expectations of the most demanding modern day customer by providing an environmentally sound, thermally effective heat transfer fluid with a flash point of greater than 61°C (141°F) or greater. The fluid offers a low viscosity rating and unequalled heat transfer characteristics through its entire operating temperature range. Recommended temperature range -40°C to 125°C.

When operator safety, environmental impact and price set the benchmark for your next open bath or closed loop heat transfer application, consider FHTFLO.

A fume hood is recommended for open baths being operated at temperatures above +50°C

- Benefits and features
- Low viscosity
- Improves bath uniformity and stability
- Enhanced heat-up and cool down rates
- Lower cost than glycol and silicone oil type fluids
- Safe and non-toxic

Convenient 18 Litre (5 US gallon) containers



NOTE: This fluid should only be used with the following plastics; Acetal, Aramid Fiber, Chemraz (FFKM), Epoxy, Fluorocarbon (Film), Fluoroelastimer, Glass Fibre, Gylon style 3500,3504 & 3510, Kalrez, Kel-F (CTFE), PEEK, Polytetrafluor-ethylene, Teflon (All), Teflon Encapsulated Silicone, Teflon Encapsulated Viton, Teflon Impregnated Fibreglass, Viton, Resin Impregnated Carbon Graphite.

Metal Compatibility; Aluminium, Brass, Bronze, Carbon Steel, Cast Steel, Copper, Copper Nickel, Hasteloy, Inconel, Monel, Nickel, Stainless Steel, Tantalum, Titanium.

For all other material types contact Techne for specific recommendations.

### Technical Information

Typical Properties – Low Temperature bath fluid Catalog # FHTFLO	
Appearance	Transparent, clear.
Boiling point	>191°C / >376°F
Composition	Aliphatic hydrocarbon blend
Fire point	72°C / 162°F
Flash point (Closed cup)	>61°C / >141°F
Flash point (Open cup)	68.8°C / 156°F
Auto ignition temperature	>337°C / >640°F
Critical temperature (estimated)	394°C / 741°F
Critical pressure (estimated)	27bar / 26.7 atm
Average molecular weight	150
Dielectric constant	2.1-2.2
Thermal conductivity at 0°C/68°F	0.1126 W/m.K (0.0668 Btu/(hr)(ft2) (°F/ft)
Recommended temp. range open system	-52°C to 58°C (-60°F to 135°F)
Recommended temp. range closed system	-73°C to 177°C (-100°F to 350°F)

1 Techne high temperature bath fluid or its vapor, like many other heat transfer fluids, may ignite if released into the environment and exposed to hot surfaces, sparks, open flames, or other source of ignition.

### Ordering Information

FHTFLO	18 litre size
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# liquid temperature calibration baths



## US Units

Temp °F	Density lb/ft <sup>3</sup>	Sepecific Heat Btu/lb avvvF	Thermal Conductivity Btu/(hr)(ft <sup>2</sup> )(°F/ft)
-80	51.49	0.4266	0.0708
-40	50.44	0.4466	0.0688
0	49.38	0.4666	0.0688
40	48.33	0.4686	0.0648
80	47.28	0.5266	0.0628
120	46.23	0.5266	0.0608
160	45.18	0.5466	0.0588

## SI Units

Temp °C	Density kg/m <sup>3</sup>	Sepecific Heat kJ/kg K	Thermal Conductivity W/m K
-75	834.5	1.7342	0.1276
-50	815.5	1.8292	0.1226
-25	796.5	1.9242	0.1176
0	777.6	2.0192	0.1126
25	758.6	2.1192	0.1706
50	739.6	2.2092	0.1026
75	720.6	2.3042	0.0976

