Thermic Fluid

Product Information and Data Sheet

Hi-Tech THERM D 12

LOW TEMPERATURE, COOLING AND HEATING THERMIC FLUID
OPERATING TEMPERATURE -94°C TO 230°C

Description

Hi-Tech Therm D12 is used in Thermic fluid heating systems where indirect heat transfer which control temperature conditions by circulating a thermal fluid throughout the equipment. This process allows for fine-tuned cooling or heating using a single thermal transfer fluid.**Hi-Tech Therm D12** is a segment of heat transfer fluids engineered for use in pressurized indirect heating systems, recommended for **operating at bulk temperatures of -94°C to 230°C** and with non-pressurized indirect heating systems operating bulk temperature will be -94 °C to 190°C.

Specific Benefits & Features

- Equally efficient for heating and cooling application.
- high level of corrosion protection.
- Compatible with Therminol D12.
- Long fluid lifetime, lowering maintenance cost.
- Free of nitrite, borax and CMR (carcinogenic, mutagenic, and reprotoxic).
- No risk of two different nature liquid mix.

Technical Properties

Characteristics	Test Methods	Specifications
Composition		Synthetic Hydrocarbon
Kinematic Viscosity		
@ 40°C	ASTM D445	1.22 cSt
@ -50°C	ASTM D445	14.8 cSt
@ 100°C	ASTM D445	0.64 cSt
Pumpability		
@ 300 mm^2/s (cSt)		<-80 °C
@ 2000 mm^2/s (cSt)		<-94 °C
Recommended Bulk Temperature		-94 °C to 230 °C
Maximum Film Temperature		246 °C
Initial Boiling Point		192°C
Auto Ignition Temperature	DIN 51794	>277 °C
Flash Point	ASTM D93	>62 °C
Total Acid No.	ASTM D664	< 0.05 mg KOH/g
Water Content	ASTM E203	<75ppm
Density @ 40°C	ASTM D4052	740 Kg/m^3
Dielectric Constant	ASTM D924	2.0
Coefficient Thermal Expansion @ 100 °C		0.0012/°C/Ltr
Copper Strip Corrosion @ 100 °C for 24 Hrs.	ASTM D130	<1A
Average Molecular Weight		162

All the mentioned values are typical which may vary from batch to batch.

Application

Single fluid process heating and cooling systems in the pharmaceutical and fine chemical industries or system where thermic fluid operating temperature requirement is in between -94°C to 230°C.

Health & Safety

For health and safety information of this product, contact your Hi-Tech sales representative or study Material Safety Data Sheet(MSDS).

Non- Toxic

Hi-Tech Therm D12 has distinct advantages over many heat transfer fluids. It contains no components recognized as Hazardous Chemicals under OSHA Hazard Communication Standard. There are no Reportable Substances under SARA Title III (302) (304) (311) (312) (313). The fluid does not normally cause skin irritation on contact. Vapors may have a mild odor but do not normally cause respiratory irritation. All these advantages combine to provide a safe, user friendly alternative.

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HITECH SOLUTION
SPEED INNOVATION EXCELLENCE

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Tabulation of Hi-Tech D 12 with respect to Temperature

Temperature °C	Temperature °F	Specific Heat kj/kg°K	Heat of Vaporization kj/kg	Liquid Enthalpy kj/kg	Liquid Density kg/m³	Liquid Viscosity cSt	Liquid Thermal Conductivity W/m.°K	Vapour Pressure mm-Hg
–94	–137	1.65	401	-137	842	2079	0.1256	-
–90	–130	1.67	398	-130	840	975	0.1250	-
–80	–112	1.72	390	-113	833	210	0.1239	-
–70	–94	1.76	382	-96	825	68.900	0.1224	-
–60	–76	1.8	375	-78	819	29.300	0.1214	-
–50	–58	1.81	368	-60	810	14.800	0.1230	-
–40	–40	1.85	361	-42	805	8.590	0.1185	-
–30	–22	1.92	354	-23	799	5.590	0.1174	-
–20	–4	1.95	347	-4	790	4.120	0.1160	0.001
–10	14	1.98	340	15	784	3.110	0.1144	0.003
0	32	2.01	333	35	776	2.330	0.1130	0.010
10	50	2.06	327	56	770	1.890	0.1114	0.026
20	68	2.1	321	76	761	1.550	0.1150	0.063
30	86	2.14	314	97	754	1.440	0.1083	0.132
40	104	2.17	308	119	740	1.220	0.1069	0.260
50	122	2.22	302	141	738	1.120	0.1053	0.483
60	140	2.26	296	163	732	0.958	0.1035	0.857
70	158	2.3	290	186	726	0.865	0.1020	1.44
80	176	2.32	285	209	719	0.778	0.1000	2.41
90	194	2.35	279	233	711	0.714	0.0985	3.75
100	212	2.42	273	256	703	0.648	0.0967	5.75
110	230	2.45	268	281	696	0.589	0.0947	8.58
120	248	2.52	262	306	686	0.549	0.0928	12.47
130	266	2.55	256	331	676	0.508	0.0914	17.59
140	284	2.58	251	356	669	0.472	0.0892	24.39
150	302	2.61	245	382	661	0.440	0.0873	33.31
160	320	2.67	240	409	652	0.408	0.0853	44.38
170	338	2.7	234	436	645	0.381	0.0833	58.32
180	356	2.76	228	463	635	0.355	0.0812	75.48
190	374	2.81	223	491	625	0.335	0.0791	96.47
200	392	2.83	217	519	617	0.315	0.0773	122.12
210	410	2.88	211	548	607	0.289	0.0747	152.53
220	428	2.94	205	577	594	0.282	0.0728	188.65
230	446	2.98	198	606	585	0.262	0.0706	229.18
240	464	3.04	191	636	575	0.250	0.0683	278.11
250	482	3.09	185	667	561	0.243	0.0660	332.94

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