

FRAGOLTHERM® DPO

Heat Transfer Fluid
12 °C to 400 °C

Application

FRAGOLTHERM® DPO is a high-temperature-stable heat transfer fluid for use in temperature-critical systems. Typical fields of application are, for example, production of synthetic fibers and fine chemicals, Concentrated Solar Power (CSP) and plastics recycling.

FRAGOLTHERM® DPO can be used in the vapor phase as well as in the liquid phase up to 400 °C. In the liquid phase the product can be used pressureless at a temperature range between 12 °C and 257 °C and pressurised up to 400 °C. The film temperature at the heater must not exceed 430 °C.

FRAGOLTHERM® DPO crystallizes below 12 °C, but without volume expansion. On pipelines and on system components in which the fluid is not constantly flowing or where temperatures are under 12 °C, a heat tracing should be provided.

Also with use in pressureless ranges in the liquid phase a nitrogen blanket is recommended in the expansion tank, in order to prevent premature ageing.

Quality

FRAGOLTHERM® DPO is an eutectic mixture of 73.5 % diphenyl oxide and 26.5 % biphenyl. Therefore the product can be used in the vapor phase as well as in the liquid phase. Additionally **FRAGOLTHERM® DPO** is miscible with other comparable composed products.

FRAGOLTHERM® DPO shows a high thermal stability and thus provides a long service life. The application of **FRAGOLTHERM® DPO** in the vapor phase allows an exact temperature control in sensitive plant equipment.

FRAGOLTHERM® DPO is non-corrosive and is compatible with materials conventionally used in heat transfer technology.

Packaging

FRAGOLTHERM® DPO is available in steel drums and pails.

Notes

Please note that thermal or oxidative decomposition may cause an increase in low and high boiling substances when using heat transfer fluids even below the maximum specified bulk temperature.

When handling the product it is essential to observe the safety data sheet.

Please get in touch with us if you require further information or general technical advice.

Properties

FRAGOLTHERM® DPO			Method
Density @ 20 °C	[kg/m³]	1064	
Viscosity @ 40 °C	[mm²/s]	2.48	
Viscosity @ 100 °C	[mm²/s]	0.99	
Pourpoint	[°C]	12	ISO 3016
Flash point	[°C]	110	ISO 2719
Boiling point @ 1013 mbar	[°C]	257	
Max. film temperatur	[°C]	430	
Max. bulk temperatur	[°C]	400	
Dangerous goods according to IATA/IMDG/ADR	[-]	yes	

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Temp. °C	Vapor Press. kPa (abs)	Density kg/m ³	Heat Capacity kJ/kgK	Thermal Cond. W/mK	Visc. (kin) mm ² /s	Visc. (dyn) mPas	Prandtl- Number	Liquid Enthalpy. kJ/kg
20		1064	1.55	0.136	4.03	4.29	48.7	12.3
30		1056	1.58	0.135	3.10	3.27	38.2	27.9
40		1048	1.60	0.134	2.48	2.60	31.1	43.8
50		1040	1.63	0.133	2.03	2.11	25.9	60.0
60		1032	1.66	0.132	1.71	1.76	22.2	76.4
70		1024	1.69	0.131	1.46	1.50	19.3	93.2
80		1015	1.72	0.130	1.27	1.29	17.0	110.3
90		1007	1.75	0.129	1.11	1.12	15.1	127.6
100	1	999	1.78	0.128	0.99	0.99	13.7	145.2
110	1	991	1.80	0.126	0.88	0.87	12.5	163.1
120	1	982	1.83	0.125	0.80	0.79	11.5	181.3
130	2	974	1.86	0.124	0.73	0.71	10.7	199.7
140	3	965	1.89	0.123	0.67	0.65	9.91	218.4
150	5	957	1.91	0.121	0.61	0.58	9.23	237.4
160	7	948	1.94	0.120	0.57	0.54	8.74	256.7
170	9	940	1.97	0.118	0.53	0.50	8.31	276.2
180	13	931	2.00	0.117	0.49	0.46	7.78	296.0
190	18	922	2.02	0.115	0.46	0.42	7.45	316.1
200	24	913	2.05	0.114	0.43	0.39	7.05	336.5
210	32	904	2.08	0.112	0.41	0.37	6.87	357.1
220	42	895	2.10	0.111	0.39	0.35	6.61	378.0
230	54	886	2.13	0.109	0.37	0.33	6.40	399.1
240	68	877	2.15	0.107	0.35	0.31	6.18	420.5
250	86	867	2.18	0.106	0.33	0.29	5.89	442.2
260	108	857	2.21	0.104	0.32	0.27	5.82	464.1
270	133	848	2.23	0.102	0.30	0.25	5.57	486.3
280	163	838	2.26	0.100	0.29	0.24	5.49	508.8
290	198	828	2.29	0.098	0.28	0.23	5.41	531.6
300	239	817	2.31	0.096	0.27	0.22	5.32	554.6
310	286	806	2.34	0.095	0.26	0.21	5.16	577.8
320	340	796	2.37	0.093	0.25	0.20	5.07	601.4
330	401	784	2.40	0.091	0.25	0.20	5.16	625.2
340	470	773	2.43	0.089	0.24	0.19	5.05	649.3
350	548	761	2.45	0.086	0.23	0.18	4.99	673.7
360	635	749	2.49	0.084	0.23	0.17	5.10	698.4
370	732	736	2.52	0.082	0.22	0.16	4.97	723.4
380	840	723	2.55	0.080	0.22	0.16	5.07	748.8
390	959	709	2.59	0.078	0.21	0.15	4.94	774.4
400	1090	694	2.63	0.076	0.21	0.15	5.04	800.5
410	1230	679	2.67	0.073	0.21	0.14	5.22	827.0
420	1390	662	2.73	0.071	0.21	0.14	5.34	854.0

This data applies to **FRAGOLTHERM® DPO** in the liquid phase.

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Temp. °C	Density kg/m ³	Heat Capacity kJ/kgK	Thermal Cond. W/mK	Visc. (dyn) mPas	Vapor Enthalpy. kJ/kg
20		1.003	0.0085	0.0059	427.0
30		1.037	0.0090	0.0061	437.2
40		1.070	0.0095	0.0063	447.7
50		1.104	0.0100	0.0065	458.6
60		1.137	0.0105	0.0067	469.7
70		1.170	0.0110	0.0069	481.3
80		1.203	0.0116	0.0071	493.2
90		1.235	0.0121	0.0073	505.4
100		1.267	0.0126	0.0071	517.9
110	0.042	1.299	0.0132	0.0077	530.7
120	0.065	1.331	0.0137	0.0079	543.9
130	0.099	1.362	0.0143	0.0081	557.2
140	0.148	1.393	0.0149	0.0083	571.0
150	0.214	1.424	0.0154	0.0085	585.0
160	0.303	1.454	0.0160	0.0087	599.4
170	0.422	1.484	0.0166	0.0089	613.9
180	0.575	1.514	0.0171	0.0091	628.8
190	0.772	1.543	0.0177	0.0094	644.0
200	1.02	1.572	0.0183	0.0096	659.5
210	1.33	1.601	0.0189	0.0098	675.1
220	1.71	1.629	0.0195	0.0100	691.0
230	2.17	1.657	0.0201	0.0102	707.1
240	2.72	1.685	0.0207	0.0104	723.5
250	3.38	1.712	0.0213	0.0106	740.1
260	4.17	1.739	0.0220	0.0108	756.8
270	5.09	1.766	0.0226	0.0110	773.8
280	6.17	1.792	0.0232	0.0112	791.0
290	7.42	1.819	0.0238	0.0114	808.4
300	8.86	1.845	0.0245	0.0116	825.8
310	10.5	1.871	0.0251	0.0118	843.4
320	12.4	1.897	0.0258	0.0120	861.1
330	14.6	1.923	0.0264	0.0122	879.0
340	17.0	1.948	0.0271	0.0124	896.9
350	19.8	1.974	0.0277	0.0126	915.0
360	22.9	2.001	0.0284	0.0128	933.1
370	26.5	2.027	0.0291	0.0130	951.2
380	30.5	2.054	0.0298	0.0132	969.5
390	35.0	2.082	0.0304	0.0134	987.6
400	40.1	2.111	0.0311	0.0136	1005.8
410	45.8	2.142	0.0318	0.0138	1024.0
420	52.4	2.175	0.0325	0.0140	1042.0

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