Armcoltherm® 400

Temperature Range: 12℃ ~ 257℃ ~ 315℃

With a freezing point of 12°C and an atmospheric boiling point of 257°C, it is the earliest synthetic heat transfer oil with a wide range of industrial applications in the world and a maximum temperature of 400°C, with excellent thermal stability and heat transfer performance. It is suitable for 12°C~ 400°C liquid phase heating system or 257°C~400°C gas phase heating system. It is mainly used for high-temperature heat transfer applications such as polyester/nylon/polypropylene chemical fiber polymerization, spinning, texturing machine hot box, naphthalene phthalic anhydride, melamine, polyoxymethylene production, CPS solar thermal power generation etc.

Property	Unit	Result	Vapor
Appearance	Visual	Clear liquid	-
Composition	-	Biphenyl/diphenyl oxide (DPO) eutectic mixture	
Average molecular weight	-	166	-
Maximum bulk temperature	℃	400	-
Maximum film temperature	℃	430	-
Flash point	℃	124	-
Autoignition temperature	℃	621	-
Normal boiling point	℃	257	-
Crystallizing point	℃	12	-
Coefficient of thermal expansion CC/CC	℃	0.000979	-
Density @20℃	kg/m^3	1064	0.00023
Viscosity, Kinematic @40℃	mm^2/s	2.48	-
heat capacity @300℃	kJ/kg.k	2.314	1.84
thermal conductivity @300℃	W/m.k	0.0964	0.0245
Vapor pressured @300℃	Kpa	239	-
Pseudocritical temperature	℃	499	-
Pseudocritical pressure	bar	33.1	-
Pseudocritical density	kg/m^3	327	-

Temperature		Liquid-phase properties								Vapor phase properties				
		Liquid density	Specific Heat	Thermal conductivity	Dynamic viscosity	kinematic viscosity	Latent heat of evaporation	Enthalpy of heat	vapor pressure	Density	Specific Heat	Thermal conductivity	Dynamic viscosity	Enthalpy of heat
℉	℃	kg/m3	kJ/kg•K	W/m•k	mPas	mm2/s	kJ/kg	kJ/kg	kPa	kg/m3	kJ/kg•K	W/m•k	mPas	kJ/kg
53.6	12	1071	1.52	0.137	5.48	5.12	419.1	0	-	-	0.98	0.008	0.0057	419.0
68	20	1064	1.55	0.136	4.29	4.03	414.7	12.3	-	-	1.00	0.009	0.0059	427.0
104	40	1048	1.60	0.134	2.60	2.48	403.9	43.8	-	-	1.07	0.010	0.0063	447.7
140	60	1032	1.66	0.132	1.76	1.71	393.3	76.4	-	-	1.14	0.011	0.0067	469.7
176	80	1015	1.72	0.130	1.28	1.26	382.9	110.3	-	-	1.20	0.012	0.0071	493.2
212	100	999	1.78	0.128	0.98	0.98	372.7	145.2	0.5	-	1.27	0.013	0.0075	517.9
248	120	982	1.83	0.125	0.78	0.79	362.6	181.3	1.1	0.065	1.33	0.014	0.0079	543.9
284	140	965	1.89	0.123	0.64	0.66	352.6	218.4	3.0	0.148	1.39	0.015	0.0083	571.0
320	160	948	1.94	0.120	0.53	0.56	342.7	256.7	7.0	0.303	1.45	0.016	0.0087	599.4
356	180	931	2.00	0.117	0.45	0.49	332.8	296.1	13.1	0.575	1.51	0.017	0.0091	628.8
392	200	913	2.05	0.114	0.39	0.43	323.0	336.5	24.0	1.02	1.57	0.018	0.0096	659.5
428	220	895	2.10	0.111	0.34	0.38	313.0	378.0	42.1	1.71	1.63	0.020	0.0100	691.0
464	240	877	2.15	0.107	0.30	0.34	303.1	420.5	68.1	2.72	1.69	0.021	0.0104	723.5
500	260	857	2.21	0.104	0.27	0.31	292.7	464.1	108	4.17	1.74	0.022	0.0108	756.8
536	280	838	2.26	0.100	0.24	0.29	282.2	508.8	163	6.17	1.79	0.023	0.0112	791.0
572	300	817	2.31	0.096	0.22	0.27	271.2	554.6	239	8.86	1.85	0.025	0.0116	825.8
608	320	796	2.37	0.093	0.20	0.25	259.7	601.4	340	12.4	1.90	0.026	0.0120	861.1
644	340	773	2.43	0.089	0.18	0.24	247.6	649.3	470	17.0	1.95	0.027	0.0124	896.9
653	360	749	2.49	0.084	0.17	0.23	234.7	698.4	635	22.9	2.00	0.028	0.0128	933.1
716	380	723	2.55	0.080	0.16	0.22	220.7	748.8	840	30.5	2.05	0.030	0.0132	969.5
752	400	694	2.63	0.076	0.15	0.21	205.3	800.5	1090	40.1	2.11	0.031	0.0136	1005.8
788	420	662	2.73	0.071	0.14	0.20	188.0	854	1390	52.4	2.18	0.033	0.0140	1042.0
797	425	654	2.76	0.070	0.13	0.20	183.3	867.7	1470	54.1	2.19	0.034	0.0141	1050.5

*The above data are based on laboratory testing and not all product data are the same

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