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SOLKANE®

SOLKATHERM® SES30

High Temperature Working Fluid

Product-Description

SOLKATHERM® SES30 is a zeotropic mixture with a NBP of 28.8°C and a temperature glide of 9.7K, SOLKATHERM® SES30 is especially designed for high temperature application e.g. ORC and heat pumps using single phase heat sources and heat sinks.

Applications

- Direct contact cooling
- Heat pipes
- ORC-cycles
- Heat transfer fluid
- High temperature heat pumps

Material Compatibility

SOLKATHERM® SES30 has a wide compatibility range with many common materials. It is generally compatible with all non-fluorinated plastics and rubbers, if we exclude as notable exceptions PMMA and natural rubber.

Due to the relative chemical similarity, the compatibility of SOLKATHERM® SES36 with fluorinated plastics and rubbers is not as wide as it could be expected from the superior chemical resistance that normally those materials are able to assure. As an example, some fluorinated rubbers o-rings (Viton® types) are not suitable in systems filled with SOLKATHERM® SES30. As a positive exception, PTFE has proven to be compatible.

Thermoplastics	**Substance**	**Compatibility**
PVC	Polyvinylchloride	+
PE-HD	High-density polyethylene	+
PMMA	Polymethyl methacrylate	-
PC	Polycarbonate	+
PP	Polypropylene	+
Nylon 66		+
PS	Polystyrene	+
PETG	Polyethylene terephthalate	+
PTFE	Polytetrafluoroethylene	+
Elastomers		
Neoprene		+
Viton® A		–
EPDM rubber		+
Natural rubber		–
Nitril rubber		+
Silicone		o

Table 1: + compatible / o border line / – not compatible

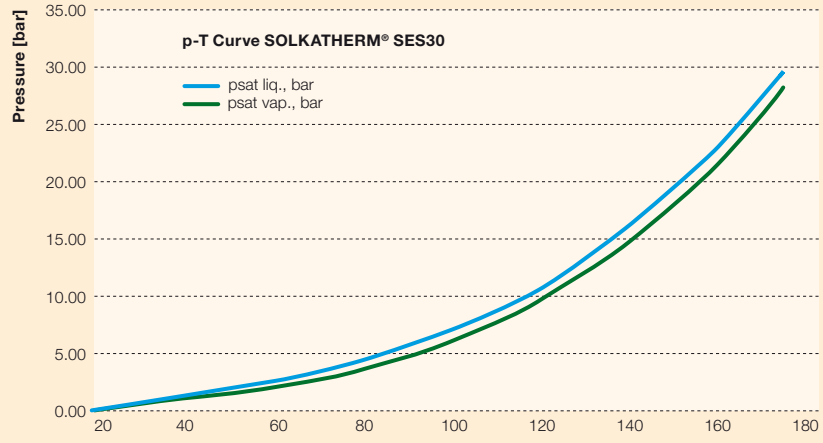
All compatibility tests have been carried out at normal conditions of temperature and pressure. In case of peculiar requirements, please refer to our technical staff in order to verify if it is possible to carry out tests under special conditions.

Physical Properties

Average Molecular Weight	kg/kmol	149.425
Glide	K	8.2
Boiling Point at 1.013 bar	°C	30.6
Critical Temperature	°C	181.6
Critical Pressure	bar	32.7
Critical Density	kg/m³	480.7
Critical Volume	mPas	0.788
Density Liquid (saturated) [1)]	kg/m³	1,269
Density Vapour (saturated) [1)]	kg/m³	3.704
Heat of Vaporisation [1)]	kJ/kg	189.52
Specific Heat Capacity (Liquid) [1)]	kJ/kg K	1.360

[1)] at 25 °C

Vapour Pressure



Thermodynamic Properties

T	p'	p''	rho'	rho''	v'	v''	h'	h''	r	s'	s''
°C	bar	bar	kg/dm³	kg/m³	dm³/kg	dm³/kg	kJ/kg	kJ/kg	kJ/kg	kJ/kgK	kJ/kgK
0.00	0.306	0.193	1.322	1.29	0.756	775.17	200.00	400.40	200.40	1.000	1.740
5.00	0.379	0.247	1.312	1.62	0.762	616.58	206.60	404.84	198.25	1.024	1.743
10.00	0.466	0.312	1.301	2.02	0.768	495.14	213.20	409.32	196.12	1.048	1.746
15.00	0.569	0.390	1.291	2.49	0.775	401.20	219.85	413.81	193.96	1.071	1.750
20.00	0.690	0.484	1.280	3.05	0.781	327.81	226.55	418.32	191.76	1.095	1.754
25.00	0.830	0.595	1.269	3.70	0.788	269.96	233.33	422.84	189.52	1.118	1.758
30.00	0.992	0.726	1.258	4.47	0.795	223.95	240.16	427.38	187.22	1.140	1.762
35.00	1.178	0.879	1.247	5.35	0.802	187.07	247.06	431.93	184.87	1.163	1.767
40.00	1.391	1.056	1.235	6.36	0.810	157.27	254.02	436.49	182.46	1.185	1.772
45.00	1.633	1.261	1.224	7.52	0.817	133.01	261.05	441.05	180.00	1.207	1.777
50.00	1.908	1.495	1.212	8.84	0.825	113.12	268.14	445.61	177.47	1.229	1.782
55.00	2.217	1.762	1.200	10.34	0.834	96.72	275.29	450.17	174.88	1.251	1.788
60.00	2.563	2.065	1.187	12.03	0.842	83.10	282.50	454.73	172.23	1.272	1.793
65.00	2.950	2.408	1.175	13.94	0.851	71.71	289.77	459.28	169.51	1.294	1.799
70.00	3.381	2.792	1.162	16.09	0.861	62.15	297.10	463.82	166.72	1.315	1.805
75.00	3.859	3.222	1.149	18.49	0.870	54.07	304.48	468.35	163.87	1.336	1.811
80.00	4.387	3.701	1.136	21.18	0.881	47.21	311.93	472.86	160.93	1.357	1.817
85.00	4.968	4.234	1.122	24.18	0.891	41.36	319.43	477.35	157.91	1.378	1.823
90.00	5.607	4.822	1.108	27.52	0.903	36.34	327.00	481.81	154.81	1.398	1.829
95.00	6.306	5.471	1.094	31.24	0.914	32.01	334.63	486.24	151.60	1.419	1.835
100.00	7.069	6.185	1.079	35.38	0.927	28.27	342.34	490.63	148.29	1.439	1.841
105.00	7.901	6.968	1.063	39.98	0.940	25.01	350.13	494.98	144.85	1.460	1.847
110.00	8.805	7.824	1.048	45.10	0.955	22.17	358.00	499.27	141.27	1.481	1.853
115.00	9.786	8.758	1.031	50.81	0.970	19.68	365.97	503.50	137.53	1.501	1.859
120.00	10.848	9.776	1.014	57.17	0.986	17.49	374.06	507.66	133.60	1.522	1.864
125.00	11.995	10.882	0.997	64.29	1.003	15.55	382.27	511.72	129.45	1.543	1.870
130.00	13.233	12.082	0.978	72.27	1.022	13.84	390.63	515.69	125.06	1.563	1.876
135.00	14.567	13.383	0.959	81.24	1.043	12.31	399.16	519.53	120.37	1.584	1.881
140.00	16.003	14.791	0.938	91.40	1.066	10.94	407.89	523.23	115.34	1.605	1.886
145.00	17.547	16.314	0.916	102.96	1.091	9.71	416.83	526.74	109.91	1.627	1.891
150.00	19.204	17.960	0.893	116.23	1.120	8.60	426.03	530.03	104.01	1.648	1.895
155.00	20.983	19.740	0.867	131.65	1.154	7.60	435.51	533.03	97.52	1.670	1.899
160.00	22.891	21.664	0.838	149.85	1.193	6.67	445.31	535.65	90.34	1.692	1.901
165.00	24.935	23.747	0.806	171.83	1.241	5.82	455.49	537.73	82.24	1.714	1.903
170.00	27.125	26.006	0.767	199.33	1.305	5.02	466.08	538.99	72.91	1.737	1.903
Range wet vapour 175.00	29.468	28.467	0.715	235.69	1.398	4.24	477.13	538.85	61.72	1.760	1.900

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