



**SOLVAY**

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**SOLKANE®**



**SOLKATHERM® SES24**

High Temperature Working Fluid

## Product-Description

SOLKATHERM® SES24 is a zeotropic mixture with a NBP of 21.4°C and a temperature glide of 15.7 K. SOLKATHERM® SES24 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® SES24 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® SES24 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® SES24. 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	+
<b>Elastomers</b>		
Neoprene		+
Viton® A		-
EPDM rubber		+
Natural rubber		-
Nitril rubber		+
Silicone		o

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

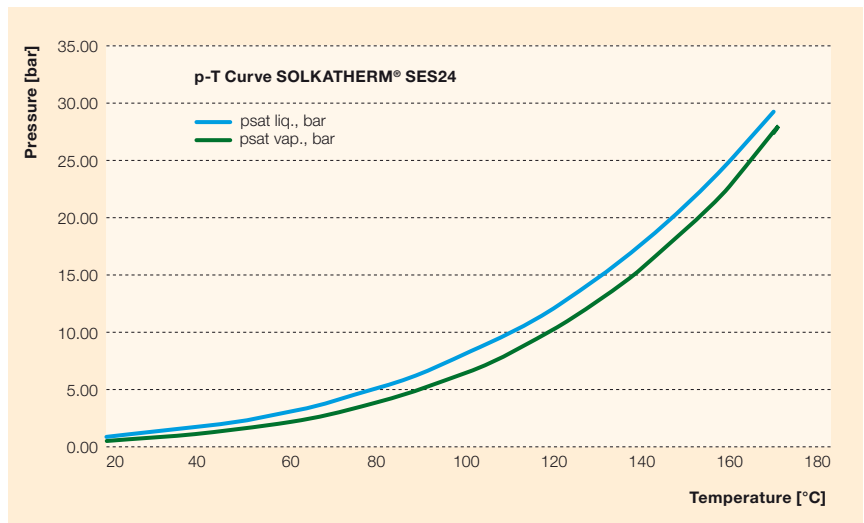
All compatibility tests have been carried out at normal conditions of temperature and pressure. In case of peculiar requirements, please refer to our technical staff in order to verify if it is possible to carry out tests under special conditions.

## Physical Properties

<b>Average Molecular Weight</b>	kg/kmol	150.6
<b>Glide</b>	K	13.2
<b>Boiling Point at 1.013 bar</b>	°C	23.9
<b>Critical Temperature</b>	°C	177.1
<b>Critical Pressure</b>	bar	32.8
<b>Critical Density</b>	kg/m <sup>3</sup>	486.7
<b>Critical Volume</b>	mPas	0.779
<b>Density Liquid (saturated) <sup>1)</sup></b>	kg/m <sup>3</sup>	1,283
<b>Density Vapour (saturated) <sup>1)</sup></b>	kg/m <sup>3</sup>	3.979
<b>Heat of Vaporisation <sup>1)</sup></b>	kJ/kg	184.68
<b>Specific Heat Capacity (Liquid) <sup>1)</sup></b>	kJ/kg K	1.359

<sup>1)</sup> at 25 °C

## Vapour Pressure



## Thermodynamic Properties

T °C	p' bar	p'' bar	rho' kg/dm <sup>3</sup>	rho'' kg/m <sup>3</sup>	v' dm <sup>3</sup> /kg	v'' dm <sup>3</sup> /kg	h' kJ/kg	h'' kJ/kg	r kJ/kg	s' kJ/kgK	s'' kJ/kgK
0.00	0.408	0.207	1.335	1.39	0.749	719.17	200.00	394.55	194.55	1.000	1.726
5.00	0.500	0.264	1.326	1.75	0.754	572.47	205.92	398.99	193.07	1.024	1.729
10.00	0.609	0.333	1.315	2.17	0.760	460.06	212.43	403.46	191.04	1.047	1.732
15.00	0.735	0.416	1.305	2.68	0.766	373.02	218.99	407.95	188.97	1.071	1.736
20.00	0.882	0.516	1.294	3.28	0.773	304.98	225.61	412.46	186.85	1.094	1.740
25.00	1.051	0.634	1.283	3.98	0.779	251.31	232.31	416.98	184.68	1.116	1.744
30.00	1.245	0.773	1.272	4.79	0.786	208.60	239.07	421.52	182.45	1.139	1.749
35.00	1.467	0.935	1.260	5.74	0.794	174.33	245.91	426.06	180.16	1.161	1.753
40.00	1.718	1.122	1.248	6.82	0.801	146.63	252.82	430.62	177.80	1.183	1.758
45.00	2.001	1.339	1.236	8.06	0.809	124.07	259.79	435.17	175.38	1.205	1.764
50.00	2.320	1.587	1.223	9.47	0.817	105.56	266.84	439.73	172.89	1.226	1.769
55.00	2.677	1.870	1.210	11.08	0.826	90.28	273.95	444.29	170.34	1.248	1.775
60.00	3.074	2.190	1.197	12.89	0.835	77.59	281.12	448.84	167.72	1.269	1.780
65.00	3.516	2.552	1.184	14.93	0.845	66.98	288.35	453.39	165.04	1.290	1.786
70.00	4.004	2.958	1.170	17.22	0.855	58.06	295.63	457.92	162.29	1.311	1.792
75.00	4.543	3.412	1.155	19.79	0.866	50.52	302.97	462.44	159.46	1.332	1.798
80.00	5.135	3.918	1.140	22.67	0.877	44.12	310.37	466.94	156.57	1.352	1.804
85.00	5.784	4.480	1.125	25.87	0.889	38.65	317.82	471.42	153.60	1.373	1.810
90.00	6.493	5.101	1.110	29.45	0.901	33.95	325.33	475.87	150.54	1.393	1.816
95.00	7.267	5.786	1.094	33.44	0.914	29.91	332.90	480.28	147.38	1.414	1.822
100.00	8.108	6.540	1.078	37.87	0.928	26.40	340.53	484.65	144.12	1.434	1.828
105.00	9.020	7.366	1.061	42.81	0.943	23.36	348.24	488.98	140.74	1.454	1.834
110.00	10.009	8.269	1.044	48.32	0.958	20.69	356.04	493.25	137.21	1.475	1.840
115.00	11.077	9.256	1.026	54.46	0.975	18.36	363.94	497.45	133.51	1.495	1.846
120.00	12.229	10.331	1.008	61.33	0.992	16.30	371.95	501.57	129.61	1.516	1.852
125.00	13.471	11.500	0.989	69.03	1.011	14.49	380.11	505.59	125.48	1.537	1.858
130.00	14.806	12.769	0.969	77.68	1.032	12.87	388.42	509.50	121.07	1.558	1.863
135.00	16.241	14.147	0.949	87.46	1.053	11.43	396.93	513.27	116.34	1.579	1.868
140.00	17.780	15.640	0.928	98.57	1.077	10.15	405.66	516.87	111.21	1.600	1.873
145.00	19.429	17.257	0.906	111.29	1.103	8.99	414.65	520.27	105.62	1.621	1.878
150.00	21.194	19.010	0.883	126.00	1.132	7.94	423.95	523.40	99.46	1.643	1.881
155.00	23.082	20.909	0.858	143.25	1.165	6.98	433.59	526.20	92.61	1.665	1.885
160.00	25.098	22.969	0.831	163.86	1.203	6.10	443.63	528.54	84.91	1.688	1.887
165.00	27.246	25.211	0.800	189.20	1.250	5.29	454.14	530.24	76.10	1.711	1.888
170.00	29.529	27.661	0.761	221.85	1.314	4.51	465.17	530.90	65.73	1.734	1.887

Range wet vapour



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