



# R-134a

## TECHNICAL DATA SHEET

### Components

Chemical Name	Chemical Formula	%By weight	CAS No	EC No
1,1,1,2-Tetrafluoroethane (R134a)	C <sub>2</sub> H <sub>4</sub> F <sub>2</sub>	%100	811-97-2	212-377-0

### Physical and chemical properties

At normal temperature and pressure, R134a is a colourless gas.

Physical state.....	Gas
Form.....	Compressed liquefied gas
Molecular Weight (g/mol).....	102.03
Freezing (°C).....	-103
Boiling Point at 1 atm, (°C) .....	-26,3
Melting Point (°C) .....	-103.3
Vapor pressure 25°C, (bar).....	6.654
Liquid Density at 25°C, (kg/m <sup>3</sup> ) .....	1.207
Viscosity 25°C (cP) .....	0.202
Heat Capacity of Liquid at 25°C,kJ/kgK.....	1.425
Heat Capacity of Vapor at 1 atm at 25°C, kJ/kgK.....	0.851
Solubility in water 25°C (wt%) .....	0.15
Flammability (solid, gas).....	None
Critical Temperature, °C.....	101.1
Critical Pressure, bar.....	40.67
Critical Density, (kg/m <sup>3</sup> ) .....	508
ODP.....	0
GWP.....	1430*

### Commercial Specifications (ISO9002)

Purity, %, min.....	99.5
Moisture content, ppm by weight. ....	10
Acid Value, ppm by weight.....	0.1
Residue, mg.kg.....	100

\*The regulation on fluorinated greenhouse gases of EU 517-2014 has been taken considered.



## Thermodynamic Properties

TEMP. (°C)	ABSOLUTE PRESSURE (bar)	DENSITY		ENTHALPY (kJ/Kg)		ENTROPY (kJ/Kg.K)	
		LIQUID (Kg/dm <sup>3</sup> )	VAPOUR (Kg/m <sup>3</sup> )	LIQUID	VAPOUR	LIQUID	VAPOUR
-50	0,265	1,446	1,650	135,674	367,652	0,741	1,781
-45	0,391	1,432	2,152	141,888	370,829	0,769	1,772
-40	0,512	1,418	2,769	148,144	374,003	0,796	1,764
-35	0,661	1,403	3,521	154,445	377,168	0,822	1,758
-30	0,844	1,388	4,426	160,792	380,319	0,849	1,751
-25	1,064	1,373	5,506	167,188	383,449	0,875	1,746
-20	1,327	1,358	6,784	173,636	386,554	0,900	1,741
-15	1,639	1,343	8,287	180,138	389,628	0,926	1,737
-10	2,006	1,327	10,041	186,697	392,665	0,951	1,733
-5	2,433	1,311	12,077	193,316	395,659	0,975	1,730
0	2,928	1,295	14,428	200,000	398,603	1,000	1,727
5	3,497	1,278	17,131	206,752	401,492	1,024	1,724
10	4,146	1,261	20,226	213,577	404,318	1,048	1,722
15	4,884	1,243	23,758	220,480	407,073	1,072	1,720
20	5,717	1,225	27,780	227,468	409,749	1,096	1,718
25	6,654	1,207	32,325	234,546	412,334	1,120	1,716
30	7,702	1,187	37,535	241,722	414,819	1,144	1,714
35	8,870	1,168	43,416	249,007	417,189	1,167	1,713
40	10,166	1,147	50,085	256,409	419,429	1,190	1,711
45	11,599	1,125	57,657	263,943	421,519	1,214	1,709
50	13,179	1,102	66,272	271,623	423,437	1,237	1,707
55	14,915	1,078	76,104	279,469	425,153	1,261	1,705
60	16,818	1,053	87,379	287,505	426,630	1,285	1,702
65	18,898	1,026	100,398	295,762	427,818	1,309	1,699
70	21,168	0,996	115,572	304,282	428,650	1,333	1,696
75	23,641	0,964	133,494	313,128	429,030	1,358	1,691
80	26,332	0,928	155,078	322,390	428,814	1,384	1,685
85	29,258	0,887	181,853	332,224	427,760	1,410	1,677
90	32,442	0,838	216,761	342,928	425,416	1,439	1,666
95	35,912	0,773	267,139	355,246	420,670	1,472	1,649
100	39,724	0,651	373,011	373,298	407,683	1,519	1,611



**Mollier Diagram**

