



## TECHNICAL DATA SHEET

# R-449A

### Components

Chemical Name	Chemical Formula	%By weight	CAS No	EC No
1,1,1,2-Tetrafluoroethane (R-134a)	CH <sub>2</sub> FCF <sub>3</sub>	25,5 – 26,7	811-97-2	212-377-0
2,3,3,3-Tetrafluoropropene (R-1234yf)	CH <sub>2</sub> =CF <sub>3</sub> CF <sub>3</sub>	24,3 – 25,5	754-12-1	468-710-7
Pentafluoroethane (R-125)	C <sub>2</sub> HF <sub>5</sub>	24,5 – 25,7	354-33-6	206-557-8
Difluoromethane (R-32)	CH <sub>2</sub> F <sub>2</sub>	23,3 – 24,5	75-10-5	200-839-4

### Physical and chemical properties

At normal temperature and pressure, R-449A is a colourless gas.

Physical state.....	Gas
Form.....	Compressed liquefied gas
Molecular Weight (g/mol).....	87.2
Boiling Point at 1 atm, (°C) .....	-46.0
Vapour pressure 25°C, (bar).....	12.75
Liquid Density at 21.1°C, (kg/m <sup>3</sup> ) .....	1113.3
Sliding temperature or glide (K).....	~4
Flammability .....	No
Critical Temperature, °C.....	81.5
Critical Pressure, bar.....	44.5
ODP.....	0
GWP.....	1397*

### 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 (Kg/m <sup>3</sup> )		ENTHALPY (kJ/Kg)		ENTROPY (kJ/ Kg.K)	
	LIQUID	VAPOUR	LIQUID	VAPOUR	LIQUID	VAPOUR	LIQUID	VAPOUR
-50	0,83	0,60	1361,6	2,92	133,1	370,6	0,732	1,812
-45	1,06	0,79	1346,5	3,75	139,5	373,5	0,760	1,801
-40	1,34	1,01	1331,2	4,74	146,0	376,5	0,788	1,791
-35	1,68	1,28	1315,6	5,94	152,5	379,4	0,815	1,782
-30	2,07	1,61	1299,7	7,35	159,1	382,3	0,843	1,773
-25	2,53	1,99	1283,6	9,03	165,7	385,1	0,870	1,765
-20	3,07	2,45	1267,1	10,99	172,4	387,9	0,896	1,758
-15	3,70	2,98	1250,2	13,27	179,2	390,6	0,922	1,751
-10	4,42	3,60	1233,0	15,92	186,0	393,2	0,948	1,745
-5	5,23	4,31	1215,3	18,97	193,0	395,8	0,974	1,739
0	6,16	5,13	1197,1	22,48	200,0	398,2	1,000	1,734
5	7,20	6,06	1178,3	26,51	207,1	400,6	1,026	1,729
10	8,38	7,11	1159,0	31,11	214,4	402,8	1,051	1,724
15	9,68	8,29	1138,9	36,37	221,7	405,0	1,076	1,719
20	11,14	9,62	1118,0	42,37	229,2	406,9	1,102	1,714
25	12,75	11,10	1096,2	49,23	236,8	408,7	1,127	1,709
30	14,52	12,74	1073,3	57,08	244,6	410,3	1,152	1,704
35	16,47	14,57	1049,3	66,09	252,5	411,7	1,178	1,699
40	18,61	16,59	1023,7	76,46	260,7	412,8	1,203	1,693
45	20,95	18,82	996,5	88,49	269,1	413,6	1,229	1,687
50	23,49	21,28	967,0	102,54	277,7	414,0	1,255	1,681