



R-450A

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Composition: R-134a/1234ze (42/58 %)

Application:

Medium and low temp refrigeration applications, appliances.
Retrofitting R-12 or blends used to previously retrofit R-12 systems

Performance:

Similar capacity and efficiency to R-12. Higher pressures, similar to R-401A and R-409A

Lubricant:

R-450A requires polyolester (POE) lubricant. Follow manufacturer's recommendations for changing mineral oil to POE

Retrofitting:

- Consult the comments on Pages 9 and 10
- See Section II, pages 92-98 for detailed discussion

[PRESSURE-TEMP CHART]

R450A		
TEMP. (°F)	Liquid (psig)	Vapor (psig)
-40	16.5	16.9
-35	14.4	14.9
-30	12.2	12.6
-25	9.6	10.2
-20	6.7	7.3
-15	3.5	4.3
-10	0.0	0.8
-5	1.9	1.5
0	4.0	3.6
5	6.3	5.8
10	8.9	8.3
15	11.6	11.0
20	14.6	13.9
25	17.9	17.1
30	21.4	20.6
35	25.2	24.3
40	29.4	28.4
45	33.8	32.8
50	38.6	37.5
55	43.7	42.5
60	49.2	47.9
65	55.1	53.7
70	61.4	59.9
75	68.1	66.5
80	75.2	73.5
85	82.8	81.0
90	90.9	89.0
95	99.4	97.4
100	109	106
105	118	116
110	128	126
115	139	136
120	150	148
125	162	159
130	175	172
135	188	185
140	202	199

[PHYSICAL PROPERTIES OF REFRIGERANTS]

	National R-450A
Environmental Classification	HFC / HFO
Molecular Weight	108.6
Boiling Point (1atm, °F)	-9.6
Critical Pressure (psia)	554.0
Critical Temperature (°F)	219.9
Critical Density (lb./ft ³)	30.73
Liquid Density (70 °F, lb./ft ³)	73.36
Vapor Density (bp, lb./ft ³)	0.3398
Heat of Vaporization (bp, BTU/lb.)	87.55
Specific Heat Liquid (70 °F, BTU/lb. °F)	0.335
Specific Heat Vapor (1atm, 70 °F, BTU/lb. °F)	0.239
Ozone Depletion Potential (CFC 11 = 1.0)	0
Global Warming Potential (CO ₂ = 1.0)	547
ASHRAE Standard 34 Safety Rating	A1
Temperature Glide (°F) (see section 2)	0.7

[AVAILABLE IN SIZES]

REFRIGERANT

R-450A

Type

Cylinder

Size

25 lb.



Thermodynamic Properties of R-450A

TEMP. (°F)	Pressure Liquid (psia)	Pressure Vapor (psia)	Density Liquid (lb/ft ³)	Density Vapor (lb/ft ³)	Enthalpy Liquid (Btu/lb)	Enthalpy Vapor (Btu/lb)	Entropy Liquid (Btu/R-lb)	Entropy Vapor (Btu/R-lb)
-40	6.6	6.4	85.86	0.160	0.000	91.85	0.00000	0.2192
-35	7.6	7.4	85.39	0.180	1.500	92.66	0.00360	0.2185
-30	8.7	8.5	84.91	0.210	3.010	93.47	0.00710	0.2179
-25	10.0	9.7	84.43	0.230	4.520	94.28	0.01060	0.2173
-20	11.4	11.1	83.94	0.260	6.030	95.09	0.01400	0.2168
-15	13.0	12.6	83.45	0.300	7.550	95.90	0.01740	0.2164
-10	14.7	14.3	82.96	0.340	9.080	96.70	0.02090	0.2160
-5	16.6	16.2	82.46	0.380	10.61	97.50	0.02420	0.2156
0	18.7	18.3	81.96	0.420	12.15	98.30	0.02760	0.2152
5	21.0	20.5	81.45	0.470	13.69	99.10	0.03090	0.2149
10	23.6	23.0	80.94	0.530	15.24	99.89	0.03420	0.2147
15	26.3	25.7	80.43	0.580	16.80	100.67	0.03750	0.2144
20	29.3	28.6	79.91	0.650	18.37	101.46	0.04080	0.2142
25	32.6	31.8	79.38	0.720	19.94	102.23	0.04400	0.2140
30	36.1	35.3	78.85	0.790	21.52	103.01	0.04730	0.2139
35	39.9	39.0	78.31	0.870	23.11	103.77	0.05050	0.2137
40	44.1	43.1	77.77	0.960	24.71	104.53	0.05370	0.2136
45	48.5	47.5	77.22	1.05	26.32	105.28	0.05680	0.2135
50	53.3	52.2	76.66	1.15	27.93	106.03	0.06000	0.2134
55	58.4	57.2	76.09	1.26	29.56	106.76	0.06320	0.2133
60	63.9	62.6	75.52	1.38	31.19	107.49	0.06630	0.2133
65	69.8	68.4	74.93	1.50	32.84	108.21	0.06940	0.2132
70	76.1	74.6	74.34	1.64	34.49	108.92	0.07250	0.2132
75	82.8	81.2	73.74	1.78	36.16	109.62	0.07560	0.2132
80	89.9	88.2	73.13	1.94	37.84	110.30	0.07870	0.2131
85	97.5	95.7	72.50	2.10	39.53	110.98	0.08180	0.2131
90	105.6	103.7	71.87	2.28	41.23	111.64	0.08490	0.2131
95	114.1	112.1	71.22	2.47	42.95	112.29	0.08790	0.2131
100	123.2	121.0	70.56	2.68	44.68	112.92	0.09100	0.2131
105	132.7	130.5	69.88	2.90	46.43	113.54	0.09410	0.2131
110	142.9	140.5	69.19	3.13	48.19	114.14	0.09710	0.2130
115	153.6	151.1	68.48	3.38	49.97	114.72	0.1002	0.2130
120	164.9	162.3	67.76	3.65	51.76	115.28	0.1032	0.2129
125	176.8	174.1	67.01	3.94	53.58	115.82	0.1063	0.2129
130	189.3	186.5	66.24	4.25	55.41	116.34	0.1094	0.2128
135	202.5	199.6	65.45	4.58	57.27	116.82	0.1124	0.2127
140	216.4	213.4	64.63	4.94	59.15	117.28	0.1155	0.2126
145	230.9	227.8	63.78	5.33	61.05	117.71	0.1186	0.2124
150	246.2	243.0	62.90	5.75	62.98	118.10	0.1217	0.2122