



R-290

R-290

Composition: 100% C₃H₈

Application:

Small scale refrigeration appliances. NEW equipment only—flammable properties require specially designed equipment and handling procedures

Performance:

New equipment containing R-290 will perform as designed

Lubricant:

Compatible with mineral oil and alkylbenzene lubricants

Retrofitting:

- R-290 can only be used in new equipment that has been designed to control the flammability

[PRESSURE-TEMP CHART]

TEMP. (°F)	R-290 psig
-40	1.4
-35	3.4
-30	5.7
-25	8.1
-20	10.7
-15	13.6
-10	16.7
-5	20.1
0	23.7
5	27.6
10	31.8
15	36.3
20	41.1
25	46.3
30	51.8
35	57.7
40	63.9
45	70.6
50	77.6
55	85.1
60	93.0
65	101
70	110
75	120
80	129
85	140
90	151
95	162
100	174
105	186
110	200
115	213
120	228
125	243
130	259
135	275
140	292
145	310
150	329

[PHYSICAL PROPERTIES OF REFRIGERANTS]

	National R-290
Environmental Classification	HC
Molecular Weight	44.1
Boiling Point (1atm, °F)	-43.8
Critical Pressure (psia)	616.6
Critical Temperature (°F)	206.1
Critical Density (lb./ft ³)	13.8
Liquid Density (70 °F, lb./ft ³)	31.1
Vapor Density (bp, lb./ft ³)	0.1509
Heat of Vaporization (bp, BTU/lb.)	183.1
Specific Heat Liquid (70 °F, BTU/lb. °F)	0.6399
Specific Heat Vapor (1atm, 70 °F, BTU/lb. °F)	0.3988
Ozone Depletion Potential (CFC 11 = 1.0)	0
Global Warming Potential (CO2 = 1.0)	3
ASHRAE Standard 34 Safety Rating	A3

[AVAILABLE IN SIZES]

REFRIGERANT	Type	Size
R-290	Cylinder	14 oz



Thermodynamic Properties of R-290

TEMP. (°F)	Pressure Liquid (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)
-60	9.7	36.90	0.1026	-10.68	176.4	-0.02600	0.4421
-55	11.1	36.71	0.1160	-8.034	177.8	-0.01943	0.4399
-50	12.6	36.51	0.1307	-5.371	179.3	-0.01291	0.4378
-45	14.3	36.31	0.1468	-2.693	180.7	-0.00643	0.4358
-40	16.1	36.11	0.1644	0.000	182.1	0.00000	0.4340
-35	18.1	35.91	0.1835	2.709	183.6	0.00639	0.4323
-30	20.4	35.70	0.2043	5.435	185.0	0.01275	0.4306
-25	22.8	35.50	0.2269	8.177	186.4	0.01906	0.4291
-20	25.4	35.29	0.2514	10.94	187.8	0.02535	0.4277
-15	28.3	35.08	0.2779	13.72	189.2	0.03159	0.4263
-10	31.4	34.87	0.3065	16.51	190.6	0.03781	0.4250
-5	34.8	34.66	0.3372	19.33	192.0	0.04400	0.4238
0	38.4	34.44	0.3703	22.16	193.4	0.05016	0.4227
5	42.3	34.22	0.4059	25.02	194.8	0.05629	0.4217
10	46.5	34.00	0.4440	27.90	196.2	0.06240	0.4207
15	51.0	33.78	0.4849	30.79	197.5	0.06848	0.4198
20	55.8	33.55	0.5286	33.71	198.9	0.07455	0.4189
25	61.0	33.32	0.5753	36.66	200.2	0.08059	0.4181
30	66.5	33.09	0.6253	39.62	201.6	0.08662	0.4173
35	72.4	32.86	0.6786	42.62	202.9	0.09263	0.4166
40	78.6	32.62	0.7354	45.63	204.2	0.09863	0.4159
45	85.3	32.38	0.7959	48.67	205.5	0.1046	0.4153
50	92.3	32.13	0.8604	51.74	206.7	0.1106	0.4147
55	99.8	31.88	0.9291	54.84	208.0	0.1166	0.4141
60	107.7	31.63	1.002	57.97	209.2	0.1225	0.4136
65	116.1	31.37	1.080	61.12	210.4	0.1285	0.4131
70	124.9	31.11	1.163	64.31	211.6	0.1344	0.4125
75	134.2	30.85	1.250	67.53	212.8	0.1403	0.4121
80	144.0	30.57	1.344	70.78	214.0	0.1463	0.4116
85	154.4	30.30	1.443	74.07	215.1	0.1522	0.4111
90	165.2	30.01	1.549	77.39	216.2	0.1582	0.4106
95	176.6	29.72	1.662	80.76	217.2	0.1642	0.4102
100	188.6	29.43	1.782	84.16	218.2	0.1701	0.4097
105	201.2	29.12	1.909	87.61	219.2	0.1761	0.4092
110	214.3	28.81	2.046	91.10	220.2	0.1821	0.4087
115	228.1	28.49	2.191	94.63	221.1	0.1881	0.4081
120	242.5	28.16	2.346	98.22	221.9	0.1942	0.4076
125	257.6	27.82	2.513	101.9	222.7	0.2003	0.4069
130	273.4	27.46	2.691	105.6	223.4	0.2064	0.4063
135	289.8	27.10	2.883	109.3	224.1	0.2126	0.4056
140	307.0	26.72	3.090	113.2	224.7	0.2188	0.4048
145	324.9	26.32	3.313	117.1	225.2	0.2251	0.4039
150	343.6	25.91	3.556	121.0	225.6	0.2314	0.4029