Solstice® Refrigerants

Solstice® N40 (R-448A)

Solstice

Solstice® N40: Substitute for R-404A for commercial and industrial refrigeration

R-448A is an A1 refrigerant gas blend of HFCs and HFOs designed to replace R-404A in commercial and industrial refrigeration equipment. It is also used in new equipment. R-448A is a highly versatile refrigerant used for preservation and freezing, as well as other refrigeration applications in industrial processes.

Components / Chemical Name:	ASHRAE Code:
N/A	R-448A

Technical specifications:

0	1387	A1	POE
ODP	GWP	Safety classification	Compatible lubricants

Temperature Range: High, Medium and Low

Replacement:
R-404A and R-22 via retrofit

Type of replacement:
Drop-in

Applications:

- Commercial Refrigeration
- Refrigerated Transport
- Industrial Refrigeration

Packaging sizes for Solstice® N40:

- Cylinders
- Roll Drums
- ISO Tanks

Thermodinamic properties chart:

Bubble point

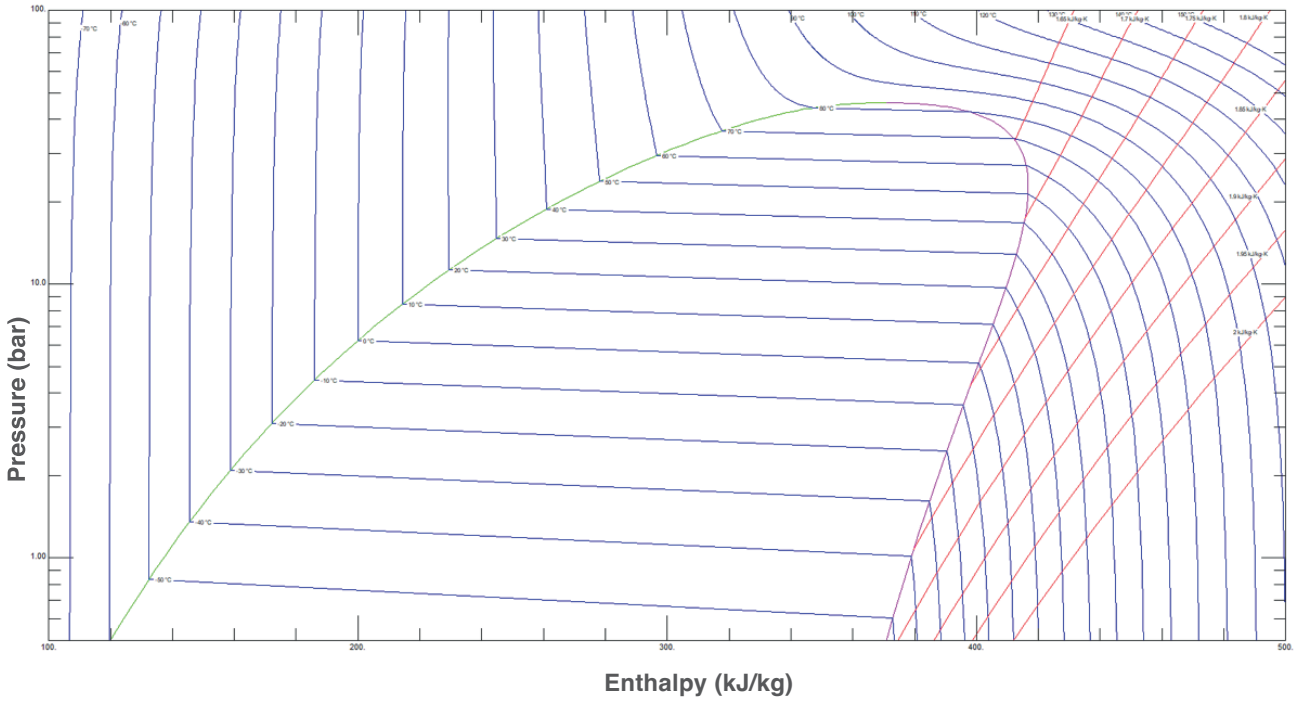
Temperature (°C)	Absolute Pressure (bar)	Liquid Density (kg/l)	Gas Density (kg/l)	Liquid Enthalpy (kJ/kg)	Gas Enthalpy (kJ/kg)	Liquid Entropy (kJ/kg K)	Gas Entropy (kJ/kg K)
-30	1,09	1,300	0,0085	158,7	401,4	0,841	1,820
-25	1,56	1,284	0,0104	165,4	403,5	0,868	1,808
-20	2,10	1,267	0,0125	172,2	405,5	0,895	1,798
-15	2,73	1,251	0,0150	179,0	407,5	0,922	1,788
-10	3,46	1,233	0,0179	185,9	409,4	0,948	1,779
-5	4,28	1,216	0,0212	192,9	411,2	0,974	1,771
0	5,22	1,198	0,0249	200,0	413,0	1,000	1,763
5	6,27	1,179	0,0292	207,2	414,6	1,026	1,755
10	7,46	1,160	0,0341	214,5	416,1	1,051	1,748
15	8,78	1,140	0,0397	221,8	417,5	1,077	1,740
20	10,25	1,119	0,0460	229,4	418,7	1,102	1,733
25	11,88	1,097	0,0533	237,0	419,7	1,128	1,726
30	13,67	1,074	0,0615	244,8	420,5	1,153	1,719
35	15,64	1,051	0,0710	252,8	421,1	1,179	1,712
40	17,80	1,025	0,0818	261,0	421,4	1,204	1,704
45	20,16	0,998	0,0944	269,4	421,3	1,230	1,696
50	22,73	0,969	0,1090	278,1	420,8	1,257	1,688
55	25,52	0,937	0,1263	287,2	419,9	1,283	1,678
60	28,54	0,902	0,1470	296,7	418,3	1,311	1,667

Thermodinamic properties chart:

Dew point

Temperature (°C)	Absolute Pressure (bar)	Liquid Density (kg/l)	Gas Density (kg/l)	Liquid Enthalpy (kJ/kg)	Gas Enthalpy (kJ/kg)	Liquid Entropy (kJ/kg K)	Gas Entropy (kJ/kg K)
-30	0,61	1,324	0,0073	160,2	384,7	0,857	1,784
-25	1,00	1,308	0,0090	166,7	387,6	0,884	1,776
-20	1,46	1,291	0,0109	173,2	390,4	0,910	1,769
-15	2,00	1,274	0,0132	179,8	393,1	0,935	1,762
-10	2,62	1,257	0,0158	186,5	395,7	0,961	1,755
-5	3,34	1,239	0,0188	193,2	398,3	0,986	1,749
0	4,16	1,221	0,0223	200,1	400,7	1,011	1,744
5	5,09	1,202	0,0263	207,0	403,1	1,036	1,738
10	6,15	1,183	0,0309	214,1	405,3	1,061	1,733
15	7,34	1,162	0,0361	221,2	407,5	1,085	1,728
20	8,68	1,142	0,0421	228,5	409,5	1,110	1,723
25	10,18	1,120	0,0489	236,0	411,3	1,134	1,718
30	11,84	1,097	0,0567	243,6	412,9	1,159	1,713
35	13,68	1,073	0,0656	251,3	414,3	1,183	1,708
40	15,72	1,048	0,0759	259,3	415,4	1,208	1,702
45	17,97	1,021	0,0877	267,5	416,2	1,233	1,696
50	20,45	0,991	0,1016	276,0	416,7	1,259	1,689
55	23,17	0,960	0,1179	284,9	416,7	1,285	1,681
60	26,17	0,924	0,1375	294,1	416,0	1,311	1,672

Pressure diagram chart:



Instructions:

Charge the system in liquid phase. When replacing HCFCs, an oil change is required. For the retrofit, adjustment of the expansion valve may be necessary, or replacement with a more suitable valve depending on the application.

Normative:

GRIT (Gases Research Innovation & Technology) is committed to the continuous improvement of our inbuilt Quality Control, Environment and Major Accident Prevention Systems as well as close collaboration with our product and service providers. The scope of the system includes the packaging, commercialisation, storage and innovation of technical gases and the management of residual fluorinated gas and halogenated solvents.

All this work is reflected in our certificates ISO 9001 & ISO 14001. GRIT also meets AHRI 700 standard for new and recycled refrigerants.

More information:

If you want more information about our products, contact us.

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