Solstice® Refrigerants

Solstice® 454C (R-454C)

Solstice

Solstice® 454C: Low-GWP Solution for Commercial and Industrial Refrigeration.

R-454C is a refrigerant gas blend of HFCs and HFO with an ultra-low GWP, below 150, meaning it is not restricted by the current F-Gas regulation (2024/573) and is exempt from the Spanish fluorinated greenhouse gas tax. It is an excellent solution for commercial refrigeration systems (preservation and freezing) and industrial refrigeration.

From the thermodynamic perspective, it is a refrigerant with similar capacity to R-404A and greater energy efficiency. In terms of safety, it is classified as an A2L refrigerant, requiring appropriate materials and charge levels for this type of safety classification.

Components / Chemical Name:	ASHRAE Code:
N/A	R-454C

Technical specifications:

0	148	A2L	POE
ODP	GWP	Safety classification	Compatible lubricants

Temperature Range: High, Medium and Low

Replacement: R-404A, R-448A, and R-449A in new equipment and retrofits of existing installations.

Type of replacement: Retrofit

Applications:

- Commercial Refrigeration
- Refrigerated Transport
- Industrial Refrigeration

Packaging sizes for Solstice® 454C:

- Cylinders
- Roll Drums
- ISO Tanks

Thermodinamic properties chart:

Bubble point

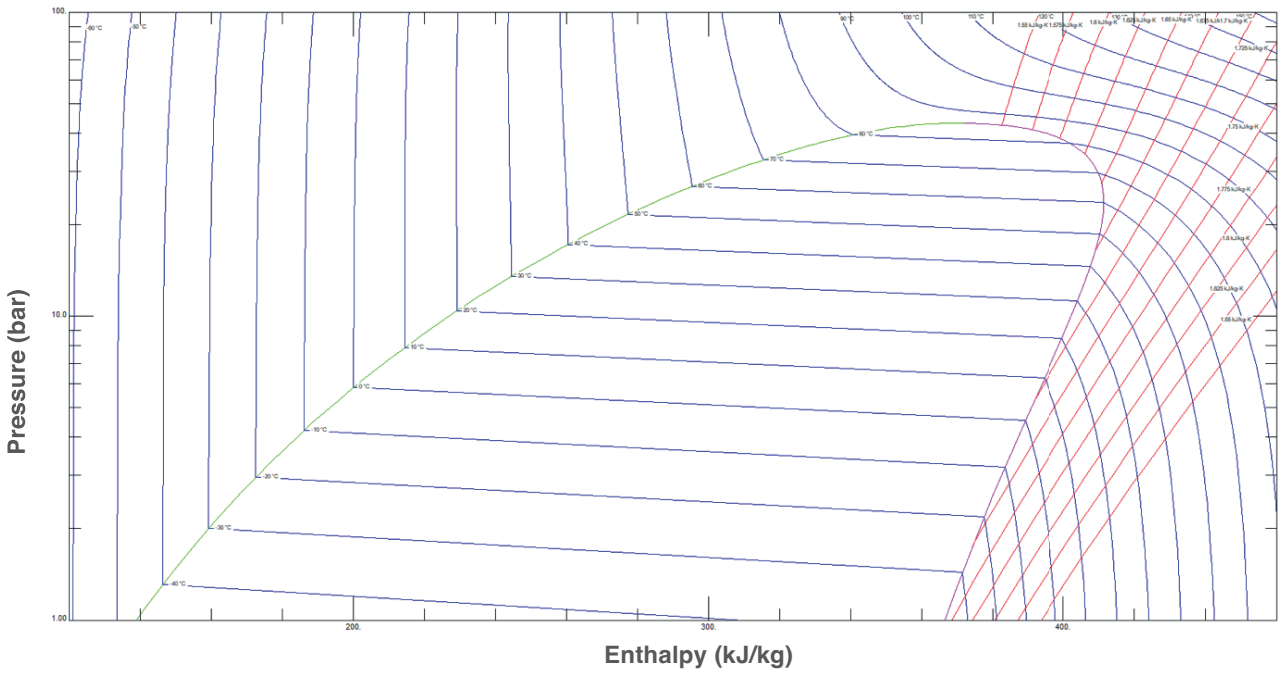
Temperature (°C)	Absolute Pressure (bar)	Liquid Density (kg/l)	Gas Density (kg/l)	Liquid Enthalpy (kJ/kg)	Gas Enthalpy (kJ/kg)	Liquid Entropy (kJ/kg K)	Gas Entropy (kJ/kg K)
-30	1,00	1,232	0,0079	159,2	407,5	0,843	1,876
-25	1,44	1,217	0,0096	165,8	409,1	0,870	1,862
-20	1,95	1,202	0,0115	172,5	410,6	0,896	1,848
-15	2,54	1,186	0,0138	179,2	412,1	0,923	1,836
-10	3,21	1,170	0,0164	186,1	413,6	0,949	1,824
-5	3,98	1,153	0,0194	193,0	415,0	0,974	1,813
0	4,84	1,136	0,0228	200,0	416,3	1,000	1,802
5	5,81	1,119	0,0267	207,1	417,6	1,026	1,792
10	6,89	1,101	0,0312	214,3	418,7	1,051	1,783
15	8,10	1,082	0,0363	221,7	419,8	1,076	1,773
20	9,43	1,063	0,0420	229,1	420,7	1,101	1,764
25	10,91	1,042	0,0485	236,7	421,5	1,127	1,755
30	12,53	1,021	0,0560	244,5	422,0	1,152	1,747
35	14,30	0,999	0,0645	252,3	422,4	1,177	1,738
40	16,24	0,976	0,0742	260,4	422,6	1,202	1,729
45	18,35	0,951	0,0855	268,7	422,4	1,228	1,719
50	20,64	0,924	0,0985	277,3	421,9	1,254	1,709
55	23,12	0,895	0,1137	286,1	421,0	1,280	1,699
60	25,80	0,863	0,1318	295,3	419,5	1,307	1,687

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	0,44	1,255	0,0068	158,2	371,3	0,822	1,731
-25	0,78	1,240	0,0084	164,4	374,4	0,848	1,725
-20	1,18	1,225	0,0101	170,8	377,5	0,874	1,720
-15	1,65	1,209	0,0122	177,2	380,5	0,899	1,715
-10	2,20	1,194	0,0146	183,7	383,4	0,925	1,711
-5	2,82	1,177	0,0174	190,4	386,3	0,950	1,707
0	3,54	1,160	0,0205	197,1	389,2	0,975	1,703
5	4,35	1,143	0,0242	204,0	391,9	1,001	1,700
10	5,27	1,125	0,0283	210,9	394,6	1,026	1,697
15	6,31	1,107	0,0330	218,0	397,1	1,051	1,694
20	7,47	1,087	0,0384	225,3	399,6	1,076	1,691
25	8,77	1,067	0,0445	232,7	401,9	1,101	1,688
30	10,21	1,046	0,0514	240,2	404,0	1,127	1,685
35	11,82	1,025	0,0594	247,9	406,0	1,152	1,682
40	13,59	1,001	0,0685	255,8	407,7	1,178	1,679
45	15,55	0,977	0,0790	263,9	409,2	1,203	1,675
50	17,70	0,950	0,0911	272,3	410,3	1,230	1,671
55	20,08	0,922	0,1054	281,0	411,1	1,256	1,666
60	22,68	0,890	0,1223	290,1	411,4	1,284	1,660

Pressure diagram chart:



Instructions:

Charge the system in liquid phase. Equipment modification is required to carry out the retrofit.

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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