Natural Refrigerants

R-1150 (Ethylene)

R-1150: Natural refrigerant for extremely low temperature applications (≤ -80ºC).

R-1150 is a hydrocarbon refrigerant for applications requiring extremely low operating temperatures. As a hydrocarbon, it has a low environmental impact in terms of both ozone layer protection and global warming potential, and it is classified as an A3 safety group refrigerant.

Due to its low boiling point, it allows operating at a gauge pressure above 1 bar when working temperatures are equal to or below -80°C, reducing the compression ratio and promoting energy savings. It must be used in cascade systems for product condensation.

Chemical name:	ASHRAE Name:
Ethylene or Ethene (C_2H_4)	R-1150

Technical specifications:

0	4	A3	Mineral and Alkylbenzene
ODP	GWP	Safety classification	Compatible lubricants

Boiling point: -104ºC.

Temperature range: Very low (between -40°C and -80°C).

Replacement: R-23 in new equipment; it is not a drop-in replacement product.

Applications:

- Very Low Temperature Storage
- Natural Gas Liquefaction (LNG)
- Freeze-Drying
- Processes requiring Very Low Temperatures

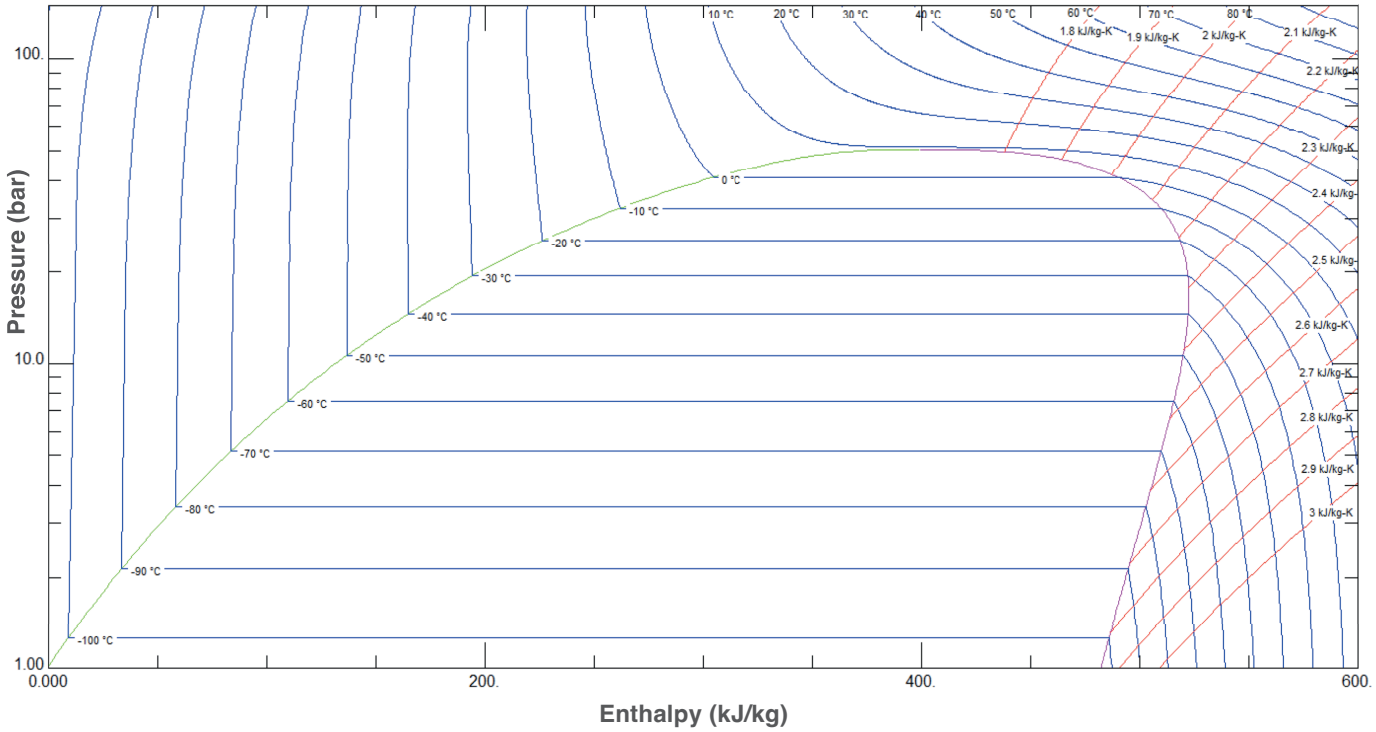
Packaging sizes for R-1150 (Ethylene):

- Cylinders

Thermodinamic properties chart:

Temperature (ºC)	Absolute pressure (bar)	Liquid density (kg/l)	Gas density (kg/l)	Liquid enthalpy (kJ/kg K)	Gas enthalpy (kJ/kg K)
-100	1,2585	0,56223	0,0025512	9,1543	486,03
-95	1,6514	0,55493	0,0032818	21,342	490,65
-90	2,132	0,5475	0,0041614	33,603	495,06
-85	2,7119	0,53991	0,0052095	45,953	499,25
-80	3,4034	0,53216	0,0064473	58,41	503,18
-75	4,219	0,52421	0,0078979	70,993	506,85
-70	5,1716	0,51606	0,0095871	83,723	510,22
-65	6,2743	0,50767	0,011544	96,623	513,28
-60	7,5406	0,49902	0,013801	109,72	515,99
-55	8,9843	0,49007	0,016397	123,04	518,31
-50	10,619	0,48077	0,019377	136,62	520,21
-45	12,46	0,47108	0,022795	150,5	521,64
-40	14,521	0,46092	0,026717	164,73	522,53
-35	16,818	0,45023	0,031228	179,35	522,81
-30	19,366	0,43888	0,036434	194,45	522,38
-25	22,182	0,42675	0,042482	210,12	521,11
-20	25,284	0,41362	0,049572	226,49	518,8
-15	28,692	0,39921	0,057999	243,74	515,2
-10	32,428	0,38304	0,068232	262,17	509,87
-5	36,516	0,36428	0,081087	282,26	502,08
0	40,99	0,34121	0,098265	305,06	490,32
5	45,896	0,30884	0,12476	333,52	470,25
9	50,191	0,24628	0,18247	378,38	423,52

Pressure diagram chart:



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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