

Kryon® 410A (R-410A)

The refrigerant with high energy efficiency index

Kryon® 410A is an azeotropic mixture composed of HFC-32/HFC-125, produced by Honeywell as a long term replacement product of R-22 (HCFC-22), in new equipments. This non ozone depleting mixture is, from the energetic point of view, very productive.

Kryon® 410A has higher refrigerating capacity and pressures compared to R-22, and a lower toxicity. Its use is very simple because it is an azeotropic mixture.

Kryon® 410A is a Honeywell patent and has been proved to be non flammable by Underwriters' Laboratory (UL).



Physical Properties	UM	Kryon® 410A
Composition	% by weight	R-32 - 50 % R-125 - 50 %
Environmental Classification	-	HFC
Molecular Weight	gr/grmole	72,58
Saturated Vapour Temperature @ 1,013 bar	°C	-51,11
Temperature Glide @ 1,013 bar	K	0,08
Density of Liquid @ 25°C	kg/m³	1.058,60
Density of Saturated Vapour @ 1,013 bar	kg/m³	4,22
Pressure of Saturation (Saturated Liquid) @ 25°C	bar_rel	15,56
Pressure of Saturation (Saturated Liquid) @ 50°C	bar_rel	29,69
Critical Temperature	°C	71,34
Critical Pressure	bar_rel	47,99
Critical Density	kg/m³	459,03
Heat of Evaporation @ 1,013 bar	kJ/Kg	272,66
Specific Entropy of Liquid @ 25°C	kJ/Kg*°C	1,14
Specific Entropy of Vapour @ 25°C	kJ/Kg*°C	1,76
CP/CV Ratio @ 25°C - 1,013 bar_ass		1,18
ODP	(R11 = 1)	0,00
Atmospheric Life Time	Anni	16,95
GWP - IPCC rev. 4 (IPCC rev. 5)	(CO ₂ = 1)	2088 (1924)
ASHRAE Standard 34 Safety Rating		A1
Lower Flammability Limit	%	Non-flammable
Classification according to Directive 97/23/CE PED	Group	2

Packaging

Item Code	Gas Q.ty Kg	Container	Capacity Lt	Pressure	Valve	Sales Unit	N° Pieces per Pack	N° Cylinders per Pallets	GWP per Pack (TonCO ₂ eq.)
F-GF-R410A-FU	791	Roll Drum	920	36÷48 bar	W 21,7 x 1/14"	KG	1	N/A	1.521,88
F-GF-R410A-40	35	Cylinder	40	36÷48 bar	W 21,7 x 1/14"	KG	1	9	67,34
F-GF-R410A-13	11	Cylinder	13	36÷48 bar	W 21,7 x 1/14"	KG	1	30	21,16
F-GF-MD-R410A-7	5	Cylinder	7	46 bar	1/4" SAE Flare / 7/16" 20-UNF + raccordo 5/16" SAE / 1/2" 20-UNF	KG	1	45	9,62
F-GF-MXK-R410A-13,6	11,3	KryoBox	13,6	42 bar	1/4" SAE Flare / 7/16" 20-UNF + raccordo 5/16" SAE / 1/2" 20-UNF	NR	1	30	21,74
F-GF-MI-R410A-2,5LT	2	KryoSmart	2,5	48 bar	5/16" SAE Flare / 1/2" 20-UNF	Pkg.	6	180 (30 Pkg.)	23,09
F-GF-MI-R410A-1LT	0,8	KryoSmart	1	48 bar	5/16" SAE Flare / 1/2" 20-UNF	Pkg.	12	360 (30 Pkg.)	18,47

Applicazioni

Kryon® 410A is used in new home and small shop air conditioning systems.

Kryon® 410A is an excellent refrigerant in new concept water coolers not provided with centrifugal compressor.

Il Kryon® 410A can be used as replacement product of R-22 in new commercial refrigeration systems (low and medium temperature), including supermarket refrigerated display cases and refrigerated transport.

Performance

- ✓ Tests show that Kryon® 410A assures an energy efficiency index that is 5-6% higher compared to R-22, in systems designed for its use and provided with scroll compressor or other.
- ✓ Its characteristics allow the designing of smaller air conditioning systems and compact systems that usually use R-22.

Recommended Lubricants

Kryon® 410A needs the use of mixable lubricants, as for example Polyol Ester Oil (POE). Most of the manufacturers of compressors recommend specific POE lubricants. So the user should check the lubricant recommended by the manufacturer.



Applications



GWP



ODP



Tpos

Temperature

Thermodynamic Properties of Kryon® 410A

LEGEND

Low GWP

Medium GWP

High GWP

Zero ODP

Low ODP

Medium ODP



Temperature °C	Vapour Pressure		Density		Enthalpy		Entropy	
	Saturated Liquid bar_rel	Saturated Vapour bar_rel	Saturated Liquid kg/m³	Saturated Vapour kg/m³	Saturated Liquid KJ/kg	Saturated Vapour KJ/kg	Saturated Liquid KJ/kg*K	Saturated Vapour KJ/kg*K
-50	0,08	0,07	1.345,10	4,45	128,32	400,02	0,713	1,931
-48	0,19	0,19	1.338,80	4,89	131,08	401,04	0,725	1,924
-46	0,31	0,31	1.332,40	5,36	133,83	402,06	0,737	1,918
-44	0,45	0,44	1.326,00	5,87	136,60	403,07	0,749	1,912
-42	0,59	0,58	1.319,50	6,41	139,37	404,06	0,761	1,907
-40	0,74	0,74	1.313,00	6,99	142,15	405,04	0,773	1,901
-38	0,91	0,90	1.306,50	7,61	144,93	406,01	0,785	1,896
-36	1,08	1,08	1.299,90	8,27	147,73	406,97	0,797	1,890
-34	1,27	1,26	1.293,20	8,98	150,53	407,91	0,809	1,885
-32	1,47	1,47	1.286,50	9,74	153,34	408,84	0,820	1,880
-30	1,69	1,68	1.279,80	10,55	156,17	409,75	0,832	1,875
-28	1,92	1,91	1.273,00	11,41	159,00	410,65	0,843	1,870
-26	2,16	2,15	1.266,10	12,32	161,84	411,53	0,855	1,865
-24	2,42	2,41	1.259,20	13,29	164,70	412,40	0,866	1,861
-22	2,70	2,69	1.252,20	14,32	167,56	413,25	0,878	1,856
-20	2,99	2,98	1.245,10	15,42	170,44	414,08	0,889	1,852
-18	3,30	3,29	1.238,00	16,58	173,33	414,90	0,900	1,847
-16	3,63	3,62	1.230,80	17,81	176,23	415,70	0,911	1,843
-14	3,98	3,96	1.223,50	19,11	179,15	416,47	0,923	1,839
-12	4,35	4,33	1.216,10	20,48	182,08	417,23	0,934	1,834
-10	4,73	4,71	1.208,70	21,94	185,02	417,97	0,945	1,830
-8	5,14	5,12	1.201,10	23,48	187,99	418,68	0,956	1,826
-6	5,57	5,55	1.193,50	25,11	190,96	419,37	0,967	1,822
-4	6,02	6,00	1.185,80	26,84	193,96	420,04	0,978	1,818
-2	6,50	6,47	1.177,90	28,66	196,97	420,69	0,989	1,814
0	6,99	6,97	1.170,00	30,58	200,00	421,31	1,000	1,810
2	7,52	7,49	1.161,90	32,61	203,05	421,90	1,011	1,807
4	8,07	8,04	1.153,70	34,75	206,12	422,46	1,022	1,803
6	8,64	8,61	1.145,40	37,01	209,21	422,99	1,033	1,799
8	9,24	9,21	1.137,00	39,40	212,33	423,49	1,044	1,795
10	9,87	9,83	1.128,40	41,92	215,46	423,96	1,055	1,791
12	10,53	10,49	1.119,70	44,58	218,63	424,39	1,066	1,787
14	11,22	11,18	1.110,80	47,39	221,81	424,79	1,077	1,784
16	11,93	11,89	1.101,70	50,36	225,03	425,14	1,088	1,780
18	12,68	12,64	1.092,50	53,50	228,27	425,46	1,098	1,776
20	13,46	13,42	1.083,10	56,81	231,54	425,73	1,109	1,772
22	14,28	14,23	1.073,40	60,32	234,85	425,95	1,120	1,768
24	15,12	15,07	1.063,60	64,04	238,18	426,12	1,131	1,764
26	16,01	15,95	1.053,60	67,97	241,55	426,25	1,142	1,760
28	16,93	16,87	1.043,30	72,13	244,96	426,31	1,153	1,756
30	17,88	17,82	1.032,70	76,55	248,41	426,31	1,165	1,752
32	18,87	18,81	1.021,90	81,25	251,90	426,25	1,176	1,747
34	19,91	19,84	1.010,80	86,24	255,43	426,12	1,187	1,743
36	20,98	20,91	999,32	91,55	259,01	425,92	1,198	1,738
38	22,09	22,02	987,52	97,22	262,65	425,63	1,210	1,734
40	23,24	23,17	975,33	103,27	266,33	425,26	1,221	1,729
42	24,44	24,37	962,72	109,76	270,08	424,79	1,233	1,724
44	25,68	25,61	949,62	116,72	273,90	424,21	1,244	1,718
46	26,97	26,90	935,99	124,23	277,80	423,52	1,256	1,713
48	28,31	28,23	921,75	132,33	281,77	422,69	1,268	1,707
50	29,69	29,62	906,80	141,14	285,85	421,72	1,280	1,701
52	31,13	31,05	891,03	150,74	290,03	420,57	1,293	1,694
54	32,61	32,54	874,27	161,29	294,35	419,22	1,305	1,687
56	34,15	34,08	856,31	172,96	298,83	417,64	1,318	1,679
58	35,75	35,67	836,86	186,01	303,50	415,77	1,332	1,671
60	37,41	37,33	815,49	200,78	308,41	413,54	1,346	1,662
62	39,12	39,05	791,57	217,81	313,66	410,86	1,361	1,651
64	40,90	40,83	764,04	237,94	319,35	407,56	1,378	1,639
66	42,74	42,68	731,03	262,68	325,73	403,35	1,396	1,625
68	44,65	44,60	688,29	295,31	333,32	397,62	1,417	1,606
70	46,64	46,60	620,47	346,39	344,10	388,43	1,448	1,577

