



Characteristics and applications

The R-407H refrigerant gas is a zeotropic HFC blend and a direct **drop-in** replacement for R-404A and R-507 in existing systems. It can also be used for **retrofitting** existing R-22 systems (change the oil). As with all HFC refrigerants, it causes no damage to the ozone layer. Its safety classification is **A1** group **L1**, meaning that it has a low toxicity and is non-flammable.

Some of its main properties are:

- It is a good alternative to R-404A and R-507 for new medium and low temperature systems.
- It is a **direct drop-in** replacement for R-404A and R-507 in existing commercial and industrial medium and low temperature refrigeration equipment that uses positive displacement compressors and direct expansion systems.
- Some of its applications: cold storage rooms, multiplex systems for supermarkets and display cabinets, ice machines, refrigerated transport, condensation units, freezers.
- It is compatible with the equipment, components, lubricant and joints of an existing R-507 or R-404A system.
- The global warming potential (GWP) is 61.88% less than that of R-404A.
- It is compatible with POE synthetic oils.

Toxicity and storage

R-407H is a substance with a very low toxicity. R-407H vapours are heavier than the air, so tend to accumulate near the floor. High atmospheric concentrations could cause anaesthetic effects and asphyxiation. Prolonged exposure may lead to heart arrhythmia and could cause sudden death.

R-407H cylinders should be stored in a cool and well-ventilated place, away from heat sources.

Components

Chemical Name	% By weight	N° CAS	N° CE
1,1,1,2- Tetrafluoroethane (R-134a)	52,5	811-97-2	212-377-0
Difluoromethane (R-32)	32,5	75-10-5	200-839-4
Pentafluoroethane (R-125)	15,0	354-33-6	206-557-8

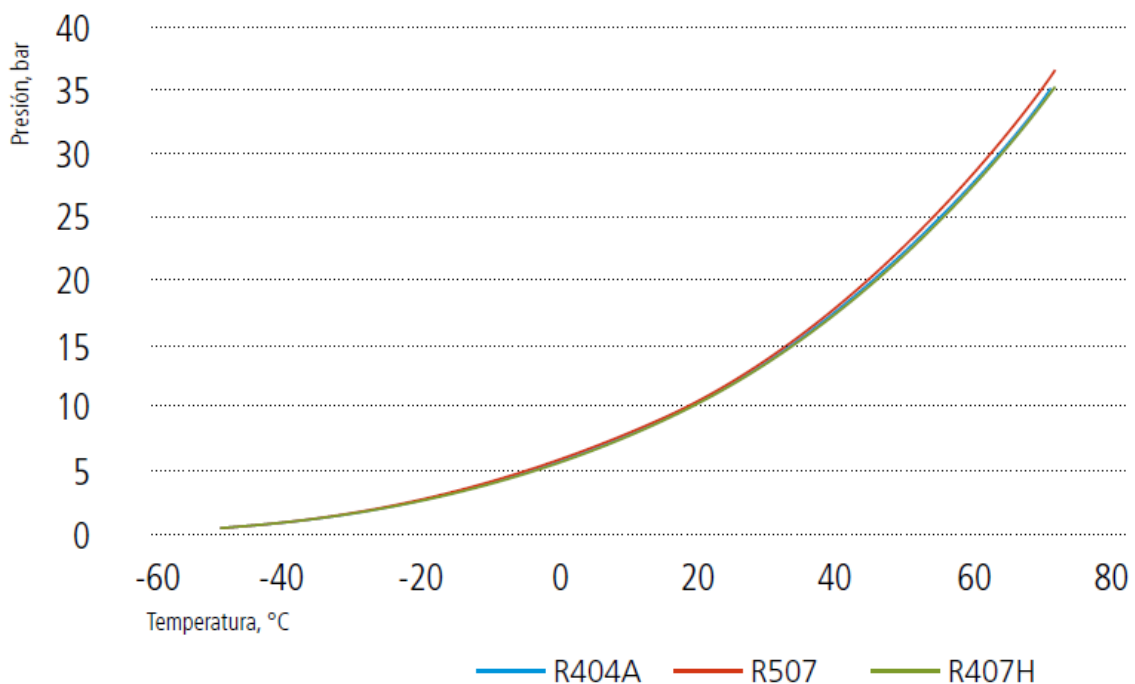


Physical properties

PHYSICAL PROPERTIES	UNITS	R-407H
Molecular weight	(g/mol)	79,1
Boiling point (at 1,013 bar)	(°C)	-44,6
Critical temperature	(°C)	86,5
Critical pressure	(bar)	48,5
Critical density	(kg/m ³)	464,1
Density of saturated liquid (25°C)	(kg/m ³)	1111,2
Saturated vapour density (25°C)	(kg/m ³)	41,86
Saturated heat of vaporization (25°C)	(KJ/Kg)	199,02
C _p of saturated liquid (25°C)	(KJ/Kg.K)	1,585
C _p of saturated vapour (25°C)	(KJ/Kg.K)	1,176
Sliding temperature or glide	(K)	7
Flammability		None
ODP	-	0
GWP	-	1495 *

* According to IPPCC-AR4/CIE (Fourth Assessment Report of the Intergovernmental Panel of Experts on Climate Change)-2007.

Comparative pressure (bar) / temperature (°C) graph for R404A – R507–R407H





Pressure / temperature table

TEMP. (°C)	ABSOLUTE PRESSURE (bar)		DENSITY (Kg/m3)		ENTHALPY (kJ/Kg)		ENTROPY (kJ/Kg.K)	
	BUBBLE	DEW	BUBBLE	DEW		BUBBLE	DEW	BUBBLE
-50	0,77	0,53	1367,87	2,31	130,16	400,13	0,720	1,951
-45	0,99	0,69	1353,01	2,98	136,91	403,08	0,749	1,936
-40	1,26	0,90	1337,96	3,81	143,70	406,00	0,779	1,922
-35	1,58	1,15	1322,68	4,80	150,54	408,87	0,808	1,910
-30	1,96	1,45	1307,17	5,99	157,42	411,68	0,836	1,898
-25	2,40	1,81	1291,40	7,39	164,35	414,44	0,864	1,887
-20	2,92	2,24	1275,34	9,05	171,34	417,13	0,892	1,877
-15	3,53	2,75	1258,96	10,99	178,40	419,75	0,919	1,867
-10	4,22	3,34	1242,23	13,24	185,52	422,29	0,947	1,858
-5	5,01	4,02	1225,10	15,85	192,72	424,74	0,973	1,850
0	5,92	4,80	1207,54	18,86	200,00	427,09	1,000	1,842
5	6,94	5,70	1189,50	22,32	207,37	429,34	1,026	1,834
10	8,09	6,72	1170,91	26,27	214,83	431,46	1,053	1,827
15	9,37	7,87	1151,71	30,80	222,41	433,44	1,079	1,820
20	10,80	9,16	1131,83	35,96	230,10	435,28	1,105	1,813
25	12,39	10,61	1111,15	41,86	237,92	436,94	1,131	1,806
30	14,14	12,23	1089,58	48,59	245,90	438,42	1,157	1,798
35	16,08	14,03	1066,98	56,29	254,04	439,67	1,183	1,791
40	18,20	16,02	1043,16	65,12	262,36	440,66	1,209	1,784
45	20,52	18,22	1017,91	75,28	270,91	441,36	1,235	1,776
50	23,05	20,65	990,95	87,06	279,71	441,70	1,262	1,768