

ASHRAE REFRIGERANT NUMBERING SYSTEM

ASHRAE STANDARD REFRIGERANT DESIGNATION	CHEMICAL NAME	CHEMICAL FORMULA	MOLEC- ULAR WEIGHT	BOILING POINT, F	STATUS ¹
Halocarbon Compounds					
10	Carbontetrachloride	CCl ₄	153.8	170.2	
11	Trichloromonofluoromethane	CCl ₃ F	137.4	74.8	C
12	Dichlorodifluoromethane	CCl ₂ F ₂	120.9	-21.6	C
13	Monochlorotrifluoromethane	CClF ₃	104.5	-114.6	C
13B1	Monobromotrifluoromethane	CBF ₃	148.9	-72.0	S
14	Carbontetrafluoride	CF ₄	88.0	-198.4	S
20	Chloroform	CHCl ₃	119.4	142	
21	Dichloromonofluoromethane	CHCl ₂ F	102.9	48.1	D
22	Monochlorodifluoromethane	CHClF ₂	86.5	-41.4	C
23	Trifluoromethane	CHF ₃	70.0	-119.9	D
30	Methylene Chloride	CH ₂ Cl ₂	84.9	105.2	C
31	Monochloromonofluoromethane	CH ₂ ClF	68.5	48.0	
32	Methylene fluoride	CH ₂ F ₂	52.0	-61.4	
40	Methyl chloride	CH ₃ Cl	50.5	-10.8	C
41	Methyl fluoride	CH ₃ F	34.0	-109	
(50)	Methane	CH ₄	16.0	-259	C) ²
110	Hexachloroethane	CCl ₃ CCl ₃	236.8	365	
111	Pentachloromonofluoroethane	CCl ₃ CCl ₂ F	220.3	279	
112	Tetrachlorodifluoroethane	CCl ₂ CClF ₂	203.8	199.0	
112a	Tetrachlorodifluoroethane	CCl ₂ CClF ₂	203.8	195.8	
113	Trichlorotrifluoroethane	CClFCClF ₂	187.4	117.6	C
113a	Trichlorotrifluoroethane	CCl ₂ CF ₃	187.4	114.2	
114	Dichlorotetrafluoroethane	CClF ₂ CClF ₂	170.9	38.4	C
114a	Dichlorotetrafluoroethane	CCl ₂ FCF ₃	170.9	38.5	C
114B2	Dibromotetrafluoroethane	CBF ₂ CF ₂ Br	259.9	117.5	D
115	Monochloropentafluoroethane	CClF ₂ CF ₃	154.5	-37.7	D
116	Hexafluoroethane	CF ₃ CF ₃	138.0	-108.8	
120	Pentachloroethane	CHCl ₂ CCl ₃	202.3	324	
123	Dichlorotrifluoroethane	CHCl ₂ CF ₃	153	83.7	
124	Monochlorotetrafluoroethane	CHClF ₂ CF ₃	136.5	10.4	
124a	Monochlorotetrafluoroethane	CHF ₂ CClF ₂	136.5	14	D
125	Pentafluoroethane	CHF ₂ CF ₃	120	-55	
133a	Monochlorotrifluoroethane	CH ₂ ClCF ₃	118.5	43.0	D
140a	Trichloroethane	CH ₃ CCl ₃	133.4	165	
142b	Monochlorodifluoroethane	CH ₃ CClF ₂	100.5	12.2	S
143a	Trifluoroethane	CH ₃ CF ₃	84	-53.5	
150a	Dichloroethane	CH ₃ CHCl ₂	98.9	140	
152a	Difluoroethane	CH ₃ CHF ₂	66	-12.4	C
160	Ethyl chloride	CH ₃ CH ₂ Cl	64.5	54.0	
(170)	Ethane	CH ₃ CH ₃	30	-127.5	C) ²
218	Octafluoropropane	CF ₃ CF ₂ CF ₃	188	-36.4	
(290)	Propane	CH ₃ CH ₂ CH ₃	44	-44.2	C) ²
Cyclic Organic Compounds					
C316	Dichlorohexafluorocyclobutane	C ₂ Cl ₂ F ₄	233	140	
C317	Monochloroheptafluorocyclobutane	C ₂ ClF ₅	216.5	77	
C318	Octafluorocyclobutane	C ₂ F ₄	200	21.1	D
Azeotropes					
500	Refrigerants 12/152a 73.8/26.2 wt %	CCl ₂ F ₂ /CH ₂ CHF ₃	99.29	-28.0	C
501	Refrigerants 22/12 75/25 wt %	CHCl ₂ /CCl ₃ F	93.1	-42	
502	Refrigerants 11/115 48.8/51.2 wt %	CHCl ₂ /CCl ₂ F ₂	112	-50.1	

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Miscellaneous Organic Compounds					
Hydrocarbons					
50	Methane	CH ₄	16.0	-259	C
170	Ethane	CH ₃ CH ₃	30	-127.5	C
290	Propane	CH ₃ CH ₂ CH ₃	44	-44.2	C
600	Butane	CH ₃ CH ₂ CH ₂ CH ₃	58.1	31.3	
601	Isobutane	CH(CH ₃) ₃	58.1	14	
(1150)	Ethylene	CH ₂ =CH ₂	28.0	-155.0	C) ²
(1270)	Propylene	CH ₃ CH=CH ₂	42.1	-53.7	C) ²
Oxygen Compounds					
610	Ethyl ether	C ₂ H ₅ OC ₂ H ₅	74.1	94.3	
611	Methyl formate	HCOOCH ₃	60.0	29.2	
Sulfur Compounds					
620					
Nitrogen Compounds					
630	Methyl amine	CH ₃ NH ₂	31.1	20.3	
631	Ethyl amine	C ₂ H ₅ NH ₂	45.1	61.8	
Inorganic Compounds					
717	Ammonia	NH ₃	17	-28.0	C
718	Water	H ₂ O	18	212	
729	Air		29	-318	
744	Carbon dioxide	CO ₂	44	-109	C
744A	Nitrous oxide	N ₂ O	44	-127	
764	Sulfur dioxide	SO ₂	64	14.0	C
Unsaturated Organic Compounds					
1112a	Dichlorodifluoroethylene	CCl ₂ =CF ₂	133	67	
1113	Monochlorotrifluoroethylene	CClF=CF ₂	116.5	-18.2	
1114	Tetrafluoroethylene	CF ₂ =CF ₂	100	-105	
1120	Trichloroethylene	CHCl=CCl ₂	131.4	187	
1130	Dichloroethylene	CHCl=CHCl	96.9	118	
1132a	Vinylidene fluoride	CH ₂ =CF ₂	64	-119	
1140	Vinyl chloride	CH ₂ =CHCl	62.5	-7.0	
1141	Vinyl fluoride	CH ₂ =CHF	46	-98	
1150	Ethylene	CH ₂ =CH ₂	28.0	-155.0	C
1270	Propylene	CH ₃ CH=CH ₂	42.1	-53.7	

† Carrier Corp. Document 2-D-127, p. 1.

- Denotes that as of October 1956, the status of these refrigerants as regards commercial evolution is as follows: C, S or D. C—Commercial S—Semi-commercial D—Development.
- The compounds methane, ethane and propane appear in the Halocarbon section in their proper numerical positions, but in parentheses since these products are not halocarbons.
- The compounds ethylene and propylene appear in the Hydrocarbon section as parenthetical items in order to indicate these compounds are hydrocarbons. Ethylene and propylene are properly identified under Unsaturated Organic Compounds.