

# Refrigerants

Refrigerants (CFCs) (in 1 mL of Solvent, unless otherwise noted)

REFRIGERANTS (CFCs)	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
Bromochlorodifluoromethane	353-59-3	0.2 mg/mL	MeOH	M-REF-X-01
Bromotrifluoromethane (Freon #13b1)		0.2 mg/mL	MeOH	M-REF-01
1-Chloro-1,1-difluoroethane (Freon #142b)		0.2 mg/mL	MeOH	M-REF-02
2-Chloro-1,1,1,2-tetrafluoroethane (Freon #124)		0.2 mg/mL	MeOH	M-REF-X-02
Chlorodifluoromethane (Freon #22)		0.2 mg/mL	MeOH	M-REF-03
Chloroethane (Freon #160)		0.2 mg/mL	MeOH	M-REF-04
Chloromethane	74-87-3	0.2 mg/mL	MeOH	M-REF-05
Chloropentafluoroethane	76-15-3	0.2 mg/mL	MeOH	M-REF-06
Chlorotrifluoromethane (Freon #13)		0.2 mg/mL	MeOH	M-REF-07
1,2-Dibromotetrafluoroethane	124-73-2	0.2 mg/mL	MeOH	M-REF-X-03
1,1-Dichloro-1-fluoroethane (Freon #141B)		0.2 mg/mL	MeOH	M-REF-X-04
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon #114)		0.2 mg/mL	MeOH	M-REF-10
2,2-Dichloro-1,1,1-trifluoroethane (Freon #123)		0.2 mg/mL	MeOH	M-REF-X-05
Dichlorodifluoromethane (Freon #12)		0.2 mg/mL	MeOH	M-REF-08
Dichlorofluoromethane (Freon #21)		0.2 mg/mL	MeOH	M-REF-09
1,1-Difluoroethane (Freon 152a)		0.2 mg/mL	MeOH	M-REF-11
Pentafluoroethane (Freon #125)		0.2 mg/mL	MeOH	M-REF-X-06
1,1,2,2-Tetrafluoroethane (Freon #134)		0.2 mg/mL	MeOH	M-REF-X-07
Tetrafluoroethane	811-97-2	0.2 mg/mL	MeOH	M-REF-12
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.2 mg/mL	MeOH	M-REF-14
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	2.0 mg/mL	MeOH	M-REF-14-10X
Trichlorofluoromethane	75-69-4	0.2 mg/mL	MeOH	M-REF-13
1,1,1-Trifluoroethane (Freon #143A)		0.2 mg/mL	MeOH	M-REF-X-08
Trifluoromethane (Freon #23)		0.2 mg/mL	MeOH	M-REF-15

## Refrigerants - Chlorofluorohydrocarbons (CFCs) Sets

Chlorofluorohydrocarbons (CFCs) are ozone-depleting substances that were used primarily in air-conditioning and refrigeration systems. Under the Clean Air Act, CFCs were to be totally phased out of production in the U.S. by January 1, 1996. In order to monitor various refrigerants that may be present in the environment, the following single & multi-component mixes are offered to help labs screen for these compounds.

### Individual Refrigerant Solutions (CFCs)

Individual analytes are at 0.2 mg/mL in MeOH		1 mL
Freon #	Description	Cat. No.
13b1	Bromotrifluoromethane (01)	M-REF-01
142b	1-Chloro-1,1-difluoroethane (02)	M-REF-02
22	Chlorodifluoromethane (03)	M-REF-03
160	Chloroethane (04)	M-REF-04
40	Chloromethane (05)	M-REF-05
115	Chloropentafluoroethane (06)	M-REF-06
13	Chlorotrifluoromethane (07)	M-REF-07
12	Dichlorodifluoromethane (08)	M-REF-08
21	Dichlorofluoromethane (09)	M-REF-09
114	1,2-Dichloro-1,1,2,2-tetrafluoroethane (10)	M-REF-10
152a	1,1-Difluoroethane (11)	M-REF-11
134a	Tetrafluoroethane (12)	M-REF-12
11	Trichlorofluoromethane (13)	M-REF-13
113	1,1,2-Trichloro-1,2,2-trifluoroethane (14)	M-REF-14
23	Trifluoromethane (15)	M-REF-15

**M-REF-SET** set of 15 x 1 mL  
Each at 0.2 mg/mL in MeOH (above 15 analytes)

### Multi-Component Refrigerant Solution

**M-REF** 1 x 1 mL  
Each at 0.2 mg/mL in MeOH (above 15 comps.)

### Additional Individual Refrigerant Solutions (CFCs)

Individual analytes are at 0.2 mg/mL in MeOH		1 mL
Freon #	Description	Cat. No.
12B1	Bromochlorodifluoromethane (01)	M-REF-X-01
124	2-Chloro-1,1,1,2-tetrafluoroethane (02)	M-REF-X-02
114B2	1,2-Dibromotetrafluoroethane (03)	M-REF-X-03
141b	1,1-Dichloro-1-fluoroethane (04)	M-REF-X-04
123	2,2-Dichloro-1,1,1-trifluoroethane (05)	M-REF-X-05
125	Pentafluoroethane (06)	M-REF-X-06
134	1,1,2,2-Tetrafluoroethane (07)	M-REF-X-07
113a	1,1,1-Trichlorotrifluoroethane (Freon 113a) (09)	M-REF-X-09
143a	1,1,1-Trifluoroethane (08)	M-REF-X-08

Above individual analytes are at 0.2 mg/mL in MeOH  
**M-REF-X-R1-SET** set of 9 x 1 mL  
Each at 0.2 mg/mL in MeOH (above 9 analytes)

### Multi-Component Refrigerant Solution

**M-REF-X** 1 x 1 mL  
0.2 mg/mL each in MeOH (above 8 comps. not including Freon 113a)

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124-73-2:117  
353-59-3:117  
74-87-3:117  
75-69-4:117  
76-13-1:117  
76-15-3:117  
811-97-2:117  
M-REF:117  
M-REF-01:117  
M-REF-02:117  
M-REF-03:117  
M-REF-04:117  
M-REF-05:117  
M-REF-06:117  
M-REF-07:117  
M-REF-08:117  
M-REF-09:117  
M-REF-10:117  
M-REF-11:117  
M-REF-12:117  
M-REF-13:117  
M-REF-14:117  
M-REF-14-  
10X:117  
M-REF-15:117  
M-REF-SET:117  
M-REF-X:117  
M-REF-X-01:117  
M-REF-X-02:117  
M-REF-X-03:117  
M-REF-X-04:117  
M-REF-X-05:117  
M-REF-X-06:117  
M-REF-X-07:117  
M-REF-X-08:117  
M-REF-X-SET-  
R1:117