

- 6 OECD SIDS. SIDS initial assessment report for SIAM 12: 1-chloro-1,1-difluoroethane. 2001: 1–79. <http://www.inchem.org/documents/sids/sids/75683.pdf> (accessed March 2016).

20 General References

- Johnson MA. *The Aerosol Handbook*, 2nd edn. Caldwell: WE Dorland, 1982: 305–335.
- Johnson MA. Flammability aspects of dimethyl ether, p22, p-142b, p-1152a. *Aerosol Age* 1988; 33(8): 32, 34, 36, 38–39.
- Sanders PA. *Handbook of Aerosol Technology*, 2nd edn. New York: Van Nostrand Reinhold, 1979: 19–35.
- Sciarrà JJ, Sciarrà CJ. Aerosols. In: *Remington: The Science and Practice of Pharmacy*, 22nd edn. [online] London : Pharmaceutical Press. <http://www.medicinescomplete.com> (accessed 22 February 2016).
- Sciarrà CJ, Sciarrà JJ. Pressurized dispensers. In: Schlossman ML. *The Chemistry and Manufacture of Cosmetics*, vol. 1, 4th edn. Carol Stream, IL: Allured Publishing Corporation, 2009: 451–478.

- Sciarrà JJ. Aerosol suspensions and emulsions. In: Lieberman H *et al.* eds. *Pharmaceutical Dosage Forms: Disperse Systems*, 2nd edn. New York: Marcel Dekker, 1996: 319–356.
- Sciarrà JJ. Pharmaceutical aerosols. In: Banker GS, Rhodes CT, eds. *Modern Pharmaceutics*, 3rd edn. New York: Marcel Dekker, 1996: 547–574.
- Sciarrà JJ, Stoller L. *The Science and Technology of Aerosol Packaging*. New York: Wiley, 1974: 137–145.

21 Author

M Quinn.

22 Date of Revision

30 March 2016.

Chlorofluorocarbons (CFC)

1 Nonproprietary Names

- (a) USP–NF: Dichlorodifluoromethane
 (b) USP–NF: Dichlorotetrafluoroethane
 (c) USP–NF: Trichloromonofluoromethane

2 Synonyms

Arcton; Dymel; Freon; Frigen; Genetron; Halon; Isceon; Isotron.

- (a) Dichlorodifluoromethane (Propellant 12)
 (b) Dichlorotetrafluoroethane (Propellant 114)
 (c) Trichloromonofluoromethane (Propellant 11)

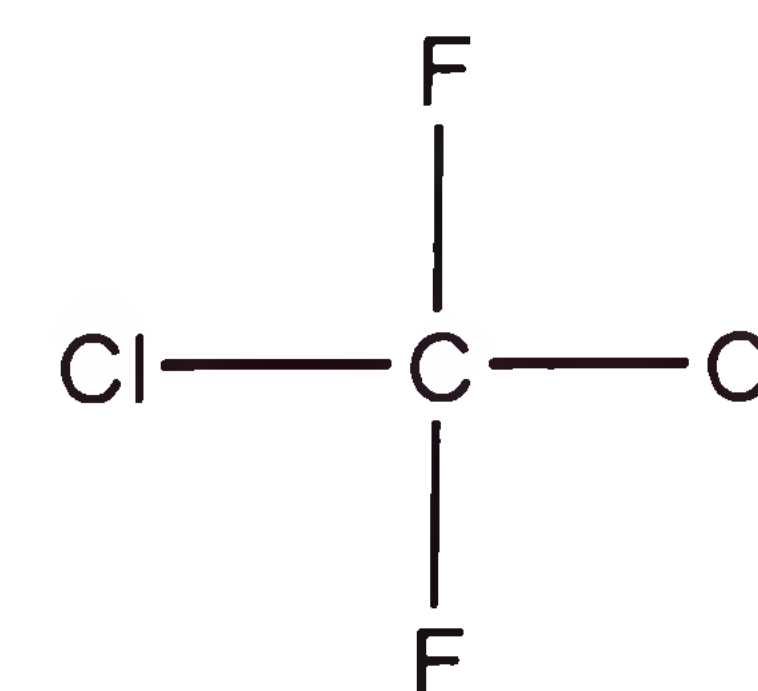
3 Chemical Name and CAS Registry Number

- (a) Dichlorodifluoromethane [75-71-8]
 (b) 1,2-Dichloro-1,1,2,2-tetrafluoroethane [76-14-2]
 (c) Trichlorofluoromethane [75-69-4]

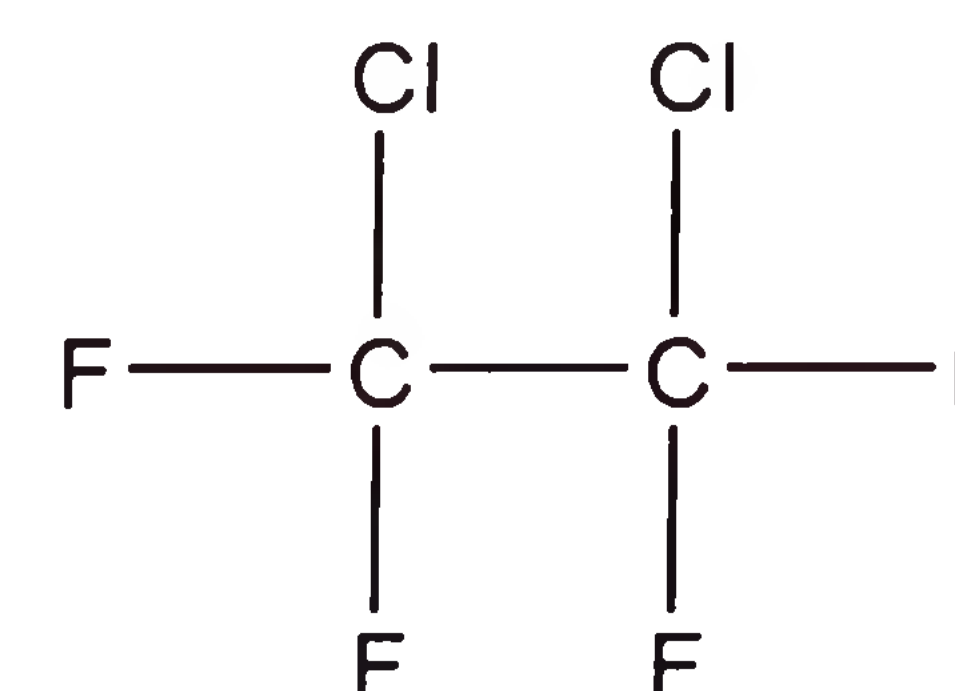
4 Empirical Formula and Molecular Weight

- (a) CCl_2F_2 120.91
 (b) $\text{C}_2\text{Cl}_2\text{F}_4$ 170.92
 (c) CCl_3F 137.37

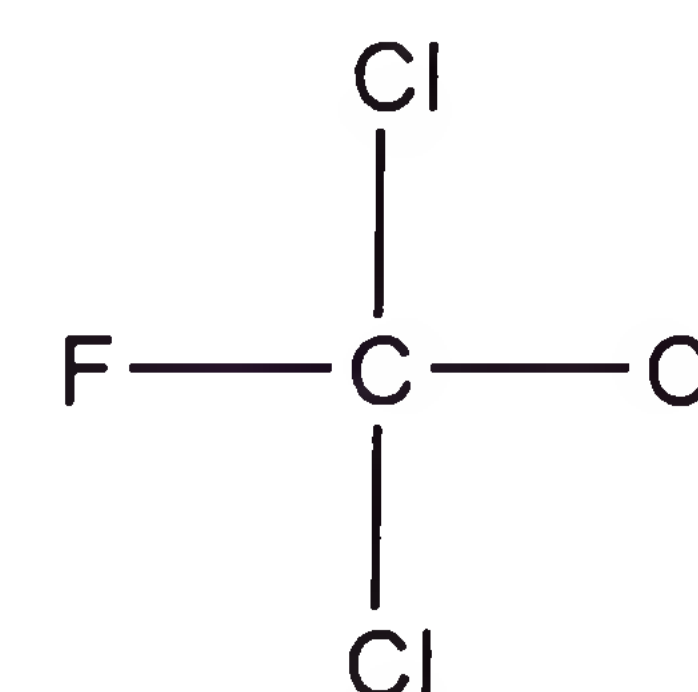
5 Structural Formula



(a)



(b)



(c)

6 Functional Category

Aerosol propellant.

7 Applications in Pharmaceutical Formulation or Technology

Dichlorodifluoromethane, dichlorotetrafluoroethane, and trichloromonofluoromethane are chlorofluorocarbon (CFC) aerosol propellants used in pharmaceutical formulations. They are no longer used in metered-dose inhaler (MDI) formulations, with few exceptions for existing MDIs; *see also* Section 18.

Dichlorodifluoromethane is used as an aerosol propellant in MDIs, either as the sole propellant or in combination with dichlorotetrafluoroethane, trichloromonofluoromethane, or mix-