# CHLOROFLUOROMETHANE

Data were last reviewed in IARC (1986) and the compound was classified in *IARC Monographs* Supplement 7 (1987).

## 1. Exposure Data

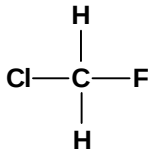
### 1.1 Chemical and physical data

1.1.1 *Nomenclature*

*Chem. Abstr. Services Reg. No.*: 593-70-4

*Systematic name*: Chlorofluoromethane

1.1.2 *Structural and molecular formulae and relative molecular mass*




$CH_2ClF$ Relative molecular mass: 68.48

1.1.3 *Physical properties* (for details, see IARC, 1986)

(*a*) *Boiling-point*: –9.1°C

(*b*) *Melting-point*: –133°C

(*c*) *Conversion factor*: $mg/m^3 = 2.80 \times ppm$

### 1.2 Production and human exposure

Chlorofluoromethane has been reported as an impurity in dichlorofluoromethane, and thus limited human exposures may occur (IARC, 1986).

## 2. Studies of Cancer in Humans

No data were available to the Working Group.

## 3. Studies of Cancer in Experimental Animals

Chlorofluoromethane was tested for carcinogenicity in one study in rats by oral gavage at one dose level. High incidences of squamous-cell carcinomas and of fibrosarcomas of the forestomach and stomach were induced in rats of each sex (IARC, 1986).

## 4. Other Data Relevant to an Evaluation of Carcinogenicity and its Mechanisms

### 4.1 Absorption, distribution, metabolism and excretion

4.1.1 *Humans*

No data were available to the Working Group.

4.1.2 *Experimental systems*

Chlorofluoromethane is metabolized *in vitro* to carbon monoxide by rat hepatic microsomes and to formaldehyde by rat hepatic cytosolic preparations in the presence of glutathione (IARC, 1986).

### 4.2 Toxic effects

4.2.1 *Humans*

No data were available to the Working Group.

4.2.2 *Experimental systems*

Exposure of rats to chlorofluoromethane at 28 000 mg/m$^3$ by inhalation for 6 h per day on five days per week for two weeks caused moderate damage to kidneys, adrenal glands, testes, epididymides and haematopoietic tissues (IARC, 1986).

### 4.3 Reproductive and developmental effects

4.3.1 *Humans*

No data were available to the Working Group.

4.3.2 *Experimental systems*

The available data from experimental systems were not suitable for an evaluation (IARC, 1986).

### 4.4 Genetic and related effects

4.4.1 *Humans*

No data were available to the Working Group.

4.4.2 *Experimental systems*

Chlorofluoromethane was mutagenic to *Salmonella typhimurium* and to mammalian cells in culture in both the presence and the absence of an exogenous metabolic activation system (IARC, 1986)

## 5. Evaluation

No epidemiological data relevant to the carcinogenicity of chlorofluoromethane were available.

There is *limited evidence* in experimental animals for the carcinogenicity of chlorofluoromethane.

**Overall evaluation**

Chlorofluoromethane is *not classifiable as to its carcinogenicity to humans (Group 3)*.

## 6. References

IARC (1986) *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans*, Vol. 41, *Some Halogenated Hydrocarbons and Pesticide Exposures*, Lyon, pp. 229–235

IARC (1987) *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*, Supplement 7, *Overall Evaluations of Carcinogenicity: An Updating of* IARC Monographs *Volumes 1 to 42*, Lyon, p. 60