



2,2,2-Trifluoroethanol (TFE)



2,2,2-Trifluoroethanol is a colorless liquid which is fully miscible with water. Because of the high electronegativity of the fluorine atoms 2,2,2-trifluoroethanol has a stronger acid character than ethanol. Due to this there is a stronger tendency to form hydrogen bridging and this makes possible the production of more stable complexes with heterocycles such as THF and pyridine. By oxidation 2,2,2-trifluoroethanol is converted to trifluoroacetaldehyde or trifluoroacetic acid.

Delivery and handling

2,2,2-Trifluoroethanol is supplied in polyethylene-lined metal drums. Inhalation and skin contact are to be avoided. Trifluoroethanol is inflammable and has a flash point of 33 °C. Furthermore, contact with the eyes is to be avoided at all costs. According to the latest experiments, it must be assumed that 2,2,2-Trifluoroethanol is a strong eye irritant which can cause irreparable damage. Below a concentration of 10 ppm no significant harmful effects have been recorded.

Toxicological data

IRDS: skn-rbt 50 mg/24H SEV	28ZPAK -78,72*
eye-rbt 20 mg/24H SEV	28ZPAK -78,72*
TXDS: orl-rat LDLo:2000 mg/kg	29ZPAK -78,72*
orl-mus LD50: 366 mg/kg	TXAPA9 15,83,69**
ihl-mus LC50: 1,6 %/10 M	RTECS 81/82
ipr-mus LD50: 195 mg/kg	APTOA6 28,299,70***
ivn-dog LDLo: 400 mg/kg	TXAPA9 15,83,69**

Lit: ** TXAPA9: Toxicology and Applied Pharmacology. (Academic Press, 111 5th Ave., New York, NY 10003) V.1

*28 ZPAK: Sbornik Vysledku Toxologickeho Vysetreni Latek A Pripravku, J. V. Marhold, Institut Pro Vychovu Vedoucicn Pracovniku Chemickeho Prumyclu Praha, Czechoslovakia, 1972

***APTOA6: Acta Pharmacologica et Toxicologica. (Munksgaard, 35 Norre Sogade, DK 1370 Copenhagen, K. Denmark) V.1, 1945

Availability t-lots

HS. Code No. 29055020

Molecular Structure



Physical Properties

Chemical name:	2,2,2-Trifluoroethanol
CAS-No.:	75-89-8
Chemical formula:	CF ₃ CH ₂ OH
Molecular formula:	C ₂ H ₃ F ₃ O
Molecular weight:	100.04
Boiling point:	73.6 °C
Melting point:	-43.5 °C
Density (25 °C):	1.383 g/cm ³
n _D ²⁰ :	1.2940
Flash point:	33 °C
Combustion enthalpy:	- 886.6 kJ/mol
Evaporation enthalpy:	37.8 kJ/mol
Thermal stability:	up to 315 °C

Specification

Purity:	min. 99.0 %
Sulphate:	max. 0.001 %
Water:	max. 0.1 %
Fluoride:	max. 0.001 %
Chloride:	max. 0.001 %

NaOCH₂CF₃ must not be isolated because it is explosive!

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