

Trifluoroacetic acid (TFA)



Trifluoroacetic acid is a very hygroscopic colorless liquid. It is miscible with alcohols, ethers, acetones, halogenated hydrocarbons, benzene and fluorinated solvents. In water, trifluoroacetic acid is almost completely dissociated and, therefore, a strong organic acid ($K_{25} = 0.59$). The trifluoro methyl group does not hydrolyse.

Chemical reactions and applications

Trifluoroacetic acid is used as a typical building block as well as a solvent and catalyst for polymerisation and condensation reactions.

Delivery and handling

Trifluoroacetic acid is supplied in polyethylene-lined metal drums (30, 50, 250 kg). It reacts corrosively on rubber, cork and many metals. Storage must be in well ventilated areas and care must be taken to ensure that the containers are completely sealed. As a result of its strong acidity, trifluoroacetic acid attacks the skin and can cause severe burns. When handling trifluoroacetic acid, gloves and protective eyeshields must always be worn. The handling area must be well ventilated. Contact with eyes, skin and clothing must be avoided. Any affected parts of the body must be rinsed immediately with lots of running water and diluted sodium carbonate solution. Contaminated clothing must be removed at once. Medical attention must be sought without delay.

Toxicological data

TXDS: orl-rat LD50: 200 mg/kg 14 CYAT 2,1802,63*
i pr-mus LDLo: 150 mg/kg TXAPA9 15,83,69**

*14 CYAT: Industrial Hygiene and Toxicology, F.A. Potty, 2nd Ed., New York, Interscience, 1963

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

Availability t-lots

HS. Code No. 29159090

Solvay Fluor GmbH

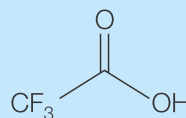
Hans-Böckler-Allee 20
30173 Hannover
Germany

Phone +49 511 857-0
Fax +49 511 857-2146

www.solvay-fluor.com

Solvay
Fluor

Molecular Structure



Physical Properties

Chemical name:	Trifluoroacetic acid
CAS-No.:	76-05-1
Chemical formula:	CF ₃ COOH
Molecular formula:	C ₂ HF ₃ O ₂
Molecular weight:	114.02
Boiling point:	71.8 °C
Melting point:	-15.4 °C
Density (25 °C):	1.477 g/cm ³
Evaporation enthalpy:	33.28 kJ/mol
Viscosity (25 °C):	0.813 cP
Surface tension (25 °C):	13.44 mN/m
Azeotropic with H ₂ O, Boiling point (20.6 % H ₂ O):	105.5 °C
Formation enthalpy:	-1022 kJ/mol
Vapour pressure 0 °C: 25 °C:	3.8 · 10 ³ Pa 14 · 10 ³ Pa

Specification

Purity:	min. 99.9 %
Water:	max. 0.05 %
Chloride:	max. 0.001 %
Fluoride:	max. 0.005 %
Sulphate:	max. 0.001 %

