

Trifluoroacetic acid anhydride (TFAH)



Trifluoroacetic acid anhydride is a colorless liquid with a pungent odor and is immediately hydrolysed by water, forming trifluoroacetic acid. Trifluoroacetic acid anhydride is miscible with polar organic solvents like acetone, ether, acetonitrile and acetic acid but is only partially soluble in unpolar hydrocarbons.

Chemical reactions and applications

Trifluoroacetic acid anhydride is a typical acid anhydride and because of the following reactions is an important agent for organic synthesis. In particular, these are trifluoro-acylation reactions like the O-acylation, N-acylation or C-trifluoro-acylation.

Delivery and handling

Trifluoroacetic acid anhydride is supplied in polyethylene-lined metal drums. The product is extremely hygroscopic. As a consequence of hydrolysis highly corrosive trifluoroacetic acid is formed. The product must be stored in a cool, dry place. The containers must be tightly sealed. When handling trifluoroacetic acid anhydride one must always wear gloves, protective eye-shields and protective clothing. Contact with the eyes, skin and clothing, as well as inhalation of the vapors, must be avoided at all costs. Any affected parts of the body must be immediately rinsed with a lot of running water and diluted sodium carbonate solution. Contaminated clothing must be removed. Medical attention should be sought. A well ventilated working area is essential.

Toxicological data

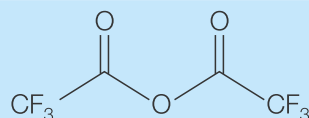
| | | |
|-------|------------------------|----------------|
| IRDS: | skn-rbt 50mg/24HSEV | 28ZPAK-,91,72* |
| | eye-rbt 20 mg/24H SEV | 28ZPAK-,91,72* |
| TXDS: | orl-rat LD50: 100mg/kg | 28ZPAK-,91,72* |

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

Availability t-lots

HS. Code No. 29159090

Molecular Structure



Physical Properties

| | |
|---|--|
| Chemical name: | Trifluoroacetic acid anhydride |
| CAS-No.: | 407-25-0 |
| Chemical formula: | (CF ₃ CO) ₂ O |
| Molecular formula: | C ₄ F ₆ O ₃ |
| Molecular weight: | 210.03 |
| Melting point: | -63.5 °C |
| Boiling point: | 39.15 °C |
| Density (25 °C): | 1.490 g/cm ³ |
| Refractive index n _D ²⁵ : | 1.2690 |
| Evaporation enthalpy (calc.): | 2.09 kJ/mol |

Specification

| | |
|-----------|--------------|
| Purity: | min. 99.5 % |
| Sulphate: | max. 0.05 % |
| Fluoride: | max. 0.005 % |
| Chloride: | max. 0.005 % |

Solvay Fluor GmbH

Hans-Böckler-Allee 20
30173 Hannover
Germany

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

www.solvay-fluor.com

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