

SAFETY DATA SHEET



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TRIFLUOROACETIC ACID

SDS No. M0204

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Trifluoroacetic Acid

Synonyms: Perfluoroacetic acid; Trifluoroethanoic acid

Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION



Classification:

Acute Toxicity, Inhalation: GHS Category 4

Skin Corrosion: GHS Category 1A

Serious Eye Damage: GHS Category 1

Acute Aquatic Toxicity: GHS Category 3

Chronic Aquatic Toxicity: GHS Category 3

Label Elements

Signal Word: DANGER!

Hazard Statements:

H314 – Causes severe skin burns and eye damage.

H332 – Harmful if inhaled.

H412 – Harmful to aquatic life with long lasting effects.

Precautionary Statements:

P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 – Wash skin thoroughly after handling.

P271 – Use only outdoors or in a well-ventilated area.

P273 – Avoid release to the environment.

P280 – Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 – IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

P310 – Immediately call a POISON CENTER or doctor/physician.

P404 – Store in a closed container.

P405 – Store locked up.

P501 – Dispose of contents/ container to an approved waste disposal plant.

Emergency Overview

Liquid and vapor cause severe burns by all exposure routes. Harmful if inhaled. Hygroscopic. Corrosive to metal. Target organs: Respiratory system, eyes, skin, and mucous membranes.

HMIS Rating:

Health – 3* Flammability – 0 Physical Hazard – 1 PPE – User supplied

NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Trifluoroacetic Acid	76-05-1	>99%	Yes

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Get medical help immediately. Do not induce vomiting. If vomiting occurs naturally, have victim lean forward. If victim is conscious and alert, give a cupful of water. Never give anything by mouth to an unconscious person.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Get medical attention immediately. Wash clothes before reuse.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammability: Not expected to be a fire hazard

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide, carbon dioxide, and hydrogen fluoride gas).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors can spread along the ground and collect in low or confined areas.

Specific Explosion Hazards: Reacts with most metals to form highly flammable hydrogen gas which can form explosive mixtures with the air.

Fire Fighting Media: For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray.

National Fire Protective Association: Health - 3, Flammability - 0, Reactivity - 0

NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Spill may be carefully neutralized with soda ash (sodium carbonate). Provide ventilation to the affected area. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Prevent run-off into drains and sewers. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly. Use with adequate ventilation. Avoid breathing vapor or mist. Use corrosion-resistant transfer equipment when dispensing.

Storage: Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Keep containers tightly closed. Store protected from moisture.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protection: Wear protective chemical goggles and face shield for eye and face protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits: None established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: pungent odor

Odor Threshold: 1 ppm

Molecular Formula: $\text{CF}_3\text{CO}_2\text{H}$

Molecular Weight: 114.02

Auto-ignition Temperature: Not available.

Flash Point: Not available.

Flammable Limits: Not available.

pH: CA.2 (100 g/L aq. sol.).

Boiling Point: 72° C @ 760 mm Hg

Freezing/Melting Point: -15° C

Decomposition Temperature: Not available

Specific Gravity: 1.489 g/cm³

Vapor Density (Air=1): 3.9

Vapor Pressure: 107 mbar @ 25 deg C.

Evaporation Rate (Butyl acetate = 1): 0.97

Viscosity: 0.813 cP @ 25 deg C

Solubility: Miscible

10. STABILITY AND REACTIVITY

Stability: Stable at room temperature in closed containers under normal storage and handling conditions. Hygroscopic: absorbs moisture or water from the air. Fumes on contact with air.

Conditions to Avoid: Incompatible materials, excess heat, light, and exposure to moist air or water.

Incompatibility with Various Substances: Metals, oxidizing agents, alcohols, epoxides, steel, aluminum, alkali metals, exothermic in contact with water.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, and hydrogen fluoride gas.

Hazardous Polymerization: Has not been reported.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Acute Exposure Hazards:

INHALATION HAZARD: Harmful if inhaled. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

INGESTION HAZARD: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. Causes cough, sore throat, chest pain, and lightheadedness.

SKIN CONTACT HAZARD: Causes skin burns. Causes redness and pain. Prolonged contact may lead to necrosis.

EYE CONTACT HAZARD: Causes severe eye burns. May cause blindness. Causes redness and pain.

Chronic Exposure Hazards: Repeated inhalation may cause chronic bronchitis.

Animal Toxicity:

Inhalation, rat: LC50 = 10000 mg/m³;

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: No information found.

Teratogenicity: No information found.

Reproductive Effects: No information found.

Mutagenicity: No information found.

Neurotoxicity: No information found.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Invertebrates: Water flea: EC50 = 55 mg/l, 24 hr.

Environmental Fate: May cause long-term adverse effects in the aquatic environment. Harmful to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

US DOT

Proper Shipping Name: Trifluoroacetic Acid

Hazard Class: 8

UN Number: UN2699

Packing Group: I

IDMG

Proper Shipping Name: Trifluoroacetic Acid

Hazard Class: 8

UN Number: UN2699

Packing Group: I

IATA

Proper Shipping Name: Trifluoroacetic Acid

Hazard Class: 8

UN Number: UN2699

Packing Group: I

15. REGULATORY INFORMATIONUS Federal Regulations:

CERCLA Hazardous Substances: CAS# 76-05-1 has no RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 76-05-1 – immediate

Section 313: Trifluoroacetic Acid (CAS# 76-05-1) is not subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 76-05-1 is found on the following state right-to-know lists: New Jersey and Pennsylvania.

California Prop 65: This product contains no chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Originally Prepared: 5/21/2007

Last Revised: 05/30/2018 – Updated precautionary statements in section 2.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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