

2/1107



SIGMA-ALDRICH

Material Safety Data Sheet

Date Printed: 01/26/2007
Date Updated: 10/18/2006
Version 1.120

Section 1 - Product and Company Information

Product Name	Trifluoroacetic acid, ReagentPlus®, 99%		
Product Number	T62200		
Brand	Sigma-Aldrich		
Company	Sigma-Aldrich		
Address	3050 Spruce Street		
City, State, Zip, Country	SAINT LOUIS, MO 63103 US		
Technical Phone:	800-325-5832	Emergency Phone:	314-776-6555
Fax:	800-325-5052		

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
TRIFLUOROACETIC ACID	76-05-1	No	200-929-3	607-091-00-1

Formula C2HF3O2
Synonyms Kyselina trifluoroctova (Czech), Perfluoroacetic acid, Trifluoroacetic acid, Trifluoroethanoic acid

Section 3 - Hazards Identification

Emergency Overview

Corrosive.
 Harmful by inhalation. Causes severe burns. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 Target organ(s): Liver.

HMIS Rating
 Health: 3* Flammability: 0 Reactivity: 1

NFPA Rating
 Health: 3 Flammability: 0 Reactivity: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill

Evacuate area.

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

Storage

Suitable

Keep tightly closed.

Special Requirements

Hygroscopic. Store under inert gas.

Section 8 - Exposure Controls / PPE

Engineering Controls

Safety shower and eye bath. Use only in a chemical fume hood.

Personal Protective Equipment

Respiratory

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand

Compatible chemical-resistant gloves.

Eye

Chemical safety goggles.

Other

Faceshield (8-inch minimum).

General Hygiene Measures

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance			
Physical State	Color		Odor
Clear liquid	Colorless		Pungent
Molecular Weight:	11,402 AMU		
Property	Value	At Temperature or Pressure	Other
pH	10	20 °C	Concentration: 1 g/l
BP/BP Range	72 °C	760 mmHg	
MP/MP Range	-154 °C		
Freezing Point			
Vapor Pressure	107 mmHg	25 °C	
Vapor Density	39 g/l		
Saturated Vapor Conc.	N/A		
SG/Density	148 g/cm ³		
Bulk Density	N/A		
Odor Threshold	N/A		
Volatile%	N/A		
VOC Content	N/A		
Water Content	N/A		
Solvent Content	N/A		
Evaporation Rate	N/A		
Viscosity	81 Pas	25 °C	
Partition Coefficient	Log Kow: -21		
Decomposition Temp.	N/A		
Flash Point °F	N/A		
Flash Point °C	N/A		
Explosion Limits	N/A		
Flammability	N/A		
Autoignition Temp	N/A		
Refractive Index	13		
Solubility	N/A		

N/A = not available

Section 10 - Stability and Reactivity**Stability****Stable**

Stable.

Reactions to Avoid

Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.

Conditions to Avoid

Moisture.

Materials to Avoid

Strong bases, Metals, Oxidizing agents, Alcohols, Epoxides, Steel, Aluminum, Exothermic in contact with water, Reacts violently with alkali.

Hazardous Decomposition Products**Hazardous Decomposition Products**

Carbon monoxide, Carbon dioxide, Hydrogen fluoride.

Hazardous Polymerization**Hazardous Polymerization**

Will not occur.

Section 11 - Toxicological Information**Route of Exposure****Skin Contact**

Causes severe burns.

Skin Absorption

May be harmful if absorbed through the skin.

Eye Contact

Causes severe burns.

Inhalation

Harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion

May be harmful if swallowed.

Target Organ(s) or System(s)

Liver.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

RTECS Number: AJ9625000

Toxicity Data

Inhalation - Rat: 10.000 mg/m³ (LC50)

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye: Conjunctive irritation.

Behavioral: Somnolence (general depressed activity).

Lungs, Thorax, or Respiration: Dyspnea.

Inhalation - Mouse: 13.500 mg/m³ (LC50)

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye: Conjunctive irritation.

Behavioral: Somnolence (general depressed activity).

Lungs, Thorax, or Respiration: Dyspnea.

Intravenous - Mouse: 1200 MG/KG (LD50)

Remarks: Behavioral: Change in motor activity (specific assay).

Chronic Exposure - Teratogen

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	1650 MG/KG	Oral	(10-20D PREG)
Result: Specific Developmental Abnormalities: Hepatobiliary system.			
Effects on Newborn: Growth statistics (e.g., reduced weight gain).			

Section 12 - Ecological Information

N/A

Acute Ecotoxicity Tests**Test Type**

EC50 Daphnia

Species

Daphnia magna

Time:

24.0 h

Value:

55 mg/l

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Trifluoroacetic acid
UN#: 2699
Class: 8
Packing Group: Packing Group I
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Trifluoroacetic acid
IATA UN Number: 2699
Hazard Class: 8
Packing Group: I

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: C

Indication of Danger

Corrosive.

Risk Statements R: 20 35 52/53

Harmful by inhalation. Causes severe burns. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements S: 9 26 27 28 45 61

Keep container in a well-ventilated place. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of soap-suds. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US Classification and Label Text

Indication of Danger

Corrosive.

Risk Statements

Harmful by inhalation. Causes severe burns. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements

Target organ(s): Liver.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.