

## Material Safety Data Sheet

Date Printed: 02/JUN/2005

Date Updated: 12/MAR/2004

Version 1.5

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

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1 - Product and Company Information

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Product Name TRIFLUOROACETIC ACID, REAGENTPLUS, 99%  
Product Number T62200

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2 - Composition/Information on Ingredients

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

Formula C2HF3O2

Molecular Weight 114.02 AMU

Synonyms Kyselina trifluoroctova (Czech) \*  
Perfluoroacetic acid \* Trifluoroacetic acid \*  
Trifluoroethanoic acid

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3 - Hazards Identification

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## SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

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

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4 - First Aid Measures

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## AFTER INHALATION

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

## AFTER SKIN CONTACT

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

## AFTER EYE CONTACT

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.

## AFTER INGESTION

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

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## 5 - Fire Fighting Measures

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### EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

Unsuitable: Do not use water.

### SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

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

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## 6 - Accidental Release Measures

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### PERSONAL PRECAUTION PROCEDURES 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.

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## 7 - Handling and Storage

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### HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

### STORAGE

Conditions of Storage: Keep tightly closed.

SPECIAL REQUIREMENTS: Hygroscopic. Store under inert gas.

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## 8 - Exposure Controls / Personal Protection

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### ENGINEERING CONTROLS

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

### GENERAL HYGIENE MEASURES

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

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

Special Protective Measures: Faceshield (8-inch minimum).

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## 9 - Physical and Chemical Properties

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### Appearance

Physical State: Clear liquid

Color: Colorless

Odor: Pungent

Property	Value	At Temperature or Pressure
pH	1	20 °C Concentration: 1 g/l
BP/BP Range	72 °C	760 mmHg
MP/MP Range	-15.4 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	107 mmHg	25 °C
SG/Density	1.48 g/cm3	
Partition Coefficient	Log Kow: -2.1	
Viscosity	0.81 Pas	25 °C
Vapor Density	3.9 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

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## 10 - Stability and Reactivity

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### 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: Heat. 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

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## 11 - Toxicological Information

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RTECS NUMBER: AJ9625000

### ACUTE TOXICITY

LC50

Inhalation

Rat

10,000 mg/m3

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Conjunctive irritation. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or

Respiration:Dyspnea.

LC50

Inhalation

Mouse

13,500 mg/m3

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Conjunctive irritation. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Dyspnea.

LD50

Intravenous

Mouse

1200 MG/KG

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

#### 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.

#### 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 INFORMATION

Liver.

#### CHRONIC EXPOSURE - MUTAGEN

ZINCL

Histidine reversion (Ames)

#### CHRONIC EXPOSURE - TERATOGEN

Species: Rat

Dose: 1650 MG/KG

Route of Application: Oral

Exposure Time: (10-20D PREG)

Result: Specific Developmental Abnormalities: Hepatobiliary system. Effects on Newborn: Growth statistics (e.g., reduced weight gain).

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#### 12 - Ecological Information

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N/A

#### ECOTOXICOLOGICAL EFFECTS

Test Type: EC50 Daphnia

Species: Daphnia magna

Time: 24 h

Value: 55 mg/l

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## 13 - Disposal Considerations

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### SUBSTANCE DISPOSAL

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.

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## 14 - Transport Information

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### RID/ADR

UN#: 2699  
Class: 8  
PG: I  
Proper Shipping Name: Trifluoroacetic acid

### IMDG

UN#: 2699  
Class: 8  
PG: I  
Proper Shipping Name: Trifluoroacetic acid  
Marine Pollutant: No  
Severe Marine Pollutant: No

### IATA

UN#: 2699  
Class: 8  
PG: I  
Proper Shipping Name: Trifluoroacetic acid  
Inhalation Packing Group I: No

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## 15 - Regulatory Information

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### CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 607-091-00-1

NOTA: B

INDICATION OF DANGER: C

Corrosive.

R-PHRASES: 20 35 52/53

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

S-PHRASES: 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.

### COUNTRY SPECIFIC INFORMATION

#### Germany

WGK: 2

#### SWITZERLAND

SWISS POISON CLASS: 3

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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 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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