

# SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

## 1. Identification

**Product identifier:** Trifluoroacetic Acid

### Other means of identification

**Product No.:** 1942, 9470, W729

### Recommended restrictions

**Recommended use:** For Laboratory, Research or Manufacturing Use.

**Restrictions on use:** Not determined.

### Details of the supplier of the safety data sheet

**Company Name:** Avantor Performance Materials, LLC  
**Address:** 100 Matsonford Rd, Suite 200  
Radnor, PA 19087

**Telephone:** Customer Service: 855-282-6867

**Contact Person:** Product Information Compliance  
**E-mail:** info@avantormaterials.com

### Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada (24 hrs/day, 7 days/week)

## 2. Hazard(s) identification

### Hazard Classification

#### Physical Hazards

Corrosive to metal Category 1

#### Health Hazards

Acute toxicity (Oral) Category 3  
Acute toxicity (Inhalation - vapor) Category 4  
Skin Corrosion/Irritation Category 1A  
Serious Eye Damage/Eye Irritation Category 1  
Specific Target Organ Toxicity -  
Single Exposure Category 3<sup>1</sup>

#### Target Organs

1. Respiratory tract irritation.

#### Unknown toxicity - Health

Acute toxicity, dermal 100 %  
Acute toxicity, inhalation, vapor 100 %  
Acute toxicity, inhalation, dust 100 %  
or mist

### Environmental Hazards

Acute hazards to the aquatic environment	Category 3
Chronic hazards to the aquatic environment	Category 3

**Unknown toxicity - Environment**

Acute hazards to the aquatic environment	0 %
Chronic hazards to the aquatic environment	100 %

**Label Elements**

**Hazard Symbol:**



**Signal Word:** Danger

**Hazard Statement:** May be corrosive to metals.  
Toxic if swallowed.  
Harmful if inhaled.  
Causes severe skin burns and eye damage.  
May cause respiratory irritation.  
Harmful to aquatic life with long lasting effects.

**Precautionary Statements**

**Prevention:** Do not eat, drink or smoke when using this product. Do not breathe fume/gas/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Keep only in original packaging. Wash hands thoroughly after handling. Avoid release to the environment.

**Response:** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Collect spillage.

**Storage:** Store in a well-ventilated place. Keep container tightly closed. Store locked up.

**Disposal:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Hazard(s) not otherwise classified (HNOC):** None.

**3. Composition/information on ingredients**

## Substances

Chemical Identity	CAS number	Content in percent (%)*
Trifluoroacetic acid	76-05-1	99.0 - 100.0%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First-aid measures

<b>General information:</b>	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
<b>Ingestion:</b>	Call a physician or poison control center immediately. Rinse mouth. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
<b>Inhalation:</b>	Move to fresh air. If breathing is difficult, give oxygen. Apply artificial respiration if victim is not breathing Call a physician or poison control center immediately.
<b>Skin Contact:</b>	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
<b>Eye contact:</b>	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air.

### Most important symptoms/effects, acute and delayed

**Symptoms:** Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract. Harmful if inhaled. May be fatal if absorbed through skin or swallowed.

**Hazards:** None known.

### Indication of immediate medical attention and special treatment needed

**Treatment:** Treat symptomatically. Symptoms may be delayed.

## 5. Fire-fighting measures

**General Fire Hazards:** In case of fire and/or explosion do not breathe fumes.

### Suitable (and unsuitable) extinguishing media

**Suitable extinguishing media:** No data available.

**Unsuitable extinguishing media:** Do not use water as an extinguisher.

**Specific hazards arising from the chemical:** Fire may produce irritating, corrosive and/or toxic gases.

### Special protective equipment and precautions for firefighters

**Special fire fighting procedures:** Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

**Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures:** Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.

**Methods and material for containment and cleaning up:** Neutralize with lime or soda ash. Neutralize spill area and washings with dilute acetic acid. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dike far ahead of larger spill for later recovery and disposal.

**Notification Procedures:** Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

**Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

**7. Handling and storage**

**Precautions for safe handling:** Wear protective gloves/protective clothing/eye protection/face protection. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Do not breathe dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling. Use caution when adding this material to water. See Section 8 of the SDS for Personal Protective Equipment.

**Conditions for safe storage, including any incompatibilities:** Keep away from food, drink and animal feeding stuffs. Keep container tightly closed. Store in a cool and well-ventilated place. Store in a corrosion-resistant container with a resistant inner liner. Do not store in metal containers.

**8. Exposure controls/personal protection**

**Control Parameters**

**Occupational Exposure Limits**

None of the components have assigned exposure limits.

**Appropriate Engineering Controls** No data available.

**Individual protection measures, such as personal protective equipment**

**General information:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

**Eye/face protection:** Wear safety glasses with side shields (or goggles) and a face shield.

<b>Skin Protection</b>	
<b>Hand Protection:</b>	Chemical resistant gloves
<b>Other:</b>	Wear suitable protective clothing.
<b>Respiratory Protection:</b>	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.
<b>Hygiene measures:</b>	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Do not get this material in contact with skin. Do not get in eyes.

## 9. Physical and chemical properties

### Appearance

<b>Physical state:</b>	Liquid
<b>Form:</b>	Liquid
<b>Color:</b>	Colorless, Pale yellow
<b>Odor:</b>	Strong pungent
<b>Odor threshold:</b>	No data available.
<b>pH:</b>	0.45
<b>Melting point/freezing point:</b>	-15.4 - -15.2 °C
<b>Initial boiling point and boiling range:</b>	71.8 - 73 °C
<b>Flash Point:</b>	> 100 °C (Closed Cup)
<b>Evaporation rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	No data available.
<b>Flammability limit - lower (%):</b>	No data available.
<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	11 - 12.4 kPa (20 °C) 14.67 - 15.8 kPa (25 °C)
<b>Vapor density:</b>	No data available.
<b>Density:</b>	1.53 g/ml (20 °C)
<b>Relative density:</b>	1.53 (20 °C)
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	Miscible
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.

### Other information

<b>Molecular weight:</b>	114.02 g/mol (F <sub>3</sub> CCOOH)
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## 10. Stability and reactivity

<b>Reactivity:</b>	No dangerous reaction known under conditions of normal use.
<b>Chemical Stability:</b>	Material is unstable under normal conditions.
<b>Possibility of hazardous reactions:</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid:</b>	Do not allow water to get into container because of reaction. Contact with incompatible materials.
<b>Incompatible Materials:</b>	Strong oxidizing agents. Strong reducing agents. Bases, alkalies (organic). Moisture.
<b>Hazardous Decomposition Products:</b>	Oxides of Carbon. Hydrogen fluoride.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation:</b>	Harmful if inhaled. May cause irritation to the respiratory system.
<b>Skin Contact:</b>	Causes severe skin burns.
<b>Eye contact:</b>	Causes serious eye damage.
<b>Ingestion:</b>	Toxic if swallowed. May cause burns of the gastrointestinal tract if swallowed.

### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

<b>Oral</b>	
<b>Product:</b>	LD 50 (Rat): 200 mg/kg
<b>Dermal</b>	
<b>Product:</b>	No data available.
<b>Inhalation</b>	
<b>Product:</b>	LC 5010 mg/l NOAEL (Rat, 4 h): 300 - 344.1 mg/m3

#### Repeated dose toxicity

<b>Product:</b>	No data available.
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#### Skin Corrosion/Irritation

<b>Product:</b>	Causes severe skin burns.
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#### Serious Eye Damage/Eye Irritation

<b>Product:</b>	Causes serious eye damage.
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#### Respiratory or Skin Sensitization

<b>Product:</b>	Not a skin nor a respiratory sensitizer.
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#### Carcinogenicity

<b>Product:</b>	This substance has no evidence of carcinogenic properties.
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**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**

No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):**

No carcinogenic components identified

**Germ Cell Mutagenicity**

**In vitro**

**Product:** No mutagenic components identified

**In vivo**

**Product:** No mutagenic components identified

**Reproductive toxicity**

**Product:** No components toxic to reproduction

**Specific Target Organ Toxicity - Single Exposure**

**Product:** Respiratory tract irritation.

**Specific Target Organ Toxicity - Repeated Exposure**

**Product:** No data available.

**Target Organs**

Specific Target Organ Toxicity - Single Exposure: Respiratory tract irritation.

**Aspiration Hazard**

**Product:** Not classified

**Other effects:** None known.

**12. Ecological information**

**Ecotoxicity:**

**Acute hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Specified substance(s):**

Trifluoroacetic acid  
LC 50 (Danio rerio, 96 h): > 1,200 mg/l  
NOAEL (Danio rerio, 96 h): > 8 g/l

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s):**

Trifluoroacetic acid  
EC 50 (Daphnia magna, 48 h): > 149 mg/l  
EC 50 (Daphnia magna, 48 h): > 1,200 mg/l

**Chronic hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s):**

Trifluoroacetic acid  
EC 50 (Daphnia magna, 21 d): > 100 mg/l  
NOAEL (Daphnia magna, 21 d): > 100 mg/l  
LOAEL (Daphnia magna, 21 d): > 100 mg/l

**Toxicity to Aquatic Plants**

**Product:** No data available.

**Persistence and Degradability**

**Biodegradation**

**Product:** There are no data on the degradability of this product.

**BOD/COD Ratio**

**Product:** No data available.

**Bioaccumulative potential**

**Bioconcentration Factor (BCF)**

**Product:** No data available on bioaccumulation.

**Partition Coefficient n-octanol / water (log Kow)**

**Product:** No data available.

**Mobility in soil:** No data available.

**Other adverse effects:** Harmful to aquatic life with long lasting effects.

**13. Disposal considerations**

**Disposal instructions:** Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Contaminated Packaging:** Since emptied containers retain product residue, follow label warnings even after container is emptied.

**14. Transport information**

**DOT**

UN Number:	UN 2699
UN Proper Shipping Name:	Trifluoroacetic acid
Transport Hazard Class(es)	
Class:	8
Label(s):	8
Packing Group:	I
Marine Pollutant:	No



Special precautions for user: Keep away from alkalis.

**IMDG**

UN Number: UN 2699  
 UN Proper Shipping Name: TRIFLUOROACETIC ACID  
 Transport Hazard Class(es)  
     Class: 8  
     Label(s): 8  
     EmS No.: F-A, S-B  
 Packing Group: I  
 Marine Pollutant: No  
 Special precautions for user: Keep away from alkalis.

**IATA**

UN Number: UN 2699  
 Proper Shipping Name: Trifluoroacetic acid  
 Transport Hazard Class(es):  
     Class: 8  
     Label(s): 8  
 Packing Group: I  
 Marine Pollutant: No  
 Special precautions for user: Keep away from alkalis.

**15. Regulatory information**

**US Federal Regulations**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**  
 None present or none present in regulated quantities.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**  
 None present or none present in regulated quantities.

**CERCLA Hazardous Substance List (40 CFR 302.4):**  
 None present or none present in regulated quantities.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

- Corrosive to metal
- Acute toxicity (any route of exposure)
- Skin Corrosion or Irritation
- Serious eye damage or eye irritation
- Specific target organ toxicity (single or repeated exposure)

**SARA 302 Extremely Hazardous Substance**  
 None present or none present in regulated quantities.

**SARA 304 Emergency Release Notification**  
 None present or none present in regulated quantities.

**SARA 311/312 Hazardous Chemical**

Chemical Identity	Threshold Planning Quantity
Trifluoroacetic acid	10000 lbs.

**SARA 313 (TRI Reporting)**  
 None present or none present in regulated quantities.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**  
 None present or none present in regulated quantities.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):**

None present or none present in regulated quantities.

**US State Regulations**

**US. California Proposition 65**

No ingredient requiring a warning under CA Prop 65.

**US. New Jersey Worker and Community Right-to-Know Act**

**Chemical Identity**

Trifluoroacetic acid

**US. Massachusetts RTK - Substance List**

No ingredient regulated by MA Right-to-Know Law present.

**US. Pennsylvania RTK - Hazardous Substances**

No ingredient regulated by PA Right-to-Know Law present.

**US. Rhode Island RTK**

No ingredient regulated by RI Right-to-Know Law present.

**International regulations**

**Montreal protocol**

Not applicable

**Stockholm convention**

Not applicable

**Rotterdam convention**

Not applicable

**Kyoto protocol**

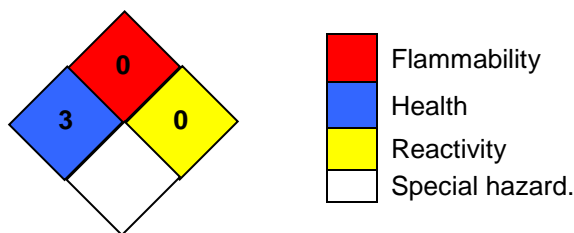
Not applicable

**Inventory Status:**

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory

**16. Other information, including date of preparation or last revision**

**NFPA Hazard ID**



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

**Issue Date:** 05-25-2021

**Revision Information:** Not relevant.

**Version #:** 2.1

**Source of information:** Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer’s SDSs and other sources, as appropriate.

**Further Information:** No data available.

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