

## 1 Identification

- **Product identifier**
- **Trade name:** Trifluoroacetic Acid, Anhydrous
- **Article number:** 152166
- **CAS Number:**  
76-05-1
- **EC number:**  
200-929-3
- **Index number:**  
607-091-00-1
- **Molecular Formula** C<sub>2</sub> H F<sub>3</sub> O<sub>2</sub>
- **Molecular Weight** 114
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
MP Biomedicals, LLC  
29525 Fountain Parkway  
Solon, OH 44139  
United States  
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Met. Corr.1 H290 May be corrosive to metals.

Skin Corr. 1A H314 Causes severe skin burns and eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
trifluoroacetic acid
- **Hazard statements**  
May be corrosive to metals.

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*Harmful if swallowed or if inhaled.*

*Causes severe skin burns and eye damage.*

**· Precautionary statements**

*Do not breathe dusts or mists.*

*Wear protective gloves/protective clothing/eye protection/face protection.*

*Keep only in original container.*

*Wash thoroughly after handling.*

*Do not eat, drink or smoke when using this product.*

*Use only outdoors or in a well-ventilated area.*

*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*

*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.*

*Specific treatment (see on this label).*

*IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Wash contaminated clothing before reuse.*

*If swallowed: Rinse mouth. Do NOT induce vomiting.*

*Absorb spillage to prevent material damage.*

*Store locked up.*

*Store in corrosive resistant container with a resistant inner liner.*

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

**· Classification system:**

**· NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 1

Reactivity = 0

**· HMIS-ratings (scale 0 - 4)**



Health = \*3

Fire = 1

Reactivity = 0

**· Other hazards**

**· Results of PBT and vPvB assessment**

**· PBT:** Not applicable.

**· vPvB:** Not applicable.

## 3 Composition/information on ingredients

**· Chemical characterization: Substances**

**· CAS No. Description**

76-05-1 trifluoroacetic acid

**· Identification number(s)**

**· EC number:** 200-929-3

**· Index number:** 607-091-00-1

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## 4 First-aid measures

- **Description of first aid measures**

- **General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Consult your Doctor. Show the safety data sheet to the Doctor. Away from the dangerous area.

- **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.

- **After skin contact:** Wash off with soap and plenty of water. Consult a Doctor.

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing:**

Never give anything by mouth to an unconscious person. Rinse mouth with water. If symptoms persist consult a Doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- **Information for doctor:**

- **Most important symptoms and effects, both acute and delayed** No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

- **Special hazards arising from the substance or mixture**

During heating or in case of fire poisonous gases are produced.

- **Advice for firefighters**

- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Pick up mechanically, dispose contaminated material as waste according to Section 13.

Ensure adequate ventilation.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

- **Protective Action Criteria for Chemicals**

- **PAC-1:**

0.13 ppm

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· **PAC-2:**

1.4 ppm

· **PAC-3:**

8.5 ppm

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 15 - 30 °C
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see Section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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· **Eye protection:**

Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	Clear
· <b>Odor:</b>	Indeterminate
· <b>Odor threshold:</b>	Not determined.

· **pH-value:** Not determined.· **Change in condition**· **Boiling point/Boiling range:** Undetermined.· **Flash point:** 100 °C (212 °F)· **Flammability (solid, gaseous):** Not applicable.· **Ignition temperature:**· **Decomposition temperature:** Not determined.· **Auto igniting:** Not determined.· **Danger of explosion:** See section 10· **Explosion limits:**· **Lower:** Not Applicable· **Upper:** Not Applicable· **Vapor pressure:** Not Applicable· **Density:** Not Applicable· **Relative density** Not determined.· **Vapor density** Not determined.· **Evaporation rate** Not determined.· **Solubility in / Miscibility with** Not Determined· **Water:** Soluble.· **Partition coefficient (n-octanol/water):** Not determined.· **Viscosity:**· **Dynamic:** Not determined.· **Kinematic:** Not determined.· **Organic solvents:** 100.0 %· **VOC content:** 100.0 %

1000.0 g/l / 8.35 lb/gl

· **Other information** No further relevant information available.

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## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· <b>LD/LC50 values that are relevant for classification:</b>		
76-05-1 trifluoroacetic acid		
Oral	LD50	200 mg/kg (rat)

- **Primary irritant effect:**

- **on the skin:** Strong caustic effect on skin and mucous membranes.

- **on the eye:** Strong caustic effect.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

· <b>IARC (International Agency for Research on Cancer)</b>	
	Substance is not listed.

· <b>NTP (National Toxicology Program)</b>	
	Substance is not listed.

· <b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>	
	Substance is not listed.

## 12 Ecological information

- **Toxicity**

· <b>Aquatic toxicity:</b>		
76-05-1 trifluoroacetic acid		
Oral	LC50 / 96 h	1000 mg/L (Danio rerio (zebra fish))

- **Persistence and degradability** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential** No further relevant information available.

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 2 (Assessment by list): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

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- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Can not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Discard must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleaning agents.

## 14 Transport information

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>  | <p style="margin-left: 20px;">UN2699</p>   |
| <ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG, IATA</b></li> </ul>  | <p style="margin-left: 20px;">Trifluoroacetic acid<br/>2699 Trifluoroacetic acid<br/>TRIFLUOROACETIC ACID</p>  |
| <ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT</b></li> </ul>  | <div style="text-align: center; margin-bottom: 10px;">  </div> <p style="margin-left: 20px;">8 Corrosive substances</p> |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>   | <p style="margin-left: 20px;">8</p>  |
| <ul style="list-style-type: none"> <li>· <b>ADR, IMDG, IATA</b></li> </ul>   | <div style="text-align: center; margin-bottom: 10px;">  </div> <p style="margin-left: 20px;">8 Corrosive substances</p> |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>   | <p style="margin-left: 20px;">8</p>  |
| <ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>  | <p style="margin-left: 20px;">I</p>  |
| <ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> <li>· <b>Marine pollutant:</b></li> </ul>  | <p style="margin-left: 20px;">No</p>   |
| <ul style="list-style-type: none"> <li>· <b>Special precautions for user</b></li> <li>· <b>Danger code (Kemler):</b></li> <li>· <b>EMS Number:</b></li> <li>· <b>Segregation groups</b></li> </ul> | <p style="margin-left: 20px;">Warning: Corrosive substances<br/>88<br/>F-A,S-B<br/>Acids</p>   |

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· <b>Stowage Category</b>	<i>B</i>
· <b>Stowage Code</b>	<i>SW1 Protected from sources of heat. SW2 Clear of living quarters.</i>
· <b>Handling Code</b>	<i>H2 Keep as cool as reasonably practicable</i>
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	<i>Not applicable.</i>
· <b>Transport/Additional information:</b>	
· <b>DOT</b>	
· <b>Quantity limitations</b>	<i>On passenger aircraft/rail: 0.5 L On cargo aircraft only: 2.5 L</i>
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	<i>Code: E0 Not permitted as Excepted Quantity</i>
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	<i>0</i>
· <b>Excepted quantities (EQ)</b>	<i>Code: E0 Not permitted as Excepted Quantity</i>
· <b>UN "Model Regulation":</b>	<i>UN 2699 TRIFLUOROACETIC ACID, 8, I</i>

## 15 Regulatory information

- *Safety, health and environmental regulations/legislation specific for the substance or mixture*
- *Sara*

· **Section 355 (extremely hazardous substances):**

*Substance is not listed.*

· **Section 313 (Specific toxic chemical listings):**

*Substance is not listed.*

· **TSCA (Toxic Substances Control Act):**

*Substance is listed.*

· **Proposition 65**

· **Chemicals known to cause cancer:**

*Substance is not listed.*

· **Chemicals known to cause reproductive toxicity for females:**

*Substance is not listed.*

· **Chemicals known to cause reproductive toxicity for males:**

*Substance is not listed.*

· **Chemicals known to cause developmental toxicity:**

*Substance is not listed.*

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

*Substance is not listed.*

· **TLV (Threshold Limit Value established by ACGIH)**

*Substance is not listed.*

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· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS05 GHS07

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**  
*trifluoroacetic acid*

· **Hazard statements**

*May be corrosive to metals.*

*Harmful if swallowed or if inhaled.*

*Causes severe skin burns and eye damage.*

· **Precautionary statements**

*Do not breathe dusts or mists.*

*Wear protective gloves/protective clothing/eye protection/face protection.*

*Keep only in original container.*

*Wash thoroughly after handling.*

*Do not eat, drink or smoke when using this product.*

*Use only outdoors or in a well-ventilated area.*

*If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*

*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.*

*Specific treatment (see on this label).*

*IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Wash contaminated clothing before reuse.*

*If swallowed: Rinse mouth. Do NOT induce vomiting.*

*Absorb spillage to prevent material damage.*

*Store locked up.*

*Store in corrosive resistant container with a resistant inner liner.*

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing SDS:** *Quality Control Dept.*

· **Date of preparation / last revision** *01/30/2017 / -*

· **Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

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NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
VOC: Volatile Organic Compounds (USA, EU)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
Met. Corr. 1: Corrosive to metals – Category 1  
Acute Tox. 4: Acute toxicity – Category 4  
Skin Corr. 1A: Skin corrosion/irritation – Category 1A

US