



SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 10/27/2014

Version 1.1

SECTION 1. Identification

Product identifier

Product number	TX1275
Product name	Trifluoroacetic Acid
CAS-No.	76-05-1

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Reagent for analysis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 4, Inhalation, H332

Skin corrosion, Category 1A, H314

Serious eye damage, Category 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word

Danger

Hazard Statements

H314 Causes severe skin burns and eye damage.

H332 Harmful if inhaled.

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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.
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 victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously 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.
P321 Specific treatment (see supplemental first aid instructions on this label).
P363 Wash contaminated clothing before reuse.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	CF ₃ COOH	C ₂ HF ₃ O ₂ (Hill)
Molar mass	114.02 g/mol	

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

trifluoroacetic acid (>= 90 % - <= 100 %)

76-05-1

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

Skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

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Ingestion

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Nausea, Vomiting, Cough, Shortness of breath, collapse
Risk of blindness!

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Hydrogen fluoride

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

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SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

No metal containers.

Tightly closed.

Store at room temperature.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Tightly fitting safety goggles

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Acid-resistant protective clothing.

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless

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Odor	stinging
Odor Threshold	No information available.
pH	1 at 10 g/l
Melting point	-15 °C
Boiling point/boiling range	162 °F (72 °C) at 1,013 hPa
Flash point	Method: ISO 2719 not determinable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	141 hPa at 68 °F (20 °C)
Relative vapor density	3.94
Density	1.48 g/cm ³ at 68 °F (20 °C)
Relative density	No information available.
Water solubility	at 68 °F (20 °C) soluble
Partition coefficient: n-octanol/water	log Pow: -2.1 (External MSDS) Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	0.91 mPa.s at 68 °F (20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none

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SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

heat-sensitive

Possibility of hazardous reactions

Risk of explosion with:

lithium aluminum hydride

Exothermic reaction with:

alkalines

Generates dangerous gases or fumes in contact with:

acids

Conditions to avoid

Strong heating.

Incompatible materials

rubber, Metals

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

Acute oral toxicity

Symptoms: Nausea, Vomiting, strong pain (risk of perforation!), If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity

Corrosive to respiratory system.

absorption

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

Skin irritation

Rabbit

Result: Causes burns.

(External MSDS)

Necrosis Causes poorly healing wounds.

Causes severe burns.

Eye irritation

Causes serious eye damage.

Risk of blindness!

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Genotoxicity in vitro

Ames test
Salmonella typhimurium
Result: negative
(Lit.)

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Systemic effects:
collapse
Damage to:
Kidney
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

static test LC50 Danio rerio (zebra fish): > 999 mg/l; 96 h
Analytical monitoring: yes
OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

static test EC50 Daphnia magna (Water flea): > 999 mg/l; 48 h
Analytical monitoring: yes
OECD Test Guideline 202

Toxicity to algae

IC50 Chlorella vulgaris (Fresh water algae): > 1,200 mg/l; 72 h (Lit.)

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static test ErC50 *Anabaena flos-aquae* (cyanobacterium): > 1,997 mg/l; 120 h

Analytical monitoring: yes

OECD Test Guideline 201

static test ErC50 *Anabaena flos-aquae* (cyanobacterium): > 1,997 mg/l; 120 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria

EC50 activated sludge: > 1,000 mg/l; 3 h

Analytical monitoring: no

OECD Test Guideline 209 (sodium salt)

EC50 activated sludge: > 832 mg/l; 3 h

Analytical monitoring: no

OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

semi-static test NOEC *Daphnia magna* (Water flea): > 25 mg/l; 21 d

Analytical monitoring: yes

OECD Test Guideline 211

semi-static test NOEC *Daphnia magna* (Water flea): > 25 mg/l; 21 d

Analytical monitoring: yes

OECD Test Guideline 211

Persistence and degradability

Biodegradability

0 %; 84 d

OECD Test Guideline 301D

(Lit.)

Not readily biodegradable.

0 %; 127 d; aerobic

OECD Test Guideline 302A

Not inherently biodegradable.

0 %; 127 d; aerobic

Test substance: see user defined free text

OECD Test Guideline 302A

Not inherently biodegradable.

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: -2.1

(External MSDS) Bioaccumulation is not expected.

Mobility in soil

No information available.

Additional ecological information

Harmful effect due to pH shift. Caustic even in diluted form. Hazard for drinking water supplies.

Discharge into the environment must be avoided.

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SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 2699
Proper shipping name	TRIFLUOROACETIC ACID
Class	8
Packing group	I
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 2699
Proper shipping name	TRIFLUOROACETIC ACID
Class	8
Packing group	I
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 2699
Proper shipping name	TRIFLUOROACETIC ACID
Class	8
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-B

SECTION 15. Regulatory information

United States of America

SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Remarks

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Ingredients

trifluoroacetic acid

New Jersey Right To Know

Ingredients

trifluoroacetic acid

California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Labeling

Hazard pictograms



Signal Word

Danger

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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

Prevention

P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Full text of H-Statements referred to under sections 2 and 3.

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date 10/27/2014

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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