

SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Version no. : 2.0
Prepared on : 04.04.2026
Revised on : -

SECTION 1: Identification of the substance/mixture and of the company/undertaking.

1.1 Product identifiers

Product name Trifluoroacetic acid for spectroscopy
Product Number PSR50422
Brand PureSynth research chemicals
CAS No. 76-05-1

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company PureSynth Research Chemicals GmbH
64683 Einhausen Marie-Curie-StraBe. 3, Germany

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-8908-260

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Category 4	H332: Harmful if inhaled.
Skin corrosion, Sub-category 1A	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

Hazard statement(s)

H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P261	Avoid breathing mist or vapours.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

2.3 Other hazards:

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	Mol. formula	CAS number
TFA	CF ₃ COOH	76-05-1
Component	Classification	Concentration
Trifluoroacetic acid	Acute toxicity estimate Acute inhalation toxicity (vapour): 10.01 mg/l	>= 90 - <= 100

SECTION 4: First aid measures

Description of first aid measures

General advice	First aiders need to protect themselves. Show this safety data sheet to the doctor in attendance.
If inhaled	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
In case of eye contact	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.
If swallowed	After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Firefighting measures

Extinguishing media	
Suitable extinguishing media	Water Foam Carbon dioxide (CO ₂)

Unsuitable extinguishing media	Dry powder
Special hazards arising from the substance or mixture	For this substance/mixture no limitations of extinguishing agents are given. Combustible. Fire may cause evolution of: Hydrogen fluoride Development of hazardous combustion gases or vapours possible in the event of fire. Carbon oxides Hydrogen fluoride
Advice 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/vapours/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 vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter 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 and neutralising material. Dispose of properly. Clean up affected area.
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	For precautions see section 2.2.
Conditions for safe storage, including any incompatibilities	Requirements for storage areas and containers: No metal Containers. Recommended storage temperature See product label. Tightly closed.
Specific end use(s)	Storage class (TRGS 510): 8A, Combustible, corrosive hazardous materials Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters	Ingredients with workplace control parameters
Exposure controls	
Appropriate engineering controls	No data available
Personal protective equipment:	
Eye / face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles
Hand protection	Material: butyl-rubber Break through time: 480 min Glove thickness: 0.7 mm

Protective index: Full contact

Material: Latex gloves

Break through time: 120 min

Glove thickness: 0.6 mm

Protective index: Splash contact

Skin and Body Protection Respiratory protection

Remarks: This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves.

Acid-resistant protective clothing

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter B-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

Appearance	Form: Liquid
Odour	Colour: Colourless
pH - Value	pungent
Density	1 Concentration: 10 g/l
Boiling Point	1.489 g/cm ³ (20 °C)
Melting Point	71.78 °C (1.013 hPa)
Solubility in water	Method: Regulation (EC) No. 440/2008, Annex, A.2
Flash point	-15.2 °C
Vapour pressure	Method: Regulation (EC) No. 440/2008, Annex, A.1
Auto -ignition temperature	10000 g/l
Vapour density	Method: US-EPA
Flammability (solid, gas)	GLP: yes soluble
Evaporation rate	No data available
Partition coefficient: n- octanol / water	158 hPa (25 °C)
Viscosity	Method: Regulation (EC) No. 440/2008, Annex, A.4
Explosive properties	No data available
Upper / lower flammability or explosive limits	No data available
Oxidizing properties	No data available
Other safety information:	log Pow: -2.10 Bioaccumulation is not expected.
	No data available

SECTION 10: Stability and reactivity

Reactivity	No data available
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature).
Possibility of hazardous reactions	Risk of explosion with: lithium aluminium hydride Hydrides Exothermic reaction with: Alkalines Ammonia Generates dangerous gases or fumes in contact with: acids
Condition to avoid	no information available
Incompatible materials	No data available
Hazardous decomposition products	In the event of fire: see section 5

SECTION 11: Toxicological information

Acute 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 oesophagus and the stomach. LC50 Inhalation - Rat - 4 h – 10.01 mg/l - vapour Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) 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. Acute toxicity estimate Inhalation – 10.01 mg/l - vapour (ATE value derived from LD50/LC50 value) Dermal: No data available
Skin corrosion/irritation	Skin - Rabbit Result: Causes severe burns. Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) Remarks: Necrosis Causes poorly healing wounds.
Serious eye damage/eye irritation	Remarks: Causes serious eye damage.
Respiratory or skin sensitization	No data available
Germ cell mutagenicity	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: Chromosome aberration test in vitro Test system: Human lymphocytes

	Metabolic activation: with and without metabolic activation
	Method: OECD Test Guideline 473
	Result: negative
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	No data available
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Damage to: Kidney Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice. Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

Toxicity

Toxicity to fish	LC50 (Danio rerio (zebra fish)): > 999 mg/l End point: mortality Exposure time: 96 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): > 999 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	ErC50 (Pseudokirchneriella subcapitata): 237.07 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
Toxicity to bacteria	EC50 (activated sludge): > 832 mg/l Exposure time: 3 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	Method: OECD Test Guideline 209
	GLP: yes
Persistence and degradability	NOEC: > 25 mg/l
	End point: reproduction rate
	Exposure time: 21 d
	Species: Daphnia magna (Water flea)
	Test Type: semi-static test
	Analytical monitoring: yes
	Method: OECD Test Guideline 211
	GLP: yes
	Test Type: aerobic
	Inoculum: activated sludge, non-adapted
Bioaccumulation	Concentration: 20 mg/l
	Result: Not readily biodegradable.
	Biodegradation: 0 %
	Exposure time: 28 d
	Method: OECD Test Guideline 301D
	GLP: yes
	Test Type: aerobic
	Inoculum: activated sludge, non-adapted
	Concentration: 17.6 mg/l
	Result: Not inherently biodegradable.
Mobility in soil	Biodegradation: 58 %
	Exposure time: 55 d
Results of PBT and vPvB assessment	Method: OECD Test Guideline 302A
	GLP: yes
Endocrine disrupting properties	Remarks: No bioaccumulation is to be expected (log Pow ≤ 4).
	Partition coefficient: n-octanol/water: log Pow: -2.10
Other adverse effects	Remarks: Bioaccumulation is not expected.
	No data available

SECTION 13: Disposal considerations

Waste treatment methods	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.
Contaminated packaging	No data available.

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	2699	TRIFLUOROACETIC ACID	8	I	no

IMDG	2699	TRIFLUOROACETIC ACID	8	I	no
IATA	2699	Trifluoroacetic acid	8	I	-

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	: Conditions of restriction for the following entries should be considered: Number on list 3 Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor.
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	: Not applicable
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	: Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	: Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	: Not applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	Not applicable

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

The information in this SDS 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. The user must be determined suitability of this information for his application.