

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 21-Sep-2009

Revision Date 16-Jul-2025

Revision Number 15

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THECOMPANY/UNDERTAKING

1.1. Product identifier

Product Description:	Trifluoroacetic acid
Cat No. :	139720000; 139720010; 139720025; 139720250; 139721000; 139725000
Synonyms	TFA; Trifluoroethanoic acid; Perfluoroacetic acid
Index No	607-091-00-1
CAS No	76-05-1
EC No	200-929-3
Molecular Formula	C2 H F3 O2
REACH registration number	01-2119548396-29
-	

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

Recommended Use	Laboratory chemicals.
Sector of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
Product category	PC21 - Laboratory chemicals
Process categories	PROC15 - Use as a laboratory reagent
Environmental release category	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Compa	iny

UK entity/business name Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name

Thermo Fisher Scientific Janssen Pharmaceuticalaan 3a, 2440 Geel, Belgium

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Trifluoroacetic acid

Based on available data, the classification criteria are not met

Health hazards

Acute oral toxicity Acute Inhalation Toxicity - Vapors Skin Corrosion/Irritation Serious Eye Damage/Eye Irritation

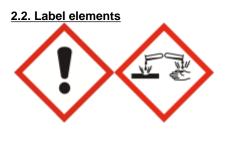
Environmental hazards

Chronic aquatic toxicity

Category 4 (H302) Category 4 (H332) Category 1 (H314) A Category 1 (H318)

Category 3 (H412)

Full text of Hazard Statements: see section 16



Signal Word

Danger

Hazard Statements

H314 - Causes severe skin burns and eye damage

H412 - Harmful to aquatic life with long lasting effects

H302 + H332 - Harmful if swallowed or if inhaled

Precautionary Statements

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing 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): Take off immediately all contaminated clothing. Rinse skin with water or shower 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

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and
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Trifluoroacetic acid

Revision Date 16-Jul-2025

			UK SI 2020/1567
76-05-1	EEC No. 200-929-3	<=100	Skin Corr 1A (H314)
			Eye Dam. 1 (H318)
			Acute Tox. 4 (H302)
			Acute Tox. 4 (H332)
			Aquatic Chronic 3 (H412)
	76-05-1	76-05-1 EEC No. 200-929-3	76-05-1 EEC No. 200-929-3 <=100

REACH registration number 01-2119548396-29

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.			
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.			
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.			
Ingestion	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.			
Inhalation	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respira with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.			
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.			
4.2. Most important symptoms and e	effects, both acute and delayed			
	Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation			

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons No information available.

Trifluoroacetic acid

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen fluoride.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Do not store in metal containers. Store under an inert atmosphere. Air sensitive.

Technical Rules for Hazardous Substances (TRGS) 510 Class 8A Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s):

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Trifluoroacetic acid 76-05-1(<=100)	DNEL = 16mg/m ³		DNEL = 2.67mg/m ³	

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Microorganisms in sewage treatment	Soil (Agriculture)
Trifluoroacetic acid	PNEC = 0.56mg/L	PNEC = 2.36mg/kg	PNEC = 83.2mg/L	PNEC = 4.7µg/kg
76-05-1(<=100)		sediment dw		soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Trifluoroacetic acid	PNEC = 0.056mg/L	PNEC =			
76-05-1(<=100)		0.236mg/kg			
		sediment dw			

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

I	Personal protective equip Eye Protection		(European standard	I - EN 166)	
	Hand Protection	Protectiv	e gloves		
ſ	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments

Giove material	Dieakunougn ume	Giove tilless	LU Stanuaru	Giove comments
Butyl rubber	See manufacturers recommendations	-	EN 374	(minimum requirement)

Skin and body protection Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.

(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143 Acid gases filter Type E Yellow conforming to EN14387
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141 When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls	Prevent product from entering drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Clear, Colorless pungent No data available -15 °C / 5 °F No data available 72 °C / 161.6 °F No data available Not applicable No data available	@ 760 mmHg Liquid
Flash Point	No information available	Method - No information available
Autoignition Temperature Decomposition Temperature	No data available No data available	
pH	2	100 g/L aq.sol
Viscosity	0.813 cP at 25 °C	C .
Water Solubility	Soluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/wat	•	
Component Trifluoroacetic acid	log Pow -2 1	
Vapor Pressure	-2.1 107 mbar @ 25 °C	
Density / Specific Gravity	1.490	
Bulk Density	Not applicable	Liquid
Vapor Density	3.9	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	(/ (11 = 1.0))
9.2. Other information		
Molecular Formula Molecular Weight	C2 H F3 O2 114.02	

Trifluoroacetic acid

Revision Date 16-Jul-2025

Evaporation Rate

No information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	None known, based on information available
10.2. Chemical stability	Hygroscopic.
10.3. Possibility of hazardous reac	tions
Hazardous Polymerization Hazardous Reactions	No information available. None under normal processing.
10.4. Conditions to avoid	Incompatible products. Exposure to moist air or water. Exposure to light. Excess heat.
10.5. Incompatible materials	Strong oxidizing agents. Reducing Agent. Strong bases. Metals. Amines.
	- dust-

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrogen fluoride.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

Inhalation

Oral Dermal Category 4 Based on available data, the classification criteria are not met Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Trifluoroacetic acid	1200 mg/kg (Rat)	-	10 mg/L/2h (rat)

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization Respiratory Skin	; Based on available data, the classification criteria are not met Based on available data, the classification criteria are not met
(e) germ cell mutagenicity;	Based on available data, the classification criteria are not met Not mutagenic in AMES Test
(f) carcinogenicity;	Based on available data, the classification criteria are not met There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;	Based on available data, the classification criteria are not met
(h) STOT-single exposure;	Based on available data, the classification criteria are not met
(i) STOT-repeated exposure; Target Organs	Based on available data, the classification criteria are not met None known.
(j) aspiration hazard;	Based on available data, the classification criteria are not met
Other Adverse Effects	The toxicological properties have not been fully investigated.
Symptoms / effects,both acute and delayed	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

11.2. Information on other hazards

Endocrine Disrupting Properties

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

Trifluoroacetic acid

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Trifluoroacetic acid	Zebrafish: LC50: >1000	daphnia: EC50: 55 mg/L/24h	
	mg/L/96h		

12.2. Persistence and degradability Persistence Degradation in sewage treatment plant	Not readily biodegradable Persistence is unlikely, based on information available. Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.					
12.3. Bioaccumulative potential	Bioaccumulation is unlikely					
Component	log Pow	Bioconcentration factor (BCF)				
Trifluoroacetic acid	-2.1	No data available				
<u>12.4. Mobility in soil</u>	The product contains volatile organic compoun surfaces Will likely be mobile in the environme air					
<u>12.5. Results of PBT and vPvB</u> assessment	Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).					
12.6. Endocrine disrupting properties						

Trifluoroacetic acid

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects	
Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Solutions with low pH-value must be neutralized before discharge. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> 14.4. Packing group	UN2699 TRIFLUOROACETIC ACID 8 I
ADR	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> 14.4. Packing group	UN2699 TRIFLUOROACETIC ACID 8 I
IATA	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN2699 TRIFLUOROACETIC ACID 8 I
14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

X = listed. US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Trifluoroacetic acid	76-05-1	200-929-3	-	-	Х	Х	KE-34233	Х	Х
							Х		

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Trifluoroacetic acid	76-05-1	Х	ACTIVE	Х	-	Х	Х	Х

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Trifluoroacetic acid	76-05-1	-	Use restricted. See entry 75. (see link for restriction details)	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report
		Notification	Requirements
Trifluoroacetic acid	76-05-1	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

See table for values

Component	OECD PFAS	US (EPA) PFAS	EU (ECHA) PFAS	UK (HSE) PFAS	Chemsec PFAS (Sin
					List)
Trifluoroacetic acid	-	Listed	Listed	Listed	Listed
(CAS #: 76-05-1)					

PFAS Legend

Listed = Meets the PFAS definition of the named authority

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Trifluoroacetic acid	WGK2	

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

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

H302 - Harmful if swallowed

H332 - Harmful if inhaled

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H412 - Harmful to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances PICCS - Philippines Inventory of Chemicals and Chemical Substances IECSC - Chinese Inventory of Existing Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances	· · · · · · · · · · · · · · · · · · ·
WEL - Workplace Exposure Limit ACGIH - American Conference of Governmental Industrial Hygienists DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic	 TWA - Time Weighted Average IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50% EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code OECD - Organisation for Economic Co-operation and Development	ICAO/IATA - International Civil Aviation Organization/International Air Transport Association MARPOL - International Convention for the Prevention of Pollution from Ships ATE - Acute Toxicity Estimate

OECD - Organisation for Economic Co-operation and Development **BCF** - Bioconcentration factor

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

VOC - (Volatile Organic Compound)

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Trifluoroacetic acid

Chemical incident response training.

Creation Date Revision Date Revision Summary 21-Sep-2009 16-Jul-2025 SDS sections updated.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

. Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet