

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.11.2012

Revision: 31.10.2012

1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Trifluoroacetic Acid (TFA)
- **Article number:** 20-5504-05
- **CAS Number:**
76-05-1
- **EC number:**
200-929-3
- **Index number:**
607-091-00-1
- **Registration number** 01-2119548396-29
- **Relevant identified uses of the substance or mixture and uses advised against**
Use as intermediate; Use as solvent; Surface treatment of glass; Use as solvent, catalyst and processing aids; Laboratory professional use.
- **Sector of Use**
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 Manufacture of fine chemicals
- **Process category**
PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC13 Treatment of articles by dipping and pouring
PROC15 Use as laboratory reagent
- **Environmental release category**
ERC1 Manufacture of substances
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC8b Wide dispersive indoor use of reactive substances in open systems
- **Application of the substance / the preparation** Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Severn Biotech Ltd.
Unit 2,
Park Lane,
Kidderminster,
Worcestershire.
DY11 6TJ
UK
Tel: 0044 1562 825286
Fax: 0044 1562 825284
email: info@severnbiotech.com
- **Further information obtainable from:** Product safety department.
- **Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

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2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

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



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



C; Corrosive

R35: Causes severe burns.



Xn; Harmful

R20: Harmful by inhalation.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

- **Information concerning particular hazards for human and environment:** Not applicable.

- **Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms** GHS05, GHS07

- **Signal word** Danger

- **Hazard statements**

H332 Harmful if inhaled.

H314 Causes severe skin burns and eye damage.

H412 Harmful to aquatic life with long lasting effects.

- **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

P260 Do not breathe mist/vapours/spray.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

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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

4 First aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Place contaminated clothing in a sealed bag for disposal.
Use appropriate protective equipment when treating a contaminated person.
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
DO NOT DELAY!
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:**
DO NOT DELAY!
Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Drink plenty of water and provide fresh air. Call for a doctor immediately.
Do not induce vomiting; call for medical help immediately.
- **Information for doctor:** Treat symptomatically and supportively.
- **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 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Water
- **Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Hydrogen fluoride (HF)
Not combustible.
Gives off irritating or toxic fumes (or gases) in a fire.
The vapour is heavier than air.
- **Advice for firefighters**
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Wear self-contained respiratory protective device.

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Wear fully protective suit.

6 Accidental release measures

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

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Shelter from vapours by keeping upwind.

Only qualified personnel equipped with suitable protective equipment may intervene

· **Environmental precautions:**

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

Do not allow to penetrate the ground/soil.

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

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

Send for recovery or disposal in suitable receptacles.

Ensure adequate ventilation.

Methods for cleaning up large spills:

- Recovery : Pump up the product into a spare container suitably labelled, acid-resistant and with a sealed closure.

- Neutralization : If recovery is impossible, or if the pools are too small: Spread acid-resistant absorbent material.

- Cleaning/Decontamination : Spray all the contaminated area with large amounts of water

· **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.

7 Handling and storage

· **Handling:**

· **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.

Safety showers and eye wash facilities should be available at the work area.

· **Information about fire - and explosion protection:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**

Packaging materials

- Recommended : Plastic coated materials. Polyethylene.

- Not suitable : Common metals (iron, aluminium, copper, etc).

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.

· **Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from reducing agents.

Acid-resistant floor.

· **Further information about storage conditions:**

Keep container tightly sealed.

Store in a bunded area.

Store in cool, dry conditions in well sealed receptacles.

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· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **DNELs**
- WORKERS
- Acute / short-term exposure - local effects
- Inhalation DN(M)EL
- DNEL (Derived No Effect Level): 16 mg/m³
- Long-term exposure - local effects
- Inhalation DN(M)EL
- DNEL (Derived No Effect Level): 2.67 mg/m³
- GERNERAL POPULATION
- Long-term exposure - systemic effects
- Oral DN(M)EL
- DNEL (Derived No Effect Level): 0.25 mg/kg bw/day
- **PNECs**
- PNEC aqua (freshwater): 1 mg/L
- PNEC aqua (marine water): 0.1 mg/L
- PNEC aqua (intermittent releases): 0.1 mg/L
- PNEC STP: 83.2 mg/L
- PNEC sediment (freshwater): 4.22 mg/kg sediment dw
- PNEC sediment (marine water): 0.422 mg/kg sediment dw
- PNEC soil: 8.3 µg/kg soil dw
- PNEC oral: No potential for bioaccumulation
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- Select PPE appropriate for the operations taking place taking into account the product properties.
- **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.
- Do not inhale gases / fumes / aerosols.
- Do not eat, drink, smoke or sniff while working.
- A safe system of work must be formulated and followed to ensure safe working with this product.
- Relevant workers must receive suitable and sufficient training and supervision.
- Ensure that eyewash stations and safety showers are close to the workstation location.
- Depending on the degree of exposure, periodic medical examination is suggested.
- **Respiratory protection:**
- In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- Respirator with a vapour filter (EN 141)
- **Protection of hands:**



Protective gloves

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The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
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.

PVC or neoprene.

- **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.

- **Eye protection:**



Tightly sealed goggles

- **Body protection:** Acid resistant protective clothing

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Fluid
Colour:	Light yellow
Odour:	Pungent
Odour threshold:	Not determined.

- **pH-value (100 g/l) at 20 °C:** approx. 1

- **Change in condition**

Melting point/Melting range:	-15 °C
Boiling point/Boiling range:	72 °C

- **Flash point:** > 100 °C

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:**

Decomposition temperature:	Not determined.
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- **Self-igniting:** Not determined.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

- **Vapour pressure at 20 °C:** 11 hPa

Density at 20 °C:	1,5 g/cm ³
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.

- **Solubility in / Miscibility with water:** Fully miscible.

- **Partition coefficient (n-octanol/water):** 0.7 log POW

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- **Viscosity:**
- Dynamic:** Not determined.
- Kinematic:** Not determined.
- **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
On heating or during combustion: Toxic vapours (halogen compounds) are released.
- **Possibility of hazardous reactions**
Corrosive solutions are formed in the presence of water.
Corrosive to many metals when in contact with water or humidity.
Gives off hydrogen by reaction with metals.
Decomposes on contact with hot surfaces or flames. This produces toxic fumes.
Reacts violently with strong bases, reducing agents and oxidants. This produces toxic and corrosive fumes including hydrogen fluoride.
Attacks some forms of rubber.
The vapour is heavier than air.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
Strong acids and oxidising agents
Strong bases.
Reducing agents.
- **Hazardous decomposition products:**
On thermal decomposition (pyrolysis) releases: highly toxic gases. (Hydrofluoric acid).

11 Toxicological information

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

- **LD/LC50 values relevant for classification:**

Oral	LD50	250 mg/kg (rat)
Inhalative	LC50/4 h	10 mg/l (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.

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Routes of exposure: Serious by all routes of exposure.

Inhalation risk: A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20 degs. C.

Effects of short-term exposure: The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation of fume may cause lung oedema. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

EC50	>900 mg/kg (daphnia)
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- **Persistence and degradability** No further relevant information available.

- **Behaviour in environmental systems:**

- **Bioaccumulative potential** Product is not expected to bioaccumulate.

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

- **Ecotoxicological effects:**

- **Remark:** Harmful to fish

- **Additional ecological information:**

- **General notes:**

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

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

Must not reach sewage water or drainage ditch undiluted or unneutralized.

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

Harmful to aquatic organisms

- **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**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

Contact waste processors for recycling information.

Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.

- **European waste catalogue**

Waste key numbers in accordance with the European Waste catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.

- **Uncleaned packaging:**

- **Recommendation:**

Disposal must be made according to official regulations.

Container remains hazardous when empty. Continue to observe all precautions.

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· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· UN-Number	
· ADR, IMDG, IATA	UN2699
· UN proper shipping name	
· ADR	2699 TRIFLUOROACETIC ACID
· IMDG, IATA	TRIFLUOROACETIC ACID
· Transport hazard class(es)	
· ADR, IMDG, IATA	
	
· Class	8 Corrosive substances.
· Label	8
· Packing group	
· ADR, IMDG, IATA	I
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances.
· Danger code (Kemler):	88
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	0
· Transport category	1
· Tunnel restriction code	E
· UN "Model Regulation":	UN2699, TRIFLUOROACETIC ACID, 8, I

15 Regulatory information

· **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.

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