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

1.1. Product identifier

Trifluoroacetic acid, HPLC grade

REACH Registration Number:	01-2119548396-29-XXXX
CAS No:	76-05-1
Index No:	607-091-00-1
EC No:	200-929-3

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

Use of the substance/mixture

Reagents and laboratory chemicals
Only for laboratory and analysis purposes.

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Details of the supplier of the safety data sheet

Company name:	AnalytiChem Services, Unipessoal, Lda
Street:	Rua de Júlio Dinis 676 7º
Place:	N-4050-320 Porto
Telephone:	+351 226002917
E-mail:	info@analytichem.com
Contact person:	SDS service department
E-mail:	SDS@analytichem.com
Internet:	www.analytichem.com
Responsible Department:	SDS service department

Supplier or manufacturer details

Company name:	AnalytiChem Belgium NV
Street:	Industriezone "De Arend" 2
Place:	B-8210 Zedelgem
Telephone:	+32 50 28 83 20
E-mail:	info.be@analytichem.com
Contact person:	SDS service department
E-mail:	SDS@analytichem.com
Responsible Department:	AnalytiChem: EU-Belgium: AnalytiChem Belgium, Industriezone "De Arend" 2, 8210 Zedelgem, Belgium, +32 50 28 83 20 EU-Germany: AnalytiChem Germany, Stempelstrasse 6, 47167 Duisburg, Germany, +49 203 51 94 – 200 EU-Netherlands: AnalytiChem Netherlands, Communicatieweg 7, 3641 SG Mijdrecht, The Netherlands, +31 297 286848 UK: AnalytiChem UK, Unit 7 Launton Business Center, Murdock Road, Bicester, OX26 4XB, England, +44 1869 355 500 USA: AnalytiChem USA, 227 China Road, Winslow, Maine, 04901, United States, +1 800-244-8378 Canada: AnalytiChem Canada, 21800 Clark Graham Avenue, Baie d'Urfe, H9X 4B6, Canada, +1 514-457-0701 Australia: ORE Research & Exploration Pty Ltd, 37A Hosie Street, Bayswater North, 3153, Australia, +61 3 9729 0333

1.4. Emergency telephone number:

+44 20 3807 3798 (CHEMTREC)

Further Information

No data available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute Tox. 4; H332
Skin Corr. 1A; H314
Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Signal word: Danger

Pictograms:

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

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
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	IF exposed or concerned:
P310	Immediately call a POISON CENTER/doctor.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: CF3COOH

Molecular weight: 114,02 g/mol

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
76-05-1	trifluoroacetic acid			100 %
	200-929-3	607-091-00-1	01-2119548396-29-XXXX	
	Acute Tox. 4, Skin Corr. 1A, Aquatic Chronic 3; H332 H314 H412			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
76-05-1	200-929-3	trifluoroacetic acid	100 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists)		

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Self-protection of the first aider

After inhalation

Provide fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Call a physician immediately.

After contact with skin

Wash immediately with: Water
Take off immediately all contaminated clothing and wash it before reuse.
Call a physician immediately.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.
Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.
If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).
Do NOT induce vomiting.
Do not allow a neutralisation agent to be drunk.
Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Irritant
corrosive
Dyspnoea
Cough
Gastrointestinal complaints
Vomiting
Circulatory collapse
Risk of serious damage to eyes.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-combustible liquids

Hazardous combustion products

In case of fire may be liberated: Hydrogen fluoride

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

In case of fire and/or explosion do not breathe fumes.

Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Consult an expert

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid exposure - obtain special instructions before use.

Read label before use. Handle and open container with care.
When using do not eat, drink, smoke, sniff. Keep container tightly closed.
Use personal protection equipment. Use extractor hood (laboratory).
Do not breathe vapour/aerosol. Provide adequate ventilation.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.
The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of protective agents must be clarified with their suppliers.

Further information on handling

Take off immediately all contaminated clothing and wash it before reuse.
Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. If handled uncovered, arrangements with local exhaust ventilation have to be used.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed.
Store in a dry place.

Hints on joint storage

Take national regulations into account.

Further information on storage conditions

storage temperature < +30°C
Unsuitable container/equipment material: Metal

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
76-05-1	trifluoroacetic acid			
Worker DNEL, long-term		inhalation	local	2,67 mg/m³
Worker DNEL, acute		inhalation	local	16 mg/m³
Consumer DNEL, long-term		oral	systemic	0,042 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
76-05-1	trifluoroacetic acid	
Freshwater		0,56 mg/l
Freshwater (intermittent releases)		2,37 mg/l
Marine water		0,056 mg/l
Freshwater sediment		2,36 mg/kg
Marine sediment		0,236 mg/kg
Micro-organisms in sewage treatment plants (STP)		83,2 mg/l
Soil		0,0047 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

goggles

Face protection umbrella

Hand protection

Suitable examples are gloves of KCL GmbH, D-36124 Eichenzell, e-mail: vertrieb@kcl.de with the following specification (test according to EN 374):

By long-term hand contact
Trade name/designation: KCL 897 Butoject®
Suitable material: Butyl caoutchouc (butyl rubber) 0,3 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact
Trade name/designation: KCL 720 Camapren®
Suitable material: CR (polychloroprene, chloroprene rubber) 0,65 mm
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. 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 EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Take off immediately all contaminated clothing and wash it before reuse.
Wear fire resistant or flame retardant clothing.
Wash hands and face before breaks and after work and take a shower if necessary.
Draw up and observe skin protection programme.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Filtering device (full mask or mouthpiece) with filter: B-(P2)
The entrepeneur 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.

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	colourless	
Odour:	stinging	
Melting point/freezing point:		-15 °C
Boiling point or initial boiling point and boiling range:		71,78 °C
Flammability:		No data available
Lower explosion limits:		No data available
Upper explosion limits:		No data available
Flash point:		No data available
Auto-ignition temperature:		No data available
Decomposition temperature:		No data available
pH-Value:		1 (10 g/l)
Viscosity / kinematic:		No data available
Water solubility:		very soluble

Solubility in other solvents

No data available

Partition coefficient n-octanol/water:	log Pow: 0,5
Vapour pressure: (at 20 °C)	141 hPa
Vapour pressure:	No data available
Density:	1,48 g/cm³
Bulk density:	No data available
Relative vapour density:	No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

No data available

Sustained combustibility:	No data available

Self-ignition temperature

Solid:	No data available
Gas:	No data available

Oxidizing properties

No data available

Other safety characteristics

Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
	No data available

Viscosity / dynamic: (at 20 °C)	0,91 mPa·s
Flow time:	No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Protect against: Heat, Humidity

10.3. Possibility of hazardous reactions

Acids
Danger of explosion: lithium aluminum hydride, hydrides
Exothermic reaction with: alkali, Ammonia (NH3)

10.4. Conditions to avoid

Heat
Humidity

10.5. Incompatible materials

Metal
Rubber articles

10.6. Hazardous decomposition products

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes

Toxicocinetics, metabolism and distribution

Avoid exposure - obtain special instructions before use.

Acute toxicity

Harmful if inhaled.
If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).
Pulmonary oedema
Mucous membrane irritation in the mouth, throat, esophagus and gastrointestinal tract.
Inhalation effect: Damage to the respiratory tract.

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
76-05-1	trifluoroacetic acid					
	inhalation vapour	ATE	11 mg/l			
	inhalation dust/mist	ATE	1,5 mg/l			

Irritation and corrosivity

Skin corrosion/irritation: Causes severe skin burns and eye damage.
Serious eye damage/eye irritation: Causes serious eye damage.
Causes poorly healing wounds.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

Irritant
corrosive
Dyspnoea
Cough
Gastrointestinal complaints
Vomiting
Circulatory collapse
Risk of serious damage to eyes.

Further information

Causes damage to organs.
(kidneys)

SECTION 12: Ecological information

12.1. Toxicity

Harmful to aquatic life with long lasting effects.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
76-05-1	trifluoroacetic acid						
	Acute fish toxicity	LC50 mg/l	> 1200	96 h	Danio rerio	Study report (1992)	OECD Guideline 203
	Acute algae toxicity	ErC50 mg/l	237,07	72 h	Pseudokirchneriella subcapitata	Study report (2017)	OECD Guideline 201
	Acute crustacea toxicity	EC50 mg/l	> 1200	48 h	Daphnia magna	Study report (1992)	OECD Guideline 202
	Crustacea toxicity	NOEC mg/l	>= 100	21 d	Daphnia magna	Study report (2010)	OECD Guideline 211
	Acute bacteria toxicity	EC50 mg/l ( )	> 1000	3 h	activated sludge, domestic	Study report (2010)	OECD Guideline 209

12.2. Persistence and degradability

11 %; 127 d; aerob
OECD-301A

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
76-05-1	trifluoroacetic acid	0,5

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of UK REACH.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Do not allow to enter into surface water or drains.
Harmful effect due to pH shift.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.
Send to a physico-chemical treatment facility under observation of official regulations.
Do not mix with other wastes.

Contaminated packaging

Handle contaminated packages in the same way as the substance itself.
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 2699
14.2. UN proper shipping name:	TRIFLUOROACETIC ACID
14.3. Transport hazard class(es):	8
14.4. Packing group:	I
Hazard label:	8
Classification code:	C3
Limited quantity:	0
Excepted quantity:	E0
Transport category:	1
Hazard No:	88
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 2699
14.2. UN proper shipping name:	TRIFLUOROACETIC ACID
14.3. Transport hazard class(es):	8
14.4. Packing group:	I
Hazard label:	8
Classification code:	C3
Limited quantity:	0
Excepted quantity:	E0

Marine transport (IMDG)

14.1. UN number or ID number:	UN 2699
14.2. UN proper shipping name:	TRIFLUOROACETIC ACID
14.3. Transport hazard class(es):	8
14.4. Packing group:	I
Hazard label:	8
Special Provisions:	-
Limited quantity:	0
Excepted quantity:	E0
EmS:	F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 2699
14.2. UN proper shipping name:	TRIFLUOROACETIC ACID
14.3. Transport hazard class(es):	8
14.4. Packing group:	I
Hazard label:	8
Limited quantity Passenger:	Forbidden
Passenger LQ:	Forbidden
Excepted quantity:	E0
IATA-packing instructions - Passenger:	850
IATA-max. quantity - Passenger:	0.5 L
IATA-packing instructions - Cargo:	854
IATA-max. quantity - Cargo:	2.5 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	No

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):
Entry 3, Entry 75

Information according to Directive 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water hazard class (D): 2 - obviously hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 11.

Abbreviations and acronyms

Acute Tox. 4: Acute toxicity, hazard category 4
Skin Corr. 1A: Skin corrosion, sub-category 1A
Eye Dam. 1: Serious eye damage, hazard category 1
Aquatic Chronic 3: Hazardous to the aquatic environment, long-term hazard category: Chronic 3

Relevant H and EUH statements (number and full text)

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H412	Harmful to aquatic life with long lasting effects.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.
The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.
The receiver of our product is singularly responsible for adhering to existing laws and regulations.
Provide appropriate information, instructions and training to users