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

1.1. Product identifier

Trichloroacetic acid > 99.5 % Reag. Ph. Eur.

REACH Registration Number:	01-2119485186-30-XXXX
CAS No:	76-03-9
Index No:	607-004-00-7
EC No:	200-927-2

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

Use of the substance/mixture

Laboratory chemicals
Industrial uses: Uses of substances as such or in preparations at industrial sites
Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name:	AnalytiChem GmbH	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
E-mail:	info@analytichem.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
E-mail:	produktsicherheit@analytichem.de	
Internet:	www.analytichem.de	
Responsible Department:	Abteilung Produktsicherheit	

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin Corr. 1A; H314
STOT SE 3; H335
Aquatic Acute 1; H400
Aquatic Chronic 1; H410

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.
H335	May cause respiratory irritation.
H410	Very toxic 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: C2HCl3O2

Molecular weight: 163,38 g/mol

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
76-03-9	trichloroacetic acid			100 %
	200-927-2	607-004-00-7	01-2119485186-30-XXXX	
	Skin Corr. 1A, STOT SE 3, Aquatic Acute 1, Aquatic Chronic 1; H314 H335 H400 H410			

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		
76-03-9	200-927-2	trichloroacetic acid	100 %
	oral: LD50 = 4970 mg/kg STOT SE 3; H335: >= 1 - 100		

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.

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
Risk of serious damage to eyes.
Unconsciousness
Gastrointestinal complaints

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 solids
Hazardous combustion products
In case of fire may be liberated:
Hydrogen chloride (HCl)
Phosgene

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.
Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Move undamaged containers from immediate hazard area if it can be done safely.
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
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.
Take up carefully when dry. Take up dust-free and set down dust-free.

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

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).
Avoid dust formation. Do not breathe dust.
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.

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

Store in a well-ventilated place. Keep container tightly closed.
Keep container dry.
Unsuitable container/equipment material: Metal

Further information on storage conditions

Keep cool. Protect from sunlight.
storage temperature: +15°C - +25°C

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m³	fib/cm³	Category	Origin
76-03-9	Trichloroacetic acid	0.5	-		TWA (8 h)	

DNEL/DMEL values

CAS No	Substance		
DNEL type		Exposure route	Effect	Value
76-03-9	trichloroacetic acid		
Worker DNEL, long-term		inhalation	systemic	124,3 mg/m³
Worker DNEL, acute		inhalation	systemic	124,3 mg/m³
Worker DNEL, long-term		dermal	systemic	1,41 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	1,41 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	61,3 mg/m³
Consumer DNEL, acute		inhalation	systemic	61,3 mg/m³
Consumer DNEL, long-term		dermal	systemic	0,705 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	0,705 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,705 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	0,705 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
76-03-9	trichloroacetic acid	
Freshwater		0,00017 mg/l
Freshwater (intermittent releases)		0,0027 mg/l
Marine water		0,000017 mg/l
Freshwater sediment		0,000143 mg/kg
Marine sediment		0,000014 mg/kg
Secondary poisoning		23,5 mg/kg
Micro-organisms in sewage treatment plants (STP)		100 mg/l
Soil		0,0046 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

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With

specification (test according to EN374):

By long-term hand contact
Recommended glove articles: KCL 897 Butoject®
Recommended material: Butyl caoutchouc (butyl rubber) 0,3 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact
Recommended glove articles: KCL 720 Camapren®
Recommended 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

Protective clothing, acid-resistant
Take off immediately all contaminated clothing and wash it before reuse.
Wash hands and face before breaks and after work and take a shower if necessary.
Draw up and observe skin protection programme.

Respiratory protection

Respiratory protection necessary at: dust formation
Filtering device with filter or ventilator filtering device of type: B

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:	solid	
Colour:	colourless	
Odour:	stinging	
Melting point/freezing point:		54-56 °C
Boiling point or initial boiling point and boiling range:		197 °C
Flammability:		No data available
Lower explosion limits:		No data available
Upper explosion limits:		No data available
Flash point:		>110 °C
Auto-ignition temperature:		711 °C
Decomposition temperature:		No data available
pH-Value (at 20 °C):		<1 (50 g/l)
Water solubility: (at 20 °C)		1300 g/L
Solubility in other solvents		
No data available		
Partition coefficient n-octanol/water:		log Pow: 1,33
Vapour pressure: (at 20 °C)		1 hPa
Vapour pressure:		No data available
Density:		1,63 g/cm³

Bulk density:	900 kg/m³
Relative vapour density:	No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

No data available

Sustaining combustion:	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)	No data available
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: Humidity

10.3. Possibility of hazardous reactions

Danger of explosion: silver salts
Exothermic reaction with:
alkalines
Dimethylsulfoxide (DMSO)
Amines
Oxidising agent, strong,

10.4. Conditions to avoid

Humidity
Heat

10.5. Incompatible materials

Metal

10.6. Hazardous decomposition products

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

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

Toxicocinetics, metabolism and distribution

No data available

Acute toxicity

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

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
76-03-9	trichloroacetic acid				
	oral	LD50 4970 mg/kg	Mouse	Publication (1941)	The acute toxicity was determined for tr

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

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

Carcinogenic/mutagenic/toxic effects for reproduction

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

STOT-single exposure

May cause respiratory irritation. (trichloroacetic acid)

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

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

Other information

Irritant
corrosive
Dyspnoea
Cough
Risk of serious damage to eyes.
Unconsciousness
Gastrointestinal complaints

Further information

No data available

SECTION 12: Ecological information

12.1. Toxicity

Very toxic to aquatic life.

Very toxic to aquatic life with long lasting effects.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] | [d]	Species	Source	Method
76-03-9	trichloroacetic acid					
	Acute algae toxicity	ErC50 > 100 mg/l	72 h	Chlorella vulgaris	Ecotoxicology and Environmental Safety 7	OECD Guideline 201

12.2. Persistence and degradability

59 %; 20 d

Not readily biodegradable (according to OECD criteria)

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
76-03-9	trichloroacetic acid	1,33

BCF

CAS No	Chemical name	BCF	Species	Source
76-03-9	trichloroacetic acid	3,162	not applicable	Calculation (2008)

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 REACH, annex XIII.

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.

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 1839
14.2. UN proper shipping name:	TRICHLOROACETIC ACID
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8

Classification code:	C4
Limited quantity:	1 kg
Excepted quantity:	E2
Transport category:	2
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 1839
14.2. UN proper shipping name:	TRICHLOROACETIC ACID
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Classification code:	C4
Limited quantity:	1 kg
Excepted quantity:	E2

Marine transport (IMDG)

14.1. UN number or ID number:	UN 1839
14.2. UN proper shipping name:	TRICHLOROACETIC ACID, solid
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Special Provisions:	-
Limited quantity:	1 kg
Excepted quantity:	E2
EmS:	F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 1839
14.2. UN proper shipping name:	TRICHLOROACETIC ACID
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Limited quantity Passenger:	5 kg
Passenger LQ:	Y844
Excepted quantity:	E2
IATA-packing instructions - Passenger:	859
IATA-max. quantity - Passenger:	15 kg
IATA-packing instructions - Cargo:	863
IATA-max. quantity - Cargo:	50 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	Yes
Danger releasing substance:	trichloroacetic acid

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 75

Information according to 2012/18/EU (SEVESO III): E1 Hazardous to the Aquatic Environment

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): 11,12.

Abbreviations and acronyms

Skin Corr: Skin corrosion
Eye Dam: Eye damage
STOT SE: Specific target organ toxicity - single exposure
Aquatic Acute: Acute aquatic hazard
Aquatic Chronic: Chronic aquatic hazard

Relevant H and EUH statements (number and full text)

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic 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.