

## Material Safety Data Sheet

Version 5.3

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Trichloroacetic acid

Product Number : T6399

Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

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2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Target Organ Effect, Corrosive, Carcinogen

## Target Organs

Central nervous system

## Other hazards which do not result in classification

Vesicant.

## GHS Classification

Acute toxicity, Oral (Category 5)

Skin corrosion (Category 1A)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H303

May be harmful if swallowed.

H314

Causes severe skin burns and eye damage.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273

Avoid release to the environment.

P280

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

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.

P501

Dispose of contents/ container to an approved waste disposal plant.

**HMIS Classification**

**Health hazard:** 3  
**Chronic Health Hazard:** \*  
**Flammability:** 1  
**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 3  
**Fire:** 1  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
**Skin** May be harmful if absorbed through skin. Causes skin burns.  
**Eyes** Causes eye burns. Causes severe eye burns.  
**Ingestion** May be harmful if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : TCA  
Formula :  $C_2HCl_3O_2$   
Molecular Weight : 163.39 g/mol

Component		Concentration
<b>Trichloroacetic acid</b>		
CAS-No.	76-03-9	-
EC-No.	200-927-2	
Index-No.	607-004-00-7	

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**4. FIRST AID MEASURES****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES****Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

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**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Store under nitrogen. Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Trichloroacetic acid	76-03-9	TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans			
		TWA	1 ppm 7 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1 ppm 7 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits

**Personal protective equipment****Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	flakes
Colour	white

### Safety data

pH	1 at 81.7 g/l at 25 °C (77 °F)
Melting point/freezing point	Melting point/range: 54 - 58 °C (129 - 136 °F) - lit.
Boiling point	196 °C (385 °F) - lit.
Flash point	> 113 °C (> 235 °F) - closed cup
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	1 hPa (1 mmHg) at 51 °C (124 °F) 1.6 hPa (1.2 mmHg) at 50 °C (122 °F)
Density	1.62 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	81.7 g/l at 20 °C (68 °F) - completely soluble
Partition coefficient: n-octanol/water	log Pow: 1.645
Relative vapour density	5.64 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

Exposure to moisture. Heat.

### Materials to avoid

Strong oxidizing agents, Strong bases, Amines

### Hazardous decomposition products

Other decomposition products - no data available

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

LD50 Oral - rat - 3,320 mg/kg

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

Eyes - rabbit - Severe eye irritation - 5 s

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Trichloroacetic acid)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns. Causes severe eye burns.

**Signs and Symptoms of Exposure**

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Central nervous system depression, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: AJ7875000

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## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 2.000 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1,460 - 2,000 mg/l - 48 h

### Persistence and degradability

Biodegradability	Zahn-Wellens Test Result: 5 % - Not readily biodegradable.
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### Bioaccumulative potential

no data available

### Mobility in soil

no data available

### PBT and vPvB assessment

no data available

### Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

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## 13. DISPOSAL CONSIDERATIONS

### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### Contaminated packaging

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 1839    Class: 8    Packing group: II  
Proper shipping name: Trichloroacetic acid  
Reportable Quantity (RQ):  
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN number: 1839    Class: 8    Packing group: II    EMS-No: F-A, S-B  
Proper shipping name: TRICHLOROACETIC ACID, SOLID  
Marine pollutant: No

### IATA

UN number: 1839    Class: 8    Packing group: II  
Proper shipping name: Trichloroacetic acid

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## 15. REGULATORY INFORMATION

### OSHA Hazards

Target Organ Effect, Corrosive, Carcinogen

### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

Trichloroacetic acid	CAS-No. 76-03-9	Revision Date 2007-03-01
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**Pennsylvania Right To Know Components**

Trichloroacetic acid	CAS-No. 76-03-9	Revision Date 2007-03-01
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**New Jersey Right To Know Components**

Trichloroacetic acid	CAS-No. 76-03-9	Revision Date 2007-03-01
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**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Further information**

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