



SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 05/20/2014

Version 1.0

SECTION 1. Identification

Product identifier

Product number	TX1045
Product name	Trichloroacetic Acid Crystals GR ACS
CAS-No.	76-03-9

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

Identified uses	Reagent for analysis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Skin corrosion, Category 1A, H314
Acute aquatic toxicity, Category 1, H400
Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word

Danger

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.

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Precautionary Statements

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face 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 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from the GHS information.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature	Halogenated hydrocarbon
Formula	CCl_3COOH $\text{C}_2\text{HCl}_3\text{O}_2$ (Hill)
Molar mass	163.38 g/mol

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

Trichloroacetic acid (>= 90 % - <= 100 %)

76-03-9

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. Call in physician.

Skin contact

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Ingestion

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Shortness of breath

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Risk of blindness!

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Hydrogen chloride gas, Phosgene

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Ensure adequate ventilation.

Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry.

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Store at room temperature.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>Trichloroacetic acid 76-03-9</i>			
ACGIH	Time Weighted Average (TWA):	1 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	1 ppm 7 mg/m ³	
Z1A	Time Weighted Average (TWA):	1 ppm 7 mg/m ³	

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Tightly fitting safety goggles

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Acid-resistant protective clothing.

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	solid
Color	colorless
Odor	stinging

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Odor Threshold	No information available.
pH	< 1 at 50 g/l 68 °F (20 °C)
Melting point	54 - 56 °C
Boiling point/boiling range	387 °F (197 °C) at 1,013 hPa
Flash point	> 230 °F (> 110 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	1 hPa at 68 °F (20 °C)
Relative vapor density	5.64
Density	1.63 g/cm ³ at 68 °F (20 °C)
Relative density	No information available.
Water solubility	1,300 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 1.33 OECD Test Guideline 107 Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	1312 °F (711 °C)
Bulk density	ca.900 kg/m ³

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SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

hygroscopic

Possibility of hazardous reactions

Exothermic reaction with:

alkalines, alkali hydroxides, Amines, Strong oxidizing agents, sulfoxides

dimethyl sulfoxide, with, Copper

Conditions to avoid

Strong heating (decomposition).

Incompatible materials

no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Target Organs

Eyes

Skin

gastrointestinal tract

Lungs

head

Mucous membranes

Respiratory organs

Acute oral toxicity

LD50 rat: 3,320 mg/kg (IUCLID)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity

Symptoms: burns of mucous membranes, Cough, Shortness of breath, Possible damages:., damage of respiratory tract

Corrosive to respiratory system

Skin irritation

rabbit

Result: Causes burns.

(IUCLID)

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Causes severe burns.

Eye irritation

rabbit

Result: Severe irritations

(IUCLID)

Causes serious eye damage.

Risk of blindness!

Sensitization

Sensitization test: guinea pig

Result: negative

(IUCLID)

Genotoxicity in vitro

Ames test

Result: negative

(National Toxicology Program)

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

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

NTP

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

ACGIH

Confirmed animal carcinogen with unknown relevance to humans.

Trichloroacetic acid

76-03-9

Further information

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 *Leuciscus idus* (Golden orfe): > 1,000 mg/l; 48 h (External MSDS)

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Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 2,000 mg/l; 48 h (ECOTOX Database)

Toxicity to bacteria

EC10 Pseudomonas putida: 2,000 mg/l (External MSDS)

EC5 Pseudomonas putida: > 1,000 mg/l; 16 h (Lit.) (maximum permissible toxic concentration)

Persistence and degradability

Biodegradability

59 %; 20 d

(External MSDS)

Not readily biodegradable.

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 1.33

OECD Test Guideline 107

Bioaccumulation is not expected.

Mobility in soil

No information available.

Additional ecological information

Biological effects:

Caustic even in diluted form.

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number

UN 1839

Proper shipping name

TRICHLOROACETIC ACID

Class

8

Packing group

II

Environmentally hazardous

--

Air transport (IATA)

UN number

UN 1839

Proper shipping name

TRICHLOROACETIC ACID

Class

8

Packing group

II

Environmentally hazardous

--

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Product name

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Special precautions for user no

Sea transport (IMDG)

UN number UN 1839

Proper shipping name TRICHLOROACETIC ACID, SOLID

Class 8

Packing group II

Environmentally hazardous --

Special precautions for user yes

EmS F-A S-B

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Corrosive to skin

Corrosive to eyes

Corrosive by inhalation.

Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Acute Health Hazard

Chronic Health Hazard

SARA 313

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 302

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

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

Trichloroacetic acid

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Pennsylvania Right To Know

Ingredients

Trichloroacetic acid

New Jersey Right To Know

Ingredients

Trichloroacetic acid

California Prop 65 Components

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

Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

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

H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Date of issue: 05/20/2014

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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