

MATERIAL SAFETY DATA SHEET

Date Printed: 02/09/2004

Date Updated: 07/16/2003

Version 1.3

Section 1 - Product and Company Information

Product Name	DICHLOROACETIC ACID, 99+%
Product Number	D54702
Brand	ALDRICH
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
DICHLOROACETIC ACID	79-43-6	No
Formula	C2H2Cl2O2	
Synonyms	Bichloracetic acid * DCA (acid) * Dichloracetic acid * Dichlorethanoic acid * Dichloroacetic acid (IUPAC) * 2,2-Dichloroacetic acid * Dichloroethanoic acid * Kyselina dichloroctova (Czech) * Urner's liquid	
RTECS Number:	AG6125000	

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Corrosive.
Causes severe burns.
Readily absorbed through skin.

HMIS RATING

HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING

HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately. Do not induce vomiting.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give

artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

235 °F 113 °C Method: closed cup

AUTOIGNITION TEMP

194 °C

FLAMMABILITY

N/A

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated

shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Color: Colorless Form: Clear liquid	
Property	Value	At Temperature or Pressure
Molecular Weight	128.94 AMU	
pH	1.2	20 °C Concentration: 129 g/l
BP/BP Range	193 - 195 °C	
MP/MP Range	13 °C	
Freezing Point	N/A	
Vapor Pressure	0.19 mmHg	20 °C
Vapor Density	4.5 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1.567 g/cm ³	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	Log Kow: 0.942	
Decomposition Temp.	N/A	
Flash Point	235 °F 113 °C	Method: closed cup
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	194 °C	
Refractive Index	1.466	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water: Soluble. Other Solvents: ETHANOL, ETHER	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Strong bases, Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: Readily absorbed through skin.

Eye Contact: Causes burns.

Inhalation: Material is extremely destructive to the tissue of

the mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral
Rat
2820 mg/kg
LD50

Skin
Rabbit
510 UL/KG
LD50

IRRITATION DATA

Skin
Rabbit
2 mg
24H
Remarks: Severe irritation effect

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Species: Rat
Route of Application: Oral
Dose: 100 GM/KG
Exposure Time: 2Y
Frequency: C
Result: Tumorigenic: Carcinogenic by RTECS criteria. Liver: Tumors.

Species: Mouse
Route of Application: Oral
Dose: 427 GM/KG
Exposure Time: 61W
Frequency: C
Result: Tumorigenic: Carcinogenic by RTECS criteria. Liver: Tumors.

Species: Rat
Route of Application: Oral
Dose: 101 GM/KG
Exposure Time: 60W
Frequency: I
Result: Tumorigenic: Neoplastic by RTECS criteria. Liver: Tumors.

Species: Mouse

Route of Application: Oral
Dose: 58800 MG/KG
Exposure Time: 2Y
Frequency: C
Result: Tumorigenic: Carcinogenic by RTECS criteria. Liver: Tumors.

IARC CARCINOGEN LIST

Rating: Group 3

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 4 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Cardiovascular (circulatory) system.

Species: Rat
Dose: 14 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Urogenital system.

CHRONIC EXPOSURE - MUTAGEN

Species: Mouse
Route: Oral
Dose: 1800 MG/KG
Exposure Time: 9D
Mutation test: Micronucleus test

Species: Mouse
Route: Oral
Dose: 645 MG/KG
Mutation test: DNA damage

Species: Mouse
Dose: 600 MG/L
Cell Type: lymphocyte
Mutation test: Cytogenetic analysis

Species: Mouse
Dose: 400 MG/L
Cell Type: lymphocyte
Mutation test: Mutation in mammalian somatic cells.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 9 GM/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Rat
Dose: 24 GM/KG
Route of Application: Oral

Exposure Time: (6-15D PREG)
Result: Effects on Newborn: Sex ratio.

Section 12 - Ecological Information

N/A

ACUTE ECOTOXICITY TESTS

Test Type: LC0 Bacteria
Value: 100 - 1,000 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24 h
Value: 106 - 2,600 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Dichloroacetic acid
UN#: 1764
Class: 8
Packing Group: Packing Group II
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Dichloroacetic acid
IATA UN Number: 1764
Hazard Class: 8
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: C N
Indication of Danger: Corrosive. Dangerous for the environment.
R: 35 50
Risk Statements: Causes severe burns. Very toxic to aquatic organisms.
S: 26 45 61
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Corrosive.
Risk Statements: Causes severe burns.
Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection.

US Statements: Readily absorbed through skin.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65

California Prop - 65: California Proposition 65: This product is or contains chemical(s) known to the state of California to cause cancer. California Proposition 65: This product is or contains chemical(s) known to the state of California to cause cancer.

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.