

Chemical Safety Data Sheet MSDS / SDS

DICHLOROISOCYANURIC ACID

Revision Date:2023-07-29 Revision Number:1

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

Product name : DICHLOROISOCYANURIC ACID
CBnumber : CB6181451
CAS : 2782-57-2
EINECS Number : 220-487-5
Synonyms : dichloroisocyanuric acid ,dichloroisocyanurate

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 400-158-6606

SECTION 2: Hazards identification**Classification of the substance or mixture**

Oxidizing solids, Category 2
Acute toxicity - Category 4, Oral
Eye irritation, Category 2
Specific target organ toxicity – single exposure, Category 3
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

Label elements**Pictogram(s)**

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Signal word : Danger

Hazard statement(s)

H272 May intensify fire; oxidizer
H302 Harmful if swallowed
H319 Causes serious eye irritation

H335 May cause respiratory irritation

H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response

P370+P378 In case of fire: Use ... to extinguish.

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P319 Get medical help if you feel unwell.

P391 Collect spillage.

Storage

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

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| Product name | : DICHLOROISOCYANURIC ACID |
| Synonyms | : dichloroisocyanuric acid ,dichloroisocyanurate |
| CAS | : 2782-57-2 |
| EC number | : 220-487-5 |
| MF | : C3HCl2N3O3 |
| MW | : 197.96 |

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Rest. Refer for medical attention .

Most important symptoms and effects, both acute and delayed

Excerpt from ERG Guide 140 [Oxidizers]: Inhalation, ingestion or contact (skin, eyes) with vapors or substance may cause severe injury, burns or death. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)
Dust causes sneezing and coughing, moderate irritation of the eyes, and itchiness and redness of the skin. Ingestion causes burns of mouth and stomach. (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Organic acids and related compounds

SECTION 5: Firefighting measures

Extinguishing media

Use water spray to cool containers exposed to fire and massive quantities of water to dilute material involved in fire or spilled from containers ... Personal protection: wear full protective clothing.

Specific Hazards Arising from the Chemical

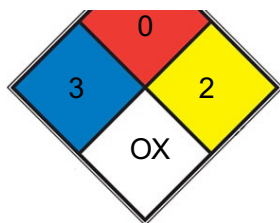
Excerpt from ERG Guide 140 [Oxidizers]: These substances will accelerate burning when involved in a fire. Some may decompose explosively when heated or involved in a fire. May explode from heat or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, oil, clothing, etc.). Containers may explode when heated. Runoff may create fire or explosion hazard. (ERG, 2016)
Special Hazards of Combustion Products: May form toxic chlorine and other gases in fire. Behavior in Fire: Decomposition can be initiated with a heat source and can propagate throughout the mass with the evolution of dense fumes. Containers may explode when heated. (USCG, 1999)

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

NFPA 704





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| HEALTH | 3 | Short exposure could cause serious temporary or moderate residual injury (e.g. liquid hydrogen , sulfuric acid , calcium hypochlorite , hexafluorosilicic acid) |
| FIRE | 0 | Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride) |
| REACT | 2 | Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g. white phosphorus, potassium , sodium) |
| SPEC. HAZ. | OX | |

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT wash away into sewer. Sweep spilled substance into covered dry containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

Methods and materials for containment and cleaning up

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs. See Chemical Dangers. Dry. Well closed. Protect against phys damage. Store in cool, dry, well-ventilated place away from flammable liq, combustible materials, and oxidizable materials. Drums may rupture if contents are exposed to heat or become contaminated or wet. Drums should be palletized to prevent wetting from floor washings or drainage. Avoid prolonged storage in unventilated areas at summer temperatures.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flamm resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

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| Physical state | Dichloroisocyanuric acid, solid is a white crystalline solid with an odor of chlorine. The material itself is noncombustible but if contaminated with a combustible material ignition can result. It will accelerate the burning of combustible materials. Contact with ammonium compounds or hydrated salts can cause a very vigorous chemical reaction. It may vigorously react with small quantities of water releasing chlorine gas. Prolonged exposure to fire or heat of the material may result in the vigorous decomposition of the material and the rupturing of its containers. Material containing less than 39 percent available chlorine will undergo reactions as described above though it may be longer to initiate and the resulting reaction may not be as vigorous. It is used as a dry bleach in household |
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| | cleaning compounds and swimming pool disinfectants. |
| Colour | White, crystalline powder, granules |
| Odour | Chlorine odor |
| Melting point/freezing point | 225°C |
| Boiling point or initial boiling point and boiling range | 306.7°C at 760mmHg |
| Flammability | Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire. |
| Lower and upper explosion limit/flammability limit | no data available |
| Flash point | 139.3°C |
| Auto-ignition temperature | no data available |
| Decomposition temperature | 230°C |
| pH | no data available |
| Kinematic viscosity | no data available |
| Solubility | Insoluble (<1 mg/ml at 81° F) (NTP, 1992) |
| Partition coefficient n-octanol/water | log Kow = 1.28 (est) |
| Vapour pressure | 7.05E-05mmHg at 25°C |
| Density and/or relative density | 0.96 at 68° F (USCG, 1999) |
| Relative vapour density | no data available |
| Particle characteristics | no data available |

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating and on contact with water. This produces toxic fumes including chlorine. The substance is a strong oxidant. It reacts violently with combustible and reducing materials. Reacts violently with many substances. This generates fire and explosion hazard.

Chemical stability

no data available

Possibility of hazardous reactions

Not combustible but contact with most foreign material, organic matter, or easily chlorinated or oxidized materials may result in fire since dichloroisocyanuric acid is a highly reactive oxidizing and chlorinating agent. DICHLOROISOCYANURIC ACID is slightly hygroscopic and is unstable in the presence of DMSO. This is an oxidizing material; it may ignite organic compounds with which it comes in contact. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Not combustible, but contact with most foreign materials, organic matter or easily chlorinated or oxidized materials may result in fire since this substance is a highly reactive oxidizing and chlorinating agent. Contact with ammonia, ammonium salts, urea or similar compounds which contain nitrogen may form nitrogen trichloride, a highly explosive compound.

Hazardous decomposition products

In a fire, as result of decomp or contact with water, extremely dense and noxious fumes containing chlorine and other toxic gases will be evolved.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 1500 mg/kg Chlorinated isocyanurates
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

An estimated BCF of 3.3 was calculated for dichloroisocyanuric acid(SRC), using an estimated log Kow of 1.28(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low.

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of dichloroisocyanuric acid can be estimated to be 17(SRC). According to a classification scheme(2), this estimated Koc value suggests that dichloroisocyanuric acid is expected to have very high mobility in soil. The pKa of dichloroisocyanuric acid is 3.75(3), indicating that this compound will exist almost entirely in the anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(4).

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN2465 (For reference only, please check.)

IMDG: UN2465 (For reference only, please check.)

IATA: UN2465 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: DICHLOROISOCYANURIC ACID, DRY or DICHLOROISOCYANURIC ACID SALTS (For reference only, please check.)

IMDG: DICHLOROISOCYANURIC ACID, DRY or DICHLOROISOCYANURIC ACID SALTS (For reference only, please check.)

IATA: DICHLOROISOCYANURIC ACID, DRY or DICHLOROISOCYANURIC ACID SALTS (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 5.1 (For reference only, please check.)

IMDG: 5.1 (For reference only, please check.)

IATA: 5.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Disclaimer:

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