

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1
Creation Date: July 15, 2019
Revision Date: April 26, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2,3-Dichloro-1-Propene

1.2 Other means of identification

Product number CCEM500165

Other names 2,3-dichloroprop-1-ene; 1-Propene, 2,3-dichloro-

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 2

Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Dermal

Skin irritation, Category 2

Serious eye damage, Category 1

Acute toxicity - Category 4, Inhalation

Specific target organ toxicity – single exposure, Category 3

Germ cell mutagenicity, Category 2

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour

H302 Harmful if swallowed

H312 Harmful in contact with skin

H315 Causes skin irritation

H318 Causes serious eye damage

H332 Harmful if inhaled

H335 May cause respiratory irritation

H341 Suspected of causing genetic defects

H412 Harmful 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. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. 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. P203 Obtain, read and follow all safety instructions before use. P273 Avoid release to the environment.
Response	P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower]. P370+P378 In case of fire: Use ... to extinguish. P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P317 Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P332+P317 If skin irritation occurs: Get medical help. P305+P354+P338 IF IN EYES: Immediately rinse 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. P318 IF exposed or concerned, get medical advice.
Storage	P403+P235 Store in a well-ventilated place. Keep cool. 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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2,3-Dichloro-1-Propene	2,3-dichloropropene	78-88-6	201-153-8	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

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

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

INHALATION: Vapors are poisonous, painful and irritating. Headache and dizziness may occur. Overexposure may cause liver and kidney damage and even death. EYES: Irritation and lacrimation. May cause transient corneal injury. SKIN: Slight irritation, readily absorbed in toxic amounts causing headache and dizziness and other systematic symptoms. INGESTION: Acute gastrointestinal distress with pulmonary congestion and edema. CNS Depression. (USCG, 1999)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

1. FLUSH contaminating fumigants from the skin and eye with copious amounts of water or saline for at least 15 minutes. Some fumigants are corrosive to the cornea and may cause BLINDNESS. Specialized medical treatment should be obtained promptly following removal of toxicant by copious flushing with clean water. Skin contamination may cause BLISTERING and deep chemical burns. Absorption of some fumigants across the skin may be sufficient to cause systemic poisoning in the absence of fumigant inhalation. For all these reasons, decontamination of eyes and skin must be IMMEDIATE and THOROUGH. 2. REMOVE victims of fumigant inhalation to FRESH AIR immediately. Even though initial symptoms and signs are mild, keep the victim quiet, in a semi-reclining position. Minimum physical activity limits the likelihood of pulmonary edema. 3. If victim is not breathing, clear the airway of secretions and RESUSCITATE with positive pressure oxygen apparatus. If this is not available, use chest compression to sustain respiration. If victim is pulseless, employ cardiac resuscitation. 4. If PULMONARY EDEMA is evident, there are several measures available to sustain life. Medical judgement must be relied upon, however, in the management of each case. The following procedures are generally recommended: A. Put the victim in a SITTING position with a backrest. B. Use intermittent and/or continuous positive pressure OXYGEN to relieve hypoxemia. ... C. Slowly administer FUROSEMIDE, 40 mg, or SODIUM ETHACRYNATE, 50 mg, to reduce venous load by inducing diuresis. ... D. Morphine in small doses (5-10 mg), slowly, iv to allay anxiety and promote deeper respiratory excursions. E. Administer AMINOPHYLLINE (0.25-0.50 gm) slowly, iv. ... F. Digitalization may be considered, but there is a serious risk of arrhythmias in an anoxic and toxic myocardium. G. TRACHEOSTOMY may be necessary in some cases to facilitate aspiration of large amounts of pulmonary edema fluid. H. Epinephrine, atropine, and expectorants are generally not helpful, and may complicate treatment. I. Watch for RECURRENT PULMONARY EDEMA, even up to 2 weeks after the initial episode. Limit victim's physical activity for at least 4 weeks. Severe physical weakness usually indicates persistent pulmonary injury. Serial pulmonary function testing may be useful in assessing recovery. 5. Combat SHOCK by placing victim in the Trendelenburg position and administering plasma, whole blood, and/or electrolyte and glucose solutions intravenously, with great care, to avoid pulmonary edema. Central venous pressure should be monitored continuously. Vasopressor amines must be given with great caution, because of the irritability of the myocardium. 6. Control CONVULSIONS. Seizures are most likely to occur in poisonings by methyl bromide, hydrogen cyanide, acrylonitrile, phosphine, and carbon disulfide. ... Fumigant poisoning

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fire extinguishing agents: small fires: dry chemical or carbon dioxide. Large fires: water fog or spray, or foam.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Highly toxic vapors. Behavior in Fire: Emits highly toxic vapors. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

6.1 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.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

Component	2,3-dichloropropene			
CAS No.	78-88-6			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Denmark	1	5	2	10
	Remarks			

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

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

Skin protection

Wear fire/flame 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 and safety characteristics

Physical state	2,3-dichloropropene is a colorless to yellow liquid with an odor of chloroform. Sinks in water. Produces irritating vapor. (USCG, 1999)
Colour	Straw-colored liquid
Odour	Pungent
Melting point/freezing point	246°C(lit.)
Boiling point or initial boiling point and boiling range	94°C
Flammability	no data available
Lower and upper explosion limit/flammability limit	Lower flammable limit: 2.6% by volume; Upper flammable limit: 7.8% by volume
Flash point	10°C(lit.)
Auto-ignition temperature	1035° F (NTP, 1992)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 72° F (NTP, 1992)
Partition coefficient n-octanol/water	no data available
Vapour pressure	44 mm Hg (20 °C)
Density and/or relative density	1.204
Relative vapour density	3.8 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Highly flammable. Insoluble in water.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

Flammable 2,3-DICHLOROPROPENE is incompatible with strong oxidizers. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/.

SECTION 11: Toxicological information

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Acute toxicity

- Oral: LD50 Rat oral 320 mg/kg
- 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

12.1 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

12.2 Persistence and degradability

AEROBIC: The total degradation of 1,2-dichloropropane and 1,3- and 2,3-dichloropropenes in soil at normal field rates was extremely slow. The half-life of 2,3-dichloropropane was 4 times as long as those of the other compounds tested.

12.3 Bioaccumulative potential

An estimated BCF of 8 was calculated for 2,3-dichloro-1-propene(SRC), using a water solubility of 2,150 mg/l(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(SRC).

12.4 Mobility in soil

The Koc of 2,3-dichloro-1-propene is estimated as 67(SRC), using a water solubility of 2,150 mg/l(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 2,3-dichloro-1-propene is expected to have high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: UN2047 (For reference only, please check.) IMDG: UN2047 (For reference only, please check.) IATA: UN2047 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: DICHLOROPROPENES (For reference only, please check.) IMDG: DICHLOROPROPENES (For reference only, please check.) IATA: DICHLOROPROPENES (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.) IMDG: 3 (For reference only, please check.) IATA: 3 (For reference only, please check.)

14.4 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.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
2,3-dichloropropene	2,3-dichloropropene	78-88-6	201-153-8
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.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019
Revision Date April 26, 2024

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>



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- 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/>

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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