SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-chlorobuta-1,3-diene

1.2 Other means of identification

Product number -
Other names Chloropren; Chloropreen; 1,3-BUTADIENE,2-CHLORO-

1.3 Recommended use of the chemical and restrictions on use

Identified uses Chloroprene is a flammable liquid with a pungent odor. It is used primarily in the manufacture of polychloroprene (NeopreneTM, duprene) which is a polychloroprene elastomer that is used to make diverse products including adhesives, automotive and industrial parts (e.g., belts and hoses), wire and cable covers, adhesives, caulks, flame-resistant cushioning and other applications requiring chemical, oil and/or weather resistance. (1)
Uses advised against no data available

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Flammable liquids, Category 2
Acute toxicity - Category 4, Oral
Skin irritation, Category 2
Eye irritation, Category 2
Acute toxicity - Category 4, Inhalation
Specific target organ toxicity â€“ single exposure, Category 3
Carcinogenicity, Category 1B
Specific target organ toxicity â€“ repeated exposure, Category 2

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
H315 Causes skin irritation
H319 Causes serious eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation
H350 May cause cancer
H373 May cause damage to organs through prolonged or repeated exposure

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.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.

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/... P321 Specific treatment (see ... on this label). P332+P317 If skin irritation occurs: Get medical help. P362+P364 Take off contaminated clothing and wash it before reuse. 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. P317 Get medical help. 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-chlorobuta-1,3-diene	2-chlorobuta-1,3-diene	126-99-8	204-818-0	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Refer immediately for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer immediately for medical attention.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible). Refer for medical attention.

Following ingestion

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

4.2 Most important symptoms/effects, acute and delayed

INHALATION: Fatigue, psychic changes, irritability, oppression in chest, occasionally substernal pain, tachycardia upon exertion. EYES: Can cause conjunctivitis, corneal necrosis and edema of eyelids. SKIN: May cause dermatitis and temporary loss of hair. Rapidly absorbed by skin. (USCG, 1999)

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

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Aliphatic hydrocarbons and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Dangerous chloroprene fires are best extinguished by shutting off the source of fuel. carbon dioxide, dry chemicals, and water spray (fog nozzle) may be used as control measures.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Decomposes yielding toxic fumes Behavior in Fire: Dangerous when exposed to heat or flame (USCG, 1999)

5.3 Special protective actions for fire-fighters

Use powder, water spray, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.2 Environmental precautions

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.3 Methods and materials for containment and cleaning up

1. remove all ignition sources. 2. ventilate area of spill or leak. 3. for small quantities, absorb on paper towels. evaporate in a safe place (such as a fume hood). allow sufficient time for evaporating vapors to completely clear the hood ductwork. burn the paper in a suitable location away from combustible materials.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Use non-sparking handtools. 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

Fireproof. Separated from food and feedstuffs and incompatible materials. See Chemical Dangers. Cool. Keep in the dark. Well closed. Store only if stabilized. Store in an area without drain or sewer access./OXIDATION/...INHIBITED BY STORAGE AT LESS THAN -15 DEG C AND/OR BY THE ADDN OF ANTIOXIDANTS TO THE FRESH DISTILLATE.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 1 ppm as TWA; (skin); A2 (suspected human carcinogen).MAK: skin absorption (H); carcinogen category: 2

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 safety goggles, face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	Colourless.
Odour	Pungent, ether-like odor
Melting point/freezing point	-130 Â°C.
Boiling point or initial boiling point and boiling range	60 Â°C.
Flammability	Class IB Flammable Liquid: Fl.P. below 73Â°F and BP at or above 100Â°F.
Lower and upper explosion limit/flammability limit	LOWER FLAMMABLE LIMIT 4.0%; UPPER FLAMMABLE LIMIT 20.0%.
Flash point	-20 Â°C.

Auto-ignition temperature	440 Â°C.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	dynamic viscosity (in mPa s) = 0.71. Temperature:20Â°C. Remarks:Mean value.;dynamic viscosity (in mPa s) = 0.61. Temperature:40Â°C. Remarks:Mean value.
Solubility	Slightly soluble (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 2.525.
Vapour pressure	10.4 kPa. Temperature:0 Â°C.;16.3 kPa. Temperature:10 Â°C.;25 kPa. Temperature:20 Â°C.
Density and/or relative density	0.96 g/cmÂ³.
Relative vapour density	3 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

NIOSH considers beta-chloroprene to be a potential occupational carcinogen. /SRP: No IDLH value specified/.
The substance can readily form explosive peroxides under specific circumstances, initiating explosive polymerization. The substance may polymerize if it is not stabilized. This generates fire or explosion hazard. On combustion, forms toxic and corrosive gases including phosgene (see ICSC 0007) and hydrogen chloride (see ICSC 0163). Reacts with oxidants and powdered metals. This generates fire and explosion hazard.

10.2 Chemical stability

Resistant to oils, oxygen, ozone, corona discharge, & electric current

10.3 Possibility of hazardous reactions

COMBUSTIBLE, BUT LESS SO THAN NATURAL RUBBER.The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.CHLOROPRENE emits highly toxic fumes of chlorine gas when heated to decomposition. Autooxidizes very rapidly with air and, even at 0Â° C, produces unstable peroxides that catalyze exothermic polymerization [Bretherick, 5th ed., 1995, p. 507]. This reactivity is greatly slowed by presence of an inhibitor.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Peroxides & other oxidizers [Note: Polymerizes at room temperature unless inhibited with antioxidants].

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat - 251 mg/kg bw. Remarks:Clinical signs, death, pathological changes in the inner organs and brain membrane.
- Inhalation: LC50 Rat inhalation 11,800 mg/cu m/4 hr
- 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 are available in humans. No data are available in animals. OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

A study reported functional disturbances in spermatogenesis in workers exposed to chloroprene and increased spontaneous abortions in the wives of exposed workers. However, insufficient details are available in the reports to adequately evaluate the results. (1) Reproductive effects including a decreased number of spermatogonia, a decline in sperm motility, an increased number of dead sperm, and degeneration of the testes have been observed in male rats exposed by inhalation or dermal contact. (1) Increased embryonal mortality and decreased fetal weight were reported in rats exposed by inhalation; contamination may have occurred during this study. No effects on embryonic or fetal survival nor incidence of soft tissue or skeletal defects were observed in other studies of rats exposed by inhalation. (1).

STOT-single exposure

The substance is severely irritating to the eyes. The substance is irritating to the skin and respiratory tract. Exposure at high levels could cause lung oedema. The substance may cause effects on several organs. This may result in impaired functions. Exposure above the OEL could cause death.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis and hair loss. The substance may have effects on multiple organs. This may result in impaired functions. This substance is possibly carcinogenic to humans.

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20Â°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - > 5.25 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 11.31 mg/L - 48 h.
- Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - 19.9 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 1 000 mg/L - 3 h. Remarks:Respiration rate.

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

An estimated BCF of 18 was calculated for 2-chloro-1,3-butadiene(SRC), using an estimated log Kow of 2.53(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

Using a structure estimation method based on molecular connectivity indices(1), the Koc for 2-chloro-1,3-butadiene can be estimated to be 68(SRC). According to a classification scheme(2), this estimated Koc value suggests that 2-chloro-1,3-butadiene 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: UN1991 (For reference only, please check.) IMDG: UN1991 (For reference only, please check.) IATA: UN1991 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: CHLOROPRENE, STABILIZED (For reference only, please check.) IMDG: CHLOROPRENE, STABILIZED (For reference only, please check.) IATA: CHLOROPRENE, STABILIZED (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: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (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-chlorobuta-1,3-diene	2-chlorobuta-1,3-diene	126-99-8	204-818-0
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)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date	July 15, 2019
Revision Date	July 15, 2019

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/

Other Information

An added stabilizer or inhibitor can influence the toxicological properties of this substance; consult an expert.The odour warning when the exposure limit value is exceeded is insufficient.Do NOT use in the vicinity of a fire or a hot surface, or during welding.Check for peroxides prior to distillation; eliminate if found.Inhibitors such as hydroquinone or phenothiazine are generally added when it is to be stored.Do NOT take working clothes home.