Issue date: 10/2/2003
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Safety Data Sheet

1. Chemical product and company identification

Product name	:	1,2-Dichloroethane

Company information

Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section	:	Business Administration Department, Reagent Division
Telephone number	:	+81-3-6214-1090
Facsimile number	:	+81-3-3241-1047
Mail address	:	BC32@kanto.co.jp
Reference No	:	10149
Product numbers applied by the SDS	:	10119, 10149, 10357
Recommended use	:	For research use only
Restrictions on use	:	Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Physical hazards	Flammable liquids	Category 2
Health hazards	Acute toxicity (oral)	Category 4
	Acute toxicity (inhalation:vapors)	Category 3
	Serious eye damage/eye irritation	Category 2B
	Carcinogenicity	Category 1B
	Specific target organ toxicity (single exposure)	Category 1 (central nervous system, respiratory organs, cardiovascular, blood, liver, kidney, digestive tract)
	Specific target organ toxicity (single exposure)	Category 3 (narcosis)
	Specific target organ toxicity (repeated exposure)	Category 1 (nervous system, liver, cardiovascular, thyroid)
	Specific target organ toxicity (repeated exposure)	Category 2
Environmental hazards	Aquatic acute	Category 3

Hazard pictograms

Signal word	:	Danger
Hazard statements	:	Highly flammable liquid and vapor Harmful if swallowed Causes eye irritation

Toxic if inhaled
May cause drowsiness or dizziness
May cause cancer
Causes damage to organs (central nervous system, respiratory organs, cardiovascular, blood, liver, kidney, digestive tract)
Causes damage to organs (nervous system, liver, cardiovascular, thyroid) through prolonged or repeated exposure
May cause damage to organs through prolonged or repeated exposure
Harmful to aquatic life

Precautionary statements

Prevention : Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take action to prevent static discharges.
Do not breathe mist/vapors.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

Response : IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Call a POISON CENTER or doctor.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor.
Call a POISON CENTER or doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Rinse mouth.
If eye irritation persists: Get medical advice/attention.

Storage : Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : Ethylene chloride, Ethylene dichloride

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
1,2-Dichloroethane	≥ 99	C2H4Cl2	Listed	203-458-1	107-06-2

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately get medical treatment.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.

First-aid measures after ingestion : The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media : Dry chemical powder, carbon dioxide, dry sand, foam

Unsuitable extinguishing media : Water spray

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Fight fire from windward.

Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.

Personal protection (Emergency response) : Wear breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Methods and Equipment for Containment and Cleaning up

For containment : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.

Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage

Handling

Technical measures	:	Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited. Ventilate well at working places.
Precautions for safe handling	:	Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas. Do not allow contact with oxidizing substances.

Storage

Storage conditions	:	Store in a dark, cool place and tightly closed.
Material used in packaging/containers	:	Glass, fluorine resin, stainless steel. Do not use vinyl chloride resin, acrylic resin, polystyrene etc.

8. Exposure controls / Personal protection equipment

ACGIH TWA	10 ppm

Appropriate engineering controls	:	Use with an enclosed system or a local exhaust ventilation.

Protective equipment

Respiratory protection	:	Chemical cartridge respirator with an organic vapor cartage or airline respirator
Hand protection	:	Impervious protective gloves
Eye protection	:	Safety goggles
Skin and body protection	:	Protective clothing, protective boots

9. Physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless.
Odor	:	Chloroform like odor
pH	:	No data available
Melting point	:	-35.4 ° C
Freezing point	:	No data available
Boiling point	:	83.5 ° C
Flash point	:	17 ° C
Auto-ignition temperature	:	449 ° C
Decomposition temperature	:	No data available
Flammability	:	Flammable
Vapor pressure	:	85.3 hPa (20℃)
Relative density	:	No data available
Density	:	1.251 - 1.261 g/cm³ (20℃)
Relative gas density	:	3.41
Solubility	:	Organic solvents: Miscible with ethanol, diethyl ether, etc. Water: 0.86 % (20℃)
Partition coefficient n-octanol/water (log Pow)	:	1.48
Explosive limits (vol %)	:	6.2 - 15.9 vol %

Viscosity, kinematic	:	0.68 mm²/s (20℃)
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	May react with oxidizing substances.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Stable under normal conditions of use.
Conditions to avoid	:	Light, heat.
Incompatible materials	:	Oxidizing substances.
Hazardous decomposition products	:	Carbon monoxide, chlorine, hydrogen chloride, phosgene.

11. Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed rat LD50=670mg/kg
Acute toxicity (dermal)	:	No classification rabbit LD50=2800mg/kg
Acute toxicity (inhalation)	:	No classification (gas) Toxic if inhaled (vapor) rat LC50=1000ppm/4h Classification not possible (dust, mist)
Skin corrosion/irritation	:	No classification There is a report that in a Draize test with rabbits, as a result of an application of 0.5 mL of this substance for 4 hours, mild irritation was observed. From the above, it was not classified.
Serious eye damage/irritation	:	Causes eye irritation There are reports that in Draize tests with rabbits, as a result of an application of 0.1 mL of this substance, mild eye irritation, or no irritation was observed. From the above, it was classified into category 2B.
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible
Germ cell mutagenicity	:	Classification not possible As for in vivo, it was negative in a dominant lethal test with mice, positive in a spot test with mice, negative in micronucleus tests with bone marrow cells and peripheral blood erythrocytes of mice, negative in a mutation test with transgenic rodents, positive in a sister chromatid exchange test with mouse bone marrow cells, positive in comet assays with the liver of rats and with the liver, kidney, stomach, forestomach, lung, urinary bladder, brain, and bone marrow of mice, and positive in DNA binding tests with the liver, kidney, stomach, forestomach, and lung of rats and mice. However, since the mouse spot test, which was considered as positive, was regarded as weakly positive by EHC and as inconclusive by IARC, it is not a definitive finding. In addition, other in vivo positive findings, which were the sister chromatid exchange test, the comet assays, and the DNA binding tests, are not direct findings. Furthermore, a clearly positive finding which supports classification in category 2 was not found from the negative finding in the mutation test with transgenic rodents.

Carcinogenicity	:	May cause cancer As for experimental animals, in a carcinogenicity test by the oral route with rats or mice, hemangiosarcoma (males and females), squamous cell carcinomas of the forestomach (males), mammary gland adenocarcinomas (females) in rats and malignant lymphomas and bronchioles/alveolar adenomas (males and females), hepatocellular carcinomas (males), adenocarcinomas of the mammary gland and tumors of the endometrium (females) in mice were observed respectively. Furthermore, also in carcinogenicity studies by the inhalation route with rats and mice, tumor occurrence at multiple sites was observed such as fibroadenoma (males and females), adenomas and adenocarcinomas (females) of the mammary gland, fibromas (males and females) of subcutaneous tissue, mesothelioma of the peritoneum (males) in rats and hepatic hemangiosarcoma (males) and hepatocellular adenomas (females), and bronchioles/alveolar adenomas and carcinomas (females) in mice, and it was proved that this substance showed carcinogenicity in experimental animals even by the inhalation route. From the above, there is no evidence of carcinogenicity in humans, however, in experimental animals, both rats and mice showed tumor occurrence in multiple organs by both the inhalation and oral routes. Therefore, it was classified into category 1B.
Reproductive toxicity	:	Classification not possible As for reproductive effects in humans, there are reports of the miscarriages and early births due to occupational exposure, however, it was stated that the female workers had received combined exposures to gasoline, dichloromethane, etc. in addition to this substance, therefore, there is no report clearly related to the exposure to this substance alone.
STOT-single exposure	:	Causes damage to organs (central nervous system, respiratory organs, cardiovascular, blood, liver, kidney, digestive tract) May cause drowsiness or dizziness In the cases of human poisoning, there are reports that by inhalation or ingestion, it caused headache, nausea, vomiting, dizziness, narcotic action, central nervous suppression, tremor, nystagmus, autonomic symptoms, pupillary dilatation, atrophy of cranial nerve cells, abdominal colic, gastrointestinal disorders, diarrhea, effects on the cardiovascular system, a decrease in the blood coagulation factor, thrombocytopenia, leukocytosis, respiratory failure, pulmonary congestion, liver damage, hepatocellular necrosis, kidney damage, renal tubular necrosis, urine protein, and cyanosis, and on necropsy in death cases, congestion and bleeding of the major organs, pulmonary edema were observed. From the above, it was classified into category 1 (central nervous system, respiratory organs, cardiovascular, blood, liver, kidney, digestive tract), category 3 (narcosis).

STOT-repeated exposure	:	Causes damage to organs (nervous system, liver, cardiovascular, thyroid) through prolonged or repeated exposure May cause damage to organs through prolonged or repeated exposure As for humans, it is described that NIOSH in the United States reported that workers exposed to this substance in the airplane factory handling this substance had a high incidence of diseases of the liver and bile duct, neurological symptoms, autonomic imbalance, hyperthyroidism, etc. Based on these descriptions, the nervous system, liver, cardiovascular system, and thyroid are considered as the target organs by the repeated exposure to this substance in humans. As for experimental animals, in a 13-week oral dose study by gavage with SD rats, increases in relative liver and kidney weights, and haemal effects were observed at 75 mg/kg/day which corresponds to category 2. From the above, it was classified into category 1 (nervous system, liver, cardiovascular, thyroid), category 2 (blood, kidney).
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Harmful to aquatic life Artemia salina LC50=12.8mg/L/48h
Aquatic chronic	:	No classification Daphnia magna NOEC=1.02mg/L/21-day

Persistence and degradability

Not readily biodegradable
BOD : 0%

Bioaccumulative potential

Low bioconcentration
log Pow : 1.48

Mobility in soil

High mobility
Koc : 33

Hazardous to the ozone layer

Ozone	:	Classification not possible

13. Disposal considerations

Ecological waste information	:	Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.
Contaminated container and packaging	:	In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG)	:	1184
Proper Shipping Name (IMDG)	:	ETHYLENE DICHLORIDE

Packing group (IMDG)	:	II
Transport hazard class(es) (IMDG)	:	3 (6.1)

Air transport(IATA)

UN-No. (IATA)	:	1184
Proper Shipping Name (IATA)	:	Ethylene dichloride
Packing group (IATA)	:	II
Transport hazard class(es) (IATA)	:	3 (6.1)
Marine pollutant	:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollutant category	:	Y
MFAG-No	:	131

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Solvents Handbook, T, Asahara el, Kodansha Scientific Ltd. (1976) .
Dangerous Properties of Industrial Materials,6th ed. N.I.Sax Van Nostrand Reinhold Company (1984) .
Handbook of Dangerous Substances Springer-Verlag Tokyo (1991) .
Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully.The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements.The information herein is only provision of information, and it does not represent a guarantee the properties of the product.The Safety Data Sheet(SDS) is prepared based on JIS Z7253.