



1,1-DICHLOROETHANE (2,2,2-D3, 98%)

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 30/12/2010

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Supersedes: 30/12/2010

Version: 2

DLM-1934

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

1.1. Product identifier

Product form : Substance
Substance name : 1,1-DICHLOROETHANE (2,2,2-D3, 98%)
EC index no : 602-011-00-1 (Unlabeled)
EC no : 200-863-5 (Unlabeled)
CAS No : 56912-77-7
Product code : DLM-1934
Formula : CD3CHCl2
Synonyms : Ethylidene chloride

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

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2 H225
Acute Tox. 4 (Oral) H302
Eye Irrit. 2 H319
STOT SE 3 H335
Aquatic Chronic 3 H412

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

F; R11
Xn; R22
Xi; R36/37
R52/53

Full text of R-phrases: see section 16

Classification (GHS-US)

Flam. Liq. 2 H225
Acute Tox. 4 (Oral) H302
Eye Irrit. 2A H319
STOT SE 3 H335
Aquatic Chronic 3 H412

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Adverse physicochemical, human health and environmental effects

Liver, Kidney, Central nervous system.

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) :

Danger

Hazard statements (CLP) :

H225 - Highly flammable liquid and vapor
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (CLP) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H225 - Highly flammable liquid and vapor
H302 - Harmful if swallowed
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical, ventilating, lighting equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P330 - If swallowed, rinse mouth
P337+P313 - If eye irritation persists: Get medical advice/attention
P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Water spray to extinguish
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up

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P501 - Dispose of contents/container to Comply with applicable regulations.

2.3. Other hazards

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Name	Product identifier	%	Classification according to Directive 67/548/EEC
1,1-DICHLOROETHANE (2,2,2-D3, 98%) (Main constituent)	(CAS No) 56912-77-7 (EC no) 200-863-5 (Unlabeled) (EC index no) 602-011-00-1 (Unlabeled)	100	F; R11 Xn; R22 Xi; R36/37 R52/53
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,1-DICHLOROETHANE (2,2,2-D3, 98%) (Main constituent)	(CAS No) 56912-77-7 (EC no) 200-863-5 (Unlabeled) (EC index no) 602-011-00-1 (Unlabeled)	100	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 3, H412

Full text of R- and H- phrases: see section 16

Name	Product identifier	%	Classification (GHS-US)
1,1-DICHLOROETHANE (2,2,2-D3, 98%) (Main constituent)	(CAS No) 56912-77-7	100	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319 STOT SE 3, H335 Aquatic Chronic 3, H412

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	: If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.
First-aid measures after skin contact	: Wash off with soap and plenty of water. Consult a physician.
First-aid measures after eye contact	: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
First-aid measures after ingestion	: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: May be harmful if inhaled. May cause respiratory tract irritation.
Symptoms/injuries after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/injuries after eye contact	: May cause eye irritation.
Symptoms/injuries after ingestion	: Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Reactivity : Vapors may form explosive mixture with air.

5.3. Advice for firefighters

Firefighting instructions	: Wear self contained breathing apparatus for fire fighting if necessary.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Use water spray to cool unopened containers.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

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

6.3. Methods and material for containment and cleaning up

For containment : Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep container tightly closed in a cool, dry and well-ventilated place.

Storage conditions : Store refrigerated (-5 C to 5 C). Protect from light.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1,1-DICHLOROETHANE (2,2,2-D3, 98%) (56912-77-7)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	100.0000000000 ppm Upper Respiratory Tract irritation. Eye irritation. Liver damage. Kidney damage. Not classified as a human carcinogen. USA. ACGIH Threshold Limit Values (TLV)
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	400 mg/m ³ See Appendix C. USA. NIOSH Recommended Exposure Limits.
USA NIOSH	NIOSH REL (TWA) (ppm)	100 ppm See Appendix C. USA. NIOSH Recommended Exposure Limits.
USA OSHA	OSHA PEL (TWA) (mg/m ³)	400.0000000000 mg/m ³ The value in mg/m ³ is approximate. USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants.
USA OSHA	OSHA PEL (TWA) (ppm)	100 ppm USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants.
USA OSHA	OSHA PEL (Ceiling) (mg/m ³)	400 mg/m ³ California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (Ceiling) (ppm)	100 ppm California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2. Exposure controls

Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing : Wear suitable protective clothing and gloves.

Hand protection : Wear suitable protective clothing and gloves.

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Eye protection	: Wear safety glasses with side shields (or goggles) and a face shield.
Skin and body protection	: Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	: When appropriate, use NIOSH/CEN approved respirator.
Environmental exposure controls	: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 101.98 g/mol (Labeled)
Color	: Clear, colourless.
Odor	: No data available.
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: -98.0 °C (-144.4 °F)
Freezing point	: No data available
Boiling point	: 55.0 - 58.0 °C (131 - 136.4 °F)
Flash point	: -10.0 °C (14 °F) - closed cup
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Specific gravity / density	: 1.17 g/ml at 20 °C (68 °F)
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Vapors may form explosive mixture with air.

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Oxidizing agents.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂). Hydrogen chloride gas.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed.

1,1-DICHLOROETHANE (2,2,2-D3, 98%) (56912-77-7)

LD50 oral rat	725.0 mg/kg
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LC50 inhalation rat (ppm)	13000 ppm/4h
ATE CLP (oral)	725.000 mg/kg body weight

Skin corrosion/irritation	: Not classified No data available
Serious eye damage/irritation	: Causes serious eye irritation. No data available
Respiratory or skin sensitization	: Chronic exposure may cause dermatitis. No data available
Germ cell mutagenicity	: Not available
Carcinogenicity	: This product is or contains a component that is not classifiable as to its carcinogenicity on its IARC, ACGIH, NTP, or EPA classification.
Reproductive toxicity	: Not available
Specific target organ toxicity (single exposure)	: May cause respiratory irritation. May cause respiratory irritation.
Specific target organ toxicity (repeated exposure)	: Not classified No data available
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Liver injury may occur. Kidney injury may occur. Narcosis. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Central Nervous System.
Symptoms/injuries after inhalation	: May be harmful if inhaled. May cause respiratory tract irritation.
Symptoms/injuries after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/injuries after eye contact	: May cause eye irritation.
Symptoms/injuries after ingestion	: Harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

1,1-DICHLOROETHANE (2,2,2-D3, 98%) (56912-77-7)	
Persistence and degradability	Not available.

12.3. Bioaccumulative potential

1,1-DICHLOROETHANE (2,2,2-D3, 98%) (56912-77-7)	
Bioaccumulative potential	Not available.

12.4. Mobility in soil

1,1-DICHLOROETHANE (2,2,2-D3, 98%) (56912-77-7)	
Ecology - soil	Not available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of an unprofessional handling or disposal. Harmful to aquatic life.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.
Waste disposal recommendations	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Ecology - waste materials	: Dispose of as unused product.

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SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No.(DOT) : 2362
DOT NA no. UN2362

14.2. UN proper shipping name

Proper Shipping Name (DOT) : 1,1-Dichloroethane
Transport hazard class(es) (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Hazard labels (DOT) : 3 - Flammable liquid



Packing group (DOT) : II - Medium Danger
DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT RQ : 1000 lbs
Marine pollutant : No

14.3. Additional information

Other information : No supplementary information available.

Overland transport

Packing group (ADR) : II
Class (ADR) : 3 - Flammable liquid
Hazard identification number (Kemler No.) : 33
Classification code (ADR) : F1
Hazard labels (ADR) : 3 - Flammable liquids



Orange plates : An orange rectangular label with a black border. It contains the number '33' in the top half and '2362' in the bottom half, both in black text.

Tunnel restriction code : D/E
Limited quantities (ADR) : 1I
EAC : 2YE
Excepted quantities (ADR) : E2

Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"
MFAG-No : 130

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Air transport

DOT Quantity Limitations Passenger aircraft/rail : 5 L
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 60 L
CFR 175.75)

Civil Aeronautics Law : Flammable liquids

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

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

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

1,1-DICHLOROETHANE (2,2,2-D3, 98%) (56912-77-7)

Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 311/312 Hazard Classes

Fire hazard
Immediate (acute) health hazard

15.2. International regulations

CANADA

1,1-DICHLOROETHANE (2,2,2-D3, 98%) (56912-77-7)

Listed on the Canadian DSL (Domestic Substances List) inventory.

15.2.1. National regulations

No additional information available

15.3. US State regulations

1,1-DICHLOROETHANE (2,2,2-D3, 98%)(56912-77-7)

State or local regulations

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - New Jersey - Right to Know Hazardous Substance List
WARNING! This product contains a chemical known by the state of California to cause cancer.

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 2	Flammable liquids Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapor
H302	Harmful if swallowed
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H412	Harmful to aquatic life with long lasting effects
R11	Highly flammable
R22	Harmful if swallowed
R36/37	Irritating to eyes and respiratory system

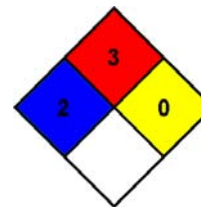
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R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
F	Highly flammable
Xi	Irritant
Xn	Harmful

- NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
- NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.
- NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

- Health : 1 Slight Hazard - Irritation or minor reversible injury possible
- Flammability : 3 Serious Hazard
- Physical : 0 Minimal Hazard

CIL Multi-Solvent Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product