



1,1,1-TRICHLOROETHANE (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: 01/06/2016

Revision date: 01/12/2014

Supersedes: 03/01/2011

Version: 2.0

DLM-1974

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

1.1. Product identifier

Product form : Substance
Substance name : 1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%)
EC index no : 602-013-00-2 (Unlabeled)
EC no : 200-756-3 (Unlabeled)
CAS No : 2747-58-2
Product code : DLM-1974
Formula : CCl₃CD₃
Synonyms : 'Chlorothene', Methylchloroform

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

1.2.1. Relevant identified uses

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]

Acute Tox. 4 (Inhalation) H332
Skin Irrit. 2 H315

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Carc.Cat.3; R40

Full text of R-phrases: see section 16

GHS-US classification

Acute Tox. 4 (Inhalation) H332
Skin Irrit. 2 H315

Adverse physicochemical, human health and environmental effects

Central nervous system, Cardiovascular system, Liver, Kidney.

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2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) :

Warning

Hazard statements (CLP) :

H315 - Causes skin irritation
H332 - Harmful if inhaled

Precautionary statements (CLP) :

P261 - Avoid breathing dust, fume, gas, mist, spray, vapours
P264 - Wash Both hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective clothing, protective gloves
P302+P352 - IF ON SKIN: Wash with plenty of water/...
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 - Call a POISON CENTER/doctor/...if you feel unwell
P332+P313 - If skin irritation occurs: Get medical advice/attention

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS07

Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H315 - Causes skin irritation
H332 - Harmful if inhaled

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust, fume, gas, mist, spray, vapours
P264 - Wash Both hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective clothing, protective gloves
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON CENTER/doctor/physician if you feel unwell
P321 - Specific treatment (see Hazard pictograms (CLP) on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (Main constituent)	(CAS No) 2747-58-2 (EC no) 200-756-3 (Unlabeled) (EC index no) 602-013-00-2 (Unlabeled)	100	Carc.Cat.3; R40
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (Main constituent)	(CAS No) 2747-58-2 (EC no) 200-756-3 (Unlabeled) (EC index no) 602-013-00-2 (Unlabeled)	100	Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315

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

Name	Product identifier	%	GHS-US classification
1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (Main constituent)	(CAS No) 2747-58-2	100	Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315

Full text of H-phrases: see section 16

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3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Move out of dangerous area. Consult a physician and show this safety data sheet.
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 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	: 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	: Harmful if inhaled. May cause respiratory irritation.
Symptoms/injuries after skin contact	: Harmful if absorbed through skin. Causes skin irritation.
Symptoms/injuries after eye contact	: Causes eye irritation.
Symptoms/injuries after ingestion	: May be 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

No additional information available

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.

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. Evacuate personnel to safe area.

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.

6.3. Methods and material for containment and cleaning up

For containment : Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
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

Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	350.0000000000 ppm Central Nervous System impairment, Liver damage. Not classifiable as a human carcinogen.
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	450.0000000000 ppm Central Nervous System impairment, Liver damage. Not classifiable as a human carcinogen.
USA OSHA	OSHA PEL (TWA) (ppm)	350 ppm 1900.000000 mg/m3. (The value in mg/m3 is approximate.)
USA OSHA	OSHA PEL (STEL) (ppm)	450 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	350 ppm

8.2. Exposure controls

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



Hand protection : Wear suitable protective clothing and gloves.
Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.
Skin and body protection : Wear suitable protective clothing, gloves and eye/face protection.
Respiratory protection : When appropriate, use NIOSH/CEN approved respirator. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

The properties listed below are for the solvent, the main component of this mixture.

Physical state : Liquid
Appearance : Liquid, clear.
Molecular mass : 136.42 g/mol (Labeled)
Colour : Colourless.
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : -35 °C (-31.0 °F)
Freezing point : No data available
Boiling point : 72.0 - 75.0 °C (161.6 - 167.0 °F)
Flash point : No data available
Self ignition temperature : 537 °C (998.6 °F)
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : 133.3 hPa (100.0 mmHg) at 20.0 °C (68.0 °F)
Relative vapour density at 20 °C : No data available
Relative density : No data available
Density : 1.34 g/ml at 20°C (68 °F)
Solubility : Water: 1.25 g/l at 23 °C (73 °F)
Log Pow : 2.49
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : 7.5 - 15 % (V)

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

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

Not available.

10.5. Incompatible materials

Strong oxidizing agents, Potassium, Magnesium, Sodium/sodium oxides. Materials to avoid: Zinc, Strong bases.

10.6. Hazardous decomposition products

Formed under fire conditions: carbon oxides, Hydrogen chloride gas.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if inhaled.

1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)	
LD50 oral rat	9600 mg/kg Remarks: Cardiac:Pulse rate. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.
LD50 oral	6000 mg/kg LD50 Oral-Mouse. Remarks: Cardiac:Pulse rate. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.
LC50 inhalation rat (ppm)	3911 ppm LC50 Inhalation - Mouse- 2h. Remarks: Behavioral:Excitement.
ATE (oral)	9600.000 mg/kg bodyweight
ATE (gases)	4500.000 ppmV/4h
ATE (vapours)	11.000 mg/l/4h
ATE (dust,mist)	1.500 mg/l/4h

Skin corrosion/irritation	: Causes skin irritation. Skin - rabbit - Skin irritation - 24 h
Serious eye damage/irritation	: Not classified Eyes - rabbit - Severe eye irritation
Respiratory or skin sensitisation	: Not available No data available
Germ cell mutagenicity	: Laboratory experiments have shown mutagenic effects.
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	: Laboratory experiments have shown teratogenic effects. Overexposure may cause reproductive disorders with laboratory animals.
Specific target organ toxicity (single exposure)	: Not classified No data available
Specific target organ toxicity (repeated exposure)	: Not classified No data available
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Burning sensation. Cough. Wheezing. Laryngitis. Shortness of breath. Headache. Nausea. Vomiting. Consumption of alcohol may increase toxic effects. Narcosis. Liver toxicity. Kidney injury may occur.
IARC group	: 3
Symptoms/injuries after inhalation	: Harmful if inhaled. May cause respiratory irritation.
Symptoms/injuries after skin contact	: Harmful if absorbed through skin. Causes skin irritation.
Symptoms/injuries after eye contact	: Causes eye irritation.
Symptoms/injuries after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)	
LC50 fishes 1	42.3 mg/l LC50 - Pimephales promelas (fathead minnow) - 96 h

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1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)	
NOEC (chronic)	7.7 mg/l - 14 d, Cyprinus carpio (Carp) -

12.2. Persistence and degradability

1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)	
Persistence and degradability	Not available.

12.3. Bioaccumulative potential

1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)	
BCF fish 1	Lepomis macrochirus (Bluegill) - 28 d. - 0.0734 mg/l
Bioconcentration factor (BCF REACH)	9
Log Pow	2.49

12.4. Mobility in soil

1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)	
Ecology - soil	Not available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Offer surplus and non-recyclable solutions to a licensed disposal company.
Waste disposal recommendations : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No.(DOT) : 2831
DOT NA no. UN2831

14.2. UN proper shipping name

DOT Proper Shipping Name : 1,1,1-Trichloroethane
Department of Transportation (DOT) Hazard Classes : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
Hazard labels (DOT) : 6.1 - Poison inhalation hazard



Packing group (DOT) : III - Minor Danger
DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). 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, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
N36 - Aluminum or aluminum alloy construction materials are permitted only for halogenated hydrocarbons that will not react with aluminum.
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) : 153
DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
DOT Packaging Bulk (49 CFR 173.xxx) : 241
DOT RQ : 1000 lbs
Marine pollutant : No

14.3. Additional information

Other information : No supplementary information available.

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Overland transport

Packing group (ADR) : III
Class (ADR) : 6.1 - Toxic substances
Hazard identification number (Kemler No.) : 60
Classification code (ADR) : T1
Danger labels (ADR) : 6.1 - Toxic substances



Orange plates :



Tunnel restriction code : E
Limited quantities (ADR) : 5L
EAC code : 2Z
Excepted quantities (ADR) : E1

Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"
MFAG-No : 160

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 220 L
Civil Aeronautics Law : Toxic and infectious substances/Toxic substances(Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)

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

1,1,1-TRICHLOROETHANE (2,2,2-D3, 98%) (2747-58-2)	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

No additional information available

15.2.1. National regulations

No additional information available

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15.3. US State regulations

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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 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
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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.

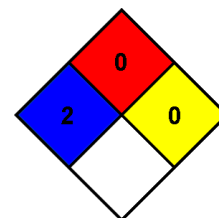
Full text of R-, H- and EUH-phrases::

Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Skin Irrit. 2	Skin corrosion/irritation, Category 2
H315	Causes skin irritation
H332	Harmful if inhaled
R40	Limited evidence of a carcinogenic effect

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 : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

CIL 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