



1-OCTENE (1,1-D2, 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: 11/01/2011

Revision date: 28/11/2016

Supersedes: 11/01/2011

Version: 2.0

DLM-1250

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

1.1. Product identifier

Product form : Substance
Substance name : 1-OCTENE (1,1-D2, 98%)
EC no : 203-893-7 (Unlabeled)
CAS No : 54439-94-0
Product code : DLM-1250
Formula : CH₃(CH₂)₅CH=CD₂

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

1.2.1. Relevant identified uses

No additional information available

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
Asp. Tox. 1 H304
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Full text of H-statements: see section 16

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

F; R11
Xn; R65
N; R50/53

Full text of R-phrases: see section 16

GHS-US classification

Flam. Liq. 2 H225
Asp. Tox. 1 H304
Aquatic Chronic 1 H410

Adverse physicochemical, human health and environmental effects

Lungs.

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2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS08

GHS07

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H225 - Highly flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H410 - Very toxic 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
P273 - Avoid release to the environment
P280 - Wear protective clothing, protective gloves
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS02

GHS08

GHS07

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H225 - Highly flammable liquid and vapour
H304 - May be fatal if swallowed and enters airways
H410 - Very toxic 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, lighting, ventilating equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P273 - Avoid release to the environment
P280 - Wear protective clothing, protective gloves
P301+P310 - IF SWALLOWED: immediately call a POISON CENTER or doctor/physician
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P331 - Do NOT induce vomiting
P370+P378 - In case of fire: Use Carbon dioxide., Alcohol resistant foam, Dry chemical for extinction
P391 - Collect spillage
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
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-OCTENE (1,1-D2, 98%) (Main constituent)	(CAS No) 54439-94-0 (EC no) 203-893-7 (Unlabeled)	100	F; R11 Xn; R65 N; R50/53

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1-OCTENE (1,1-D2, 98%) (Main constituent)	(CAS No) 54439-94-0 (EC no) 203-893-7 (Unlabeled)	100	Flam. Liq. 2, H225 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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

Name	Product identifier	%	GHS-US classification
1-OCTENE (1,1-D2, 98%) (Main constituent)	(CAS No) 54439-94-0	100	Flam. Liq. 2, H225 Asp. Tox. 1, H304 Aquatic Chronic 1, H410

Full text of H-statements: 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	: Flush eyes with water as a precaution.
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 fatal 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	: May be fatal if swallowed and enters airways.

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.

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.

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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. Keep away from sources of ignition - No smoking. Take measures to prevent 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 dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1-OCTENE (1,1-D2, 98%) (54439-94-0)

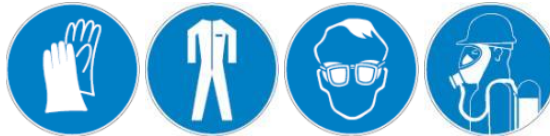
USA OSHA

Remark (OSHA)

Component: Oct-1-ene CAS-No. 111-66-0 Value: TWA Control parameters: 75.000000 ppm Basis: USA. Workplace Environmental Exposure Levels (WEEL)

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.
- 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 : 114.23 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
- Relative evaporation rate (ether=1) : 1.3
- Melting point : -101.7 °C (- 151.1 °F)
- Freezing point : No data available
- Boiling point : No data available
- Flash point : 10 °C (50 °F) - closed cup
- Auto-ignition temperature : 230 °C (446 °F) at 1,013 hPa (760 mmHg)
- Decomposition temperature : No data available
- Flammability (solid, gas) : No data available
- Vapour pressure : 17 hPa (13 mmHg) at 20 °C (68 °F)
- Relative vapour density at 20 °C : 3.9 - (Air = 1.0)

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Relative density	: No data available
Solubility	: Water: 0.002 g/l at 25°C (77 °F) - slightly soluble
Log Pow	: 4.47 at 20 °C (68 °F)
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	: 0.7 - 6.8 % (V)

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

Vapours may form explosive mixture with air.

10.4. Conditions to avoid

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

10.5. Incompatible materials

Bromine, Chlorine, Acids, Oxidizing agents, Humid air.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

1-OCTENE (1,1-D2, 98%) (54439-94-0)	
LD50 oral rat	> 10000 mg/kg (Fixed dose method)
LD50 dermal rabbit	> 1430 mg/kg male and female (OECD Test Guideline 402)
ATE CLP (dust,mist)	40240.000 mg/l/4h

Skin corrosion/irritation	: Skin - Rabbit Result: No skin irritation. (OECD Test Guideline 404)
Serious eye damage/irritation	: Eyes - Rabbit Result: No eye irritation. (OECD Test Guideline 405)
Respiratory or skin sensitisation	: Did not cause sensitization on laboratory animals. (OECD Test Guideline 406). Maximisation Test (GPMT) - Guinea pig Known, or regarded as if it causes a human aspiration toxicity hazard.
Germ cell mutagenicity	: in vitro assay. <i>S. typhimurium</i> result: negative
Carcinogenicity	: Not classified
Reproductive toxicity	: Not available
Specific target organ toxicity (single exposure)	: Not classified No data available
Specific target organ toxicity (repeated exposure)	: Not classified No data available
Aspiration hazard	: May be fatal if swallowed and enters airways.
Potential adverse human health effects and symptoms	: Prolonged or repeated exposure to skin causes defatting and dermatitis. Contact with eyes can cause: Redness in the eyes. Lachrymation. Blurred vision. Aspiration or inhalation may cause chemical pneumonitis. Headache. Dizziness. Drowsiness. Incoordination. Slurred speech. Slowed reaction time. Giddiness. Unconsciousness. Stomach - Irregularities - Based on Human Evidence.
Symptoms/injuries after inhalation	: May be fatal 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	: May be fatal if swallowed and enters airways.

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SECTION 12: Ecological information

12.1. Toxicity

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EC50 Daphnia 1	> 3.2 - 10 mg/l Immobilization EC50 -Daphnia magna (Water flea) - 48 h
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12.2. Persistence and degradability

1-OCTENE (1,1-D2, 98%) (54439-94-0)

Persistence and degradability	Aerobic - Exposure time 14 d.
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Biodegradation	2 - 4 % - Not readily biodegradable. (Directive 67/548/EEC Annex V, C.4.A._
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12.3. Bioaccumulative potential

1-OCTENE (1,1-D2, 98%) (54439-94-0)

Log Pow	4.47 at 20 °C (68 °F)
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Bioaccumulative potential	Not available.
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12.4. Mobility in soil

1-OCTENE (1,1-D2, 98%) (54439-94-0)

Ecology - soil	Not available.
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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 unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

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.

SECTION 14: Transport information

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

14.1. UN number

UN-No.(DOT) : 3295

DOT NA no. UN3295

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Hydrocarbons, liquid, n.o.s.
(Oct-1-ene)

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

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DOT Special Provisions (49 CFR 172.102)	:	144 - If transported as a residue in an underground storage tank (UST), as defined in 40 CFR 280.12, that has been cleaned and purged or rendered inert according to the American Petroleum Institute (API) Standard 1604 (IBR, see 171.7 of this subchapter), then the tank and this material are not subject to any other requirements of this subchapter. However, sediments remaining in the tank that meet the definition for a hazardous material are subject to the applicable regulations of this subchapter. 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. T7 - 4 178.274(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. TP8 - A portable tank having a minimum test pressure of 1.5 bar (150 kPa) may be used when the flash point of the hazardous material transported is greater than 0 C (32 F). TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
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
Marine pollutant	:	No



14.3. Additional information

Other information : No supplementary information available.

Overland transport

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



Orange plates : 

Tunnel restriction code	:	D/E
Limited quantities (ADR)	:	500ml
EAC code	:	3YE
Excepted quantities (ADR)	:	E3

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.
MFAG-No	:	128

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L

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Civil Aeronautics Law : Flammable liquids(Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)

14.4. Environmental hazards

Dangerous for the environment :



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-OCTENE (1,1-D2, 98%) (54439-94-0)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

15.2. International regulations

CANADA

1-OCTENE (1,1-D2, 98%) (54439-94-0)
Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

1-OCTENE (1,1-D2, 98%)(54439-94-0)	
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.

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-statements:

Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Asp. Tox. 1	Aspiration hazard, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour
H304	May be fatal if swallowed and enters airways
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
R11	Highly flammable

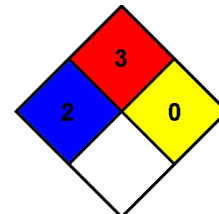
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R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R65	Harmful: may cause lung damage if swallowed
F	Highly flammable
N	Dangerous for the environment
Xn	Harmful

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