

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: 19/05/2015 Revision date: 10/12/2015 Supersedes: 19/05/2015 Version: 2.0

CLM-9542-S

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

1.1. Product identifier

Product form : Mixtures

Product name. : HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE

Product code : CLM-9542-S

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 <u>cilsales@isotope.com</u> 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 Skin Irrit. 2 H315

Full text of H-phrases: see section 16

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

F; R11 Xi; R38

Full text of R-phrases: see section 16

Classification (GHS-US)

Flam. Liq. 2 H225 Skin Irrit. 2 H315

Adverse physicochemical, human health and environmental effects

Eyes, Kidney, Liver, Heart, Central nervous system.

2.2. Label elements

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

Hazard pictograms (CLP)





GHS02 GHS07

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapor

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H315 - Causes skin irritation

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

P264 - Wash both hands thoroughly after handling

P280 - Wear eye protection, face protection, protective clothing, protective gloves

P302+P352 - IF ON SKIN: Wash with plenty of water/...

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse

skin with water/shower

GHS-US labeling

Hazard pictograms (GHS-US)



GHS02



GHS07

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapor

H315 - Causes skin irritation

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

P264 - Wash Both hands thoroughly after handling

P280 - Wear eye protection, face protection, protective clothing, protective gloves

P302+P352 - IF ON SKIN: Wash with plenty of soap and water

P303+P361+P353 - IF ON SKIN (or hair): Řemove/Take off immediately all contaminated

clothing. Rinse skin with water/shower

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

P370+P378 - In case of fire: Use Alcohol resistant foam., Carbon dioxide., Dry chemical., Water

spray for extinction

P403+P235 - Store in a well-ventilated place. Keep cool

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. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Directive 67/548/EEC
METHYL TERT-BUTYL ETHER UNLABELED	(CAS No) 1634-04-4 (EC no) 216-653-1 (EC index no) 603-181-00-X	99.986	Xn; R22 Xi; R38
HEXAMETHYLCYCLOTRISILOXANE (13C6, 98%)	(CAS No) 541-05-9 (Unlabeled) (EC no) 208-765-4	0.014	F; R11
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
METHYL TERT-BUTYL ETHER UNLABELED	(CAS No) 1634-04-4 (EC no) 216-653-1 (EC index no) 603-181-00-X	99.986	Flam. Liq. 2, H225 Skin Irrit. 2, H315
	(CAS No) 541-05-9 (Unlabeled)	0.014	Flam. Sol. 1, H228

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Name	Product identifier	%	Classification (GHS-US)
METHYL TERT-BUTYL ETHER UNLABELED	(CAS No) 1634-04-4	99.986	Flam. Liq. 2, H225 Acute Tox. Not classified (Oral) Skin Irrit. 2, H315

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

SECTION 4: First aid measures

Description of first aid measures

First-aid measures general

First-aid measures after inhalation

First-aid measures after skin contact

First-aid measures after eye contact

First-aid measures after ingestion

: Call a POISON CENTER or doctor/physician.

Remove to fresh air and keep at rest in a position comfortable for breathing.

Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash

with plenty of soap and water. Wash contaminated clothing before reuse.

Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water

Rinse mouth. Obtain emergency medical attention. Immediately call a POISON CENTER or

doctor/physician.

Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation

: May be harmful if inhaled. Causes respiratory tract irritation.

Symptoms/injuries after skin contact

Repeated exposure to this material can result in absorption through skin causing significant

health hazard. Toxic in contact with skin. Causes skin irritation.

Symptoms/injuries after eye contact

Symptoms/injuries after ingestion

: Causes eve irritation.

Toxic if swallowed. Swallowing a small quantity of this material will result in serious health

hazard.

Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

Extinguishing media

suitable extinguishing media

: For small fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

5.2. Special hazards arising from the substance or mixture

Fire hazard

: Highly flammable liquid and vapor.

Explosion hazard

: May form flammable/explosive vapor-air mixture.

Reactivity

: Vapors may form explosive mixture with air.

Advice for firefighters

Firefighting instructions

: Use water spray to cool unopened containers.

Protection during firefighting

: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

General measures

: Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking.

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

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and material for containment and cleaning up

For containment

: Contain spillage, then collect with non-combustible absorbent material. Disposal should be in accordance with applicable Federal, State and local regulations.

Reference to other sections

No additional information available

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.

Precautions for safe handling : No naked lights. No smoking. Use only non-sparking tools.

Hygiene measures : Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after

handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond

container and receiving equipment.

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

Incompatible materials : Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.0000000000 ppm Headache. Eye damage. Danger of cutaneous absorption.
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	250.0000000000 ppm Headache Eye damage. Danger of cutaneous absorption.

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	50.0000000000 ppm Upper Respiratory Tract irritation,
		Kidney damage, Confirmed animal carcinogen

8.2. Exposure controls

Personal protective equipment : Safety glasses. Gloves. Protective clothing. Respiratory protection of the dependent type.









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.

Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is

recommended.

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.

Molecular mass : 88.15 g/mol

Color : Colorless.

Odor : No data available.

Odor threshold : No data available pH : No data available Relative evaporation rate (butyl acetate=1) : No data available Melting point : No data available Freezing point : No data available

Boiling point : 55 - 56 °C (131 - 133 °F) - lit Flash point : -33.0 °C (- 27.4 °F) - closed cup

Self ignition temperature : 374 °C (705 °F)

Decomposition temperature : No data available

Flammability (solid, gas) : Highly flammable liquid and vapor

Vapor pressure : 1018.7 hPa (764.1 mmHg) at 55°C (131°F), 279.2 hPa (209.4 mmHg) at 55°C (131°F)

Relative vapor density at 20 °C : No data available

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Relative density : No data available : No data available Solubility Log Pow : 0.94 - 1.77 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** : 1.6 - 15.1 % (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

See storage and expiration date on CoA.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Open flame. Direct sunlight.

10.5. Incompatible materials

Acid chlorides, Acid anhydrides, Oxidizing agents, Alkali metals. Reducing agents, Acids.

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE	
LD50 oral rat	5628 mg/kg
LD50 dermal rabbit	15800 mg/kg
LC50 inhalation rat (ppm)	64000 ppm 4 h
ATE (oral)	5628.000 mg/kg body weight
ATE (dermal)	15800,000 mg/kg body weight

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)	
LD50 oral rat	4000 mg/kg
LC50 inhalation rat (ppm)	23576 ppm - 4h
ATE (oral)	4000.000 mg/kg body weight

Skin corrosion/irritation : Causes skin irritation.

Skin - rabbit - Skin irritation - 24 h

Serious eye damage/irritation : Not classified

Eyes - rabbit - Eye irritation - 24 h

Respiratory or skin sensitization : Not available

No data available

Germ cell mutagenicity : Not available
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : Not classified

Causes damage to organs

Specific target organ toxicity (repeated

exposure)

: Not classified No data available

Aspiration hazard : Not classified

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: Causes eye irritation.

Potential Adverse human health effects and

symptoms

: Toxic if swallowed. Toxic in contact with skin.

Symptoms/injuries after inhalation

: May be harmful if inhaled. Causes respiratory tract irritation.

Symptoms/injuries after skin contact

: Repeated exposure to this material can result in absorption through skin causing significant

health hazard. Toxic in contact with skin. Causes skin irritation.

Symptoms/injuries after eye contact

Symptoms/injuries after ingestion

: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health

hazard.

SECTION 12: Ecological information

12.1. Toxicity

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE	
LC50 fish 1	19000.00 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
EC50 Daphnia 1	24500.00 mg/l Daphnia magna (Water flea) - 48 h

HEXAMETHYLCYCLOTRISILOXANE (13C6, 98%) (541-05-9 (Unlabeled))	
LC50 fish 1	> 1.6 mg/l Oncorhynchus mykiss (rainbow trout) - 96 h
EC50 Daphnia 1	> 1.6 mg/l Daphnia magna (Water flea) - 48 h
ErC50 (algae)	> 1.6 mg/l Pseudokirchneriella subcapitata - 72 h
NOEC (chronic)	100 mg/l Respiration Inhibition - Sludge Treatment - 3 h

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)	
LC50 fish 1	672 mg/l Pimephales promelas (fathead minnow) - 96h

12.2. Persistence and degradability

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE

Persistence and degradability Not available.

HEXAMETHYLCYCLOTRISILOXANE (13C6, 98%) (541-05-9 (Unlabeled))	
Persistence and degradability	Aerobic - exposure time: 28 d.
Biodegradation	0.06 %

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)

Persistence and degradability Not available.

12.3. Bioaccumulative potential

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE	
Log Pow	0.94 - 1.77
Bioaccumulative potential	Not available.

HEXAMETHYLCYCLOTRISILOXANE (13C6, 98%) (541-05-9 (Unlabeled))

Bioaccumulative potential Not available.

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)	
Log Pow	0.94 - 1.77
Bioaccumulative potential	Not available.

12.4. Mobility in soil

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE

Ecology - soil Not available.

HEXAMETHYLCYCLOTRISILOXANE (13C6, 98%) (541-05-9 (Unlabeled))

Ecology - soil Not available

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)

Ecology - soil Not available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : Not available.

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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.

SECTION 14: Transport information

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

14.1. UN number

UN-No.(DOT) : 2398 DOT NA no. UN2398

14.2. UN proper shipping name

DOT Proper Shipping Name : Methyl tert-butyl ether

Department of Transportation (DOT) Hazard

Classes

: 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.

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.

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) : II

Class (ADR) : 3 - Flammable liquid

Hazard identification number (Kemler No.) : 33 Classification code (ADR) : F1

Danger labels (ADR) : 3 - Flammable liquids



Orange plates

33 2398

Tunnel restriction code : D/E
Limited quantities (ADR) 1L
EAC : •3YE
Excepted quantities (ADR) : E2

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Transport by sea

DOT Vessel Stowage Location : E - 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, but is prohibited from carriage on passenger vessels in which the limiting number of passengers is exceeded.

MFAG-No : 127

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

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 311/312 Hazard Classes	Fire hazard

Immediate (acute) health hazard Delayed (chronic) health hazard

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)

Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 311/312 Hazard Classes	Fire hazard
	Immediate (acute) health hazard
	Delayed (chronic) health hazard

15.2. International regulations

CANADA

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE

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

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)

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

15.2.1. National regulations

No additional information available

15.3. US State regulations

HEXAMETHYLCYCLOTRISILOXANE "D3" (13C6, 98%) 100 UG/ML IN MTBE() State or local regulations U.S. - Massachusetts - 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.

METHYL TERT-BUTYL ETHER UNLABELED (1634-04-4)

U.S. - Massachusetts - 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::

Flam. Liq. 2	Flammable liquids Category 2	
Flam. Sol. 1	Flammable solids Category 1	
Skin Irrit. 2	skin corrosion/irritation Category 2	
H225	Highly flammable liquid and vapor	
H228	Flammable solid	
H315	Causes skin irritation	
R11	Highly flammable	
R22	Harmful if swallowed	
R38	Irritating to skin	
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

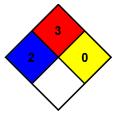
medical attention is given.

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 : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious 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

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