



MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 12/20/2012

Version 1.0

SECTION 1. Identification

Product identifier

Product number	804324
Product name	1,1,1,3,3,3-Hexamethyldisilazane for synthesis
Synonyms	HMDS

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

Identified uses	Chemical for synthesis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America SDS Phone Support: +1-978-715-1335 General Inquiries: +1-978-751-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) e-mail: mm_sds@merckgroup.com
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification

GHS Classification

Flammable liquid, Category 2, H225
Acute toxicity, Category 3, Inhalation, H331
Acute toxicity, Category 3, Dermal, H311
Acute toxicity, Category 4, Oral, H302
Skin corrosion, Category 1B, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word
Danger

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Hazard Statements

H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H311 + H331 Toxic in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.

Precautionary Statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
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.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.
P403 + P235 Store in a well-ventilated place. Keep cool.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	C ₆ H ₁₉ NSi ₂ (Hill)
CAS-No.	999-97-3
Synonyms	HMDS
Molar mass	161.39 g/mol

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

1,1,1,3,3,3-hexamethyldisilazane (>= 90 % - <= 100 %)
999-97-3

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. If breathing stops: immediately apply artificial respiration, if necessary oxygen. Immediately call in physician.

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Skin contact

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Ingestion

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Pulmonary failure possible after aspiration of vomit. Do not attempt to neutralize. Call a physician immediately.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Shortness of breath, Unconsciousness, Nausea, Vomiting, Tremors
Risk of blindness!

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Dry powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water, Foam

Special hazards arising from the substance or mixture

Combustible material, Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

nitrogen oxides

May not get in touch with:

Water

Caution! in contact with water product releases:

Ammonia

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Suppress (knock down) gases/vapors/mists with a water spray jet. Cool closed containers exposed to fire with water spray.

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SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Tightly fitting safety goggles

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Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Flame retardant antistatic protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	characteristic
Odor Threshold	No information available.
pH	No information available.
Melting point	-116 °F (-82 °C)
Boiling point/boiling range	259 °F (126 °C) at 1,013 mbar
Flash point	59 °F (15 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	not applicable
Lower explosion limit	0.8 %(V)
Upper explosion limit	25.9 %(V)
Vapor pressure	20 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Relative density	0.78 g/cm ³ at 68 °F (20 °C)
Water solubility	at 68 °F (20 °C) decomposes

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Partition coefficient: n-octanol/water	log Pow: 2.62 (calculated) Bioaccumulation is not expected (log Pow <1). (Lit.)
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Ignition temperature	ca. 617 °F (325 °C)
Viscosity, kinematic	0.9 mm ² /s at 77 °F (25 °C)

SECTION 10. Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.

Chemical stability

sensitive to moisture

Possibility of hazardous reactions

Risk of explosion with:

Risk of ignition or formation of inflammable gases or vapors with:

Strong oxidizing agents, Methanol, bases, acids

Exothermic reaction with:

Water, Ammonia

Conditions to avoid

Warming.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Incompatible materials

no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

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Acute oral toxicity

LD50 rat: 847 mg/kg (IUCLID)

Symptoms: Nausea, Vomiting, If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

absorption

Acute inhalation toxicity

LC50 rat: 8.7 mg/l; 4 h (RTECS)

Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:., damage of respiratory tract

absorption

Corrosive to respiratory system

Acute dermal toxicity

LD50 rabbit: 550 mg/kg
(RTECS)

absorption

Skin irritation

rabbit

Result: Causes burns.
(IUCLID)

Causes burns.

Eye irritation

Causes serious eye damage.

Risk of blindness!

Genotoxicity in vitro

Ames test

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test):

Result: negative

Method: OECD Test Guideline 476

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential

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carcinogen by OSHA.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Decomposition of the substance with tissue moisture.
Systemic effects:
After absorption:
Tremors, Unconsciousness
Further data:
Other dangerous properties can not be excluded.
This substance should be handled with particular care.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Pimephales promelas (fathead minnow): 167 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 186 mg/l; 48 h (IUCLID)

Toxicity to bacteria
EC50 Bacteria: 1,700 mg/l (IUCLID)

Persistence and degradability

No information available.

Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: 2.62
(calculated)
Bioaccumulation is not expected (log Pow <1). (Lit.)

Mobility in soil

No information available.

Other adverse effects

Additional ecological information
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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SECTION 14. Transport information

Land transport (DOT)

UN number UN 3286
Proper shipping name FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (HEXAMETHYLDISILAZANE)
Class 3 (6.1, 8)
Packing group II
Environmentally hazardous --

Air transport (IATA)

UN number UN 3286
Proper shipping name FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (HEXAMETHYLDISILAZANE)
Class 3 (6.1, 8)
Packing group II
Environmentally hazardous --
Special precautions for user no

Sea transport (IMDG)

UN number UN 3286
Proper shipping name FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (HEXAMETHYLDISILAZANE)
Class 3 (6.1, 8)
Packing group II
Environmentally hazardous --
Special precautions for user yes
EmS F-E S-C
Segregation Group 0001 Acids

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Flammable Liquid
Harmful if swallowed.
Toxic by skin absorption
Corrosive to skin
Corrosive to eyes
Corrosive by inhalation.

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard
Acute Health Hazard

SARA 313

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SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

US State Regulations

Massachusetts Right To Know

Remarks

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Ingredients

1,1,1,3,3,3-hexamethyldisilazane

New Jersey Right To Know

Ingredients

1,1,1,3,3,3-hexamethyldisilazane

California Prop 65 Components

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

Notification status

TSCA: On TSCA Inventory

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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