1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Hexamethyldisilazane
Product Number : 379212
Brand : Aldrich
CAS-No. : 999-97-3

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 Spruce Street
ST. LOUIS MO  63103
UNITED STATES
Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 3), H311
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

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

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word : Danger

Hazard statement(s)
H225 : Highly flammable liquid and vapour.
H302 + H332 : Harmful if swallowed or if inhaled
H311 : Toxic in contact with skin.
H412 : Harmful to aquatic life with long lasting effects.
Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. 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/vapours/spray.
P264 Wash skin 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 protective gloves/protective clothing/eye protection/face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms: HMDS, 1,1,1,3,3,3-Hexamethyldisilazane

Formula: C$_6$H$_{19}$NSi$_2$
Molecular weight: 161.39 g/mol
CAS-No.: 999-97-3
EC-No.: 213-668-5

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,3,3,3-Hexamethyldisilazane</td>
<td>Flam. Liq. 2; Acute Tox. 4; Acute Tox. 3; Aquatic Acute 3; Aquatic Chronic 3; H225, H302 + H332, H311, H412</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
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
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

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
Carbon oxides, Nitrogen oxides (NOx), silicon oxides
Flash back possible over considerable distance., Container explosion may occur under fire conditions.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, 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. For personal protection see section 8.

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 materials for containment and cleaning up
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 (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
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. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Handle under nitrogen, protect from moisture. Store under nitrogen. 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. Hydrolyses readily.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

**Eye/face protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate
government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without
touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after
use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 30 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the
supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an
industria situation of anticipated use by our customers. It should not be construed as offering an approval for
any specific use scenario.

**Body Protection**
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of
protective equipment must be selected according to the concentration and amount of the dangerous substance
at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK (EN 14387)
respirator cartridges as a backup to enginee protection, use a full-face supplied air respirator. Use respirators
and components tested and approved under appropriate government standards such as NIOSH (US) or CEN
(EU).

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

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>a) Appearance</th>
<th>Form: liquid, clear</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>&gt; 7.0</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>Melting point/range: -76.19 °C (-105.14 °F) at 1,013 hPa</td>
</tr>
</tbody>
</table>
f) Initial boiling point and boiling range 125 °C (257 °F)
g) Flash point 11.4 °C (52.5 °F) - closed cup
h) Evaporation rate No data available
i) Flammability (solid, gas) No data available
j) Upper/lower flammability or explosive limits
   Upper explosion limit: 16.3 %(V)
   Lower explosion limit: 0.8 %(V)
k) Vapour pressure 19 hPa at 20 °C (68 °F)
l) Vapour density No data available
m) Relative density 0.774 g/mL at 25 °C (77 °F)

n) Water solubility insoluble

o) Partition coefficient: n-octanol/water log Pow: 2.62
p) Auto-ignition temperature 380.0 °C (716.0 °F)
q) Decomposition temperature No data available
r) Viscosity 0.9 mm2/s at 20 °C (68 °F) -
s) Explosive properties No data available
t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Hydrolyses readily.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Ammonia is formed upon contact with water or humid air.
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Strong acids

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), silicon oxides
Other decomposition products - No data available
In the event of fire: see section 5
11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 851 mg/kg(1,1,1,3,3,3-Hexamethyldisilazane) (OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 6 h - 10 mg/l(1,1,1,3,3,3-Hexamethyldisilazane) (OECD Test Guideline 403)
LD50 Dermal - Rabbit - male and female - 547 - 589 mg/kg(1,1,1,3,3,3-Hexamethyldisilazane) (OECD Test Guideline 402)
No data available(1,1,1,3,3,3-Hexamethyldisilazane)

Skin corrosion/irritation
Skin - Rabbit(1,1,1,3,3,3-Hexamethyldisilazane)
Result: No skin irritation - 4 h (OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit(1,1,1,3,3,3-Hexamethyldisilazane)
Result: No eye irritation (OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available(1,1,1,3,3,3-Hexamethyldisilazane)

Germ cell mutagenicity
Ames test(1,1,1,3,3,3-Hexamethyldisilazane)
S. typhimurium
Result: negative

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Specific target organ toxicity - single exposure
No data available(1,1,1,3,3,3-Hexamethyldisilazane)

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available(1,1,1,3,3,3-Hexamethyldisilazane)

Additional Information
Repeated dose toxicity - Rat - male and female - inhalation (vapour)(1,1,1,3,3,3-Hexamethyldisilazane)
RTECS: JM92300000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.(1,1,1,3,3,3-Hexamethyldisilazane)
12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish  
semi-static test LC50 - Danio rerio (zebra fish) - 88 mg/l - 96 h(1,1,1,3,3,3-Hexamethyldisilazane)  

Toxicity to daphnia and other aquatic invertebrates  
static test EC50 - Daphnia magna (Water flea) - 80 mg/l - 48 h(1,1,1,3,3,3-Hexamethyldisilazane)  

Toxicity to algae  
EC50 - Desmodesmus subspicatus (green algae) - 19.00 mg/l - 72 h(1,1,1,3,3,3-Hexamethyldisilazane)

12.2 Persistence and degradability

Biodegradability  
aerobic - Exposure time 28 d(1,1,1,3,3,3-Hexamethyldisilazane)  
Result: 15.3 % - Not readily biodegradable.  

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available(1,1,1,3,3,3-Hexamethyldisilazane)

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product  
Burn in a chemical incinerator equipped with an afterburner and scrubber b highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging  
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)  
UN number: 1992  
Class: 3 (6.1)  
Packing group: II  
Proper shipping name: Flammable liquids, toxic, n.o.s. (1,1,1,3,3,3-Hexamethyldisilazane)  
Reportable Quantity (RQ) : 100 lbs

Poison Inhalation Hazard: No

IMDG  
UN number: 1992  
Class: 3 (6.1)  
Packing group: II  
EMS-No: F-E, S-D  
Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S. (1,1,1,3,3,3-Hexamethyldisilazane)

IATA  
UN number: 1992  
Class: 3 (6.1)  
Packing group: II  
Proper shipping name: Flammable liquid, toxic, n.o.s. (1,1,1,3,3,3-Hexamethyldisilazane)
15. REGULATORY INFORMATION

**SARA 302 Components**
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
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.

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>999-97-3</td>
<td>2007-03-01</td>
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**New Jersey Right To Know Components**

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<tbody>
<tr>
<td>999-97-3</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

**California Prop. 65 Components**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

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

- **H225** Highly flammable liquid and vapour.
- **H302** Harmful if swallowed.
- **H302 + H332** Harmful if swallowed or if inhaled
- **H311** Toxic in contact with skin.
- **H332** Harmful if inhaled.
- **H402** Harmful to aquatic life.
- **H412** Harmful to aquatic life with long lasting effects.

**HMIS Rating**
- Health hazard: 2
- Chronic Health Hazard: 3
- Flammability: 3
- Physical Hazard: 0

**NFPA Rating**
- Health hazard: 2
- Fire Hazard: 3
- Reactivity Hazard: 0

**Further information**
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.