

# SAFETY DATA SHEET

Version 6.13  
Revision Date 12/18/2024  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Hexamethyldisilazane  
Product Number : 440191  
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  
Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 1.3 Details of the supplier of the safety data sheet

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

### 1.4 Emergency telephone

Emergency Phone # : 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 in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 2  
Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4  
Acute toxicity (Dermal) : Category 3  
Short-term (acute) aquatic hazard : Category 3  
Long-term (chronic) aquatic hazard : Category 3

**GHS label elements**

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H225 Highly flammable liquid and vapor.  
H302 + H332 Harmful if swallowed or if inhaled.  
H311 Toxic in contact with skin.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**  
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 mist or vapors.  
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/ eye protection/ face protection.

**Response:**

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.

**Storage:**

P403 + P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

**Components**

| Chemical name                    | CAS-No.  | Concentration (% w/w) |
|----------------------------------|----------|-----------------------|
| 1,1,1,3,3,3-hexamethyldisilazane | 999-97-3 | >= 90 - <= 100        |

Actual concentration is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

- General advice : First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.
- If inhaled : After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.
- In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
- In case of eye contact : After eye contact: rinse out with plenty of water. Remove contact lenses.
- If swallowed : After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
- 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

Protection of first-aiders : For personal protection see section 8.

Notes to physician : No data available

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## SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Carbon dioxide (CO<sub>2</sub>)  
Dry powder

Unsuitable extinguishing media : Foam  
Water

Specific hazards during fire fighting : Flash back possible over considerable distance.  
Container explosion may occur under fire conditions.

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

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

Forms explosive mixtures with air at ambient temperatures.

Hazardous combustion products : Carbon oxides

Nitrogen oxides (NO<sub>x</sub>)

silicon oxides

Specific extinguishing methods : No data available

Further information : Remove container from danger zone and cool with water.

Suppress (knock down) gases/vapors/mists with a water spray jet.  
Prevent fire extinguishing water from contaminating surface water or the ground water system.

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.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Advice for non-emergency personnel:  
Do not breathe vapors, aerosols.  
Avoid substance contact.  
Ensure adequate ventilation.  
Keep away from heat and sources of ignition.  
Evacuate the danger area, observe emergency procedures, consult an expert.  
Advice for emergency responders:  
For personal protection see section 8.

Environmental precautions : Do not let product enter 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 carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition.  
Take precautionary measures against static discharge.

Advice on safe handling : Work under hood. Do not inhale substance/mixture.  
Avoid generation of vapours/aerosols.

Conditions for safe storage : Handle under nitrogen, protect from moisture.  
Store under nitrogen.

Further information on storage conditions : Keep container tightly closed in a dry and well-ventilated place.  
Keep away from heat and sources of ignition.  
Keep locked up or in an area accessible only to quali-

fied or authorized persons.

- Storage class : 3, Flammable liquids
- Recommended storage temperature : Recommended storage temperature see product label.
- Further information on storage stability : Hydrolyzes readily.
- Packaging material : Suitable material: Sure-Seal Bottles

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

| Components                       | CAS-No.  | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis   |
|----------------------------------|----------|-------------------------------|--|---------|
| 1,1,1,3,3,3-hexamethyldisilazane | 999-97-3 | TWA                           | 10 ppm   | US WEEL |
|                                  |          | STEL                          | 50 ppm   | US WEEL |

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type K

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Hand protection

- Material : Nitrile rubber
- Break through time : 480 min
- Glove thickness : 0.4 mm
- Protective index : Full contact
- Manufacturer : Camatril® (KCL 730 / Aldrich Z677442, Size M)

Material : Chloroprene

Break through time : 240 min  
Glove thickness : 0.65 mm  
Protective index : Splash contact  
Manufacturer : KCL 720 Camapren®

Remarks : This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).  
Safety glasses

Skin and body protection : Flame retardant antistatic protective clothing.

Hygiene measures : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid, clear

Color : colorless

Odor : No data available

Odor Threshold : No data available  
pH : > 7.0

Melting point/ range : -105.2 °F / -76.2 °C  
(1,013 hPa)

Boiling point/boiling range : 257 °F / 125 °C

Flash point : 52.5 °F / 11.4 °C  
(1,013 hPa)  
Method: closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

|   |  |
|---|--|
| Flammability (liquids)                              | : No data available                      |
| Burning rate  | : No data available                      |
| Self-ignition                                       | : 716.0 °F / 380.0 °C                    |
| Upper explosion limit /<br>Upper flammability limit | : 16.3 %(V)                              |
| Lower explosion limit /<br>Lower flammability limit | : 0.8 %(V)                               |
| Vapor pressure                                      | : 1,900 Pa (68 °F / 20 °C)               |
| Relative vapor density                              | : No data available                      |
| Relative density                                    | : 0.77 (68 °F / 20 °C)                   |
| Density   | : 0.774 g/mL (77 °F / 25 °C)             |
| Solubility(ies)<br>Water solubility                 | : insoluble                              |
| Partition coefficient: n-<br>octanol/water          | : log Pow: 2.62                          |
| Autoignition temperature                            | : 716 °F / 380 °C                        |
| Decomposition tempera-<br>ture                      | : No data available                      |
| Viscosity<br>Viscosity, dynamic                     | : No data available                      |
| Viscosity, kinematic                                | : 0.9 mm <sup>2</sup> /s (68 °F / 20 °C) |
| Flow time   | : No data available                      |
| Explosive properties                                | : Not classified as explosive.           |
| Oxidizing properties                                | : none                                   |
| Molecular weight                                    | : 161.39 g/mol                           |
| Particle characteristics<br>Particle size           | : No data available                      |



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## SECTION 10. STABILITY AND REACTIVITY

|                                    |   |   |
|------------------------------------|---|---|
| Reactivity                         | : | Vapors may form explosive mixture with air.   |
| Chemical stability                 | : | The product is chemically stable under standard ambient conditions (room temperature) . |
| Possibility of hazardous reactions | : | Hydrolyzes readily.   |
| Conditions to avoid                | : | Ammonia is formed upon contact with water or humid air.<br><br>Warming.                 |
| Incompatible materials             | : | No data available   |
| Hazardous decomposition products   | : | In the event of fire: see section 5   |

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### **Acute toxicity**

LD50 Oral - Rat - male and female - 851 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 6 h - 10 mg/l

(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male and female - 547 - 589 mg/kg

(OECD Test Guideline 402)

No data available

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

No data available

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

#### **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.

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.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

Repeated dose toxicity - Rat - male and female - inhalation (vapor)

RTECS: JM9230000

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.

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**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Components:**

**1,1,1,3,3,3-hexamethyldisilazane:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 88 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 80 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 19.00 mg/l

Exposure time: 72 h

### **Persistence and degradability**

#### **Components:**

##### **1,1,1,3,3,3-hexamethyldisilazane:**

Biodegradability : aerobic  
Inoculum: activated sludge  
Concentration: 2 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 15.3 %  
Exposure time: 28 d  
Method: Directive 67/548/EEC Annex V, C.4.E.

### **Bioaccumulative potential**

#### **Components:**

##### **1,1,1,3,3,3-hexamethyldisilazane:**

Partition coefficient: n- : log Pow: 2.62  
octanol/water

### **Mobility in soil**

No data available

### **Other adverse effects**

#### **Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82  
Protection of Stratospheric Ozone - CAA Section 602  
Class I Substances  
Remarks: This product neither contains, nor was  
manufactured with a Class I or Class II ODS as de-  
fined by the U.S. Clean Air Act Section 602 (40 CFR  
82, Subpt. A, App.A + B).

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

### **Disposal methods**

Waste from residues : Waste material must be disposed of in accordance  
with the national and local regulations. Leave chemi-  
cals in original containers. No mixing with other  
waste. Handle uncleaned containers like the product  
itself.

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## **SECTION 14. TRANSPORT INFORMATION**

### **International Regulations**

Aldrich- 440191

The life science business of Merck operates as MilliporeSigma in  
the US and Canada

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**IATA-DGR**

UN/ID No. : UN 1992  
Proper shipping name : Flammable liquid, toxic, n.o.s.  
(1,1,1,3,3,3-hexamethyldisilazane)  
Class : 3  
Subsidiary risk : 6.1  
Packing group : II  
Labels : Class 3 - Flammable liquids, Division 6.1 - Toxic substances  
Packing instruction (cargo aircraft) : 364  
Packing instruction (passenger aircraft) : 352

**IMDG-Code**

UN number : UN 1992  
Proper shipping name : FLAMMABLE LIQUID, TOXIC, N.O.S.  
(1,1,1,3,3,3-hexamethyldisilazane)  
Class : 3  
Subsidiary risk : 6.1  
Packing group : II  
Labels : 3 (6.1)  
EmS Code : F-E, S-D  
Marine pollutant : no

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**National regulation****49 CFR Road**

UN/ID/NA number : UN 1992  
Proper shipping name : Flammable liquids, toxic, n.o.s.  
(1,1,1,3,3,3-hexamethyldisilazane)  
Class : 3  
Subsidiary risk : 6.1  
Packing group : II  
Labels : Class 3 - Flammable liquids, Division 6.1 - Toxic substances  
ERG Code : 131  
Marine pollutant : no  
Poison Inhalation Hazard : No

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15. REGULATORY INFORMATION

### **CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

### **SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

### **SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

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

**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 Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B). This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCOMI Intermediate or Final VOC's (40 CFR 60.489).

### **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. Clean-Water Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

### **US State Regulations**

#### **Massachusetts Right To Know**

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

#### **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**The ingredients of this product are reported in the following inventories:**

TSCA : All substances listed as active on the TSCA inventory

### **TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## **SECTION 16. OTHER INFORMATION**

### **Full text of other abbreviations**

US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)  
US WEEL / TWA : 8-hr TWA  
US WEEL / STEL : Short-Term TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan

Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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