

SPI Supplies Division

Structure Probe, Inc.

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: April 13, 2017

SPI Catalog #'s 02852-DA, 02852-AB
SPI-Chem™ Hexamethyldisilazane (HMDS)

Section 1.1: Identification

Chemical Name/Synonyms Hexamethyldisilazane; 1,1,1,3,3,3-Hexamethyldisilazane

Product or Trade Name SPI-Chem™ Hexamethyldisilazane (HMDS)

CAS #'s 999-97-3

Chemical Formula..... C₆H₁₉NSi₂

Section 1.2: Relevant Uses/Restrictions

Chemical intermediate.

For research and industrial use only.

Section 1.3: Supplier of the Safety Data Sheet

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Section 1.4: Emergency telephone number

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Worldwide phone: 1-(703)-741-5970

Toll-free phone: 1-(800)-424-9300 USA + Canada only

Section 2: Hazard Identification

2.1 Classification of the substance

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquid, category 2

Acute toxicity (oral), category 4

Acute toxicity (dermal), category 3

Acute toxicity (inhalation: vapor), category 3
Skin corrosion, category 1B
Eye damage, category 1

2.2 Label elements

Pictogram



Signal Word: Danger

Hazard statements:

- H225: Highly flammable liquid and vapor
- H302: Harmful if swallowed
- H311 + H331: Toxic in contact with skin or inhaled
- H314: Causes severe skin burns and eye damage
- H318: Causes serious eye damage

Precautionary statements:

- P280: Wear protective gloves/protective clothing/eye protection/face protection
- P210: Keep away from heat, open flames, sparks. – No smoking
- P233: Keep container tightly closed
- P240: Ground/bond container and receiving equipment
- P241: Use explosion-proof electrical equipment
- P242: Use only non-sparking tools
- P243: Take precautionary measures against static discharge
- P270 + P378: In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish
- P260: Do not breathe vapors
- P270: Do not eat, drink or smoke when using this product
- P304 + P340: If inhaled: Remove person to fresh air and keep comfortable for breathing
- P301 + P330 + P331: If swallowed: Rinse mouth. Do NOT induce vomiting
- P301 + P312: If swallowed: Call a doctor if you feel unwell
- P303 + P361 + P353: If on skin (or hair): take off immediately all contaminated clothing, rinse skin with water/ shower.
- P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P364: Wash hands thoroughly after handling.
- P361: Take off immediately all contaminated clothing.
- P363: Wash contaminated clothing before reuse.
- P271: Use only outdoors or in a well-ventilated area.
- P403 + P235: Store in a well-ventilated area. Keep in a cool place.
- P405: Store locked up.
- P501: Dispose of contents / container to licensed waste disposal facility.

2.3 Other Hazards:

Hexamethyldisilazane reacts with moisture in living tissue to generate ammonia.

Hazardous Material Information System USA

Health 3
Fire Hazard 4
Reactivity 1
Personal Protection

NFPA Rating (estimated)

Health 3
Flammability..... 3
Reactivity 1

Section 3: Composition

3.1 Substance:

Hexamethyldisilazane CAS# 999-97-3 EC# 213-668-5 95-100%

Section 4: First Aid Measures

4.1 Description of first aid measures:

General:

Remove contaminated clothing and shoes.
In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
If possible, show this sheet; if not available, show packaging or label.

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a poison center or doctor/ physician.

Skin Contact:

Wash with plenty of soap and water.
Get immediate medical advice/ attention.

Eye Contact:

Immediately flush eyes thoroughly with water for at least 15 minutes.
Remove contact lenses, if present and easy to do.
Continue rinsing.
Get immediate medical advice/ attention.

Ingestion:

Never give anything by mouth to an unconscious person.
Call a POISON CENTER or doctor/ physician if you feel unwell

Self-protection of the first aider:

No additional information available.

4.2 Most important symptoms and effects, both acute and delayed:

Causes severe skin burns and eye damage.
Toxic if inhaled. Danger of serious damage to health by prolonged exposure through inhalation.
May cause irritation to the respiratory tract. Overexposure may cause: Nausea. Coughing. Headache.
Toxic in contact with skin. Repeated exposure to this material can result in absorption through skin, causing significant health hazard.
Causes (severe) skin burns.
Causes serious eye damage.
Swallowing a small quantity of this material will result in serious health hazard.

- 4.3 Indication of any immediate medical attention and special treatment needed:
No additional information available.

Section 5: Fire Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray. Foam. Carbon dioxide. Dry chemical.

5.2 Special hazards arising from the substance or mixture

Fire hazard: Highly flammable liquid and vapor.

Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

Liquid generates strong static charge when poured.

Explosion hazard: May form flammable/ explosive vapor-air mixture.

5.3 Advice for firefighters

Fire-fighting instructions: Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.

Special protective equipment and precautions for firefighters:

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

Avoid all eye and skin contact and do not breathe vapor and mist.

Section 6: Accidental Release Measures

6.1 Personal precautions

Remove ignition sources.

Use special care to avoid static electric charges.

Evacuate unnecessary personnel.

Equip cleanup crew with proper protection.

6.2 Environmental precautions

Prevent entry to sewers and public waters.

Notify authorities if liquid enters sewers or public waters.

6.3 Methods and material for containment and cleaning up

Clean up any spills as soon as possible, using an absorbent material to collect it.

Sweep or shovel spills into appropriate container for disposal.

Use only non-sparking equipment.

6.4 Reference to other sections

See Section 8 for exposure controls and personal protection.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Additional hazards when processed: Hexamethyldisilazane is known to have an exceptional tendency to accumulate static charge. Human fatality has been reported from fires ignited by static discharge of hexamethyldisilazane. The user must take extreme care to dissipate static charge by grounding of all equipment involved in liquid transfer. Handle empty containers with care because residual vapors are flammable.

Protective measures: Containers must be properly grounded before beginning transfer. Take precautionary measures against static discharge. Provide good ventilation on process area to prevent accumulation of vapors. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Do not breathe vapors.

Advice on general hygiene conditions: Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

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. Use explosion-proof electrical equipment. Comply with applicable regulations.

Storage conditions: Keep container tightly closed.

Incompatible materials: Acids. Alcohols. Oxidizing agents. Peroxides. Moisture. Water.

Storage area: Store in a cool area. Store in a well-ventilated place. Store away from heat.

7.3 Specific end uses

Chemical intermediate.

For research and industrial use only.

This material is not being offered for clinical or diagnostic applications, agricultural uses or for human or animal consumption.

Section 8: Exposure Controls and Personal Protection

8.1 Control parameter and Personal Protection

Workplace exposure limits

Hexamethyldisilazane	CAS# 999-97-3	OSHA PEL (TWA)(ppm)	35 ppm (ammonia)
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Biological limit values: No data available.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Provide local exhaust or general room ventilation.

8.2.2 Individual protection measures

Avoid all unnecessary exposure.

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection: Neoprene or nitrile rubber gloves.

Eye protection: Chemical splash goggles or face shield. Contact lenses should not be worn.

Skin and body protection: Wear suitable protective clothing.

Respiratory protection: NIOSH-certified combination organic vapor-amine gas (brown cartridge) respirator.

8.2.3 Environmental exposure controls
No further relevant information available.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance: Clear, colorless liquid

Odor: Ammonia

Odor threshold: No data available

pH: No data available

Melting point/Freezing point: <76 °C

Boiling point/Boiling point range: 126-127 °C

Flash Point: 12 °C

Auto-ignition temperature: 325 °C

Evaporation rate: ~1 (butyl acetate=1)

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

Upper/lower flammability or explosive limits: 0.3 – 41 vol %

Vapor Pressure: 50 mm Hg @ 50 °C

Relative vapor density at 20 °C: >1

Relative density: 0.7742

Solubility: Insoluble in water. Reacts with water.

VOC content: 100 %

Partition coefficient (n-octanol/water): No data available

Decomposition temperature: No data available

Viscosity

Kinematic: 0.90cSt

Dynamic: No data available

Explosive properties: No data available

Oxidizing Properties: No data available

9.2 Other information

No additional information available.

Section 10: Stability and Reactivity

10.1 Reactivity- No additional information available.

10.2 Chemical Stability – Stable in sealed containers in a cool place.

10.3 Possibility of Hazardous Reactions – Reacts with water and moisture in air, liberating ammonia.

10.4 Conditions to avoid – Heat. Open flame. Sparks.

10.5 Incompatible materials – Acids. Alcohols. Oxidizing agents. Peroxides. Moisture. Water.

10.6 Hazardous decomposition products – Ammonia. Organic acid vapors.

Section 11: Toxicological Information

Information on the likely routes of exposure

11.1 Information on toxicological effects

a. acute toxicity

Oral: Harmful if swallowed.

Dermal: Toxic in contact with skin.

Inhalation: vapor: Toxic if inhaled.

1,1,1,3,3,3-Hexamethyldisilazane (CAS # 999-97-3)

ATE US (oral) 500.000 mg/kg body weight

ATE US (dermal) 300.000 mg/kg body weight

ATE US (vapors) 3.000 mg/l/4h

Hexamethyldisilazane (CAS # 999-97-3)

LD50 oral, rat 850 mg/kg

LD50 dermal, rabbit 540 mg/kg

LC50 inhalation, rat 8.7 mg/l/4h

LDLo intraperitoneal, rat 650 mg/kg

ATE US (oral) 847.000 mg/kg body weight

ATE US (dermal) 540 mg/kg body weight

ATE US (vapors) 8.700 mg/l/4h

ATE US (dust, mist) 8.700 mg/l/4h

b. skin corrosion/irritation

Causes severe skin burns and eye damage.

c. serious eye damage/irritation

Causes serious eye damage.

d. respiratory or skin sensitization

Not classified

e. germ cell mutagenicity

Not classified

Bacterial reverse mutation test (Ames) is negative (non-mutagenic).

f. carcinogenicity

Not classified

g. reproductive toxicity

Not classified

h. STOT-single exposure

Not classified

i. STOT-repeated exposure

Not classified

j. aspiration hazard

Not classified

Potential adverse human health effects and symptoms:

Harmful if swallowed.
Toxic in contact with skin.
Toxic if inhaled.

Symptoms/ injuries after inhalation:

Toxic if inhaled.
Danger of serious damage to health by prolonged exposure through inhalation.
May cause irritation to the respiratory tract.
Overexposure may cause: Nausea. Coughing. Headache.

Symptoms/ injuries after skin contact:

Toxic in contact with skin.
Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Causes (severe) skin burns.

Symptoms/ injuries after eye contact:

Causes serious eye damage.

Symptoms/ injuries after ingestion:

Swallowing a small quantity of this material will result in serious health hazard.

Section 12: Ecological Information

12.1 Toxicity

Hexamethyldisilazane (CAS # 999-97-3)

LC50	fish 1	167 mg/l (exposure time: 96 h – Species: Pimephales promelas [static])
EC50	Daphnia 1	186 mg/l (exposure time: 48 h – Species: Daphnia magna)

12.2 Persistence and degradability

No additional information available.

12.3 Bio-accumulative potential

No additional information available.

12.4 Mobility in soil

No additional information available.

12.5 Results of PBT and vPvB assessment

No additional information available.

12.6 Other adverse effects

Effect on ozone layer: No additional information available.
Effect on the global warming: No known ecological damage caused by this product.

Section 13: Disposal Considerations

13.1 Waste treatment methods

Waste disposal recommendations:

Dispose in a safe manner in accordance with local/ national regulations.
Dispose of contents/ container to licensed waste disposal facility.

Additional information:

Handle empty containers with care because residual vapors are flammable.

Ecology – waste materials: Avoid release to the environment.

Section 14: Transport Information

DOT

UN Number: UN3286

Proper Shipping Name: Flammable liquid, Toxic, Corrosive, N.O.S. (1,1,1,3,3,3-Hexamethyldisilazane)

Class: 3 – Flammable and combustible liquid

Hazard labels: 3 (6.1, 8)

3 Flammable liquid

6.1 Poison

8 Corrosive

Packing Group: II

IATA

UN Number: UN3286

Proper Shipping Name: FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.

(1,1,1,3,3,3-HEXAMETHYLDISILAZANE)

Class:3

Hazard labels: 3 (6.1, 8)

3 Flammable liquid

6.1 Poison

8 Corrosive

Packing Group: II

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/ legislation specific for the substance or mixture

US Federal Regulations: Hexamethyldisilazane (CAS # 999-97-3):

TSCA: Listed on the US TSCA inventory.

SARA 302:

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

SARA 311/312:

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

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.

International Regulations: Hexamethyldisilazane (CAS# 999-97-3) is:

Listed on the AICS (Australian Inventory of Chemical Substances).

Listed on the Canadian DSL (Domestic Substances List).

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China).

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances).

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory.

Listed on the Korean ECL (Existing Chemicals List).

Listed on NZIoC (New Zealand Inventory of Chemicals).

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances).

Listed on INSQ (Mexican National Inventory of Chemicals Substances).

US State Regulations:

California Prop. 65:

Carcinogens list – no
Developmental toxicity – no
Reproductive Toxicity – Female – no
Reproductive Toxicity – Male – no

State Right-to-Know Lists:

CAS # 999-97-3 is listed on the Pennsylvania Right-to-Know List.
CAS # 999-97-3 is listed on the New Jersey Right-to-Know List.

15.2 Chemical Safety Assessment

No further relevant information available.

Date of Preparation: 13 April 2017

Abbreviations and acronyms

IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
CMRG: Chemical Manufacturer's Recommended Guidelines
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bio-accumulative and Toxicological
vPvB: very Persistent and very Bio-accumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
STEL: Short Term Exposure Limit
CEIL: Ceiling

Section 16: Other Information

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