SAFETY DATA SHEET
FILE NO.: SS-5012 DATE: 27/03/2018

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Product name: HEXAMETHYLDISILAZANE aka HMDZ and/or HMDS

Product Number: SS-5012

CAS No: 999-97-3

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

Industrial

Intermediate chemical

1.3 Details of the supplier of the safety data sheet

Manufactured/Supplied by Silsource Inc.

ADDRESS: 10625 Bryant Sideroad, Port Perry, Ontario, L9L 2C6

CHEMICAL EMERGENCY ONLY (PHONE): CANUTEC (613) 996-6666 [24 Hr.]

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Flammable liquids:	Category 2
Acute toxicity (Oral):	Category 4
Acute toxicity (Inhalation):	Category 3
Acute toxicity (Dermal):	Category 3
Skin corrosion:	Category 1B
Serious eye damage:	Category 1
Chronic aquatic toxicity:	Category 3

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

Pictogram:

Signal word: Danger

Hazard statement(s):	H225:	Highly flammable liquid and vapour.
	H302:	Harmful if swallowed.
	H311 + H331:	Toxic in contact with skin or if inhaled
	H314:	Causes severe skin burns and eye damage.
	H318:	Causes serious eye damage.
	H412:	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

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 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.

Response: P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
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 + P233 Store in a well-ventilated place. Keep container tightly closed.
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.

2.3 Other hazards – none

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms: HEXAMETHYLDISILAZANE aka HMDZ or HMDS
Molecular Weight (g/mol): 161.4

Component	CAS No.	Concentration
1,1,1,3,3,3-Hexamethyldisilazane (HMDS)	999-97-3	>= 90 - <= 100
Hexamethyldisiloxane	107-46-0	>= 1 - < 5

3.2 Mixtures

Not Relevant

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

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

If inhaled: Move to fresh air.
Consult a physician after significant exposure.

In case of skin contact: Take off contaminated clothing and shoes immediately.
Wash off with soap and plenty of water.
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

In case of eye contact: Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical

	advice.
	Continue rinsing eyes during transport to hospital.
	Remove contact lenses.
	Protect unharmed eye.
	Keep eye wide open while rinsing.
If swallowed:	Clean mouth with water and drink afterwards plenty of water.
	Do NOT induce vomiting.
	Do not give milk or alcoholic beverages.
	Never give anything by mouth to an unconscious person.
	Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed:	None known.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, Carbon dioxide (CO2), Dry chemical

5.2 Special hazards arising from the substance or mixture

By heating and fire, harmful vapors/gases may be formed.

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentra-tions. Vapours can accumulate in low areas.

6.2 Environmental precautions

Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible ab-sorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on protection against fire and explosion: Avoid formation of aerosol. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Avoid contact with skin and eyes.For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in

work rooms. Container may be opened only under exhaust ventilation hood. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.

7.2 Conditions for safe storage, including any incompatibilities

No smoking. Store in cool place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.

7.3 Specific end uses

no data available

SECTION 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

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.

Skin protection

Solvent-resistant gloves The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Before removing gloves clean them with soap and water.

Body Protection

Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection

In the case of vapour formation use a respirator with an approved filter.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	liquid
Colour	clear
Boiling point/boiling range	126°C
Auto-ignition temperature	330°C
Flash point	11°C
Vapour pressure	1.3 kPa (20°C)
Relative vapour density	5.5
Density	0.777 g/cm^3 (25°C)
Partition coefficient: noctanol/ Water	log Pow: 2.62

9.2 Other safety information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Stable under recommended storage conditions. No decomposition if used as directed. Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Acids, Bases, Oxidizing agents, Humid air, water

10.6 Hazardous decomposition products

Ammonia gas may be liberated at high temperatures.

Reactive with Water/Air: Contact with water liberates toxic gas (Ammonia)

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Product:

Acute oral toxicity	Acute toxicity estimate: 847.43 mg/kg
	Method: Calculation method
Acute inhalation toxicity	Acute toxicity estimate: 8.56 mg/l
	Exposure time: 4 h
	Test atmosphere: vapour
	Method: Calculation method
Acute Dermal toxicity	Acute toxicity estimate: 544 mg/kg
	Method: Calculation method

Components:

1,1,1,3,3,3-Hexamethyldisilazane (HMDZ):

Acute oral toxicity:	LD50 (rat): 850 mg/kg
Acute inhalation toxicity:	LC50 (rat): 8,700 mg/m3
	Exposure time: 4 h
	Test atmosphere: vapour
Acute dermal toxicity:	LD50 (rabbit): 544 mg/kg

Hexamethyldisiloxane:

Acute oral toxicity:	LD50 (rat): > 5,000 mg/kg
Acute inhalation toxicity:	LC50 (rat): 15956 ppm
	Exposure time: 4 h
	Test atmosphere: gas
Acute dermal toxicity:	LD50 (rabbit): > 5,000 mg/kg

Skin corrosion/irritation

Product: Remarks: Extremely corrosive and destructive to tissue.

Components:

1,1,1,3,3,3-Hexamethyldisilazane (HMDZ):

Species: rabbit

Assessment: Causes severe burns.

Result: Severe skin irritation

Hexamethyldisiloxane:

Species: rabbit

Exposure time: 24 h
Assessment: Irritating to skin.
Result: Mild skin irritation

Serious eye damage/eye irritation

Product: Remarks: May cause irreversible eye damage.

Components:

1,1,1,3,3,3-Hexamethyldisilazane (HMDS):

Result: Risk of serious damage to eyes.

Hexamethyldisiloxane:

Species: rabbit
Result: Mild eye irritation
Exposure time: 24 h
Assessment: Irritating to eyes.

Respiratory or skin sensitisation

Product: Remarks: no data available

Germ cell mutagenicity

Components:

Hexamethyldisiloxane:

Genotoxicity in vitro: Test Type: Ames Test
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.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcino-gen by OSHA.

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

Further information

Product: Remarks: Solvents may degrease the skin.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Components:

1,1,1,3,3,3-Hexamethyldisilazane (HMDS):

Toxicity to fish:	LC50 (Danio rerio (zebra fish)): 88 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates:	EC50 (Daphnia magna (Water flea)): 80 mg/l Exposure time: 48 h
Toxicity to algae:	EC50 (Desmodesmus subspicatus (green algae)): 19 mg/l Exposure time: 72 h

Hexamethyldisiloxane:

Toxicity to fish:	LC50 (Oncorhynchus mykiss (rainbow trout)): 3.02 mg/l

Exposure time: 96 h
Test Type: flow-through test

Persistence and degradability

Components:

1,1,1,3,3,3-Hexamethyldisilazane (HMDS):

Biodegradability: Result: Not readily biodegradable.
Biodegradation: 15.3 %
Method: OECD Test Guideline 301

Hexamethyldisiloxane:

Biodegradability: Result: Not readily biodegradable.

Bioaccumulative potential

Components:

1,1,1,3,3,3-Hexamethyldisilazane (HMDZ):

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

Hexamethyldisiloxane:

Partition coefficient: n-octanol/water: log Pow: 3.1 (25 °C)

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 defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal Methods

Waste from residues: The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemi-cal or used container.
Offer surplus and non-recyclable solutions to a licensed dis-posal company.

Contaminated packaging: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: TRANSPORT INFORMATION

14 International Regulation

IATA-DGR

UN/ID No.: UN 3286

Proper shipping name: Flammable liquid, toxic, corrosive, n.o.s. (1,1,1,3,3,3-Hexamethyldisilazane)

Class:	3
Subsidiary risk:	6.1, 8
Packing group:	II
Labels:	Flammable Liquids, Toxic Substances, Corrosives
Packing instruction (cargo aircraft):	363
Packing instruction (passenger aircraft):	352

IMDG-Code

UN number:	UN 3286
Proper shipping name:	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (1,1,1,3,3,3-Hexamethyldisilazane)
Class:	3
Subsidiary risk:	6.1, 8
Packing group:	II
Labels:	3 (6.1, 8)
EmS Code:	F-E, S-C
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 Regulations

49 CFR

UN/ID/NA number:	UN 3286
Proper shipping name:	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S. (1,1,1,3,3,3-Hexamethyldisilazane)
Class:	3
Subsidiary risk:	6.1, 8
Packing group:	II
Labels:	FLAMMABLE LIQUID, TOXIC, CORROSIVE
ERG Code:	131
Marine pollutant:	no

SECTION 15: REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

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 311/312 Hazards:	Fire Hazard Acute Health Hazard
SARA 302:	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313:	SARA 313: This material does not contain any chemical com-ponents 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 12 (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 SOCMI 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. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

California Prop 65:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other re-productive harm.

SECTION 16: OTHER INFORMATION

This data is offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is made. The recommended handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use.

This SDS was prepared sincerely on the basis of the information we could obtain, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. Products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.

This SDS is compliant with the GHS requirements outlined at http://www.ccohs.ca/oshanswers/chemicals/whmis_ghs/sds.html

Date Updated: 01/03/2018
Version: 1