Safety data sheet
according to 1907/2006/EC, Article 31

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

· **1.1 Product identifier**

· **Trade name: Hexamethyldisilazane**

· **Article number:** AGR1228
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
HMDS, $[(CH_3)3Si]_2NH$, can be used in place of critical point drying for the preparation of soft tissue for SEM examination, for example, of delicate insect tissues.
It is faster, preserves surface detail, reduces thermal and pressure stresses, and may also reduce the extraction of cellular components compared with CPD. HMDS can be used to dry specimens such as bacteria on polycarbonate filters.
· **Sector of Use** Laboratory chemicals, Manufacture of substances.
· **Application of the substance / the preparation:** No further relevant information available.

· **1.3 Details of the supplier of the safety data sheet**
· **Supplier.**
Agar Scientific Ltd
Parsonage Lane
Stansted CM24 8GF
United Kingdom
sales@agarscientific.com
Tel: +44 (0) 1279 813 519

· **Further information obtainable from:** Technical Support
· **1.4 Emergency telephone number:** 24 hours: +44 (0)1856 407333

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**


flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.


skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H332 Harmful if inhaled.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**


GHS02


GHS06

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· **Signal word** Danger

· **Hazard-determining components of labelling:**
1,1,1,3,3,3-Hexamethyldisilazane
· **Hazard statements**
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 statements**
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read carefully and follow all instructions.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241 Use explosion-proof [electrical/ventilating/lighting] equipment.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P321 Specific treatment (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **2.3 Other hazards**
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**
Synonyms : HMDS
Formula : $C_6H_{19}NSi_2$
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 999-97-3 EINECS: 213-668-5	1,1,1,3,3,3-Hexamethyldisilazane Flam. Liq. 2, H225; Acute Tox. 3, H311; Acute Tox. 4, H302; Acute Tox. 4, H332; Aquatic Chronic 3, H412	95.0%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
In case of irregular breathing or respiratory arrest provide artificial respiration.
Consult a physician. Show this safety data sheet to the doctor in attendance.
· **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
No adverse effects are anticipated from inhalation.
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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· **After skin contact:**
Wash with water and soap and rinse thoroughly.
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
· **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
Flush eyes with water as a precaution.
· **After swallowing:**
Call for a doctor immediately.
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 further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **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**
· **Protective equipment:**
Positive pressure self-contained breathing apparatus.
Wear self-contained breathing apparatus for firefighting if necessary.
· **Additional information** Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective gloves and glasses.
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:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
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 material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
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**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.
· **Information about fire - and explosion protection:**
The dried resin is combustible, similar to wood. Burning dry resin emits dense, black smoke. As latex, material is not combustible.
Protect against electrostatic charges.

· **7.2 Conditions for safe storage, including any incompatibilities**
Handle under nitrogen, protect from moisture. Store under nitrogen. Store in cool place. 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.
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Storage class (TRGS 510): Flammable liquids.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**
· **Additional information about design of technical facilities:** No further data; see item 7.
· **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of 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).

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· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
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.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
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)

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 industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

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).

· **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.

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

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Colour:	Colourless
· **Odour:**	Characteristic
· **Odour threshold:**	Not determined.
· **pH-value at 20 °C:**	>7
· **Change in condition**	
Melting point/freezing point:	-76.19 °C -76.19 (1.013 hPa) ºC
Initial boiling point and boiling range:	125 °C
· **Flash point:**	11 °C (closed cup)
· **Flammability (solid, gas):**	Not applicable.
· **Ignition temperature:**	380 ºC
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
Lower:	0.8 %
Upper:	16.3 %
· **Vapour pressure at 20 °C:**	19 hPa 19 (20ºC) hPa
· **Density at 20 °C:**	0.774 g/cm³
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Not miscible or difficult to mix.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic at 20 °C:	0.9 mm²/s
· **Solvent content:**	
Water:	5.0 %
VOC (EC)	0.00 %
Solids content:	0.0 %
· **9.2 Other information**	No further relevant information available.

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SECTION 10: Stability and reactivity

· **10.1 Reactivity** No data available
· **10.2 Chemical stability**
Hydrolyses readily.
Stable under recommended storage conditions.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **10.4 Conditions to avoid**
Ammonia is formed upon contact with water or humid air.
Heat, flames and sparks.
· **10.5 Incompatible materials:** Strong oxidising agents, Strong acids.
· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity**
Harmful if swallowed or if inhaled.
Toxic in contact with skin.

· **LD/LC50 values relevant for classification:**		
999-97-3 1,1,1,3,3,3-Hexamethyldisilazane		
Oral	LD50	851 mg/kg (rat)
Dermal	LD50	547-589 mg/kg (rabbit)

· **Specific symptoms in biological assay:**
· **Skin corrosion/irritation**
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)
· **Serious eye damage/irritation**
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)
· **Respiratory or skin sensitisation** No data available.
· **Other information (about experimental toxicology):**
Repeated dose toxicity
Rat - male and female - inhalation (vapour) - NOAEL : 2,640 mg/m3 - OECD Test

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.
· **Additional toxicological information:**
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity**
Ames test
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.

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· **Reproductive toxicity**
Reproductive toxicity - Rat - male and female - inhalation (vapour)
No adverse effect has been observed in chronic toxicity tests.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability**
Biodegradability
aerobic - Exposure time 28 d
Result: 15.3 % - Not readily biodegradable.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Harmful to aquatic organisms
· **12.5 Results of PBT and vPvB assessment**
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.
· **Recommendation:** Contaminated packaging should be disposed of as unused product.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	UN1992
· **14.2 UN proper shipping name**	
· **ADR**	1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (1,1,1,3,3,3-Hexamethyldisilazane)
· **IMDG, IATA**	FLAMMABLE LIQUID, TOXIC, N.O.S. (1,1,1,3,3,3-Hexamethyldisilazane)

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· **14.3 Transport hazard class(es)**

· **ADR**

· **Class**	3 Flammable liquids.
· **Label**	3+6.1

· **IMDG**

· **Class**	3 Flammable liquids.
· **Label**	3/6.1

· **IATA**

· **Class**	3 Flammable liquids.
· **Label**	3 (6.1)

· **14.4 Packing group**	
· **ADR, IMDG, IATA**	II
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Hazard identification number (Kemler code):**	336
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **Stowage Code**	SW2 Clear of living quarters.
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2
· **Tunnel restriction code**	D/E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

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· **UN "Model Regulation":**	UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (1,1,1,3,3,3-HEXAMETHYLDISILAZANE), 3 (6.1), II

SECTION 15: Regulatory information

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

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Seveso category** P5c FLAMMABLE LIQUIDS
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge and should assist the user with the safe handling of this material when properly applied. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

· **Department issuing SDS:** Sales department
· **Contact:**
sales@agarscientific.com
Tel: +44 (0) 1279 813 519
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3