

HEXAMETHOXYDISILANE, tech-95

Safety Data Sheet SIH6101.0

Date of issue: 26/02/2016 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Physical state	: Liquid
Substance name	: HEXAMETHOXYDISILANE, tech-95
Product code	: SIH6101.0
Formula	: C6H18O6Si2
Synonyms	: DISILANE, 1,1,1,2,2,2-HEXAMETHOXY-
Chemical family	: SILICATE ESTER

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

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info@gelestde.com - www.gelestde.com**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Flammable liquids, Category 2	H225
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335
Full text of H statements : see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



GHS02

GHS05

GHS07

Signal word (CLP) : Danger

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Hazard statements (CLP)	: H225 - Highly flammable liquid and vapour. H315 - Causes skin irritation. H318 - Causes serious eye damage. H335 - May cause respiratory irritation.
Precautionary statements (CLP)	: P280 - Wear protective gloves/protective clothing/eye protection/face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P240 - Ground/bond container and receiving equipment. P261 - Avoid breathing vapours. P264 - Wash hands thoroughly after handling. P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

Other hazards not contributing to the classification	: Additional methanol may be formed by reaction with moisture and water. The US OSHA PEL (TWA) for methanol is 200 ppm.
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SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type	: Mono-constituent
Name	: HEXAMETHOXYDISILANE, tech-95
CAS-No.	: 5851-07-0

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Hexamethoxydisilane	(CAS-No.) 5851-07-0	90 - 100	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
First-aid measures after skin contact	: Wash with plenty of water/.... Get medical advice/attention.
First-aid measures after 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.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER/doctor.

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

Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes serious eye damage. Even mild exposures can cause conjunctivitis and corneal scarring. Initial symptoms of exposure may include a "scratchy" feeling in the eyes. Silicon tetramethoxide causes severe eye injuries, as well as necrosis of corneal cells, which can progress long after exposure has ceased. These destructive effects resist treatment and permanent blindness is possible from exposure.
Symptoms/effects after ingestion	: Oral toxicity is associated with methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness.
Chronic symptoms	: On contact with water this compound liberates methanol which is known to have a chronic effect on the central nervous system. Methanol may affect the central nervous system resulting in persistent or recurring headaches or impaired vision.

4.3. Indication of any immediate medical attention and special treatment needed

NOTE TO PHYSICIAN: This product reacts with water in the acid contents of the stomach to form methanol. The combination of visual disturbances, metabolic acidosis and formic acid in urine is evidence of methanol poisoning. The therapeutic intravenous administration of ethanol (10 ml/hour) allows methanol to be preferentially oxidized and reduces production of methanol metabolites. Acidosis must be treated with intravenous administration of sodium bicarbonate and methanol elimination may be increased by hemodialysis, as indicated. Treatment should be based on blood methanol levels and acid-base balance.

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SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray. Water fog. Foam. Carbon dioxide. Dry chemical.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Highly flammable liquid and vapour. Vapors of hexamethoxysilane cause corneal injury and blindness on even short exposures. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

- Firefighting instructions : Avoid exposure of eyes to vapors. Exercise caution when fighting any chemical fire. Fire fighters must wear positive pressure self-contained breathing apparatus. Use water spray or fog for cooling exposed containers.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Eliminate every possible source of ignition. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal 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

- For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : With adequate eye protection, absorb material and transfer to a suitable container for hydrolysis and disposal. Use only non-sparking tools.

6.4. Reference to other sections

- See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Handle empty containers with care because residual vapours are flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.
Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
Storage conditions : Keep container tightly closed. Keep in a cool place. Store locked up.
Incompatible materials : Oxidizing agent. Moisture. Water.
Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

- No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

HEXAMETHOXYDISILANE, tech-95 (5851-07-0)		
Australia	TWA (mg/m ³)	6 mg/m ³
Australia	TWA (ppm)	1 ppm

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8.2. Exposure controls

Appropriate engineering controls:

Handle in an enclosing hood with exhaust ventilation. Local exhaust is needed at source of vapours.

Personal protective equipment:

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 worker's goggles must be worn. Safety glasses are not adequate eye protection. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. NIOSH-certified full-face supplied air respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear liquid.
Molecular mass	: 242.37 g/mol
Colour	: No data available
Odour	: characteristic. Slight. Antiseptic.
Odour threshold	: No data available
Refractive index	: 1.407
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: < 0 °C
Freezing point	: No data available
Boiling point	: 98 °C @ 20 mm Hg
Flash point	: < 65 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapour.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: > 1
Relative density	: 1.095
% Volatiles	: 100 %
Solubility	: Reacts with water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 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.

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10.3. Possibility of hazardous reactions

Material decomposes slowly in contact with moist air or with water liberating methanol.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Moisture. Oxidizing agent. Water.

10.6. Hazardous decomposition products

Methanol. Organic acid vapors. Silicon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye damage. Severe eye injury and permanent blindness have been reported for humans. Eye Irritation - rabbit: 250 mg; Severe Irritant
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: May cause respiratory irritation. Under experimental conditions, the kidney was found to be the target organ. Overexposure can cause lung damage - pulmonary toxin.
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Severe eye injury and permanent blindness on contact with vapors are expected for this compound. No data has been collected. The material is expected to be analogous to the well-documented tetramethoxysilane. This material slowly generates methanol on contact with water and moisture in living tissues. Material generates methanol on contact with water or moisture in skin, eyes and mucous membranes and has an irritating, dehydrating effect on overexposed tissue.
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes serious eye damage. Even mild exposures can cause conjunctivitis and corneal scarring. Initial symptoms of exposure may include a "scratchy" feeling in the eyes. Silicon tetramethoxide causes severe eye injuries, as well as necrosis of corneal cells, which can progress long after exposure has ceased. These destructive effects resist treatment and permanent blindness is possible from exposure.
Symptoms/effects after ingestion	: Oral toxicity is associated with methanol, the solvent and a hydrolysis product which causes nausea, vomiting, headache, visual effects including blindness.
Chronic symptoms	: On contact with water this compound liberates methanol which is known to have a chronic effect on the central nervous system. Methanol may affect the central nervous system resulting in persistent or recurring headaches or impaired vision.
Reason for classification	: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative 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

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12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging 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 vapours are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2924
UN-No. (IMDG) : 2924
UN-No. (IATA) : 2924
UN-No. (ADN) : 2924
UN-No. (RID) : 2924

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (IATA) : Flammable liquid, corrosive, n.o.s.
Proper Shipping Name (ADN) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (RID) : FLAMMABLE LIQUID, CORROSIVE, N.O.S.
Transport document description (ADR) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (HEXAMETHOXYDISILANE), 3 (8), II, (D/E)
Transport document description (IMDG) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (HEXAMETHOXYDISILANE), 3 (8), II
Transport document description (IATA) : UN 2924 Flammable liquid, corrosive, n.o.s. (HEXAMETHOXYDISILANE), 3 (8), II
Transport document description (ADN) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (HEXAMETHOXYDISILANE), 3 (8), II
Transport document description (RID) : UN 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (HEXAMETHOXYDISILANE), 3 (8), II

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 3 (8)
Danger labels (ADR) : 3, 8



IMDG

Transport hazard class(es) (IMDG) : 3 (8)
Danger labels (IMDG) : 3, 8



IATA

Transport hazard class(es) (IATA) : 3 (8)
Hazard labels (IATA) : 3, 8

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ADN

Transport hazard class(es) (ADN) : 3 (8)
Danger labels (ADN) : 3, 8



RID

Transport hazard class(es) (RID) : 3 (8)
Danger labels (RID) : 3, 8



14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : FC
Special provisions (ADR) : 274
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001, IBC02
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T11
Portable tank and bulk container special provisions (ADR) : TP2, TP27
Tank code (ADR) : L4BH
Vehicle for tank carriage : FL
Transport category (ADR) : 2
Special provisions for carriage - Operation (ADR) : S2, S20
Hazard identification number (Kemler No.) : 338
Orange plates :



Tunnel restriction code (ADR) : D/E

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- Transport by sea

Special provisions (IMDG)	: 274
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T11
Tank special provisions (IMDG)	: TP2, TP27
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-C
Stowage category (IMDG)	: B
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Causes burns to skin, eyes and mucous membranes.

- Air transport

PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y340
PCA limited quantity max net quantity (IATA)	: 0.5L
PCA packing instructions (IATA)	: 352
PCA max net quantity (IATA)	: 1L
CAO packing instructions (IATA)	: 363
CAO max net quantity (IATA)	: 5L
Special provisions (IATA)	: A3
ERG code (IATA)	: 3CH

- Inland waterway transport

Classification code (ADN)	: FC
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 1

- Rail transport

Classification code (RID)	: FC
Special provisions (RID)	: 274
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T11
Portable tank and bulk container special provisions (RID)	: TP2, TP27
Tank codes for RID tanks (RID)	: L4BH
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE7
Hazard identification number (RID)	: 338

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

HEXAMETHOXYDISILANE, tech-95 is not on the REACH Candidate List

HEXAMETHOXYDISILANE, tech-95 is not on the REACH Annex XIV List

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HEXAMETHOXYDISILANE, tech-95 is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

HEXAMETHOXYDISILANE, tech-95 is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

% Volatiles : 100 %

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard : Class III-1
Store unit : 50 liter
Classification remarks : Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Liq. 2	Flammable liquids, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

SDS EU (REACH Annex II) - Custom

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