TRIS(DIMETHYLAMINO)SILANE

Safety Data Sheet SIT8714.0

Date of issue: 05/08/2014 Revision date: 08/31/2015 Version: 2.0

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

1.1. Product identifier

Product form	:	Substance
Physical state	:	Liquid
Substance name	:	TRIS(DIMETHYLAMINO)SILANE
Product code	:	SIT8714.0
Formula	:	C6H19N3Si
Synonyms	:	TRIS(DIMETHYLAMIDO)SILYLHYDRIDE; N,N,N',N',N'',N''-HEXAMETHYLSILANETRIAMINE
Chemical family	:	ORGANOAMINOSILANE

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

Use of the substance/mixture	:	Chemical intermediate For research and industrial use only

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.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 (GHS-US)

Flam. Liq. 3	H226
Acute Tox. 4 (Oral)	H302
Acute Tox. 3 (Dermal)	H311
Acute Tox. 4 (Inhalation:vapour)	H332
Skin Corr. 1B	H314
Eye Dam. 1	H318
STOT SE 3	H335

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS02 GHS05 GHS06 GHS07

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H226 - Flammable liquid and vapor
H302+H332 - Harmful if swallowed or if inhaled
H311 - Toxic in contact with skin
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary statements (GHS-US) :
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P260 - Do not breathe vapors
P310 - Immediately call a doctor
P210 - Keep away from heat, open flames, sparks. - No smoking
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
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish

P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P301+P312 - If swallowed: Call a poison center/doctor/… if you feel unwell
P302+P352 - If on skin: Wash with plenty of water/…
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P361 - Take off immediately all contaminated clothing
P363 - Wash contaminated clothing before reuse
P271 - Use only outdoors or in a well-ventilated area
P233 - Keep container tightly closed
P403+P235 - Keep in a cool place
P405 - Store locked up
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards

Other hazards not contributing to the classification : Additional dimethylamine may be formed by reaction with moisture and water. The US OSHA PEL (TWA) for dimethylamine is 10 ppm.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Mono-constituent
Name : TRIS(DIMETHYLAMINO)SILANE
CAS No : 15112-89-7
EC no : 239-165-0

Name	Product identifier	%	Classification (GHS-US)
Tris(dimethylamino)silane	(CAS No) 15112-89-7	95 - 100	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 4 (Inhalation:vapour), H332 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335
Dimethylamine	(CAS No) 124-40-3		Flam. Gas 1, H220 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335

3.2. Mixture

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

First-aid measures after skin contact : Wash with plenty of soap and water. Get immediate 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 or doctor/physician.

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

Symptoms/injuries : Causes severe skin burns and eye damage.

Symptoms/injuries after inhalation : Harmful if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. May cause respiratory irritation. Overexposure may cause: Cough. Headache. Nausea.

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 : Harmful if swallowed. 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: Firefighting 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 : Flammable liquid and vapor. Irritating fumes of dimethylamine and organic acid vapors may develop when material is exposed to water or open flame.

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

5.3. Advice for firefighters

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

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 vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : 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

Methods for 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 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 vapors are flammable.

Precautions for safe handling : Containers must be properly grounded before beginning transfer. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. Use only non-sparking tools. Use only outdoors or in a well-ventilated area. Avoid all eye and skin contact and do not breathe vapor and mist.

Hygiene measures : 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.

Storage conditions : Keep container tightly closed.

Incompatible materials : Acids. Alcohols. 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

Dimethylamine (124-40-3)		
USA ACGIH	ACGIH TWA (ppm)	5 ppm
USA ACGIH	ACGIH STEL (ppm)	15 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	18 mg/m³
USA NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	18 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	10 ppm
USA IDLH	US IDLH (ppm)	500 ppm

8.2. Exposure controls

Appropriate engineering controls	:	Provide local exhaust or general room ventilation.
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 goggles or face shield. Contact lenses should not be worn.
Skin and body protection	:	Wear suitable protective clothing.
Respiratory protection	:	Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor - amine gas (brown cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Clear liquid.
Molecular mass	:	161.32 g/mol
Color	:	Straw.
Odor	:	Acrid. Amine-like.
Odor threshold	:	No data available
Refractive index	:	No data available
pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	-90 °C
Freezing point	:	No data available
Boiling point	:	145 - 148 °C
Flash point	:	25 °C
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Flammable liquid and vapor
Vapor pressure	:	16 mm Hg @ 4°C
Relative vapor density at 20 °C	:	> 1
Relative density	:	0.838
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
Oxidizing properties	:	No data available
Explosion 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 in sealed containers stored under a dry inert atmosphere.

10.3. Possibility of hazardous reactions

Reacts with water and moisture in air, liberating dimethylamine.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Acids. Alcohols. Oxidizing agent. Moisture. Water.

10.6. Hazardous decomposition products

Dimethylamine. Hydrogen. Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Dermal: Toxic in contact with skin. Inhalation:vapour: Harmful if inhaled.

TRIS(DIMETHYLAMINO)SILANE (15112-89-7)	
LD50 oral rat	594 mg/kg

Dimethylamine (124-40-3)	
LD50 oral rat	698 mg/kg
LD50 dermal rat	3900 mg/kg
LC50 inhalation rat (ppm)	4540 ppm (Exposure time: 6 h)
ATE US (oral)	698.000 mg/kg body weight
ATE US (dermal)	3900.000 mg/kg body weight
ATE US (gases)	4500.000 ppmV/4h
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/4h

Tris(dimethylamino)silane (15112-89-7)	
LD50 oral rat	594 mg/kg
LD50 dermal rabbit	477 mg/kg
LC50 inhalation rat (ppm)	38 ppm (Exposure time: 6 h)
ATE US (vapors)	11.000 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Harmful if swallowed. Harmful if inhaled. Toxic in contact with skin.

Symptoms/injuries after inhalation : Harmful if inhaled. Danger of serious damage to health by prolonged exposure through inhalation. May cause respiratory irritation. Overexposure may cause: Cough. Headache. Nausea.

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 : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

Dimethylamine (124-40-3)	
LC50 fish 1	111 - 125 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	88.7 mg/l (Exposure time: 48 h - Species: Daphnia magna Straus)
LC50 fish 2	120 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Dimethylamine (124-40-3)	
Log Pow	-0.274 (at 25 °C)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

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

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 : May be incinerated. 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

14.1. UN number

UN-No.(DOT) : 3384

DOT NA no. UN3384

14.2. UN proper shipping name

Proper Shipping Name (DOT) : TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. (TRIS(DIMETHYLAMINO)SILANE)

Department of Transportation (DOT) Hazard Classes : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132

Hazard labels (DOT) : 6.1 - Poison
3 - Flammable liquid

DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : I - Great Danger

DOT Packaging Exceptions (49 CFR 173.xxx) : None

DOT Packaging Non Bulk (49 CFR 173.xxx) : 227

DOT Packaging Bulk (49 CFR 173.xxx) : 244

14.3. Additional information

Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : D - The material must be stowed ‘‘on deck only’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.

DOT Vessel Stowage Other : 40 - Stow ‘‘clear of living quarters’’

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : Forbidden

SECTION 15: Regulatory information

15.1. US Federal regulations

Dimethylamine (124-40-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

Tris(dimethylamino)silane (15112-89-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

Dimethylamine (124-40-3)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Canadian DSL (Domestic Sustances 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)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican national Inventory of Chemical Substances)

Tris(dimethylamino)silane (15112-89-7)
Listed on the Canadian NDSL (Non-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 ISHL (Industrial Safety and Health Law)

15.3. US State regulations

TRIS(DIMETHYLAMINO)SILANE(15112-89-7)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No

Dimethylamine (124-40-3)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
No	No	No	No	

Tris(dimethylamino)silane (15112-89-7)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
No	No	No	No	

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.: Chemcial 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.

Full text of H-phrases::

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapor) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 3	Flammable liquids Category 3
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H226	Flammable liquid and vapor

H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H332	Harmful if inhaled
H335	May cause respiratory irritation

HMIS III Rating

Health : 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures

Flammability : 3 Serious Hazard

Physical : 2 Moderate Hazard

Prepared by safety and environmental affairs.

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SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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