

**TRIS(TRIMETHYLSILYLMETHYL)PHOSPHINE**

Safety Data Sheet SIT8722.7

Date of issue: 10/13/2017

Version: 1.0

SECTION 1: Identification**1.1. Identification**

Product name	: TRIS(TRIMETHYLSILYLMETHYL)PHOSPHINE
Product code	: SIT8722.7
Product form	: Substance
Physical state	: Solid
Formula	: C ₁₂ H ₃₃ PSi ₃
Synonyms	: TRIS(TRIMETHYLSILYLMETHYL)PHOSPHANE
Chemical family	: ORGANOSILANE

1.2. Recommended use and restrictions on use

Recommended use	: Chemical intermediate
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1.3. Supplier**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)
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SECTION 2: Hazard(s) identification**2.1. Classification of the substance or mixture****GHS-US classification**

Self-heating substances and mixtures Category 2	H252 Self-heating in large quantities; may catch fire
Acute toxicity (inhalation:dust,mist) Category 2	H330 Fatal if inhaled
Serious eye damage/eye irritation Category 2	H319 Causes serious eye irritation
Specific target organ toxicity (single exposure) Category 3	H335 May cause respiratory irritation
Specific target organ toxicity (repeated exposure) Category 2	H373 May cause damage to organs through prolonged or repeated exposure
Full text of H statements : see section 16	

2.2. GHS Label elements, including precautionary statements**GHS US labeling**

Hazard pictograms (GHS US)



Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: H252 - Self-heating in large quantities; may catch fire
 H319 - Causes serious eye irritation
 H330 - Fatal if inhaled
 H335 - May cause respiratory irritation
 H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS US)

: P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P310 - Immediately call a doctor
 P235+P410 - Keep cool. Protect from sunlight
 P260 - Do not breathe dust.
 P264 - Wash hands thoroughly after handling.
 P271 - Use only outdoors or in a well-ventilated area.
 P284 - [In case of inadequate ventilation] wear In case of inadequate ventilation wear respiratory protection..
 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
 P337+P313 - If eye irritation persists: Get medical advice/attention.
 P314 - Get medical advice/attention if you feel unwell.
 P320 - Specific treatment is urgent (see first aid instructions on this label)
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
 P405 - Store locked up.
 P407 - Maintain air gap between stacks/pallets.

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P420 - Store away from other materials.
P413 - Store bulk masses greater than ...kg/...lbs at temperatures not exceeding 25°C
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : TRIS(TRIMETHYLSILYLMETHYL)PHOSPHINE
CAS-No. : 18077-42-4

Name	Product identifier	%	GHS-US classification
Tris[(trimethylsilylmethyl)]phosphine	(CAS-No.) 18077-42-4	95 - 100	Self-heat. 2, H252 Acute Tox. 2 (Inhalation), H330 Eye Irrit. 2A, H319 STOT SE 3, H335 STOT RE 2, H373

Full text of hazard classes and 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 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 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 medical advice/attention.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : May cause damage to organs through prolonged or repeated exposure.

Symptoms/effects after inhalation : Fatal if inhaled. May cause respiratory irritation. By analogy this compound should be handled as a poison by inhalation. Effects may include central nervous system depression and irritation of the respiratory tract and pulmonary edema.

Symptoms/effects after skin contact : May cause skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : May be harmful if swallowed.

Chronic symptoms : Chronic Toxicity: There are no known chronic effects related to this compound. By analogy with phosphine, low level exposure may lead to anemia, bronchitis and gastrointestinal disturbances.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

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

Unsuitable extinguishing media : Water.

5.2. Specific hazards arising from the chemical

Fire hazard : Self-heating in large quantities; may catch fire. Irritating fumes may develop when material is exposed to water or open flame.

5.3. Special protective equipment and precautions for fire-fighters

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

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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 product 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 : Spill responders must wear safety equipment appropriate for flammable and toxic material handling. Clean up any spills as soon as possible, using an absorbent material to collect it.

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

- Precautions for safe handling : Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Use only outdoors or in a well-ventilated area.
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

- Storage conditions : Keep container tightly closed. Keep cool. Protect from sunlight. Store locked up. Store away from other materials. Store under dry nitrogen or argon in sealed containers below 25°C.
Incompatible materials : Acids. Alcohols. Oxidizers.
Storage area : Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Tris[(trimethylsilylmethyl)]phosphine (18077-42-4)		
ACGIH	ACGIH TWA (ppm)	0.3 ppm (Phosphine)
OSHA	OSHA PEL (TWA) (ppm)	0.3 ppm (Phosphine)

8.2. Appropriate engineering controls

- Appropriate engineering controls : Handle in an enclosing hood with exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

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. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of inadequate ventilation wear respiratory protection. NIOSH-certified combination organic vapor - amine gas (brown cartridge) respirator with particle filter.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid. Smokes (may ignite) on contact with air.
Molecular mass	: 292.62 g/mol
Color	: White.
Odor	: Disagreeable.
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	: 66 - 70 °C
Freezing point	: No data available
Boiling point	: 70 °C @ 1 mm Hg sub
Flash point	: 182 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Self-heating in large quantities; may catch fire
Vapor pressure	: < 0.1 mm Hg @ 25°C
Relative vapor density at 20 °C	: > 1
Relative density	: 1
Solubility	: Reacts with water. Organic solvent: Soluble: hexane
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 oxygen, water and moisture in air.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Acids. Alcohols. Oxidizers.

10.6. Hazardous decomposition products

Organic acid vapors. Phosphine oxides. Phosphines.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

TRIS(TRIMETHYLSILYLMETHYL)PHOSPHINE (18077-42-4)

ATE US (dust, mist)	0.05 mg/l/4h
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Tris[(trimethylsilylmethyl)]phosphine (18077-42-4)

ATE US (gases)	100 ppmV/4h
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ATE US (vapors)	0.5 mg/l/4h
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ATE US (dust, mist)	0.05 mg/l/4h
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Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.
Reproductive toxicity	: Not classified An experimental teratogen.
Specific target organ toxicity – single exposure	: May cause respiratory irritation.
Specific target organ toxicity – repeated exposure	: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: This material may have health effects similar to phosphine, but no studies have been conducted. Exposure of workers with respiratory deficiencies should be prohibited.
Symptoms/effects after inhalation	: Fatal if inhaled. May cause respiratory irritation. By analogy this compound should be handled as a poison by inhalation. Effects may include central nervous system depression and irritation of the respiratory tract and pulmonary edema.
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.
Chronic symptoms	: Chronic Toxicity: There are no known chronic effects related to this compound. By analogy with phosphine, low level exposure may lead to anemia, bronchitis and gastrointestinal disturbances.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

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. Other adverse effects

Other adverse effects	: This substance may be hazardous to the environment.
Effect on the ozone layer	: No additional information available

SECTION 13: Disposal considerations

13.1. Disposal 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.
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

UN-No.(DOT)	: 3128
DOT NA no.	UN3128

14.2. UN proper shipping name

Transport document description	: UN3128 Self-heating solid, toxic, organic, n.o.s. (TRIS(TRIMETHYLSILYLMETHYL)PHOSPHINE), 4.2 (6.1), II
Proper Shipping Name (DOT)	: Self-heating solid, toxic, organic, n.o.s. (TRIS(TRIMETHYLSILYLMETHYL)PHOSPHINE)
Class (DOT)	: 4.2 - Class 4.2 - Spontaneously combustible material 49 CFR 173.124
Packing group (DOT)	: II - Medium Danger

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Hazard labels (DOT) : 4.2 - Spontaneously combustible
6.1 - Poison



DOT Packaging Non Bulk (49 CFR 173.xxx) : 212
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Packaging Exceptions (49 CFR 173.xxx) : None
DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information

Emergency Response Guide (ERG) Number : 136
Other information : No supplementary information available.

Transport by sea

DOT Vessel Stowage Location : C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.

Air transport

DOT Quantity Limitations Passenger aircraft/rail : 15 kg
(49 CFR 173.27)
DOT Quantity Limitations Cargo aircraft only (49 : 50 kg
CFR 175.75)

SECTION 15: Regulatory information

15.1. US Federal regulations

TRIS(TRIMETHYLSILYLMETHYL)PHOSPHINE (18077-42-4)

TSCA Exemption/Exclusion

CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

Tris[(trimethylsilylmethyl)]phosphine (18077-42-4)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

EU-Regulations

Tris[(trimethylsilylmethyl)]phosphine (18077-42-4)

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

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Full text of H-phrases::

H252	Self-heating in large quantities; may catch fire
H319	Causes serious eye irritation
H330	Fatal if inhaled
H335	May cause respiratory irritation
H373	May cause damage to organs through prolonged or repeated exposure

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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.

Hazard Rating

Health	: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability	: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)
Physical	: 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

Prepared by safety and environmental affairs.

Date of issue: 10/13/2017 Version: 1.0

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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