



**MATHESON**

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## Safety Data Sheet

**Material Name:** Bis(trimethylsilyl)phosphine

**SDS ID:** 00244472

### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

**Material Name**

Bis(trimethylsilyl)phosphine

**Synonyms**

C<sub>6</sub>H<sub>19</sub>PSi<sub>2</sub>

**Product Use**

Industrial and Specialty Gas Applications.

**Restrictions on Use**

R&D Use Only.

**Details of the supplier of the safety data sheet**

MATHESON TRI-GAS, INC.

150 Allen Road, Suite 302

Basking Ridge, NJ 07920

General Information: 1-800-416-2505

Emergency #: 1-800-424-9300 (CHEMTREC)

Outside the US: 703-527-3887 (Call collect)

### Section 2 - HAZARDS IDENTIFICATION

**Classification in accordance with paragraph (d) of 29 CFR 1910.1200.**

Flammable Liquids - Category 2

Acute Toxicity - Inhalation - Vapor - Category 1

Skin Corrosion/Irritation - Category 2

Serious Eye Damage/Eye Irritation - Category 2A

Specific target organ toxicity - Single exposure - Category 1 ( central nervous system, , Cardiovascular system. , Respiratory system )

Specific target organ toxicity - Repeated exposure - Category 1 ( central nervous system, , liver, , kidney )

**GHS Label Elements**

**Symbol(s)**



**Signal Word**

Danger

**Hazard Statement(s)**

Highly flammable liquid and vapor.

Fatal if inhaled.

Causes serious eye irritation.

Causes skin irritation.

Causes damage to organs.

Causes damage to organs through prolonged or repeated exposure.

**Precautionary Statement(s)**

**Prevention**

Keep away from heat/sparks/open flames/hot surfaces.

No smoking.



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Keep container tightly closed.  
Ground/Bond container and receiving equipment.  
Use explosion-proof electrical/ventilating/lighting equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Wear protective gloves and eye/face protection.  
Do not breathe dust, vapor or spray mist.  
Use only outdoors or in a well-ventilated area.  
Wear respiratory protection.  
Wash thoroughly after handling.  
Do not eat, drink or smoke when using this product.

**Response**

In case of fire.  
Use carbon dioxide, regular dry chemical, regular foam or water.  
IF exposed.  
Call a POISON CENTER or doctor/physician.  
IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.  
Immediately call a POISON CENTER or doctor/physician.  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
If skin irritation occurs.  
Get immediate medical advice/attention.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing.  
If eye irritation persists, get medical advice/attention.  
Specific treatment is urgent, see first aid section of Safety Data Sheet.

**Storage**

Store in a well-ventilated place.  
Keep cool.  
Keep container tightly closed.  
Store locked up.

**Disposal**

Dispose in accordance with all applicable regulations.

**Statement(s) of Unknown Acute Toxicity**

Inhalation 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

**Other Hazards**

May ignite on exposure to air. May react on contact with water.

**Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS**

CAS	Component Name	Percent
15573-39-4	Bis(trimethylsilyl)phosphine	100

**Section 4 - FIRST AID MEASURES****Inhalation**

Do not attempt rescue in confined spaces without adequate protective gear and proper training. If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

**Skin**



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Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

**Eyes**

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**Ingestion**

If swallowed, get medical attention.

**Most Important Symptoms/Effects****Acute**

Fatal if inhaled, skin irritation, Causes serious eye irritation, lung congestion, digestive tract effects, central nervous system effects

**Delayed**

respiratory system effects, lung congestion, gastrointestinal effects, central nervous system effects, liver damage, kidney damage

**Note to Physicians**

For skin: For inhalation, consider oxygen.

### Section 5 - FIRE FIGHTING MEASURES

**Extinguishing Media****Suitable Extinguishing Media**

Let burn unless leak can be stopped immediately. Use water spray to cool fire fire-exposed containers.

**Unsuitable Extinguishing Media**

None known.

**Special Hazards Arising from the Chemical**

Extremely flammable. May ignite on exposure to air. Containers may rupture or explode if exposed to heat. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

**Hazardous Combustion Products**

phosphines, organic acid vapors, phosphine oxides

**Fire Fighting Measures**

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay upwind and keep out of low areas. Avoid inhalation of material or combustion by-products.

**Special Protective Equipment and Precautions for Firefighters**

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

### Section 6 - ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures**

Wear personal protective clothing and equipment, see Section 8.

**Methods and Materials for Containment and Cleaning Up**

Keep unnecessary people away, isolate hazard area and deny entry. Protect personnel attempting to shut-off with water spray. Small quantities can be allowed to burn with appropriate controls. Alternatively, the material may be destroyed under an inert atmosphere by mixing with sodium hypochlorite (laundry bleach). Organic layer may be incinerated. Follow all chemical pollution control regulations. Regulations vary. All waste material should be packaged, labeled, transported, and disposed of in accordance with federal and local regulations. Consult the appropriate authorities about waste disposal. Remove all sources of ignition. Use only non-sparking tools. All equipment used when handling the product must be grounded. Attempt to stop the leak before entering area. If leak cannot be stopped, allow the gas to release in-place or remove to a safe area and allow the release. Reduce vapors with water spray.

**Environmental Precautions**

Avoid release to the environment.



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**Material Name: Bis(trimethylsilyl)phosphine****SDS ID: 00244472****Section 7 - HANDLING AND STORAGE****Precautions for Safe Handling**

Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash hands thoroughly after handling. When using, do not eat, drink or smoke.

**Conditions for Safe Storage, Including any Incompatibilities**

Store in a well-ventilated place.

Keep cool.

Keep container tightly closed.

Store locked up.

Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.

**Incompatible Materials**

oxidizing materials, alcohols, Acids, oxidizing materials

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION****Component Exposure Limits**

<b>Bis(trimethylsilyl)phosphine</b>	<b>15573-39-4</b>
ACGIH:	0.3 ppm TWA (related to Phosphine)
	1 ppm STEL (related to Phosphine)
NIOSH:	0.3 ppm TWA ; 0.4 mg/m3 TWA (related to Phosphine)
	1 ppm STEL ; 1 mg/m3 STEL (related to Phosphine)
	50 ppm IDLH (related to Phosphine)
Europe:	0.1 ppm TWA ; 0.14 mg/m3 TWA (related to Phosphine)
	0.2 ppm STEL ; 0.28 mg/m3 STEL (related to Phosphine)
OSHA (US):	0.3 ppm TWA ; 0.4 mg/m3 TWA (related to Phosphine)
Mexico:	0.3 ppm TWA VLE-PPT ; 0.4 mg/m3 TWA VLE-PPT (related to Phosphine)
	1 ppm STEL [PPT-CT ] ; 1 mg/m3 STEL [PPT-CT ] (related to Phosphine)

**ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)**

There are no biological limit values for any of this product's components.

**Engineering Controls**

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits. All energized electrical equipment must be designed in accordance with the electrical classification of the area (e.g., Class I, Division I).

**Individual Protection Measures, such as Personal Protective Equipment****Eye/face protection**

Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.



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**Material Name: Bis(trimethylsilyl)phosphine****SDS ID: 00244472****Skin Protection**

Wear appropriate chemical resistant clothing.

**Respiratory Protection**

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

**Glove Recommendations**

Wear appropriate chemical resistant gloves.

**Protective Materials**

Rubber, neoprene, nitrile

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	liquid turns cloudy on contact with air	<b>Physical State</b>	liquid
<b>Odor</b>	Disagreeable	<b>Color</b>	Clear to straw
<b>Odor Threshold</b>	0.14 ppm (Recognition Arsine )	<b>pH</b>	Not available
<b>Melting Point</b>	Not available	<b>Boiling Point</b>	60 °C (140 °F )
<b>Boiling Point Range</b>	Not available	<b>Freezing point</b>	Not available
<b>Evaporation Rate</b>	Not available	<b>Flammability (solid, gas)</b>	Not available
<b>Autoignition Temperature</b>	(Air )	<b>Flash Point</b>	<=17 °C Cleveland Open Cup (<=63 °F )
<b>Lower Explosive Limit</b>	Not available	<b>Decomposition temperature</b>	Not available
<b>Upper Explosive Limit</b>	Not available	<b>Vapor Pressure</b>	<0.1 M @ 25 °C
<b>Vapor Density (air=1)</b>	>1	<b>Specific Gravity (water=1)</b>	<0.819
<b>Water Solubility</b>	(Reacts )	<b>Partition coefficient: n-octanol/water</b>	Not available
<b>Viscosity</b>	Not available	<b>Kinematic viscosity</b>	Not available
<b>Solubility (Other)</b>	Not available	<b>Density</b>	Not available
<b>Physical Form</b>	liquid	<b>Molecular Formula</b>	C <sub>6</sub> H <sub>19</sub> PSi <sub>2</sub>
<b>Molecular Weight</b>	178.36		

**Section 10 - STABILITY AND REACTIVITY****Chemical Stability**



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May ignite on exposure to air. May react on contact with water. Stable in dry, inert atmosphere.

**Possibility of Hazardous Reactions**

Will not polymerize.

**Conditions to Avoid**

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Avoid inhalation of material or combustion by-products.

**Incompatible Materials**

oxidizing materials, alcohols, Acids, oxidizing materials

**Hazardous decomposition products**

phosphines, organic acid vapors, phosphine oxides

### Section 11 - TOXICOLOGICAL INFORMATION

**Information on Likely Routes of Exposure****Inhalation**

Fatal if inhaled.

**Skin Contact**

Causes skin irritation.

**Eye Contact**

Causes serious eye irritation.

**Ingestion**

digestive tract effects.

**Acute and Chronic Toxicity****Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

**Bis(trimethylsilyl)phosphine (15573-39-4)**

Inhalation LC50 Rat 11 ppm 4 h (related to Phosphine)

**Product Toxicity Data****Acute Toxicity Estimate**

Inhalation - Vapor	0.0153 mg/L
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**Immediate Effects**

Fatal if inhaled, skin irritation, Causes serious eye irritation, lung congestion, digestive tract effects, central nervous system effects

**Delayed Effects**

respiratory system effects, lung congestion, gastrointestinal effects, central nervous system effects, liver damage, kidney damage

**Irritation/Corrosivity Data**

Causes serious eye irritation, Causes skin irritation

**Respiratory Sensitization**

No data available.

**Dermal Sensitization**

No data available.

**Component Carcinogenicity**

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA

**Germ Cell Mutagenicity**

No data available.

**Tumorigenic Data**

No data available

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**Material Name: Bis(trimethylsilyl)phosphine****SDS ID: 00244472****Reproductive Toxicity**

No data available.

**Specific Target Organ Toxicity - Single Exposure**

central nervous system effects, cardiovascular system effects, respiratory tract irritation,

**Specific Target Organ Toxicity - Repeated Exposure**

central nervous system effects, liver

**Aspiration hazard**

No data available.

**Medical Conditions Aggravated by Exposure**

No data available.

**Section 12 - ECOLOGICAL INFORMATION****Component Analysis - Aquatic Toxicity**

No LOLI ecotoxicity data are available for this product's components.

**Persistence and Degradability**

No information available for the product.

**Bioaccumulative Potential**

No information available for the product.

**Mobility**

No information available for the product.

**Section 13 - DISPOSAL CONSIDERATIONS****Disposal Methods**

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. U.S. EPA 40 CFR 262.

Hazardous Waste Number(s): D001. D003.

**Component Waste Numbers****Bis(trimethylsilyl)phosphine**

waste number P096 (related to Phosphine)

**Section 14 - TRANSPORT INFORMATION****US DOT Information:****Shipping Name:** ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE , (

Contains: Bis(trimethylsilyl)phosphine )

**Hazard Class:** 4.2**UN/NA #:** UN3394**Packing Group:** I**Required Label(s):** 4.2**IMDG Information:****Shipping Name:** ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE , (

Contains: Bis(trimethylsilyl)phosphine )

**Hazard Class:** 4.2**UN#:** UN3394**Packing Group:** I**Required Label(s):** 4.2**International Bulk Chemical Code**

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.



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### Section 15 - REGULATORY INFORMATION

#### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

<b>Bis(trimethylsilyl)phosphine</b>	<b>15573-39-4</b>
SARA 302:	500 lb TPQ (related to Phosphine)
SARA 313:	1 % de minimis concentration (related to Phosphine)
CERCLA:	100 lb final RQ ; 45.4 kg final RQ (related to Phosphine)
OSHA (safety):	100 lb TQ (related to Phosphine)
SARA 304:	100 lb EPCRA RQ (related to Phosphine)

#### SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories

Flammable; Acute toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity

#### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
<b>Bis(trimethylsilyl)phosphine</b>	<b>15573-39-4</b>	Yes	Yes	Yes	Yes	Yes

#### Not listed under California Proposition 65

#### Canada Regulations

#### Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

<b>Bis(trimethylsilyl)phosphine</b>	<b>15573-39-4</b>
	1 % (related to Phosphine)

#### Component Analysis - Inventory

#### Bis(trimethylsilyl)phosphine (15573-39-4)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

### Section 16 - OTHER INFORMATION

#### NFPA Ratings

Health: 4 Fire: 4 Reactivity: 3

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe



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## Safety Data Sheet

**Material Name: Bis(trimethylsilyl)phosphine****SDS ID: 00244472****Summary of Changes**

Updated: 05/01/2015

**Key / Legend**

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania\*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; NDSL - Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

**Other Information****Disclaimer:**

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