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SAFETY DATA SHEET

Section 1. Identification

Product Name: Triphenylborane

Product Type: Solid.

CAS Number: 960-71-4

Product Number: B0714

Product Manufacturer: Ereztech LLC
11555 Medlock Bridge Road, Suite 100
Johns Creek, GA 30097

Product Information: (888) 658-1221

In case of an emergency: CHEMTREC: 1-800-424-9300 (USA);
+1 703-527-3887 (International); CCN836180
*** Contact manufacturer for all non-emergency calls.

Section 2. Hazards Identification

Emergency Overview

Appearance/Odor: Off-white, odorless solid.

Classification: FLAMMABLE SOLIDS – Category 2, H228
ACUTE TOXICITY; ORAL - Category 3, H301
SKIN CORROSION/IRRITATION – Category 2, H315
SERIOUS EYE DAMAGE/EYE IRRITATION – Category 2A, H319
SPECIFIC TARGET ORGAN TOXICITY, SINGLE EXPOSURE;
Respiratory Tract Irritation – Category 3, H335

GHS label elements

Signal word: DANGER

Hazard statements:
H228: Flammable solid.
H301: Toxic if swallowed.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.

Hazard pictograms:

Section 2. Hazards Identification

Precautionary statements

Prevention:	P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P240: Ground/Bond container and receiving equipment. P241: Use explosion-proof electrical/ventilating/lighting equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P261: Avoid breathing dusts/aerosols/fumes/gases/vapors. P264: Wash skin thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P271: Use only outdoors or in a well-ventilated area. P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:	P301 + P310: IF SWALLOWED: Call a POISON CENTER or doctor/physician. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell. P330: Rinse mouth. P332 + P313: If skin irritation occurs: Get medical advice/attention. P337 + P313: If eye irritation persists: Get medical advice/attention. P362: Take off contaminated clothing and wash before reuse. P370 + P378: In case of fire: Use water spray, foam, carbon dioxide or dry chemical for extinction.
Storage:	P403 + P233: Store in a well ventilated place. Keep container tightly closed. P405: Store locked up.
Disposal:	P501: Dispose of contents/ container to an approved wasted disposal plant.
General:	None.
OSHA/HCS status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Hazards not otherwise classified:	None known.

Section 3. Composition/Information on Ingredients

Substances

Synonyms : Triphenylborane.
Formula : $C_{18}H_{15}B$
Molecular weight : 242.12 g/mol.
CAS-No. : 960-71-4

Ingredient Name	%	CAS Number
Triphenylborane	>95	960-71-4

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First Aid Measures

Description of Necessary First Aid Measures

General Advice: Move out of dangerous area. Do not breathe dusts, aerosols, fumes, gases or vapors. Do not get in eyes, on skin, or on clothing. Call a POISON CENTER or doctor/physician immediately. Show this safety data sheet to the doctor in attendance.

Eye Contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue rinsing. Call a POISON CENTER or doctor/physician immediately.

Skin Contact: Immediately remove shoes and all contaminated clothing. Wash off contaminated skin with soap and plenty of water. Call a POISON CENTER or doctor/physician immediately.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Use a barrier to give mouth to mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a POISON CENTER or doctor/physician immediately.

Ingestion: Rinse mouth. Do NOT induce vomiting. Remove dentures if any. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Call a physician or POISON CONTROL CENTER immediately.

Section 4. First Aid Measures

Most Important Symptoms/Effects, Acute And Delayed Potential Acute Health Effects

Eye Contact: May cause severe irritation. Symptoms may include stinging, tearing, redness, swelling and blurred vision.

Inhalation: May be harmful if inhaled. May cause respiratory irritation. Symptoms may include nasal irritation (burning of sinuses, mucous production, nasal discharge and pain), headaches, and respiratory irritation (coughing, shortness of breath).

Skin Contact: May cause skin irritation. Symptoms may include stinging, itching, redness and pain at site of exposure.

Ingestion: Product is toxic if swallowed. Swallowing a small amount of this material will result in a serious health hazard. Initial symptoms may include nausea and vomiting. Product may represent an aspiration hazard (may be harmful if swallowed and enters airways).

Chronic Symptoms: None identified.

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician: Treat symptomatically.

Specific Treatments: No specific treatment.

Protection of First Responders: No action taken shall be taken involving any personal risk without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire Fighting Measures

General Hazards: Fire may produce irritating and/or harmful gases.

Suitable Extinguishing Media: Use water spray, alcohol resistant foam, dry chemical or carbon dioxide (CO_2).

Unsuitable Extinguishing Media: Do not use a straight water stream.

Unusual Fire and Explosion Hazards: If involved in a fire, irritating fumes and organic acid vapors may develop when product is exposed to elevated temperatures, water or flames. Product is flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to a source of ignition and flashback. Explosions have been reported when product is mixed with trialkylaluminum compounds.

Product of Combustion: Decomposition products may include carbon oxides (CO_X) and oxides of boron.

Section 5. Fire Fighting Measures

Protection of Firefighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire-fighters should wear appropriate protection equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode. Avoid contact with skin and eyes. Do not breathe dusts, aerosols, vapors, gases or fumes.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

For Non-emergency Personnel: No action shall be taken involving any personal risk or without suitable training. Remove all sources of ignition – NO SMOKING. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid inhalation of dusts, aerosols, gases and vapors. Provide adequate ventilation. Wear respiratory protection. Put on appropriate personal protective equipment.

For Emergency Responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental Precautions: Do not allow dispersal of spilled material and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for Containment

Small/Large Spill: Remove all sources of ignition. Use spark-proof tools and explosion proof equipment. Prevent further spillage or leakage if safe to do so. Contain and collect spillage with an inert, binding material (e.g. - sand, sawdust, diatomite, acid binders, universal binders) and place in a sealed waste disposal container. Dispose of via a licensed waste disposal contractor. Contaminated binding material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and Storage

Precautions:

Product is air and moisture sensitive. Handle under an inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Avoid contact with skin, eyes and clothing. Avoid the formation of dusts and aerosols and the inhalation of dusts, aerosols, vapors and gases. Do not ingest. Ensure adequate ventilation. Keep away from all sources of ignition – NO SMOKING. Take measures to avoid buildup of electrostatic charge. All equipment used must be grounded. Use only spark-proof tools and explosion-proof equipment.

Protective Measures:

Put on appropriate personal protective equipment (see Section 8). Keep in the original container kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

General Occupational Hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Safe Storage Conditions:

Product is air and moisture sensitive. Store under an inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Keep away from air, moisture, heat, sparks and open flames. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (strong oxidizing agents, air and moisture) and food and drink. Keep container tightly closed and sealed until ready for use. Store locked up.

Section 8. Exposure Controls/Personal Protection

Introductory Remarks:

These recommendations provide general guidance for handling this product. Because work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and conduct regular repairs. Waste from these procedures should be handled in accordance with Section 13.

Occupational Exposure Limits:

Product contains no substances with occupational exposure limit values.

Section 8. Exposure Controls/Personal Protection

Engineering Controls: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Provide an eyewash/shower station.

Environmental Exposure Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual Protection Measures

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Remove all soiled and contaminated clothing immediately. Do not inhale dusts, gases, vapors or aerosols. Avoid contact with eyes and skin. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/Face Protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to dusts, aerosols, or gases. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles, faceshield (8-inch minimum). Refer to 29 CFR 1910.133, ANSI Z87.1, or European Standard EN166.

Skin Protection

Hand Protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Chemical-resistant gloves.

Section 8. Exposure Controls/Personal Protection

Hand Protection (cont.): 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. For full contact, wear gloves made from Neoprene or nitrile rubber.

Other Skin Protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose 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).

Section 9. Physical and Chemical Properties

Physical State:	Solid.
Color:	Off-white.
Odor:	Odorless.
Odor Threshold:	No data available.
pH:	No data available.
Melting Point:	147 °C (296.6 °F).
Boiling Point:	208 °C (406.4 °F) @ 14 mm Hg.
Flash Point:	> 65 °C (> 149 °F) – closed cup.
Auto-ignition temperature:	No data available.
Relative Density:	<1.
Vapor Pressure:	No data available.
Vapor Density:	No data available.
Water Solubility:	Insoluble.
VOC Content:	< 1%.

VOCs are calculated following the requirements under 40 CFR, Part 59, Subpart C for Consumer Products and Subpart D for Architectural Coatings.

Section 10. Stability and Reactivity

Reactivity: Product reacts slowly with air and moisture to release benzene and triphenylboroxine.

Chemical Stability: Stable at normal ambient temperature and pressure and under recommended storage conditions.

Conditions to Avoid: Exposure to moisture and air. Heat, sparks and open flames.

Incompatible Materials: Oxidizing agents, strong acids.

Hazardous Decomposition Products: Carbon oxides (CO_X), oxides of boron, organic acid vapors.

Possibility of Hazardous Reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Section 11. Toxicological Information

Information on Toxicological Effects

Acute Toxicity : Product is toxic if ingested.

Component	CAS No	Result	Species	Dose	Exposure
Triphenylborane	960-71-4	LD50 Oral	Rat	196 mg/kg	-
		LD_{Lo} Inhalation	Rat	73 mg/m^3	4 h

Irritation/Corrosion : Causes skin irritation.
Skin Irritation – rabbit: 0.5 mg: severe irritation.
Causes serious eye irritation.
Eye Irritation – rabbit: 100 µl/24H: severe irritation.
Eye Irritation – rabbit: 3000 mg: severe irritation.

Sensitization : No specific data available.

Germ Cell Mutagenicity : No effects known.

Carcinogenity

IARC : No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH : No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP : No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

Section 11. Toxicological Information

OSHA	:	No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.
Reproductive Toxicity	:	This product is not expected to cause reproductive or developmental effects.
Teratogenicity	:	No specific data available.
Specific Target Organ Toxicity (single exposure)	:	May cause respiratory irritation.
Specific Target Organ Toxicity (repeated exposure)	:	No specific data available.
Aspiration Hazard	:	May represent an aspiration hazard.
Information on the likely routes of exposure	:	No specific data available.
Additional Information (cont.)	:	To the best of our knowledge, the chemical, physical, and toxicological properties of this compound have not been thoroughly investigated.

Section 12. Ecological Information

Numerical Measures of Toxicity

Aquatic Toxicity	:	No specific data available.
Persistence and Degradability	:	Insoluble in water. May persist based upon information available.
Biodegradability	:	No specific data available.
Bioaccumulative Potential	:	No specific data available.
Mobility in soil	:	Is not likely to be mobile in the environment due to its low water solubility.
Other Adverse Effects	:	This substance may be hazardous to the environment. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13. Disposal Considerations

Waste Treatment Methods

Product	Dispose of in accordance with local, state, and federal regulations. Refer to 40 CFR 260-299 for complete waste disposal regulations. Consult your local, state, or federal agency before disposing of any chemicals.

Section 13. Disposal Considerations

Contaminated packaging Empty containers retain product residue (dusts and/or vapor) and can be dangerous. Keep product and container away from heat and all ignition sources. Dispose of in the same manner as unused product.

Section 14. Transport Information

	DOT	IMDG	IATA
UN Number	UN 2926	UN 2926	UN 2926
UN Proper Shipping Name	Flammable solid, toxic, organic, n.o.s. (Triphenylborane)	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S. (Triphenylborane)	Flammable solid, toxic, organic, n.o.s. (Triphenylborane)
Transport Hazard Classes	4.1 (6.1)	4.1 (6.1)	4.1 (6.1)
Packing Group	II	II	II
Environmental Hazards	-	-	-
Additional Information	-	EMS No: F-A, S-G	-

Special Precautions for User : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transporting in Bulk According to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

Section 15. Regulatory Information

TSCA (Toxic Substance Control Act):
This product is not listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory). Use of this product is restricted to research and development only. This product must be used under the supervision of a technically qualified individual as defined by the TSCA. This product must not be used for commercial purposes or in formulations for commercial purposes.

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Section 15. Regulatory Information

SARA 311/312 Hazards
Fire Hazard (Flammable Solid), Acute Health Hazard (Acute Toxicity – Ingestion; Skin Irritation; Serious Eye Irritation; STOT – Single Exposure: Respiratory Irritation).

Massachusetts Right to Know Components
No components are subject to Massachusetts Right to Know Act.

Pennsylvania Right to Know Components
No components are subject to Pennsylvania Right to Know Act.

New Jersey Right to Know Components
No components are subject to New Jersey Right to Know Act.

California Proposition 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 16. Other Information

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Section 16. Other Information

HMIS Rating

HEALTH	3
FLAMMABILITY	2
PHYSICAL HAZARD	1

History

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References : None available

Abbreviations and Acronyms

ACGIH: American Conference of Governmental Industrial Hygienists.
CAS: Chemical Abstracts Service (division of the American Chemical Society).
DOT: US Department of Transportation.
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
HMIS: Hazardous Materials Identification System.
IARC: International Agency for Research on Cancer.
IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA).
IDLH: Immediately Dangerous to Life or Health (US National Institute for Occupation Health and Safety (NIOSH)).
IMDG: International Maritime Code for Dangerous Goods.
LD_{Lo}: The lowest amount of a solid or liquid material reported to have caused the death of animals or humans
NFPA: National Fire Protection Association.
NIOSH: National Institute of Occupational Safety and Health.
NTP: National Toxicology Program.
OSHA: Occupational Safety and Health Administration.
SARA: Superfund Amendments and Reauthorization Act.
STOT: Specific Target Organ Toxicity.
VOC: Volatile Organic Compound.

Disclaimer

The information herein is believed to be accurate and is presented in good faith; however, no warranties or representations are made by Ereztech LLC regarding the accuracy or completeness of the information. Ereztech LLC shall not be liable for any damages resulting from the handling, or from the contact with the above product.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.