SAFETY DATA SHEET

Date Printed: 05/30/2024
Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Identifier: (2N) 99% Lithium Triethylborohydride

Product Code: LI-BHTE-02

CAS Number: 22560-16-3

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351
Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

OSHA Haz Com: CFR 1910.1200: Flammable Liquids [Category 2]
Substances and Mixtures which, in Contact with Water, Emit Flammable Gases [Category 1]
Skin Corrosion/Irritation [Category 1B]
Eye Damage/Irritation [Category 1]
Acute Toxicity - Oral [Category 4]
Specific Target Organ Toxicity (Single Exposure) [Category 2]
Specific Target Organ Toxicity (Single Exposure) [Category 3]
Specific Target Organ Toxicity (Repeated Exposure) [Category 1]
Signal word: Danger!
Hazard Statement(s): Causes serious eye damage
Causes severe skin burns and eye damage
Harmful if swallowed
Highly flammable liquid and vapor
In contact with water releases flammable gases, which may ignite spontaneously
Nervous System
May cause respiratory irritation.
Liver Nervous System Kidney

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Pictogram(s) or Symbol(s):
Precautionary Statement(s):
[Prevention] Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Do
not breathe dusts or mists. Use only outdoors or in a well-ventilated area. Wear protective gloves, protective clothing, eye protection and face protection. Wear eye protection. Wear face protection (full length face shield). Do not breathe fume, mist, vapors or spray. Wash all exposed skin thoroughly after handling. Avoid breathing fume, mist, vapors or spray. Keep away from heat, sparks, open flames or other
hot surfaces. - No smoking. Keep container tightly closed. Ground or bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting, and equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves, eye protection and
face protection. Do not allow contact with water. Handle under inert gas. Protect from moisture.
[Response] If swallowed: Immediately call a poison center or doctor. Rinse mouth. If swallowed: Rinse mouth. Do NOT
induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water
or shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center or doctor. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed
or concerned: Call a poison center or doctor. Call a poison center or doctor if you feel unwell. Get medical
advice or attention if you feel unwell. In case of fire: Use dry chemical, CO2, water spray or alcohol-resistant foam to extinguish. Brush off loose particles from skin and immerse in cool water or wrap
in wet bandages. In case of fire: Use dry chemical, soda ash, lime or DRY sand to extinguish.
[Storage] Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated
place. Keep cool. Store in a dry place. Store in a closed container.
[Disposal] Dispose of contents and container in accordance with US EPA guidelines for the classification and
determination of hazardous waste listed in 40 CFR 261.3. (See Section 13)
Supplementary Information: While this material is not classified as hazardous under OSHA, this SDS contains valuable information
critical to safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Substance
Components: Lithium Triethylborohydride (ca. 12% in Tetrahydrofuran, ca. 1.0mol/L)
Percent: ....
Hazardous ingredient(s): Lithium Triethylborohydride (12%) 22560-16-3
Tetrahydrofuran (88%) 109-99-9
CAS Number: 22560-16-3
Chemical Formula: C6H16BLi

SECTION 4. FIRST AID MEASURES

Inhalation: Immediately call a poison center or doctor. Effects of exposure (inhalation) to substance may be delayed.
Inhalation of vapors or contact with substance will result in contamination and potential harmful effects. Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is
difficult. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Skin contact: For severe burns, immediate medical attention is required. Immediately call a poison center or doctor.
Effects of exposure (skin contact) to substance may be delayed. Remove and wash contaminated clothing
before re-use. Remove and isolate contaminated clothing and shoes. In case of contact with substance,
immediately flush skin with running water for at least 20 minutes. Treat symptomatically and supportively.
Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Eye contact: IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Eye contact
with vapors or substance may cause severe injury, burns, or death. Call emergency medical service. Move
victim to fresh air. Check for and remove any contact lenses. Keep victim warm and quiet. Treat symptomatically and supportively. Effects of exposure to substance may be delayed. Ensure that medical
personnel are aware of the material(s) involved and take precautions to protect themselves.
Ingestion: Harmful if swallowed. Do not induce vomiting with out medical advice. Effects of exposure (ingestion) to
substance may be delayed. Call a physician or Poison Control Center immediately. Do not use mouth-to-mouth method if victim ingested the substance; give artificial respiration with the aid of a pocket
mask equipped with a one-way valve or other proper respiratory medical device. Loosen tight clothing such
as a collar, tie, belt or waistband. If a person vomits place them in the recovery position so that vomit will
not reenter the mouth and throat. Rinse mouth. Keep victim warm and quiet. Treat symptomatically and
supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to
protect themselves.
Symptoms/effects:
Acute: No data available
Delayed: No data available
Immediate medical attention: WARNING: It might be hazardous to the person providing aid to give mouth-to-mouth respiration, because
the inhaled material is harmful. WARNING: It might be hazardous to the person providing aid to give mouth-to-mouth respiration, because the inhaled material is corrosive. For severe burns, immediate medical attention is required. If breathing has stopped, perform artificial respiration. Use first aid treatment
according to the nature of the injury. Ensure that medical personnel are aware of the material(s) involved
and take precautions to protect themselves.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media: Dry chemical, soda ash, lime or dry sand. Consult with local fire authorities before attempting large scale
fire fighting operations.
Unsuitable extinguishing media: Do NOT use water or foam.
Specific hazards arising from the chemical
Hazardous combustion products: These products include: Carbon oxides Borates Metallic oxides
Other specific hazards: Closed containers may explode from heat of a fire.
Special precautions for fire-fighters:
Use water spray or fog; do not use straight streams. Dike fire-control water for later disposal; do not scatter the material. CAUTION: All these products
have a very low flash point: Use of water spray when fighting fire may be inefficient. Do not use straight streams. Runoff to sewer may create fire or
explosion hazard. May re-ignite after fire is extinguished. Do not get water inside containers. Cylinders exposed to fire may vent and release gasses
through pressure relief devices. Containers may explode when heated. Move containers from fire area if you can do it without risk.
Special protective equipment for fire-fighters:
Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing provides limited protection in fire situations
ONLY; it may not be effective in spill situations. Wear chemical protective clothing which is specifically recommended by the manufacturer. It may
provide little or no thermal protection.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Avoid contact with skin, eyes, and clothing. Keep people away from and upwind of spill/leak. Use
spark-proof tools and explosion-proof equipment. Remove all sources of ignition. Do not touch damaged
containers or spilled material unless wearing appropriate protective clothing (Section 8). Warn unnecessary personnel to move away. Stop leak if you can do it without risk. Ensure adequate ventilation.
Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
Personal protective equipment: Wear eye protection (splash goggles) and face protection (full length face shield). Lab coat. Vapor
respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear protective gloves (nitrile).
Emergency procedures: Do not use water as spilled material may react with it. Isolate area until gas has dispersed. Do not clean-up
or dispose except under supervision of a specialist. ELIMINATE all ignition sources (no smoking, flares,
sparks or flames in the immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Warn personnel to move away. Prevent entry into sewers, basements or confined areas; dike if needed.
Methods and materials for containment and cleaning up:
ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if without risk. Do not direct water at spill source.
DO NOT get water inside container. All equipment used when handling the product must be grounded. Absorb with DRY earth, sand or other
non-combustible material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. Do not

clean-up or dispose except under supervision of a specialist. Ventilate the area.
Environmental precautions:
Keep away from living quarters. Prevent further leakage or spillage if safe to do so. Water runoff can cause environmental damage. Prevent entry into
sewers, basements or confined areas; dike if needed.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling: Do NOT breath gas, fumes, vapor, or spray. Manipulate under an adequate fume hood. Do not ingest.
Avoid contact with skin and eyes. Keep away from heat and sources of ignition. Use explosion-proof equipment. Use only non-sparking hand tool when handling this product. Ground all equipment containing
material. Take measures to prevent build up of electrostatic charge. Never add water to this product. Good
general ventilation should be sufficient to control airborne levels. Keep container dry. Handle and open container with care. Wear suitable protective clothing, gloves and eye/face protection. When using do not
eat, drink, or smoke. Keep away from sources of ignition.
Conditions for safe storage: Store locked up. Keep away from sources of ignition. Store and use away from heat, sparks, open flame,
or any other ignition source. Store in a cool, dry place. Keep containers tightly closed in a dry, cool, and
well-ventilated place. Keep away from incompatibles. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Avoid prolonged storage periods. Store under inert gas (e.g.
Argon).
Storage incompatibilities: Store away from oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits: No data available
Appropriate engineering controls:
Good general ventilation should be sufficient to control airborne levels. Ventilation is normally required when handling or using this product. Eyewash
fountains should be provided in areas where there is any possibility that workers could be exposed to the substance. Follow safe industrial
engineering/laboratory practices when handling any chemical.
Personal protective equipment
Respiratory protection: Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
Hand protection: Wear protective gloves.
Eye protection: Splash goggles.
Skin and body protection: Lab coat.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Cloudy
Color: Colorless - Pale yellow

Odor: No data available
Odor threshold: No data available

Melting point/freezing point: 67°C (153°F)
Boiling point/range: No data available
Decomposition temperature: No data available
Relative density: No data available
Kinematic Viscosity: No data available
Partition coefficient: No data available
n-octanol/water (log Pow)
Flash point: -17°C (1°F)
Flammability (solid, gas): No data available

pH: No data available
Vapor pressure: No data available
Vapor density: No data available
Dynamic Viscosity: No data available
Evaporation rate: No data available
(Butyl Acetate = 1)
Autoignition temperature: No data available
Flammability or explosive limits: No data available
Lower: No data available
Upper: No data available

Solubility(ies):
Water: Reacts

SECTION 10. STABILITY AND REACTIVITY

Reactivity: Not Available.
Chemical Stability: Water reactive.
Possibility of Hazardous Reactions: In use, may form flammable/explosive vapor-air mixture. Reacts violently with water.
Conditions to avoid: Avoid excessive heat and light.
Incompatible materials: Oxygen, Oxidizing agents, Water
Hazardous Decomposition Products: No data available

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity:
No data available
Skin corrosion/irritation:
No data available
Serious eye damage/irritation:
No data available
Respiratory or skin sensitization:
No data available
Germ cell mutagenicity:
No data available
Carcinogenicity:
No data available
IARC: No data available NTP: No data available OSHA: No data available

Reproductive toxicity:
No data available
Routes of Exposure: Inhalation, Eye contact, Ingestion, Skin contact.
Symptoms related to exposure:
Overexposure may result in serious illness or death. Skin contact may produce burrns. Skin contact may result in inflammation; characterized by itching,
scaling, reddening, or occasionally blistering. Eye contact can result in corneal damage or blindness. Inhalation causes irritation of the lungs and
respiratory system.
Potential Health Effects:
Inhalation causes irritation of the lungs and respiratory system.
Target organ(s):
Nervous System
May cause respiratory irritation.
Liver Nervous System Kidney

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Fish: No data available
Crustacea: No data available
Algae: No data available
Persistence and degradability: No data available
Bioaccumulative potential (BCF): No data available
Mobillity in soil: No data available
Partition coefficient:
n-octanol/water (log Pow)
No data available
Soil adsorption (Koc): No data available
Henry's Law:
constant (PaM3/mol)
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal of product: Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local
rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a
chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide
assistance but does not replace these laws, nor does compliance in accordance with this section ensure
regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous
Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains,
water ways, or the soil.
Disposal of container: Dispose of as unused product. Do not re-use empty containers.
Other considerations: Observe all federal, state and local regulations when disposing of the substance.

SECTION 14. TRANSPORT INFORMATION

DOT (US)
UN number:
UN3399
Proper Shipping Name:
Organometallic substance, liquid,
water-reactive, flammable
Class or Division:
4.3 Dangerous when wet
material (water reactive)
Subrisk(s):
3 Flammable liquid
Packing Group:
I
IATA
UN number:
UN3399
Proper Shipping Name:
Organometallic substance, liquid,
water-reactive, flammable
Class or Division:
4.3 Dangerous when wet
material (water reactive)
Subrisk(s):
3 Flammable liquid
Packing Group:
I
IMDG
UN number:
UN3399
Proper Shipping Name:
Organometallic substance, liquid,
water-reactive, flammable
Class or Division:
4.3 Dangerous when wet
material (water reactive)
Subrisk(s):
3 Flammable liquid
Packing Group:
I
Air Transport: Cargo Aircraft Only.
EmS number: F-G, S-N

SECTION 15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is NOT on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those
products not on the inventory list:
(i) These products are supplied solely for use in research and development by or under the

supervision of a technically qualified individual as defined in
40 CFR 720.0 et sec.
(ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on a SDS sheet.
US Federal Regulations
CERCLA Hazardous substance and Reportable Quantity:
SARA 313: Not Listed
SARA 302: Not Listed
State Regulations
State Right-to-Know
Massachusetts Not Listed
New Jersey Not Listed
Pennsylvania Not Listed
California Proposition 65: Not Listed
Other Information
NFPA Rating: HMIS Classification:
Health: 3 Health: 3
Flammability: 3 Flammability: 3
Instability: 2 Physical: 2
International Inventories
WHMIS hazard class: No data available.
EC-No: 245-076-8

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16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.