

## SAFETY DATA SHEET

Preparation Date: 09/17/2019

Revision date 09/17/2019

Revision Number: G1

### 1. IDENTIFICATION

#### Product identifier

**Product code:** P1556  
**Product Name:** PYRIDINE BORANE COMPLEX

#### Other means of identification

**Synonyms:** Borane-pyridine (1:1)  
 Boron, trihydro(pyridine)-, (T-4)-  
 Pyridine, compd. with BH3 (1:1)  
 Pyridine borane  
 Pyridine, compd. with borane (1:1)  
 Trihydro(pyridine)boron

**CAS #:** 110-51-0  
**RTECS #** US3675000  
**Cl#:** Not available

#### Recommended use of the chemical and restrictions on use

**Recommended use:** No information available.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>  
**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Tom Tyner (USA - West Coast)  
**Contact Person:** Ibad Tirmiz (USA - East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 2
Acute toxicity - Inhalation (Vapors)	Category 2
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Flammable liquids	Category 4

#### Label elements

## Danger

### Hazard statements

Fatal in contact with skin or if inhaled  
Toxic if swallowed  
Causes skin irritation  
Causes serious eye irritation  
Combustible liquid



### Hazards not otherwise classified (HNOC)

Not Applicable

### Other hazards

Not available

### **Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Do not get in eyes, on skin, or on clothing  
Wear protective gloves/protective clothing/eye protection/face protection  
Do not breathe mist or vapors  
Use only outdoors or in a well-ventilated area  
Wear respiratory protection  
Keep away from heat/sparks/open flames/hot surfaces. — No smoking  
Keep cool

### **Precautionary Statements - Response**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam to extinguish.  
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 attention.  
IF ON SKIN: Gently wash with plenty of soap and water  
Immediately call a POISON CENTER or physician  
Take off immediately all contaminated clothing  
Wash contaminated clothing before reuse  
If skin irritation occurs: Get medical attention  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.  
IF SWALLOWED: Immediately call a POISON CENTER or physician  
Rinse mouth

### **Precautionary Statements - Storage**

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

### **Precautionary Statements - Disposal**

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and

international regulations as applicable

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Pyridine Borane Complex	110-51-0	100

### 4. FIRST AID MEASURES

#### First aid measures

- General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. First aider needs to protect himself. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Skin Contact:** Fatal in contact with skin. Wash off immediately with soap and plenty of water. Remove all contaminated clothes and shoes. Continue flushing with plenty of water for at least 15 minutes. Immediate medical attention is required. Call a physician or poison control center immediately.
- Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention.
- Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
- Ingestion:** Toxic if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

#### Most important symptoms and effects, both acute and delayed

- Symptoms**
- Causes eye irritation
  - Causes skin irritation
  - Headache
  - Nausea
  - Vomiting
  - Dizziness
  - tiredness
  - Coughing and wheezing
  - Laryngitis
  - Dyspnea (Shortness of breath and difficulty breathing)

#### Indication of any immediate medical attention and special treatment needed

- Notes to Physician:** Treat symptomatically.

#### Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

### 5. FIRE-FIGHTING MEASURES

#### Extinguishing Media

**Suitable Extinguishing Media:** Dry chemical. Carbon dioxide (CO<sub>2</sub>). Water spray mist or

foam.

**Unsuitable Extinguishing Media:**

High volume water jet. Do not use a solid (straight) water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical**

**Hazardous combustion products**

Carbon monoxide. Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>). Oxides of Boron.

**Specific hazards**

Combustible material. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Container explosion may occur under fire conditions or when heated. When heated to decomposition it emits acrid smoke and irritating fumes. May be ignited by heat, sparks or flames.

**Special Protective Actions for Firefighters**

**Specific Methods:**

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

**Special Protective Equipment for Firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:**

Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Remove all sources of ignition.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

**Methods and material for containment and cleaning up**

**Methods for containment**

Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container.

**Methods for cleaning up**

Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use clean non-sparking tools to collect absorbed material. Clean contaminated surface thoroughly.

**7. HANDLING AND STORAGE**

**Precautions for safe handling**

**Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from

incompatible materials.

**Safe Handling Advice:**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not ingest. Do not breathe vapors or spray mist. Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Technical Measures/Storage Conditions:**

Sensitive to light. Store in light-resistant containers. Air sensitive. Keep refrigerated. Store at 2-8 deg. C. Store under inert gas. Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

**Incompatible Materials:**

Strong oxidizing agents  
Acids  
Acid anhydrides  
Acid chlorides  
Alcohols

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**National occupational exposure limits**

**United States**

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Pyridine Borane Complex	110-51-0	None	None	None	None

**Canada**

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Pyridine Borane Complex	110-51-0	None	None	None	None

**Australia and Mexico**

Component	CAS No	Australia	Mexico
Pyridine Borane Complex	110-51-0	None	None

**Appropriate engineering controls**

**Engineering measures to reduce exposure:**

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

**Eye protection:** Goggles or Safety glasses with side-shields.

**Skin and body protection:** Long sleeved clothing  
Chemical resistant apron  
Gloves

**Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product When using, do not eat, drink or smoke.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state:</b> Liquid	<b>Appearance:</b> Clear.	<b>Color:</b> No information available.
<b>Odor:</b> No information available.	<b>Taste</b> No information available.	<b>Formula</b> C5H8BN
<b>Molecular/Formula weight (g/mole):</b> 92.93	<b>Flammability (solid, gas)</b> no data available	<b>Flashpoint (°C/°F):</b> 73°C/ 163.4°F
<b>Flash Point Tested according to:</b> Not available	<b>Autoignition Temperature (°C/°F):</b> 482°C/ 900°F	<b>Lower Explosion Limit (%):</b> 1.8
<b>Upper Explosion Limit (%):</b> 12.4	<b>Melting point/range(°C/°F):</b> 9-11°C/ 48-51.8°F	<b>Decomposition temperature(°C/°F):</b> No information available
<b>Boiling point/range(°C/°F):</b> 65°C/ 149°F	<b>Bulk density:</b> No information available	<b>Density (g/cm3):</b> No information available
<b>Specific gravity:</b> 0.920	<b>pH</b> No information available	<b>Vapor pressure @ 20°C (kPa):</b> No information available
<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> No information available	<b>VOC content (g/L):</b> No information available
<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> No information available	<b>Viscosity:</b> No information available
<b>Miscibility:</b> No information available	<b>Solubility:</b> No information available	

**10. STABILITY AND REACTIVITY**

**Reactivity**  
No information available

**Chemical stability**

**Stability:** Sensitive to light. Sensitive to air. Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Heat. Exposure to air. Exposure to light. Ignition sources. Incompatible materials.

**Incompatible Materials:** Strong oxidizing agents  
Acids  
Acid anhydrides

Acid chlorides  
Alcohols

**Hazardous decomposition products:**

Carbon oxides. Nitrogen oxides (NOx). Boron oxides.

**Other Information**

**Corrosivity:**

No information available

**Special Remarks on Corrosivity:** No information available

**11. TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure**

**Principal Routes of Exposure:**

Skin. Eyes. Ingestion. Inhalation.

**Acute Toxicity**

The following values are calculated based on chapter 3.1 of the GHS document  
**Component Information**

Pyridine Borane Complex	
CAS No	110-51-0

**LD50/oral/rat** = 95400 µg/kg Oral LD50 Rat = 95.4 mg/kg Oral LD50 Rat

**LD50/oral/mouse** = No information available

**LD50/dermal/rabbit** = No information available

**LD50/dermal/rat** = No information available

**LC50/inhalation/rat** = No information available

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50 information** = 200 mg/kg LD50 Dermal Guinea Pig

**Product Information**

**LD50/oral/rat =**

**Value - Acute Toxicity =** 95.4 mg/kg

**LD50/oral/mouse =**

**Value - Acute Tox =** No information available

**LD50/dermal/rabbit**

**Value - Acute Toxicity =** No information available

**LD50/dermal/rat**

**VALUE - Acute Tox =** No information available

**LC50/inhalation/rat**

**VALUE-Vapor =** No information available

**VALUE-Gas =** No information available

**VALUE-Dust/Mist =** No information available

**LC50/Inhalation/mouse**

**VALUE-Vapor =** No information available

**VALUE - Gas =** No information available

**Product code:** P1556

**Product name:** PYRIDINE BORANE  
COMPLEX

**Page** 7 / 12

VALUE - Dust/Mist = No information available

**Symptoms**

**Skin Contact:** Causes skin irritation.

**Eye Contact:** Causes serious eye irritation.

**Inhalation** May cause irritation of respiratory tract. May cause dizziness and headache. May cause tiredness. Symptoms may include burning sensation, coughing, wheezing, laryngitis, shortness of breath.

**Ingestion** May cause digestive (gastrointestinal) tract irritation. Ingestion may cause nausea, vomiting.

**Aspiration hazard** May be fatal if swallowed and enters airways.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity** No information available.

**Sensitization:** No information available.

**Mutagenic Effects:** No information available

**Carcinogenic effects:** Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Pyridine Borane Complex	110-51-0	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

*NTP (National Toxicology Program)*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

**Reproductive toxicity** No data is available

**Reproductive Effects:** No information available

**Developmental Effects:** No information available

**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Target Organs:** Skin. Respiratory system.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.



**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility in soil** No information available

**Other adverse effects** No information available.

### 13. DISPOSAL CONSIDERATIONS

#### Disposal Methods

**Waste from residues / unused products:**

Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**

Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Pyridine Borane Complex	110-51-0	None	None	None	None

### 14. TRANSPORT INFORMATION

#### DOT

**UN-No:** UN2810  
**Proper Shipping Name:** Toxic liquids, organic, n.o.s.  
**Hazard Class** 6.1  
**Subsidiary Class** No information available  
**Packing group:** II  
**Emergency Response Guide Number** 153  
**Marine Pollutant** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions** IB2, T11, TP2, TP13, TP27  
**Symbol(s):** No information available  
**Description:** UN2810, Toxic liquids, organic, n.o.s., 6.1, II

#### TDG (Canada)

**UN-No:** UN2810  
**Proper Shipping Name:** Toxic liquid, organic, n.o.s.  
**Hazard Class** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant** No Information available  
**Description:** UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, II

#### ADR

**UN Number** UN2810  
**Proper Shipping Name:** Toxic liquid, organic, n.o.s.  
**Transport hazard class(es)** 6.1  
**Packing group** II  
**Subsidiary Risk:** No information available  
**Special Provisions** 274, 614  
**Description:** UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, II

**IMDG**

**UN-No:** UN2810  
**Proper Shipping Name:** Toxic liquids, organic, n.o.s.  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant:** No information available  
**EMS:** F-A  
**Special Provisions:** 274  
**Description:** UN2810, TOXIC LIQUID, ORGANIC, N.O.S. (PYRIDINE BORANE COMPLEX), 6.1, II

**RID**

**UN Number:** UN2810  
**Proper Shipping Name:** Toxic liquid, organic, n.o.s.  
**Transport hazard class(es):** 6.1  
**Subsidiary Risk:** No information available  
**Packing group:** II  
**Special Provisions:** 274, 614  
**Description:** UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, II

**ICAO (air)**

**UN-No:** UN2810  
**Proper Shipping Name:** Toxic liquid, organic, n.o.s.  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Description:** UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, II  
**Special Provisions:** A3, A4, A137

**IATA**

**UN Number:** UN2810  
**Proper Shipping Name:** Toxic liquid, organic, n.o.s.  
**Transport hazard class(es):** 6.1  
**Subsidiary Risk:** No information available  
**Packing group:** II  
**Precautionary Statements - Response:** 6L  
**Special Provisions:** No information available  
**Description:** UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, II

<b>15. REGULATORY INFORMATION</b>
-----------------------------------

**International Inventories**

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
<i>Pyridine Borane Complex</i>	110-51-0	PresentACTIVE	Not present	Not present	Not present	Present	Not listed	Present 203-773-4

**U.S. Regulations****California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.****Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Pyridine Borane Complex	110-51-0	Not Listed	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
<i>Pyridine Borane Complex</i>	110-51-0	None	None	None	None	None

**U.S. TSCA**

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Pyridine Borane Complex	110-51-0	Not Applicable	Not Applicable

**Canada****WHMIS 2015 - GHS Classifications**

WHMIS 2015 Hazard Classification Information:

The WHMIS 2015 classification of this product has not been validated or reviewed yet.

**Canada Hazardous Products Regulation** This product has not been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

**DSL/NDSL**

Component	CAS No	Canada (DSL)	Canada (NDSL)
Pyridine Borane Complex	110-51-0	Not Listed	Present

Component	CAS No	CEPA Schedule I - Toxic Substances
Pyridine Borane Complex	110-51-0	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Pyridine Borane Complex	110-51-0	Not listed

**EU Classification****EU GHS - SV - CLP 1272/2008**

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Pyridine Borane Complex	110-51-0	

**EU - CLP (1272/2008)****R-phrases**

**Product code:** P1556

**Product name:** PYRIDINE BORANE COMPLEX

**Page** 11 / 12

R25 - Toxic if swallowed  
R36/38 - Irritating to eyes and skin  
R26/27 - Very toxic by inhalation and in contact with skin

**S -phrase(s)**

S 7 - Keep container tightly closed.  
S36 - Wear suitable protective clothing  
S38 - In case of insufficient ventilation, wear suitable respiratory equipment  
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Pyridine Borane Complex	110-51-0		No information	

**The product is classified in accordance with Annex VI to Directive 67/548/EEC**

**Indication of danger:**

T+ - Very toxic  
Xi - Irritant

**T+**

**Xi**



**16. OTHER INFORMATION**

Preparation Date: 09/17/2019  
Revision date 09/17/2019  
Prepared by: Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**