

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/14/2009

## 1 Identification of substance:

### Product details:

**Product name:** Pinacolborane

**Stock number:** L17558

### Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company  
Johnson Matthey Catalog Company, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Emergency Phone: (978) 521-6300  
CHEMTREC: (800) 424-9300  
Web Site: [www.alfa.com](http://www.alfa.com)

**Information Department:** Health, Safety and Environmental Department

### Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

## 2 Composition/Data on components:

### Chemical characterization:

**Description:** (CAS#)

Pinacolborane (CAS# 25015-63-8): 100%

## 3 Hazards identification

### Hazard description:



F Highly flammable

### Information pertaining to particular dangers for man and environment

R 11 Highly flammable.

R 15 Contact with water liberates extremely flammable gases.

### Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	1
FIRE	3
REACTIVITY	2

Health (acute effects) = 1

Flammability = 3

Reactivity = 2

### GHS label elements



Danger

2.6/2 - Highly flammable liquid and vapour.

2.12/2 - In contact with water releases flammable gas.

### Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Handle under inert gas. Protect from moisture.

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/protective clothing/eye protection/face protection.

### Response:

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

In case of fire: Use for extinction: CO2, powder or water spray.

### Storage:

Store in a dry place. Store in a closed container.

Store in a well-ventilated place. Keep cool.

### Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

- USA -

(Contd. on page 2)

# Material Safety Data Sheet

## acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/14/2009

Product name: Pinacolborane

(Contd. of page 1)

### 4 First aid measures

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek immediate medical advice.

### 5 Fire fighting measures

**Suitable extinguishing agents** CO2, sand, extinguishing powder. Do not use water.

**For safety reasons unsuitable extinguishing agents** Water

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Boron oxide

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

### 6 Accidental release measures

**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Ensure adequate ventilation.

Keep away from ignition sources.

**Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

### 7 Handling and storage

**Handling**
**Information for safe handling:**

Handle under dry protective gas.

Keep container tightly sealed.

Ensure good ventilation at the workplace.

**Information about protection against explosions and fires:**

Keep ignition sources away.

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

**Storage**

**Requirements to be met by storerooms and receptacles:** Refrigerate

**Information about storage in one common storage facility:**

Do not store together with oxidizing and acidic materials.

Protect from heat.

Store away from water/moisture.

**Further information about storage conditions:**

Store under dry inert gas.

This product is moisture sensitive.

Keep container tightly sealed.

Protect from humidity and water.

Refrigerate

### 8 Exposure controls and personal protection

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

(Contd. on page 3)

- USA -

# Material Safety Data Sheet

## acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/14/2009

**Product name:** Pinacolborane

(Contd. of page 2)

**Components with limit values that require monitoring at the workplace:** Not required.**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

**Breathing equipment:**

Use suitable respiratory protective device in case of insufficient ventilation.

Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses**Body protection:** Protective work clothing.

### 9 Physical and chemical properties:

**General Information**

<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Not determined

**Change in condition**

<b>Melting point/Melting range:</b>	Not determined
<b>Boiling point/Boiling range:</b>	42-43°C (108-109°F) (50 mmHg)
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:** 5°C (41°F)**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

**Vapor pressure:** Not determined**Density at 20°C (68°F):** 0.882 g/cm<sup>3</sup>**Solubility in / Miscibility with****Water:** Contact with water releases flammable gases

### 10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:**

Water/moisture

Oxidizing agents

Heat

Acids

**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Boron oxide

### 11 Toxicological information

**Acute toxicity:****Primary irritant effect:****on the skin:** May cause irritation**on the eye:** May cause irritation**Sensitization:** No sensitizing effects known.

(Contd. on page 4)

-USA-

# Material Safety Data Sheet

## acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/14/2009

**Product name:** Pinacolborane

(Contd. of page 3)

**Subacute to chronic toxicity:**

Boron affects the central nervous system. Boron poisoning causes depression of the circulation, persistent vomiting and diarrhea, followed by profound shock and coma. The temperature may become subnormal and a scarletina form rash may cover the entire body.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**12 Ecological information:****General notes:**

Do not allow material to be released to the environment without proper governmental permits.

**13 Disposal considerations****Product:**

**Recommendation** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information****DOT regulations:****Hazard class:**

4.3

**Identification number:**

UN3399

**Packing group:**

II

**Proper shipping name (technical name):** ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE, FLAMMABLE

**Label**

S (Pinacolborane)  
4.3+3

**Land transport ADR/RID (cross-border)****ADR/RID class:**

4.3 (WF1) Substances which, in contact with water, emit flammable gases

**Danger code (Kemler):**

323

**UN-Number:**

3399

**Packaging group:**

II

(Contd. on page 5)

USA

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/14/2009

Product name: Pinacolborane

(Contd. of page 4)

**Description of goods:** 3399 ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE, FLAMMABLE

S (Pinacolborane)

**Maritime transport IMDG:**

**IMDG Class:** 4.3  
**UN Number:** 3399  
**Label** 4.3+3  
**Packaging group:** II  
**Proper shipping name:** ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Pinacolborane)

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 4.3  
**UN/ID Number:** 3399  
**Label** 4.3+3  
**Packaging group:** II  
**Proper shipping name:** ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Pinacolborane)

**UN "Model Regulation":**  
 UN3399, ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE, FLAMMABLE

S, 4.3 (3), II

## 15 Regulations

**Product related hazard informations:**

**Hazard symbols:**  
 F Highly flammable

**Risk phrases:**  
 11 Highly flammable.  
 15 Contact with water liberates extremely flammable gases.

**Safety phrases:**  
 7/8 Keep container tightly closed and dry.  
 9 Keep container in a well-ventilated place.  
 16 Keep away from sources of ignition - No smoking.  
 33 Take precautionary measures against static discharges.  
 43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

**National regulations**

This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only.

(Contd. on page 6)

USA

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/15/2009

Reviewed on 05/14/2009

**Product name:** Pinacolborane

(Contd. of page 5)

Some or all of the components of this product are not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).

**Information about limitation of use:** For use only by technically qualified individuals.

## 16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing MSDS:** Health, Safety and Environmental Department.

**Contact:** Zachariah Holt

### Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

- USA -