



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 03/11/2013

Version 1.0

## SECTION 1. Identification

### Product identifier

Product number	820747
Product name	Potassium borohydride for synthesis

### Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for synthesis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   SDS Phone Support: +1-978-715-1335   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)  e-mail: mm_sds@merckgroup.com
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Substances which in contact with water emit flammable gases, Category 1, H260  
Acute toxicity, Category 3, Dermal, H311  
Acute toxicity, Category 3, Oral, H301  
Skin corrosion, Category 1B, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

#### Hazard pictograms



Signal Word  
Danger

#### Hazard Statements

H260 In contact with water releases flammable gases which may ignite spontaneously.

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H301 + H311 Toxic if swallowed or in contact with skin.  
H314 Causes severe skin burns and eye damage.

## *Precautionary Statements*

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.  
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. Continue rinsing.  
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.  
P402 + P404 Store in a dry place. Store in a closed container.

## OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

## Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Formula	KBH <sub>4</sub>	H <sub>4</sub> BK (Hill)
CAS-No.	13762-51-1	
Molar mass	53.94 g/mol	

## Hazardous ingredients

*Chemical Name ( Concentration)*

CAS-No.

Potassium tetrahydroborate (  $\geq 90\%$  -  $\leq 100\%$  )  
13762-51-1

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## SECTION 4. First aid measures

### Description of first-aid measures

*General advice*

First aider needs to protect himself.

*Inhalation*

After inhalation: fresh air. Call in physician.

*Skin contact*

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

*Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

*Ingestion*

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralize.

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Never give anything by mouth to an unconscious person.

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

Irritation and corrosion, Cough, Shortness of breath, Dizziness, Diarrhea, Nausea, Vomiting, collapse, death

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation(>,<) spasms, CNS disorders, cardiovascular disorders.

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

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

*Suitable extinguishing media*

Sand, Cement, Dry powder

*Unsuitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam

### Special hazards arising from the substance or mixture

Combustible.

Risk of dust explosion.

Forms explosive mixtures with air at ambient temperatures.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

boron compounds, Hydrogen

May not get in touch with:

Water

Caution! in contact with water product releases:

Hydrogen

### Advice for firefighters

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts. Keep away from open flames, hot surfaces and sources of ignition. Ensure adequate ventilation.

Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### Environmental precautions

Do not empty into drains. Risk of explosion.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

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Observe possible material restrictions (see sections 7 and 10).  
Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

## SECTION 7. Handling and storage

### Precautions for safe handling

Keep workplace dry. Do not allow product to come into contact with water.

Observe label precautions.

#### *Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### Conditions for safe storage, including any incompatibilities

Dry. Keep locked up or in an area accessible only to qualified or authorized persons. Tightly closed. Keep away from heat and sources of ignition.

Store at +15°C to +25°C (+59°F to +77°F).

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### *Ingredients*

Basis	Value	Threshold limits	Remarks
<i>Potassium tetrahydroborate 13762-51-1</i>			
ACGIH	Time Weighted Average (TWA):	2 mg/m <sup>3</sup>	Form of exposure: Inhalable fraction.
	Short Term Exposure Limit (STEL):	6 mg/m <sup>3</sup>	Form of exposure: Inhalable fraction.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### *Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

#### *Eye/face protection*

Tightly fitting safety goggles

#### *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.

#### *Other protective equipment:*

protective clothing

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## *Respiratory protection*

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## SECTION 9. Physical and chemical properties

Physical state	crystals
Color	colorless
Odor	odorless
Odor Threshold	No information available.
pH	No information available.
Melting point	500 °C
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	1.11 g/cm <sup>3</sup>
Water solubility	at 68 °F ( 20 °C) (rigorous decomposition)
Partition coefficient: n-octanol/water	log Pow: -0.77 (calculated) Bioaccumulation is not expected (log Pow <1). (Lit.)
Autoignition temperature	No information available.
Decomposition temperature	> 932 °F ( > 500 °C)
Viscosity, dynamic	No information available.

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Explosive properties	No information available.
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Bulk density	400 kg/m <sup>3</sup>
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### SECTION 10. Stability and reactivity

#### Reactivity

Risk of dust explosion.

#### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

#### Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with:

Risk of ignition or formation of inflammable gases or vapors with:

Water, bases, acids

Risk of explosion with:

Strong oxidizing agents, Heavy metal salts

#### Conditions to avoid

Exposure to moisture.

#### Incompatible materials

no information available

#### Hazardous decomposition products

in the event of fire: See section 5.

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### SECTION 11. Toxicological information

#### Information on toxicological effects

##### *Likely route of exposure*

Eye contact, Skin contact, Ingestion

##### *Acute oral toxicity*

LD50 rat: 167 mg/kg (RTECS)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

absorption

##### *Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Lung edema, Possible damages:, damage of respiratory tract

Corrosive to respiratory system

##### *Acute dermal toxicity*

LD50 rabbit: 230 mg/kg  
(RTECS)

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absorption

*Skin irritation*

Causes burns.

*Eye irritation*

Causes serious eye damage. Risk of blindness!

*Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

*Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

### Carcinogenicity

IARC

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

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

### Further information

Decomposition of the substance with tissue moisture.

After absorption:

Nausea, Vomiting, Diarrhea, Dizziness, Shortness of breath, collapse, death

Damage to:

Lungs

The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation(>,<) spasms, CNS disorders, cardiovascular disorders.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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## SECTION 12. Ecological information

### Ecotoxicity

No information available.

### Persistence and degradability

No information available.

### Bioaccumulative potential

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*Partition coefficient: n-octanol/water*

log Pow: -0.77

(calculated)

Bioaccumulation is not expected (log Pow <1). (Lit.)

## Mobility in soil

No information available.

## Other adverse effects

## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN 1870
Proper shipping name	POTASSIUM BOROHYDRIDE
Class	4.3
Packing group	I
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 1870
Proper shipping name	POTASSIUM BOROHYDRIDE
Class	4.3
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
IATA ( Passenger)	Not permitted for transport

### Sea transport (IMDG)

UN number	UN 1870
Proper shipping name	POTASSIUM BOROHYDRIDE
Class	4.3
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-G S-0

## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Water Reactive



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Toxic by ingestion

Toxic by skin absorption

Corrosive to skin

Corrosive by inhalation.

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

## **SARA 311/312 Hazards**

Reactivity Hazard

Acute Health Hazard

## **SARA 313**

SARA 313: 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.

## **SARA 302**

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

## **Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

## **DEA List I**

Not listed

## **DEA List II**

Not listed

## **Massachusetts Right To Know**

Remarks

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

## **Pennsylvania Right To Know**

*Ingredients*

Potassium tetrahydroborate

## **New Jersey Right To Know**

*Ingredients*

Potassium tetrahydroborate

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## Notification status

TSCA: On TSCA Inventory

DSL: This product contains one or several components listed in the Canadian NDSL.  
*Ingredients*  
Potassium tetrahydroborate

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Full text of H-Statements referred to under sections 2 and 3.

H260 In contact with water releases flammable gases which may ignite spontaneously.  
H301 Toxic if swallowed.  
H311 Toxic in contact with skin.  
H314 Causes severe skin burns and eye damage.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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