

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

Product Description:	<b>POTASSIUM BOROHYDRIDE</b>
Cat No. :	<b>P/3860/46</b>
Synonyms	Borate(1-), tetrahydro-, potassium; Potassium borohydrate; Potassium tetrahydroborate
CAS No	13762-51-1
Molecular Formula	H4 B K

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

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

### 1.3. Details of the supplier of the safety data sheet

#### Company

**UK entity/business name**  
Fisher Scientific UK  
Bishop Meadow Road, Loughborough,  
Leicestershire LE11 5RG, United Kingdom

**EU entity/business name**  
Thermo Fisher Scientific  
Janssen Pharmaceuticaaan 3a  
2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

Tel: 01509 231166  
Chemtrec US: (800) 424-9300  
Chemtrec EU: 001-703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

##### Physical hazards

Substances/mixtures which, in contact with water, emit flammable gases Category 2 (H261)

##### Health hazards

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

Acute oral toxicity  
Acute dermal toxicity  
Skin Corrosion/Irritation

Category 3 (H301)  
Category 3 (H311)  
Category 1 B (H314)

## **Environmental hazards**

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

## **2.2. Label elements**



Signal Word

Danger

## **Hazard Statements**

H261 - In contact with water releases flammable gases  
H314 - Causes severe skin burns and eye damage  
H301 + H311 - Toxic if swallowed or in contact with skin  
EUH014 - Reacts violently with water

## **Precautionary Statements**

P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P302 + P350 - IF ON SKIN: Gently 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  
P310 - Immediately call a POISON CENTER or doctor/physician  
P302 + P335 + P334 - IF ON SKIN: Brush off loose particles from skin. Immerse in cool water  
P402 + P404 - Store in a dry place. Store in a closed container

## **2.3. Other hazards**

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

### **3.1. Substances**

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Potassium borohydride	13762-51-1	EEC No. 237-360-5	98	Water-react. 2 (H261) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Skin Corr. 1B (H314)

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

				(EUH014)
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Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

<b>Eye Contact</b>	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician immediately. Clean mouth with water.
<b>Inhalation</b>	Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Dry chemical. approved class D extinguishers. clay. sodium carbonate.

#### Extinguishing media which must not be used for safety reasons

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

### 5.2. Special hazards arising from the substance or mixture

Contact with water liberates toxic gas. Water reactive. Produce flammable gases on contact with water.

#### Hazardous Combustion Products

Hydrogen, Oxides of boron, Potassium oxides.

### 5.3. Advice for firefighters

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

## SECTION 6: ACCIDENTAL RELEASE MEASURES

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

## **6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Remove all sources of ignition. Take off contaminated clothing and wash before reuse.

## **6.2. Environmental precautions**

See Section 12 for additional Ecological Information.

## **6.3. Methods and material for containment and cleaning up**

Remove all sources of ignition. Sweep up and shovel into suitable containers for disposal. Do not flush into surface water or sanitary sewer system. Do not let this chemical enter the environment.

## **6.4. Reference to other sections**

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

### **7.1. Precautions for safe handling**

Do not breathe dust. Do not get in eyes, on skin, or on clothing. Handle product only in closed system or provide appropriate exhaust ventilation. Handle under inert gas, protect from moisture.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

### **7.2. Conditions for safe storage, including any incompatibilities**

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep from any possible contact with water. Keep away from heat, sparks and flame. Keep away from acids. Keep away from oxidizing agents. Corrosives area.

**Technical Rules for Hazardous Substances (TRGS) 510**      Class 4.3  
**Storage Class (LGK) (Germany)**

### **7.3. Specific end use(s)**

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1. Control parameters**

#### **Exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

regulatory bodies

## Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

## Predicted No Effect Concentration (PNEC)

No information available.

## 8.2. Exposure controls

### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles Face protection shield (European standard - EN 166)

#### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers	-	EN 374	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				

#### Skin and body protection

Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

#### Respiratory Protection

A NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

#### Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particulates filter conforming to EN 143

#### Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Recommended half mask:-** Particle filtering: EN149:2001

When RPE is used a face piece Fit Test should be conducted

#### Environmental exposure controls

No information available.

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

Physical State	Powder Solid	
Appearance	White	
Odor	Odorless	
Odor Threshold	No data available	
Melting Point/Range	500 °C / 932 °F	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flammability (liquid)	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Flash Point	No information available	Method - No information available
Autoignition Temperature	Not applicable	
Decomposition Temperature	500 °C	
pH	No information available	
Viscosity	Not applicable	Solid
Water Solubility	190 g/l (25°C)	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Vapor Pressure	No information available	
Density / Specific Gravity	1.1100	
Bulk Density	No data available	
Vapor Density	Not applicable	Solid
Particle characteristics	No data available	

### 9.2. Other information

Molecular Formula	H4 B K
Molecular Weight	53.93
Substances/mixtures which, in contact with water, emit flammable gases	Emitted gas ignites spontaneously Gas(es) = Hydrogen
Evaporation Rate	Not applicable - Solid

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

Yes

### 10.2. Chemical stability

Stable under normal conditions. Moisture sensitive.

### 10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	No information available.

### 10.4. Conditions to avoid

Excess heat. Incompatible products. Exposure to moist air or water.

### 10.5. Incompatible materials

Acids. Water. Strong oxidizing agents. Strong bases. Alcohols.

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

## 10.6. Hazardous decomposition products

Hydrogen. Oxides of boron. Potassium oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Product Information

##### (a) acute toxicity;

Oral

Category 3

Dermal

Category 3

Inhalation

Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Potassium borohydride	LD50 = 167 mg/kg ( Rat )	LD50 = 230 mg/kg ( Rabbit )	-

##### (b) skin corrosion/irritation;

Category 1 B

##### (c) serious eye damage/irritation;

No data available

##### (d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

##### (e) germ cell mutagenicity;

No data available

##### (f) carcinogenicity;

No data available

There are no known carcinogenic chemicals in this product

##### (g) reproductive toxicity;

No data available

##### (h) STOT-single exposure;

No data available

##### (i) STOT-repeated exposure;

No data available

Target Organs

No information available.

##### (j) aspiration hazard;

Not applicable

Solid

#### Other Adverse Effects

The toxicological properties have not been fully investigated.

#### Symptoms / effects, both acute and delayed

Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

### 11.2. Information on other hazards

#### Endocrine Disrupting Properties

Assess endocrine disrupting properties for human health. This product does not contain any

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

Ecotoxicity effects

Do not empty into drains.

### 12.2. Persistence and degradability

Persistence

Soluble in water, Persistence is unlikely, based on information available.

Degradability

Not relevant for inorganic substances.

### 12.3. Bioaccumulative potential

Bioaccumulation is unlikely

### 12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

### 12.5. Results of PBT and vPvB assessment

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment.

### 12.6. Endocrine disrupting properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### 12.7. Other adverse effects

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.

## SECTION 14: TRANSPORT INFORMATION



# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

## IMDG/IMO

14.1. UN number UN1870  
14.2. UN proper shipping name POTASSIUM BOROHYDRIDE  
14.3. Transport hazard class(es) 4.3  
14.4. Packing group I

## ADR

14.1. UN number UN1870  
14.2. UN proper shipping name POTASSIUM BOROHYDRIDE  
14.3. Transport hazard class(es) 4.3  
14.4. Packing group I

## IATA

14.1. UN number UN1870  
14.2. UN proper shipping name POTASSIUM BOROHYDRIDE  
14.3. Transport hazard class(es) 4.3  
14.4. Packing group I

14.5. Environmental hazards No hazards identified  
14.6. Special precautions for user No special precautions required.  
14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Potassium borohydride	13762-51-1	237-360-5	-	-	X	X	KE-33449	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Potassium borohydride	13762-51-1	X	ACTIVE	-	X	X	X	X

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

#### Authorisation/Restrictions according to EU REACH

Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Potassium borohydride	13762-51-1	-	-	-

Seveso III Directive (2012/18/EC)

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Potassium borohydride	13762-51-1	Not applicable	Not applicable

**Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals**

Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

## National Regulations

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

**WGK Classification** Water endangering class = 3 (self classification)

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

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

H261 - In contact with water releases flammable gases

H301 - Toxic if swallowed

H311 - Toxic in contact with skin

H314 - Causes severe skin burns and eye damage

EUH014 - Reacts violently with water

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer  
Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

# SAFETY DATA SHEET

POTASSIUM BOROHYDRIDE

Revision Date 20-Oct-2023

**NOEC** - No Observed Effect Concentration  
**PBT** - Persistent, Bioaccumulative, Toxic

**POW** - Partition coefficient Octanol:Water  
**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

## Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

**Creation Date** 22-Nov-2010  
**Revision Date** 20-Oct-2023  
**Revision Summary** Not applicable.

**This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**