

Safety Data Sheet Potassium Bifluoride

SECTION 1 : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	Potassium Bifluoride	
Synonyms	Potassium hydrogen Difluoride	
CAS Number	7789-29-9	
Recommended Uses	Laboratory chemicals, Chemical industry; metal treatment; welding and soldering agents; Manufacture of substances	
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SECTION 2 : HAZARDS IDENTIFICATION

3.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 3), H301
Skin corrosion (Category 1B), H314

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

Classification according to EU Directives 67/548/EEC or 1999/45/EC

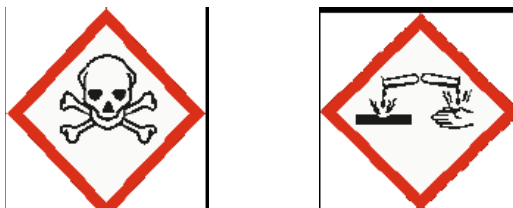
T Toxic R25
C Corrosive R34

For the full text of the R-phrases mentioned in this Section, see Section 16.

3.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

Hazard statement(s)
H301 Toxic if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statement(s)
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
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.
Supplemental Hazard Statements none

3.3 Other hazards - none

SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS			
2.1 Substances			
Synonyms	: Potassium bifluoride ; Potassium hydrogen difluoride		
Formula	: KHF ₂ (KF.HF)		
Molecular Weight	: 78,10 g/mol		
CAS-No.	: 7789-29-9		
EC-No.	: 232-156-2		
Index-No.	009-008-00-9		
Hazardous ingredients according to Regulation (EC) No 1272/2008			
Component	Classification	Concentration	
Potassium hydrogen difluoride			
CAS-No.	7789-29-9	Acute Tox. 3; Skin Corr. 1B; H301, H31	<= 100 %
EC-No.	232-156-2		
Index-No.	009-008-00-9		
Hazardous ingredients according to Directive 1999/45/EC			
Component	Classification	Concentration	
Potassium hydrogen difluoride			
CAS-No.	7789-29-9	T, C, R25 - R34	<= 100 %
EC-No.	232-156-2		
Index-No.	009-008-00-9		
For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16			

SECTION 4 : FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.



In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5 : FIRE-FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES :

Flash point : Not Flammable

Auto-ignition Temperature : Not applicable

Flammability Limits : Not applicable.

Unusual Fire and Explosion Hazards : None.

5.2 Extinguishing Methods:

Common: In case of fire in close proximity, all means of extinguishing are acceptable (subject to section below).

Inappropriate extinguishing means: No restriction.

Fire Fighting Procedures:

Specific hazards:

- Non-combustible/non-flammable, but may produce dangerous fumes if involved in fire.
- Formation of dangerous gas/vapors in case of decomposition (see section 10).
- Formation of flammable gas on contact with certain metals (see section 10).

Protective measures in case of intervention:

- Evacuate all non-essential personnel.
- Intervention only by capable personnel who are trained and aware of the hazards of the product.
- In all cases wear self-contained breathing apparatus.
- When intervention in close proximity, wear full protective acid-resistant suit.
- Protect intervention team with water spray when approaching the fire.
- After intervention, take a shower, remove clothing carefully, clean and check equipment.

5.3 Other precautions:

- If safe to do so, remove the exposed containers, or cool with large quantities of water.
- Approach from upwind.
- Disperse gas/vapors with water spray.
- After the fire, proceed rapidly to clean the surfaces exposed to the fumes in order to limit the damage to the equipment.
- As for any fire, ventilate and clean the rooms before reentry.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7 : HANDLING AND STORAGE

7.1 Precautions for safe Handling:

- Avoid contact with skin and eyes. Avoid formation of dust and aerosols
- Provide appropriate exhaust ventilation at places where dust is formed

7.2 Storage:

- Keep in original packaging, closed.
- Store in a ventilated, cool, dry area.
- Keep away from heat sources.

7.3 Specific end Uses: Refer to Section-1 (Recommended Uses)

7.4 Other precautions:

- Avoid dust and formation of dust clouds.
- Follow the protective measures given in section 8.
- Warn people about the dangers of the product.

7.5 Packaging:

- Cardboard + PE.
- Paper + PE.

SECTION 8 : EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.



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Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: crystalline
b) Odour	Colour: colourless to White
c) Odour Threshold	Slightly pungent
d) pH 1	no data available
e) Melting point/freezing point	Concentration : 7.8 g/l @ 20°C
	Melting point/range: 239 °C - lit.
f) Initial boiling point and boiling range	no data available
g) Flash point	not applicable
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	2,37 g/cm ³ at 25 °C
n) Water solubility	no data available
o) Partition coefficient: noctanol/ water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available
9.2 Other safety information	
Bulk density	1,3 g/l

SECTION 10 : STABILITY AND REACTIVITY

10.1 Reactivity

React with strong bases

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

With strong bases / silica containing materials

10.4 Conditions to avoid

Heating the product to its decomposition temp (see section 9)

10.5 Incompatible materials

Strong oxidizing agents / Strong bases. Silicate containing material



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10.6 Hazardous decomposition products

Other decomposition products - no data available

10.7 Other information:

- Exothermic reaction when dissolved in water.
- Corrosive action on some metals when moisture is present.
- In presence of humidity, contact with metals releases hydrogen

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Routes of Entry : Dermal Contact. Eye contact. Inhalation. Ingestion

Toxicity to Animals : Not available

LD 50 : Not available

LC 50 : Not available

Acute toxicity	: No data available
Skin corrosion/irritation	: No data available
Serious eye damage/eye irritation	: No data available
Respiratory or skin sensitization	: No data available
Germ cell mutagenicity	: No data available

Carcinogenicity

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

Reproductive toxicity	: No data available
Specific target organ toxicity - single exposure	: No data available
Specific target organ toxicity - repeated exposure	: No data available
Aspiration hazard	: No data available

11.2 Potential health effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion Toxic if swallowed. Causes burns.

Skin May be harmful if absorbed through skin. Causes skin burns.

Eyes Causes eye burns.

11.3 Signs and Symptoms of Exposure

Salivation, Nausea, Vomiting, Fever, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

11.4 Additional Information

RTECS: TS6650000

SECTION 12 : ECOLOGICAL INFORMATION

Acute Ecotoxicity:

- 10 mg KF•HF/l: pH = 3.9; 100 mg KF.HF/l: pH = 2.9.
- 10 mg HF/l: pH = 3.15; 100 mg HF/l: pH = 2.65.
- Fish, Poecilia reticulata, LC50, 96 h, from 65-80 mg/l.
- Algae, Scenedesmus sp., LOEC, 110 mg/l.
- Fish, Salmo gairdneri, LC50, 96 h, 51 mg/l (fluorides).
- Crustaceans, Daphnia magna, EC50, 48 h, 97 mg/l; Conditions: fresh water (fluorides).
- Crustaceans, Mysidopsis bahia, EC50, 96 h, 10.5 mg/l; Conditions: salt water (fluorides).
- Algae, Scenedesmus sp., EC50, 96 h, 43 mg/l (fluorides).

Chronic ecotoxicity:

- Fish, Salmo gairdneri, LC50, 21 days, from 2.7-4.7 mg/l (fluorides).
- Crustaceans, Daphnia magna, NOEC, 21 days, 3.7 mg/l (fluorides).

Mobility:

- Air - mobility as solid aerosols.
 - Water - considerable solubility and mobility.
 - Soil / sediments - adsorption on mineral soil constituents.
- Conditions: slightly acid pH (Fluorides).

Degradation

Abiotic:

- Air - neutralization by natural alkalinity.
 - Water / soil - ionization/neutralization.
 - Water / Soil - complexation/precipitation of inorganic materials.
- Degradation products: aluminum / iron / calcium / phosphate complexes and/or precipitates as a function of pH (fluorides).

Biotic: Not applicable (inorganic compound).

Potential for bioaccumulation:

- Bioconcentration: log Po/w - not applicable (ionizable inorganic compound).
- Result: accumulation into vegetable leaves (fluorides).

Other adverse effects /Comments:

- Harmful for aquatic organisms.
- Hazard for the aquatic environment is limited due to product properties: low chronic toxicity.
- Product is highly dependent on environmental conditions: pH, temperature, oxidoreductive potential, mineral and organic content of the medium.



SECTION 13 : DISPOSAL CONSIDERATIONS

13.1 : Waste treatment: Consult current federal, state and local regulations regarding the proper disposal of this material.

13.2 : Packaging treatment:

- Consult current federal, state and local regulations regarding the proper disposal of emptied containers.
- Rinse the empty containers with alkaline water and treat the effluent in the same way as waste.
- Dispose of the containers by dispatching them to an approved incineration facility for hazardous waste.

13.3 : RCRA Hazardous Waste: Listed as D002 (Corrosive).

SECTION 14 : TRANSPORT INFORMATION

14.1 UN number

ADR/RID: 1811

IMDG: 1811

IATA: 1811

14.2 UN proper shipping name

ADR/RID : POTASSIUM HYDROGEN DIFLUORIDE, SOLID

IMDG : POTASSIUM HYDROGEN DIFLUORIDE, SOLID

IATA : Potassium hydrogendifluoride, solid

Codes / Labels :: Corrosive, Toxic

14.3 Transport hazard class(es)

ADR/RID: 8 (6.1)

IMDG: 8 (6.1)

IATA: 8 (6.1)

14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

14.5 Environmental hazards

ADR/RID: no

IMDG Marine Pollutant: no

IATA: no

14.6 Special precautions for user

no data available

SECTION 15 : REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

no data available

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out



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SECTION 16 : OTHER INFORMATION

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

Acute Tox.	Acute toxicity
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
Skin Corr.	Skin corrosion

Full text of R-phrases referred to under sections 2 and 3

C	Corrosive
T	Toxic
R25	Toxic if swallowed.
R34	Causes burns.

Disclaimer:

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