

SAFETY DATA SHEET

Preparation Date: 1/31/2017

Revision Date: 1/31/2017

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: P1185
Product Name: POTASSIUM BIFLUORIDE, CRYSTAL, REAGENT

Other means of identification

Synonyms: Potassium acid fluoride
 Potassium hydrogen difluoride
 Potassium hydrogen fluoride
 Potassium monohydrogen fluoride
 Hydrogen potassium fluoride
 Potassium monohydrogen difluoride
 Potassium fluoride

CAS #: 7789-29-9
RTECS # TS6650000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: In the manufacture of glass. Metal finishing.
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: Martin LaBenz (West Coast)

Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to 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
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

Label elements

Danger

Hazard statements

Product code: P1185

Product name: POTASSIUM
 BIFLUORIDE, CRYSTAL, REAGENT

Toxic if swallowed
Causes severe skin burns and eye damage
May cause respiratory irritation



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 breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Potassium Bifluoride	7789-29-9	100

4. FIRST AID MEASURES

First aid measures

Product code: P1185

Product name: POTASSIUM
BIFLUORIDE, CRYSTAL, REAGENT

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.

Skin Contact: Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Eye Contact: Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

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. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms Severe skin and eye irritation or burns. Irritating to respiratory system. May cause coughing and shortness of breath. May cause pulmonary edema. Causes serious gastrointestinal tract irritation or burns. Can burn mouth, throat, and stomach. May cause nausea, headache, vomiting. May cause diarrhea. Fluorosis. Central nervous system effects. It may affect the kidneys. It may affect the bones and teeth. May affect the blood and cause anemia.

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: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous Combustion Products: If it is involved in a fire the following can be released: Hydrogen fluoride. Potassium oxides.

Specific hazards: No information available.

Special Protective Actions for Firefighters

Specific Methods: No information available.

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: Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid dust formation. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering 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. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel. Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. 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. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Use only in well-ventilated areas. Do not ingest. Do not breathe dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Store in a segregated and approved area.

Incompatible Materials:

Oxidizing agents
Strong bases
Strong acids

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WHEEL
Potassium Bifluoride	7789-29-9	2.5 mg/m ³ TWA	None	2.5 mg/m ³ TWA	None

Canada

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Potassium Bifluoride	7789-29-9	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA	2.5 mg/m ³ TWAEV

Australia and Mexico

Components	CAS-No.	Australia	Mexico
Potassium Bifluoride	7789-29-9	2.5 mg/m ³ TWA	2.5 mg/m ³ TWA

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles

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

Respiratory protection: Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:
Solid

Appearance:
Crystalline solid. Crystals.

Color:
White.

Odor:
Slightly. Pungent.

Taste
No information available.

Formula:
KHF₂

Molecular/Formula weight:
78.11 g/mol

Flammability:
Not flammable

Flashpoint (°C/°F):
No information available.

Flash Point Tested according to:
Not available

Autoignition Temperature (°C/°F):
No information available

Lower Explosion Limit (%):
No information available

Upper Explosion Limit (%):
No information available

Melting point/range(°C/°F):
225-239°C/437-462°F

Decomposition temperature(°C/°F):
No information available

Boiling point/range(°C/°F):
No information available

Bulk density:
No information available

Density (g/cm³):
2.37

Specific gravity:

Product code: P1185

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BIFLUORIDE, CRYSTAL, REAGENT

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No information available

pH:
No information available

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

Partition coefficient (n-octanol/water):
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Soluble in Water

10. STABILITY AND REACTIVITY

Reactivity

Reacts with acids to form hydrogen fluoride
Potassium Hydrogen Fluoride may be corrosive to metals in the presence of water or moisture or high humidity and may release flammable and explosive hydrogen gas

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Incompatible materials.

Incompatible Materials:
Oxidizing agents
Strong bases
Strong acids

Hazardous decomposition products: Hydrogen fluoride. Potassium oxides.

Other Information

Corrosivity: In the presence of moisture, it will corrode glass, cement, and most metals

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation. Skin. Eyes.

Acute Toxicity

Component Information

Potassium Bifluoride

CAS-No. 7789-29-9

LD50/oral/rat = 160 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 = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 160 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = 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
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Corrosive. Causes severe irritation and burns.

Eye Contact: Causes serious eye damage. Causes severe irritation and burns. Possible eye damage.

Inhalation Irritating to respiratory system. Causes respiratory tract (nose, throat, lungs), and mucous membrane irritation. Symptoms may include coughing and shortness of breath. It may cause pulmonary edema. May cause nausea and headache. May cause vomiting.

Ingestion Toxic if swallowed. Acute ingestion of fluorides may cause (nervous system effects) neurological symptoms such as headache, tremors, convulsions, seizures/convulsions, tetanic contractions, muscle spasms, muscle weakness. Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia, hypomagnesemia, metabolic and/or respiratory acidosis, and sometimes hyperkalemia. Causes digestive (gastrointestinal) tract irritation. Causes digestive or gastrointestinal tract burns. May cause abdominal pain, nausea, vomiting, diarrhea. Symptoms may include a burning sensation in the mouth, throat, and stomach.

Aspiration hazard No information available.

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

Chronic Toxicity Chronic ingestion of high levels of fluorides may affect the kidneys. Chronic inhalation and ingestion may cause fluorosis (chronic fluoride poisoning) with skeletal abnormalities. Fluorosis is characterized by nausea, vomiting, loss of appetite, diarrhea, constipation, anemia, weakness, brittle bones, stiffness of joints. Can also result in osteosclerosis (an increase of bone density in

characteristic patterns. Can also cause discoloration of teeth/mottled enamel, and may cause kidney damage.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Potassium Bifluoride	7789-29-9	Not listed	A4 Not Classifiable as a Human Carcinogen	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 Respiratory system.

STOT - repeated exposure No information available.

Target Organs: Bones. Respiratory system. Kidneys.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility: 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. Do not re-use empty containers
Dispose of as unused product.

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Potassium Bifluoride	7789-29-9	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1811
Proper Shipping Name: Potassium hydrogendifluoride, solid
Hazard Class: 8
Subsidiary Class: 6.1
Packing group: II
Emergency Response Guide Number: 154
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: IB8, IP2, IP4, N3, N34, T3, TP33
Symbol(s): No information available
Description: UN1811, Potassium hydrogendifluoride, solid, 8 (6.1), II

TDG (Canada)

UN-No: UN1811
Proper Shipping Name: Potassium hydrogendifluoride, solid
Hazard Class: 8
Subsidiary Risk: (6.1)
Packing Group: II
Marine Pollutant: No Information available
Description: UN1811, Potassium hydrogendifluoride, solid, 8 (6.1), II

ADR

UN-No: UN1811
Proper Shipping Name: Potassium hydrogendifluoride solid
Hazard Class: 8
Packing Group: II
Subsidiary Risk: 6.1
Description: UN1811, Potassium hydrogendifluoride solid, 8 (6.1), II

IMO / IMDG

UN-No: UN1811
Proper Shipping Name: Potassium hydrogendifluoride, solid
Hazard Class: 8
Subsidiary Risk: 6.1
Packing Group: II
Marine Pollutant: No information available
EMS: F-A
Description: UN1811, Potassium hydrogendifluoride, solid, 8 (6.1), II

RID

UN-No: UN1811
Proper Shipping Name: Potassium hydrogendifluoride, solid
Hazard Class: 8
Subsidiary Risk: 6.1
Packing Group: II
Description: UN1811, Potassium hydrogendifluoride, solid, 8 (6.1), II

ICAO

UN-No: UN1811
Proper Shipping Name: Potassium hydrogendifluoride, solid
Hazard Class: 8
Subsidiary Risk: 6.1
Packing Group: II
Description: UN1811, Potassium hydrogendifluoride, solid, 8 (6.1), II

IATA

UN-No: UN1811
Proper Shipping Name: Potassium hydrogendifluoride, solid
Hazard Class: 8
Subsidiary Risk: 6.1
Packing Group: II
ERG Code: 8P
Special Provisions No information available
Description: UN1811, Potassium hydrogendifluoride, solid, 8 (6.1), II

15. REGULATORY INFORMATION

International Inventories

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Potassium Bifluoride	7789-29-9	Present	Present KE-29129	Present	Present (1)-322	Present	Present	Present 232-156-2

U.S. Regulations*Potassium Bifluoride*

New Jersey RTK Hazardous Substance List: 1568
 0936
Pennsylvania RTK: Present (dust)
California Directors List of Hazardous Substances: Present

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)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Potassium Bifluoride	7789-29-9	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	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
Potassium Bifluoride	7789-29-9	None	None	None	None	None

U.S. TSCA**Product code:** P1185

Product name: POTASSIUM
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Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Potassium Bifluoride	7789-29-9	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

D1B Toxic materials
E Corrosive material

Components

Potassium Bifluoride

WHIMHAZ

D1B E

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Potassium Bifluoride	7789-29-9	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Potassium Bifluoride	7789-29-9	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Potassium Bifluoride	7789-29-9	Not listed

EU Classification

R-phrase(s)

R34 - Causes burns.
R25 - Toxic if swallowed.

S -phrase(s)

S22 - Do not breathe dust.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37 - Wear suitable gloves.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 1/2 - Keep locked up and out of the reach of children.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Potassium Bifluoride	7789-29-9	T; R25 C; R34	10%≤C: T; R25 1%≤C<10%: Xn; R22 0.1%≤C<1%: Xi; R36/38	S1/2 S22 S26 S37 S45

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

Indication of danger:

C - Corrosive.
T - Toxic



16. OTHER INFORMATION

Preparation Date: 1/31/2017
Revision Date: 1/31/2017
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