Potassium Fluorosilicate
Material Safety Data Sheet

Chemical: Potassium Fluorosilicate
NFPA: H=3  F=0  I=0  S=None
HMIS: H=3  F=0  R=0  PPE= Supplied by user; dependent on conditions

MSDS Number: KFSI-1103

Not valid three years after effective date or after issuance of superseding MSDS, whichever is earlier. French or Spanish translations of this MSDS may be available.
Material Safety Data Sheets contain country specific regulatory information.

1. Company and Product Identification

1.1 Product Name: Potassium fluorosilicate
Chemical Name: Potassium fluorosilicate
Synonyms: Potassium silicofluoride, Potassium hexafluorosilicate
Chemical Formula: K₂SiF₆
Molecular Weight: 220
CAS Number: 16871-90-2
EINECS Number: unknown
Grade/Trade Names: None

1.2 Recommended Uses: Contact supplier

1.4 Emergency Telephone Numbers

Emergencies (USA): 1-800-424-9300 (CHEMTREC®)
Transportation Emergencies (INTERNATIONAL/MARITIME): 1-703-527-3887 (CHEMTREC®)
2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>FORMULA</th>
<th>WT. PERCENT</th>
<th>CAS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Fluorosilicate</td>
<td>K₂SiF₆</td>
<td>98.0 min.</td>
<td>16871-90-2</td>
</tr>
</tbody>
</table>

3. Hazards Identification

Emergency Overview: Seek medical attention in all cases

3.1 Route of Entry: Inhalation: Yes  Skin: Yes  Ingestion: Yes

3.2 Potential Effects of exposure:
- Repeated or prolonged exposure to excessive concentrations may cause fluoride poisoning or fluorosis.
- Fluoride poisoning symptoms include weakness, tremors, convulsions, collapse, low blood calcium levels and coma.
- Fluorosis symptoms include weight loss, brittleness of bones, anemia, weakness, stiffness of joints, mottling of tooth enamel and osteosclerosis

Inhalation: Irritation to the nose, throat, mucous membranes and lungs; symptoms include coughing, difficult breathing, thirst and loss of consciousness.

Eyes: Severe irritation, redness and pain

Skin contact: Severe irritation, redness and pain

Ingestion:
- Gastrointestinal irritation with nausea, vomiting and diarrhea.
- Central nervous system depression, convulsions and kidney damage may occur.

Carcinogenicity: See section 11.3

4. First-Aid Measures

General Recommendations:

4.1 Inhalation:
- Remove to fresh air.
- If breathing has stopped, give artificial respiration.
- Get medical attention immediately.

Eyes:
- Flush eyes with running water for 15 minutes, while keeping the eyelids wide open.
- Seek medical attention immediately.

Skin:
- Remove contaminated shoes, socks and clothing; wash the affected skin with soap and water for 15 minutes.
- Seek medical attention for irritation or burns.
Ingestion: Seek medical attention immediately.

If the subject is completely conscious:
- Give subject large quantities of water to drink.
- Do not induce vomiting

If the subject is unconscious:
- NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON
- Classical resuscitation measures.

4.2 Medical Treatment/Notes to Physician: None

5. Fire-Fighting Measures

5.1 Flash point: Not applicable
5.2 Auto-ignition Temperature: Not applicable
5.3 Flammability Limits: Not applicable
5.4 Unusual Fire and Explosion Hazards: May emit vapors of hydrogen fluoride or silicon tetrafluoride if heated to decomposition

5.5 Extinguishing Methods
   Common: Use extinguishing media suitable for surrounding materials.
   Inappropriate extinguishing means: None

5.6 Fire Fighting Procedures
   Specific hazards: May produce dangerous fumes if involved in fire.

   Protective measures in case of intervention:
   - Wear appropriate apparel and NIOSH-approved respirators.
   - When intervening in close proximity wear acid resistant over-suit.
   - After intervention, proceed to clean the equipment (take a shower, remove clothing carefully, clean and check).

   Other precautions: Use water to cool containers exposed to fire.

6. Accidental Release Measures

6.1 Precautions:
   - Wear protective clothing and approved respirator when cleaning spills.
   - Follow the protective measures given in section 8.

6.2 Cleanup methods:
   - Sweep or shovel up and place into containers for disposal.
   - Flush spill area with plenty of water.
   - For disposal methods, refer to section 13.

6.3 Precautions for protection of the environment:
   - Immediately notify the appropriate authorities in case of significant discharge.
   - Do not discharge into the environment (sewers, rivers, soils, ...).
7. Handling and Storage

7.1 Handling:
- Use only equipment and materials which are compatible with the product.
- Wash thoroughly after handling

7.2 Storage:
- Store in a cool, dry area
- Keep container closed when not in use.
- Keep away from excessive heat.

7.3 Specific Uses: See section 1.2

7.4 Other precautions:
- Warn people about the hazards of the material.
- Avoid dust and formation of dust clouds.
- Follow the protective measures given in section 8.

7.5 Packaging: Contact supplier for suggestions.

8. Exposure Controls/Personal Protection

8.1 Exposure Limit Values - Potassium Fluorosilicate

<table>
<thead>
<tr>
<th>Fluorides</th>
<th>TLV® ACGIH®-USA</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.5 mg/m³ (as F)</td>
<td>2.5 mg/m³ (as F)</td>
</tr>
</tbody>
</table>

ACGIH® and TLV® are registered trademarks of the American Conference of Governmental Industrial Hygienists.

8.2 Exposure Controls:
- Follow the protective measures given in section 7.
- Maintain employee exposure to levels below the applicable exposure limits.

8.2.1 Occupational Exposure Controls:

8.2.1.1 Ventilation:
- Provide local ventilation suitable for the dust risk.
- Avoid breathing dusts/mists

8.2.1.2 Respiratory protection: NIOSH/MSHA approved respirator for dusts.

8.2.1.3 Hand protection: Protective gloves - chemical resistant: neoprene, and rubber.

8.2.1.4 Eye protection: Chemical safety glasses

8.2.1.5 Skin protection: Wear appropriate apparel (apron/boots of PVC, neoprene, rubber in case of dusts)

8.3 Other precautions:
- Shower and eye wash stations.
- Avoid contact with eyes, skin and clothing.
- Do not swallow material.
- Consult the industrial hygienist or the safety manager for the selection of personal protective equipment suitable for the working conditions.
9. Physical and Chemical Properties

9.1 Appearance: Crystalline solid
   Color: White
   Odor: Odorless

9.2 Important Health, Safety and Environmental information:
   pH: No data
   Change of state:
   Melting point: No data
   Boiling point: None
   Decomposition Temperature: 932°F (500°C)
   Flash Point: Does not exhibit a flash point
   Flammability: Not applicable
   Explosive Properties: No data
   Oxidizing Properties: No data
   Vapor Pressure: Nil
   Relative Density:
   Specific gravity (H₂O=1): 2.75
   Solubility:
   Water: Negligible
   Fat: No data
   Partition coefficient: P (n-octanol/water): No data
   Viscosity: No data
   Vapor Density (air=1): Not applicable
   Evaporation Rate: Not applicable

10. Stability and Reactivity

10.1 Conditions to avoid: Temperatures above 932°F (500°C)

10.2 Materials and substances to avoid:
   • Cyanides
   • Reactive metals (aluminum and magnesium)
   • Strong acids

10.3 Hazardous decomposition products: Thermal decomposition may release hazardous hydrogen fluoride and other fluoride compounds including silicon tetrafluoride.

10.4 Hazardous Polymerization: Will not occur.
11. Toxicological Information

11.1 Acute toxicity:
   Inhalation: No data
   Oral: LD$_{50}$, rat, 125 mg/kg (Sodium Hexafluorosilicate)
   Dermal: No data
   Irritation: No data
   Sensitization: No data
   Comments: None

11.2 Chronic toxicity: No data

11.3 Carcinogenic Designation: None

12. Ecological Information

12.1 Acute ecotoxicity: No data

12.2 Chronic ecotoxicity: No data

12.3 Mobility: No data

12.4 Degradation
   Abiotic: No data
   Biotic: No data

12.5 Potential for bioaccumulation: No data

12.6 Other adverse effects /Comments: None

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.

13.3 RCRA Hazardous Waste: Not listed
14. Transport Information

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<tr>
<td>Other</td>
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15. Regulatory Information

National Regulations (US)

TSCA Inventory 8(b): Yes

SARA Title III Sec. 302/303 Extremely Hazardous Substances (40 CFR355): No

SARA Title III Sec. 311/312 (40 CFR 370):
  Hazard Category: None

SARA Title III Sec. 313 Toxic Chemical Emissions Reporting (40 CFR 372): No

CERCLA Hazardous Substance (40CFR Part 302)
  Listed Substance: No
  Unlisted Substance: No

State Component Listing:

State | Comment
-----|--------
CA  | Airborne Contaminants & Emissions Inventory
CA  | Hazardous Substance List
IL  | Toxic Substances Disclosure to Employees Act
IN  | Occupational Health & Safety Standards - Air
KY  | Occupational Health & Safety Standards - Air
MN  | Hazardous Substance List
NJ  | Right to Know Substance List
NC  | Exposure limits for Air Contaminants
PA  | Right to Know
RI  | Right to Know

National Regulations (Canada)

Canadian DSL Registration: DSL
WHMIS Classification: D2B - Material causing other toxic effect

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Labeling according to Directive 1999/45/EC.

<table>
<thead>
<tr>
<th>Category</th>
<th>ID</th>
<th>Phrase</th>
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<tbody>
<tr>
<td>Symbols</td>
<td></td>
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</tr>
<tr>
<td>Phrases R</td>
<td>23/24/25</td>
<td>Toxic by inhalation, in contact with skin and if swallowed.</td>
</tr>
<tr>
<td>Phrases S</td>
<td>1/2</td>
<td>Keep locked up and out of the reach of children.</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible).</td>
</tr>
</tbody>
</table>

16. Other Information

16.1 Ratings:

NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
Health = 3  Flammability = 0  Instability = 0  Special = None

HMIS (HAZARDOUS MATERIAL INFORMATION SYSTEM)
Health = 3  Fire = 0  Reactivity = 0  PPE = Supplied by User; dependent on local conditions

16.2 Other Information:
The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. (Unless noted to the contrary, the technical information applies only to pure product).

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