Potassium cryolite

Material safety data sheet

Manufacturer.
Triveni Chemicals
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Tel. 91 260 2400022 / 3258683 Fax. 2400045

Chemical : Tripotassium hexafluoroaluminate

MSDS Number : KCRYO – 1103

1. Company and Product Identification

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Potassium cryolite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
<td>tripotassium hexafluoroaluminate</td>
</tr>
<tr>
<td>Synonyms</td>
<td>None</td>
</tr>
<tr>
<td>Chemicals formula</td>
<td>K₃AIF₆</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>258</td>
</tr>
<tr>
<td>CAS number</td>
<td>13775-52-5</td>
</tr>
<tr>
<td>EINECS number</td>
<td>237-409-0</td>
</tr>
</tbody>
</table>

2. Composition /Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Formulas</th>
<th>WT. Percent</th>
<th>CAS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripotassium hexafluoroaluminate</td>
<td>k₃AIF₆</td>
<td>&gt;95.00%</td>
<td>13775-52-5</td>
</tr>
</tbody>
</table>

3. Hazards indentification

Emergency overview:
- Present hazards from its ionizing fluorine.
- Hazards product for human health and the aquatic enviroment.
- In case of decomposition, releases hydrogen fluoride.

3.1 Route of Entry : Inhalation :yes  skin : yes  ingestion : yes

3.2 Potential Effects of exposure :

Inhalation :
Nose and throat irritation.
- Cough
- At high concentration, risk of chemical pneumonitis.
- In case of repeated or prolonged exposure: risk of bronchial hyperreactivity.
- In case of repeated or prolonged exposure: risk of sore throat, nosebleeds, chronic bronchitis.
- In case of repeated or prolonged exposure, at high concentration: risk of pulmonary fibrosis.

Eyes: slight irritation.

Skin contact:
- Slight irritation.
- In case of repeated or prolonged exposure, risk of allergic dermatitis.

Ingestion:
- By ingestion of large quantities: nausea and vomiting, abdominal cramps and diarrhea.
- By ingestion of large quantities: risk of hypocalcemia with nervous disorder (tetany) and cardiac rhythm disorder.
- By ingestion of large quantities: risk of liver alteration.
- By ingestion of large quantities: risk of general symptoms.

Carcinogenicity: see section 11.3.

4. First Aid measures

General Recommendation:

4.1 Inhalation:
- Remove the subject from dusty environment and have him/her blow nose.
- Consult a physician in case of respiratory symptoms.

Eyes
- Flush eyes with running water for 15 min, while keeping the eyelids wide open
- Consult an ophthalmologist in case of persistent pain.

Skin: remove contaminated shoes, socks and clothing; wash the affected skin soap & water

Ingestion: Contact a physician for advise

If the subject is completely conscious:
- Rinse mouth with fresh water.
- Give to drink a 1% aqueous calcium gluconate solution.
- If the subject present nervous, respiratory or cardiovascular disorder; administer oxygen

If the subject is unconscious:
- Administer classical resuscitation measure.
- Never give anything by mouth an unconscious person.

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 & explosion Hazards**: No data.
5.5 **Extinguishing Methods**
   Common: in case of fire in close proximity, all means of extinguishing are acceptable.
   Inappropriate extinguishing means: No restriction.
5.6 **Fire fighting procedures**
   Specific hazards:
   - Non –combustible.
   - Formation of dangerous gas / vapour in case of decomposition.

   **Protective measure in case of Intervention**:
   - Wear self-contained breathing apparatus when in close proximity or in confined spaces.
   - When intervention in close proximity wear acid-resistant over-suit.
   - After intervention, take a shower, remove clothing carefully, clean & check equipment.

Other precaution: control the use of water due to environment risk (see section 6).

6. **Accidental release Measures**

6.1 Precaution:
   - follow the protective with measure given in section 8.
   - Avoid dispersing the dust into a cloud.

6.2 **Precaution for protection of the environment**:
   - collect the product with suitable means avoiding dust formation.
   - Place everything into a closed, labeled container compatible with the product.
   - For disposal method, refer to section 13.

6.3 **Cleanup method**:
   - Immediately notify the appropriate authorities in case of significant discharge.
   - Do not discharges into the environment (sewers, rivers, soplis, ……)

7. **Handling and storage**

7.1 **Handling**:
   - keep away from reactive product (see section 10).
   - avoid heating the product above the decomposition temperature (section 9).

7.2 **Storage**:
   - keep in original packing, closed.

7.3 **Specific uses**:
   - For specific use question, contact suppliers.

7.4 **Other precaution**:
   - warn people about the dangers of the product.
   - avoids dust & formation of dust clouds.
   - follow the protective measure given in section 8.

7.5 **Packing**:
   - paper lined with PE.
8. Exposure Control / personal protection

8.1 Exposure limited values

Authorized limited values

<table>
<thead>
<tr>
<th>Fluorides</th>
<th>TLV ACGIH- USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 mg ?m (as F)</td>
<td></td>
</tr>
</tbody>
</table>

Acgih & tlv are registered trademark of the America conference of government Industrials hygienists.

8.2 Exposure control:

Follow the protective measure given in sec 7.

Maintain employee exposures to levels below the applicable exposure limits.

8.2.1 Occupational exposure control:

8.2.1.1 Ventilation: provide local ventilation suitable for the dust risk.

8.2.1.3 Hand protection: protective gloves – chemicals resistant (pvc).

8.2.1.4 Eyes: dust proof goggles, if dusty.

8.2.1.5 Skin: protective clothing suitable for the handling of chemicals.

8.3 Other precaution:

- Provides shower & eyeswash stations
- Do not smoke, eat or drinks in the working area
- Consult the industrial hygienist or the safety manager for the selection of personal protective equipment suitable for the working condition.

8.4 Other information: follows local, states & federal regulation for aqueous emission (see section 15).

9. Physicals & chemicals properties

9.1 Appearance: powder.

- Colours: whites
- Odors: odorless
- Assay: 98.00%

9.2 Important Health, safety & environment information:

- pH: 6 @ 25 (77°F) concentration: 1.4g/l.
- Change of states:
  - Melting point: 1,025 c (1877 F).
  - Boiling point: not applicable (decomposition).
  - Decomposition temperature: > 700 c (1,2992 F).
  - Specific gravity (H2O=1): 2.8 @ 20 c (68 F).
- Solubility:
  - Water: 13.4 g/l at 25 c (77 F).
  - Fat: no data.
  - Partition coefficient: not applicable.
  - Viscosity: no data.

10. Stability and Reactivity

Stability:
10.1 condition to avoid: negligible.
10.2 materials & substances products: hydrogen fluorides.
   - strong acids
   - " bases
10.3 hazards decomposition products: hydrogen fluoride
10.4 " polymerization: will not occur.

11. Toxicological Information
11.1 acute toxicate:
   - inhalation: no data.
   - Oral: LD50, rat > 2000 mg / kg (cryolite).
   - Dermal: no data
   - Irritation:
     - rabbits, non–irritant (skin) (cryolite)
     - " irritant (eyes) (cryolite)

   sensitization: no data

   comments:
   - No specific data.
   - By analogy with the tested compound.
   - Chronic exposure may entail dentals or skeletal fluorosis

11.2 chronic toxicity: (cryolite)
   - inhalation, after prolonged exposition, rat > mg / m, observed effect.
   - Orals route (diet), after repeated exposure, various species, terget organ: skeleton, > 14ppm, observed effect.
   - Orals route (diet), after repeated exposure, rat / mouses, terget organ: skeleton, > 25ppm, observed effect (sodium fluoride) 600 mg / m, observed effect.
   - In vitro, no mutagenic effects.
   - In vivo, ambiguous mutagenic effects
   - No tertogenic effects
   - No carcinogenic effect (sodium fluoride).

Main health effect:
   - No data available for humans.
   - Possible irrigation of the mucous membranes, eyes & skin.
   - Risk of respiratory sensitization.
   - Chronic exposure to the product can induce bone calcification disorders

Inhalation:
   - Nose and throat irrigation
   - Cough
     - At high concentrate, risk of chemical pneumonitis,
     - In case of repeated or prolonged exposure: risk of bronchial hyperreactivity.
- In case of repeated or prolonged exposure: risk of sore throat, nosebleeds, chronic bronchitis.
- In case of repeated or prolonged exposure, at high concentration: risk of pulmonary fibrosis.

**Eyes:** slight irrigation.

**Skin contact:**
- Slight irrigation.
- In case of repeated or prolonged exposure, risk of allergic dermatitis,

- Ingestion: large quantities: nausea and vomiting, abdominal cramps and diarrhea or risk of hypocalcemia with nervous disorder (tetany) and cardiac rhythm disorder or risk of liver alteration.

11.3 Carcinogenic designation: Non e

**12. Ecological information**

12.1 acute ecotoxicity: crustaceans, Daphnia magna, EC50, 48 hours, 22.9 mg/l.

12.2 mobility:
- Air – mobility as solid aerosols.
- Water/soil – low solubility & mobility
- Soil/sediments – adsorption on minerals and organic soil constituents.

12.3 Abiotic degradation:

- Water/soil – acid/base equilibrium as a function of pH
- Water/soil – complexation/precipitation of inorganic materials

1.24 Biotic degradation: not applicable (inorganic compound).

12.4 potential for bioaccumulation:
- Bioconcentration: on Po/w – not applicable (ionizable in organic compound)
- - accumulation into vegetable leaves (fluorides)

12.5 other adverse effects/comments:
- Harmful for aquatic organisms.
- Products fate is highly dependent on environment condition: pH, temperature, oxidoreductive potential, minerals & organic content of the medium,.......

13. Disposal Consideration
13.1 Waste Treatment:
  - Disposal in compliance with local, state, and federal regulation.
  - "Disposal of the product in a facility authorized for industrials waste."

13.2 Packing Treatments: Dispose of the containers by dispatching them to an approved incineration facility for hazards waste.

13.3 RCRA Hazards Waste: Not listed.

14. Transport Information

<table>
<thead>
<tr>
<th>MODE</th>
<th>DOT</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping</td>
<td>Not a regulated</td>
<td>Not a regulated</td>
<td>Hazards materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ME</td>
<td></td>
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Name

15. Regulatory Information

National Regulation (US)
TSCA Inventory 8(b): Yes

SARA TITLE III sec. 302/303 Extremely Hazardous Substances (40CFR 355): No

SARA TITLE III sec. 311/312 (40CFR 370): Yes
  - Hazards Category: Chronic Health Hazards
  - Threshold Planning Quantity: 10000 lbs.

SARA TITLE III sec. 313 Toxic Chemicals Emission Reporting (40CFR 372): No

CERCLA Hazardous Substances (40 CFR Part 302)
  - Listed Substances: No
  - UnListed Substances: No

States Components Listing:

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<tr>
<th>States</th>
<th>Comment</th>
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<tbody>
<tr>
<td>CA</td>
<td>AIRborne contaminants &amp; emission inventory</td>
</tr>
<tr>
<td>IL</td>
<td>Hazards substances listed</td>
</tr>
<tr>
<td>IN</td>
<td>&quot;Disclosure to employee&quot;</td>
</tr>
<tr>
<td>KY</td>
<td>Occupation health &amp; safety standard – air</td>
</tr>
<tr>
<td>MN</td>
<td>Hazards substances listed</td>
</tr>
<tr>
<td>NJ</td>
<td>Right to know subs listed</td>
</tr>
<tr>
<td>NC</td>
<td>Toxic catastrophe prevention act</td>
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<tr>
<td>PA</td>
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</table>
WHMIS Classification: D2B-txic material.

This product has been classified in accordance with the hazards criteria of the controlled product regulation, & the MSDS contain all the information required by the controlled products regulations.

Labeling according to directive 1999/45/EC.

<table>
<thead>
<tr>
<th>CATEGORY</th>
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<th>PHRASE</th>
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<tbody>
<tr>
<td>SYMBOLS</td>
<td>T</td>
<td>TOXIC</td>
</tr>
<tr>
<td>PRASES</td>
<td>20/22</td>
<td>harmful by inhalation and if swallowed</td>
</tr>
<tr>
<td></td>
<td>48/23/25</td>
<td>toxic: danger of serious damage to health by prolonged exposure through inhalation &amp; if swallowed</td>
</tr>
<tr>
<td></td>
<td>52/53</td>
<td>harmful to aquatic organic, may cause long-term adverse effects in the aquatic environments</td>
</tr>
</tbody>
</table>

phrases

13 KEEP away from food, drink & animals feedstuffs.
22 do not breathe dust.
36 wear suitable protective clothing
45 in case of an accident or if you feel unwell, seek medical advice immediately (show the label where possible) seek medical advice.
61 avoids releases to the environments. refer to specialists instruction/safety data sheets
62

16. Other Information

16.1 ratings:

   NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
   Health =0 flammability =0 instabiliy =0 special =none

   HMIS (HAZARDOUS MATERIALS INFORMATION)
   Health =0 fire =0 reactivity=0 PPE =SUPPLIED by user; dependent on local condition

16.2 other information:

   the previous information is based upon our current knowledge & experience of our product &is not exhaustive. it applies to the product as defined by the specification. in case of combination 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 & regulatory procedures relating to the product, personal hygiene & integrity of the work environment. (unless noted to the contrary the technical applies information applies only to pure product).