

POTASSIUM ALUMINIUM FLUORIDE

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

- Trade name POTASSIUM ALUMINIUM FLUORIDE
- Chemical name Aluminium potassium fluoride

1.2 Relevant identified uses of the substance or mixture and uses advised against**Uses of the Substance / Mixture**

- Welding and soldering agents
- Abrasive
- Domestic use

- Abrasive

1.3 Details of the supplier of the safety data sheet**Company**

SOLVAY FLUORIDES, LLC
3737 Buffalo Speedway,
Suite 800,
Houston, TX 77098
USA
Tel: 800-515-6065

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CONTACT CHEMTREC (24-Hour Number): 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although WHMIS has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects

2.1 Classification of the substance or mixture**Hazardous Products Regulations (WHMIS 2015)**

Acute toxicity, Category 4
Eye irritation, Category 2A
Effects on or via lactation
Specific target organ systemic toxicity - repeated exposure, Category 1
Acute aquatic toxicity, Category 3
Chronic aquatic toxicity, Category 3

H332: Harmful if inhaled.
H319: Causes serious eye irritation.
H362: May cause harm to breast-fed children.
H372: Causes damage to organs through prolonged or repeated exposure if inhaled. (Respiratory Tract), Inhalation
H402: Harmful to aquatic life.
H412: Harmful to aquatic life with long lasting effects.

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2.2 Label elements

Hazardous Products Regulations (WHMIS 2015)**Pictogram****Signal Word**

- Danger

Hazard Statements

- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H362 May cause harm to breast-fed children.
- H372 Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary StatementsPrevention

- P201 Obtain special instructions before use.
- P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
- P263 Avoid contact during pregnancy and while nursing.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear eye protection/ face protection.

Response

- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention.
- P337 + P313 If eye irritation persists: Get medical advice/ attention.

2.3 Other hazards which do not result in classification

- H402: Harmful to aquatic life.
- H412: Harmful to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients**3.1 Substance**

- Chemical nature Multi constituent substance

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WHMIS Hazardous Ingredients and Impurities

Chemical name	Identification number CAS-No.	Concentration [% wt/wt or V/V]
Aluminum potassium fluoride	60304-36-1	>= 99 - <= 100

3.2 Mixture

Not applicable, this product is a substance.

SECTION 4: First aid measures**4.1 Description of first-aid measures****In case of inhalation**

- Remove the subject from dusty environment and let him blow his nose.
- Oxygen or artificial respiration if needed.
- If symptoms persist, call a physician.

In case of skin contact

- Take off contaminated clothing and wash before reuse.
- Wash off with plenty of water.
- If symptoms persist, call a physician.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- If eye irritation persists, consult a specialist.

In case of ingestion

- Immediate medical attention is required.
- If victim is conscious:
 - If swallowed, rinse mouth with water (only if the person is conscious).
 - Give to drink a 1% aqueous calcium gluconate solution.
 - Do NOT induce vomiting.
- If victim is unconscious:
 - Artificial respiration and/or oxygen may be necessary.

4.2 Most important symptoms and effects, both acute and delayed**In case of inhalation****Symptoms**

- At high concentrations:
- Chemical pneumonitis

Effects

- Irritating to mucous membranes
- Cough

Repeated or prolonged exposure

- Risk of sore throat, nose bleeds
- Risk of chronic bronchitis
- Risk of chronic pulmonary inflammation

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In case of skin contact**Effects**

- slight irritation
- Repeated exposure may cause skin dryness or cracking.
- Chronic exposure may cause dermatitis.

In case of eye contact**Effects**

- Moderate eye irritation

In case of ingestion**Symptoms**

- Nausea
- Vomiting
- Abdominal pain
- Diarrhea

Effects

- risk of hypocalcemia with nervous problems (tetany) and cardiac arrhythmia

4.3 Indication of any immediate medical attention and special treatment needed**Notes to physician**

- Indication of immediate medical attention and special treatment needed, if necessary

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

- None known.

5.2 Special hazards arising from the substance or mixture**Specific hazards during fire fighting**

- The product is not flammable.
- Not combustible.
- Heating can release hazardous gases.

Hazardous combustion products:

- Hydrogen fluoride

5.3 Advice for firefighters**Special protective equipment for fire-fighters**

- In the event of fire, wear self-contained breathing apparatus.
- Fire fighters must wear fire resistant personnel protective equipment.
- Wear chemical resistant oversuit

Further information

- Control the use of water due to environmental risk (see section 6).

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SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures****Advice for non-emergency personnel**

- Keep people away from and upwind of spill/leak.
- Avoid dust formation.

Advice for emergency responders

- Wear self-contained breathing apparatus and protective suit.
- Sweep up to prevent slipping hazard.
- Prevent further leakage or spillage.

6.2 Environmental precautions

- Discharge into the environment must be avoided.
- If the product contaminates rivers and lakes or drains inform respective authorities.
- Prevent product from entering sewage system.

6.3 Methods and materials for containment and cleaning up

- Avoid dust formation.
- Sweep up and shovel into suitable containers for disposal.
- Keep in properly labeled containers.
- Keep in suitable, closed containers for disposal.

- Treat recovered material as described in the section "Disposal considerations".

6.4 Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

- Use only in well-ventilated areas.
- Use only equipment and materials which are compatible with the product.
- Keep away from heat.

Hygiene measures

- Use only in an area equipped with a safety shower.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.
- Eye wash bottle with pure water

7.2 Conditions for safe storage, including any incompatibilities

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Technical measures/Storage conditions

- Keep in a dry place.
- Store in original container.
- Keep container closed.

- Avoid dust formation.
- Refer to protective measures listed in sections 7 and 8.

- Keep away from:
- Incompatible products

Packaging material

Suitable material

- Paper.
- Polyethylene

Unsuitable material

- No data available

7.3 Specific end use(s)

- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

Consult local authorities for acceptable exposure limits.

Ingredients	Value type	Value	Basis
Aluminum potassium fluoride	TWA	2.5 mg/m ³	American Conference of Governmental Industrial Hygienists Bone damage, Fluorosis, Substances for which there is a Biological Exposure Index or Indices (see BEI® section), Not classifiable as a human carcinogen, varies Expressed as :Fluorine
Aluminum potassium fluoride	TWA	0.14 mg/m ³	Solvay Acceptable Exposure Limit Form of exposure : Respirable

Biological Exposure Indices

Ingredients	Value type	Value	Basis
Aluminum potassium fluoride	BEI	2 mg/l Fluoride Urine Prior to shift (16 hours after exposure ceases)	American Conference of Governmental Industrial Hygienists

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Aluminum potassium fluoride	BEI	3 mg/l Fluoride Urine End of shift (As soon as possible after exposure ceases)	American Conference of Governmental Industrial Hygienists
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8.2 Exposure controls**Control measures****Engineering measures**

- Ensure adequate ventilation.
- Refer to protective measures listed in sections 7 and 8.

Individual protection measures**Respiratory protection**

- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- In case of insufficient ventilation, wear suitable respiratory equipment.
- Self-contained breathing apparatus in confined spaces/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.
- Use NIOSH approved respiratory protection.

Hand protection

- Protective gloves - impervious chemical resistant:
- PVC

Eye protection

- Dust proof goggles obligatory.

Skin and body protection

- Long sleeved clothing

Hygiene measures

- Use only in an area equipped with a safety shower.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.
- Eye wash bottle with pure water

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties**Appearance**

Form: powder
Physical state: solid
Color: white
Particle size: 2 - 6 µm (50 %)

Odor

odorless

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<u>Odor Threshold</u>	No data available
<u>Molecular weight</u>	142 g/mol
<u>pH</u>	5.0 - 7.0 (50 g/l) (68 °F (20 °C)) saturated aqueous solution
<u>Melting point/freezing point</u>	<u>Melting point/range:</u> > 1022 °F (> 550 °C)
<u>Initial boiling point and boiling range</u>	<u>Boiling point/boiling range:</u> Not applicable
<u>Flash point</u>	Not applicable
<u>Evaporation rate (Butylacetate = 1)</u>	No data available
<u>Flammability (solid, gas)</u>	The product is not flammable.
<u>Flammability / Explosive limit</u>	<u>Explosiveness:</u> Not explosive
<u>Autoignition temperature</u>	Not applicable
<u>Vapor pressure</u>	Not applicable
<u>Vapor density</u>	No data available
<u>Density</u>	<u>Bulk density:</u> 350 - 550 kg/m ³ (68 °F (20 °C))
<u>Relative density</u>	2.94 (68 °F (20 °C))
<u>Solubility</u>	<u>Water solubility:</u> 4.57 g/l (68 °F (20 °C))(pH: 5.8)
<u>Partition coefficient: n-octanol/water</u>	Not applicable
<u>Decomposition temperature</u>	> 1292 °F (> 700 °C)
<u>Viscosity</u>	No data available
<u>Explosive properties</u>	No data available
<u>Oxidizing properties</u>	Not considered as oxidizing.

9.2 Other information

No data available

SECTION 10: Stability and reactivity**10.1 Reactivity**

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- No data available

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- no data available

10.4 Conditions to avoid

- none

10.5 Incompatible materials

- Strong acids and strong bases

10.6 Hazardous decomposition products

- Hydrogen fluoride

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity****Acute oral toxicity**

LD50 : 2,150 mg/kg - Rat , female
The product has a low acute toxicity

LD50: 2,720 mg/kg - Rat , male
The product has a low acute toxicity

Acute inhalation toxicity

LC50 - 4 h (aerosol) : 1 - 5 mg/l - Rat , male and female
This product is classified as acute toxicity category 4

Acute dermal toxicity

LD50 : > 2,000 mg/kg - Rabbit , male and female
Not classified as hazardous for acute dermal toxicity according to GHS.

Acute toxicity (other routes of administration)

No data available

Skin corrosion/irritation

Rabbit
No skin irritation

Serious eye damage/eye irritation

Rabbit
Irritating to eyes.
Method: OECD Test Guideline 405

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Respiratory or skin sensitization

Maximization Test - Guinea pig
Does not cause skin sensitization.
Method: OECD Test Guideline 406

Mutagenicity**Genotoxicity in vitro**

Ames test
with and without metabolic activation

negative
Method: OECD Test Guideline 471

In vitro micronucleus test
Strain: Human lymphocytes
with and without metabolic activation

positive
Method: OECD Test Guideline 487

Gene mutation assays in mammalian cells.
Strain: mouse lymphoma cells
with and without metabolic activation

negative
Method: OECD Test Guideline 476

Genotoxicity in vivo

By analogy

Chromosome aberration test in vivo - Rat
male
Inhalation
Method: OECD Test Guideline 475
Test substance: Cryolite

negative

Carcinogenicity

By analogy

Rat
Test substance: fluoride
Animal testing did not show any carcinogenic effects.

This product does not contain any ingredient designated as probable or suspected human carcinogens by:
ACGIH

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Toxicity for reproduction and development**Toxicity to reproduction / fertility**

By analogy

Two-generation study - Rat, male and female

Oral

Fertility NOAEL Parent: ≥ 128 mg/kg

Test substance, Cryolite

Developmental Toxicity/Teratogenicity No data available**STOT****STOT-single exposure**

The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.

STOT-repeated exposure

The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1 according to GHS criteria.

Inhalation (aerosol) 90-day - Rat , male and female

NOAEC: 1.21 mg/m³

Target Organs: Respiratory system, Lungs

Method: OECD Test Guideline 413

Experience with human exposure

No data available

Aspiration toxicity

No data available

Further information

Information given is based on data obtained from similar substances.

Harmful by inhalation.

Irritating to eyes.

Chronic exposure may entail dental or skeletal fluorosis

No data available

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SECTION 12: Ecological information**12.1 Toxicity****Aquatic Compartment****Acute toxicity to fish**

LC50 - 96 h : > 10 mg/l - Brachydanio rerio (zebrafish)
static test
Analytical monitoring: yes

Method: OECD Test Guideline 203
Harmful to fish.

Acute toxicity to daphnia and other aquatic invertebrates.

EC50 - 48 h : 22.8 mg/l - Daphnia magna (Water flea)
static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
Harmful to aquatic invertebrates.

Toxicity to aquatic plants

ErC50 - 72 h : 33.5 mg/l - Pseudokirchneriella subcapitata (green algae)
static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
Harmful to algae.

NOEC - 72 h : 11.2 mg/l - Pseudokirchneriella subcapitata (green algae)
static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
Growth rate

Toxicity to microorganisms

EC50 - 3 h : > 75 mg/l - activated sludge
static test
Analytical monitoring: no
Method: OECD Test Guideline 209

Chronic toxicity to fish

No data available

Chronic toxicity to daphnia and other aquatic invertebrates.

No data available

Chronic Toxicity to aquatic plants

No data available

12.2 Persistence and degradability**Abiotic degradation**

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Stability in water	acid/base equilibrium as a function of pH, complexation/precipitation of inorganic and organic materials
<u>Physical- and photo-chemical elimination</u>	No data available
<u>Biodegradation</u>	
Biodegradability	The methods for determining the biological degradability are not applicable to inorganic substances.
12.3 Bioaccumulative potential	
Partition coefficient: n-octanol/water	No data available
Bioconcentration factor (BCF)	Not applicable, inorganic substance
12.4 Mobility in soil	
Adsorption potential (Koc)	Adsorption/Soil Log Koc: 3.18 Air mobility as solid aerosols Water low solubility and mobility Soil/sediments adsorption on mineral and organic soil constituents
Known distribution to environmental compartments	No data available
12.5 Results of PBT and vPvB assessment	Not applicable
12.6 Other adverse effects	No data available
Remarks	Harmful to aquatic organisms., Product fate is highly dependent on environmental conditions: pH, temperature, redox potential, mineral and organic content of the medium ,...

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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Product Disposal

- In accordance with local and national regulations.
- Refer to manufacturer/supplier for information on recovery/recycling.
- Dispose of wastes in an approved waste disposal facility.

Advice on cleaning and disposal of packaging

- Where possible recycling is preferred to disposal or incineration.
- If recycling is not practicable, dispose of in compliance with local regulations.
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

SECTION 14: Transport information**TDG**

not regulated

DOT

not regulated

NOM

not regulated

IMDG

not regulated

IATA

not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

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SECTION 15: Regulatory information**15.1 Notification status**

Inventory Information	Status
United States TSCA Inventory	- Listed on Inventory - Listed under CAS: 60304-36-1
Mexico INSQ (INSQ)	- In compliance with the inventory
Canadian Domestic Substances List (DSL)	- Listed on Inventory - Listed under CAS: 60304-36-1
New Zealand. Inventory of Chemical Substances	- One or more components not listed on inventory
Australia Inventory of Chemical Substances (AICS)	- Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- One or more components not listed on inventory
EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)	- If product is purchased from Solvay in Europe it is in compliance with REACH, if not please contact the supplier.

15.2 National Regulations**Canada. CEPA 1999 Significant New Activity (SNAc) List:**

- No substances are subject to a Significant New Activity Notification.

SECTION 16: Other information**Revision Date:**

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NFPA (National Fire Protection Association) - Classification

Health	2 moderate
Flammability	0 minimal
Instability or Reactivity	0 minimal
Special Notices	None

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HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

Health	2 moderate
Flammability	0 minimal
Reactivity	0 minimal
PPE	Determined by User; dependent on local conditions

Key or legend to abbreviations and acronyms used in the safety data sheet

- TWA	8-hour, time-weighted average
- SAEL	Solvay Acceptable Exposure Limit
- ACGIH	American Conference of Governmental Industrial Hygienists
- OSHA	Occupational Safety and Health Administration
- NTP	National Toxicology Program
- IARC	International Agency for Research on Cancer
- NIOSH	National Institute for Occupational Safety and Health

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.