

## Safety Data Sheet

---

### Section 1. Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Product name: Aluminium fluoride

Reference number(SDS): 64015jis\_E1-4

**Product type:**

Reagent

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses of the product: Research and Development

Uses advised against: Do not use for other purposes.

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

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

---

### Section 2. Hazards identification

**GHS classification and label elements of the product****Classification of the substance or mixture****HEALTH HAZARDS**

Acute toxicity (Oral): Category 3

Serious eye damage/eye irritation: Category 2

Reproductive toxicity: Category 2

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 1 (bone)

(Note) GHS classification without description: Not classified/Classification not possible

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

H301-Toxic if swallowed

H319-Causes serious eye irritation

H361-Suspected of damaging fertility or the unborn child

H335-May cause respiratory irritation

H372-Causes damage to organs through prolonged or repeated exposure

**PRECAUTIONARY STATEMENT****Prevention**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear eye protection/face protection.

Use personal protective equipment as required.

Do not eat, drink or smoke when using this product.

#### Response

Get medical advice/attention if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED: Rinse mouth. Immediately call a POISON CENTER/doctor/physician.

#### Storage

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

Store locked up.

#### Disposal

Dispose of contents/container in accordance with local/national regulation.

---

### Section 3. Composition/information on ingredients

#### Mixture/Substance selection:

##### Substance

Ingredient name: Aluminium fluoride

Content (%): 95.0 <

Chemical formula: AlF<sub>3</sub>

ENCS: 1-14

CAS No.: 7784-18-1

MW: 83.98

EC No.: 232-051-1

Note : The figures shown above are not the specifications of the product.

---

### Section 4. First-aid measures

#### Descriptions of first-aid measures

##### General measures

Get medical advice/attention if you feel unwell.

Keep victim warm and quiet.

Call emergency medical service.

Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

##### IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

Call a POISON CENTER/doctor/physician if you feel unwell.

##### IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

If skin irritation or rash occurs: Get medical advice/attention.

Remove and isolate contaminated clothing and shoes.

For minor skin contact, avoid spreading material on unaffected skin.

##### IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

**IF SWALLOWED**

Rinse mouth.

If victim is conscious, give 1 – 2 glasses of water.

Immediately call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough. Shortness of breath. Sore throat.

(Symptoms when skin and/or eye contact)

Conjunctival redness of the eyes. Redness of the skin. Pain.

Indication of any immediate medical attention and special treatment needed

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

---

**Section 5. Fire-fighting measures****Extinguishing media****Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.

The product is non-flammable.

**Unsuitable extinguishing media**

Unsuitable extinguishing media data is not available.

**Specific hazards arising from the substance or mixture**

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

**Advice for firefighters****Specific fire-fighting measures**

Evacuate non-essential personnel to safe area.

**Special protective equipment and precautions for fire-fighters**

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

---

**Section 6. Accidental release measures****Personnel precautions, protective equipment and emergency procedures**

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

**PUBLIC SAFETY:** Ventilate closed spaces before entering.

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

**EVACUATION :** Spill: See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under “PUBLIC SAFETY”.

**Environmental precautions**

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

**Methods and materials for containment and cleaning up**

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

If appropriate, moisten first to prevent dusting.

Preventive measures for secondary accident

- Collect spillage.
- Stop leak if you can do it without risk.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Prevent entry into waterways, sewers, basements or confined areas.
- Do not get water inside containers.
- Keep out of low areas.

---

## Section 7. Handling and storage

### Precautions for safe handling

#### Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

#### Safety Measures

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

#### Any incompatibilities

Strong acids, Strong oxidizing agents should not be mixed with the chemicals.

#### Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

#### Storage

##### Conditions for safe storage

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

Keep cool. Protect from sunlight.

Store in accordance with local/national regulation.

Store locked up.

Container and packaging materials for safe handling data is not available.

#### Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

---

## Section 8. Exposure controls/personal protection

### Control parameters

Control value and concentration standard value are not available in ISHA.

#### Adopted value

Adopted value in JSOH is not available.

ACGIH(2008) TWA: (Insoluble)1mg/m<sup>3</sup>(R) (Pneumoconiosis; LRT irr; neurotoxicity)

ACGIH(1996) TWA: 2.5mg-F/m<sup>3</sup> (Bone dam; fluorosis)

**Exposure controls****Appropriate engineering controls**

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

**Individual protection measures****Respiratory protection**

Select and wear respiratory protection in accordance with approved standards (e.g. JIS T8150).

Recommended respiratory protection: Dust mask

**Hand protection**

Wear protective gloves.

Inspect before use and replace worn or damaged gloves.

Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions.

Chemical-resistant, impervious gloves complying with an approved standard (e.g. JIS T8116) should be used.

**Eye protection**

Wear safety glasses with side-shields.

Wear eye/face protection in accordance with approved standards (e.g. JIS T8147).

**Skin and body protection**

Wear impervious clothing and boots in case of repeated or prolonged treatment.

Personal protective equipment for the body and skin should be selected based on the task being performed and the risks involved.

---

**Section 9. Physical and Chemical Properties****Information on basic physical and chemical properties**

Physical state: Crystals or crystalline powder

Color: Colorless, White

Odor: Odorless

Odor threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point: 1272°C (sublimation)

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point: Non-flammable

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH data is not available.

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

**Solubility:**

Solubility in water: 0.5 g/100 ml (20°C)

Solubility in solvent: Insoluble in ethanol and acetone.

n-Octanol/water partition coefficient data is not available.

Vapor pressure: 1 mmHg (1238°C)

Density and/or relative density: 2.9 g/cm<sup>3</sup>

Relative vapor density (Air=1) data is not available.

Relative density of the Vapor/air - mixture at 20°C (Air = 1) data is not available.

Particle characteristics data is not available.

**Other information**

Critical temperature data is not available.

Evaporation rate data is not available.

VOC data is not available.

---

## Section 10. Stability and Reactivity

### Reactivity

Reactivity data is not available.

### Chemical stability

Stable under normal storage/handling conditions.

Hygroscopic.

### Possibility of hazardous reactions

Decomposes on heating and under the influence of moisture. This produces toxic and corrosive fumes including hydrogen fluoride

### Conditions to avoid

Contact with incompatible materials.

Heating, Moisture.

### Incompatible materials

Strong acids, Strong oxidizing agents

### Hazardous decomposition products

Fluorides, Aluminum oxides.

---

## Section 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

##### Acute toxicity (Oral)

[Product]

Category 3, Toxic if swallowed

[Data for components of the product]

[GHS Cat. Japan, base data]

mouse LD50=103mg/kg (HSDB, Access on June 2015)

##### Acute toxicity (Dermal)

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

##### Acute toxicity (Inhalation)

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

#### Irritant properties

##### Skin corrosion/irritation

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

##### Serious eye damage/irritation

[Product]

Category 2, Causes serious eye irritation

[Data for components of the product]

[GHS Cat. Japan, base data]

severe eyes irritation (HSDB, Access on June 2015)

## Sensitization

## Respiratory sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

## Skin sensitization

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

## Germ cell mutagenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

## Carcinogenicity

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

[ACGIH]

A4(as Al and its insoluble substances)(2008) : Not Classifiable as a Human Carcinogen

A4(as F)(1996) : Not Classifiable as a Human Carcinogen

## Reproductive toxicity

[Product]

Category 2, Suspected of damaging fertility or the unborn child

[Data for components of the product]

[GHS Cat. Japan, base data]

cat. 2; rat : HSDB, Access on June 2015

## Specific target organ toxicity (STOT)

## STOT-single exposure

[Product]

Category 3, May cause respiratory irritation

[Data for components of the product]

[cat.3 (respiratory tract irritation)]

[GHS Cat. Japan, base data]

respiratory tract irritation (HSDB, Access on June 2015)

## STOT-repeated exposure

[Product]

Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]

[cat.1]

[GHS Cat. Japan, base data]

bone (ACGIH, 2001)

## Aspiration hazard

[Product]

Classification not possible (Insufficient data available or no data available).

[Data for components of the product]

No data available.

---

**Section 12. Ecological Information**

## Ecotoxicity

## Aquatic toxicity

## [Product]

Classification not possible (Insufficient data available or no data available).

## [Data for components of the product]

Toxicity data is not available.

## Persistence and degradability

Persistence and degradability data is not available.

## Bioaccumulative potential

Bioaccumulative potential data is not available.

## Mobility in soil

Mobility in soil data is not available.

## Other adverse effects

Ozone depleting chemical data is not available.

---

**Section 13. Disposal considerations**

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

## Waste treatment methods

Dispose of contents/container in accordance with local/national regulation.

---

**Section 14. Transport Information**

## UN No., UN CLASS

UN Number or ID Number : 1759

UN Proper Shipping Name : CORROSIVE SOLID, N.O.S.

Class or division (Transport hazard class) : 8

Packing group : II

ERG GUIDE No.: 154

## IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 1759

UN Proper Shipping Name : CORROSIVE SOLID, N.O.S.

Class or division (Transport hazard class) : 8

Packing group : II

## IATA (Dangerous Goods Regulations)

UN Number or ID Number : 1759

UN Proper Shipping Name : CORROSIVE SOLID, N.O.S.

Class or division (Transport hazard class) : 8

Hazard labels : Corrosive

Packing group : II

## Environmental hazards

Marine pollutants (yes/no) : no

## Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable to Transport in bulk according to Annex II of MARPOL and the IBC Code

## MARPOL Annex V – HME (Harmful to the Marine Environment)

Specific target organ toxicity – repeated exposure: cat.1

Aluminium fluoride

---

**Section 15. Regulatory Information**

Safety, health and environmental regulations/legislation specific for the substance or mixture  
Labor Standards Act, Japan

Chemical substances or compounds (including alloys) causing disease (Regulation, Appended Table 1-2-4-1)  
Aluminium fluoride

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

7784-18-1

All components are listed or exempted.

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

---

**Section 16. Other information**

GHS classification and labelling

H301-Acute toxicity, Category 3: H301 Toxic if swallowed

H319-Serious eye damage/eye irritation, Category 2: H319 Causes serious eye irritation

H361-Reproductive toxicity, Category 2: H361 Suspected of damaging fertility or the unborn child

H335-STOT - single exposure, Category 3, Respiratory tract irritation: H335 May cause respiratory irritation.

H372-STOT - Repeated exposure, Category 1: H372 Causes damage to organs through prolonged or repeated exposure

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN

IMDG Code, 2022 Edition (Incorporating Amendment 41-22)

IATA Dangerous Goods Regulations (65th Edition) 2024

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2024 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2023 Recommendation on TLVs (JSOH)

Notification No. 0111-1 (January 11, 2022), Chemical Hazards Control Division, Industrial

Safety and Health Department, Labour Standards Bureau, MHLW in Japan

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.30 (<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

([https://www.chem-info.nite.go.jp/chem/chrip/chrip\\_search/systemTop](https://www.chem-info.nite.go.jp/chem/chrip/chrip_search/systemTop))

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.1) (May, 2024, METI)

Abbreviations and acronyms

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)  
IARC (International Agency for Research on Cancer)  
ACGIH (American Conference of Governmental Industrial Hygienists)  
EPA (US Environmental Protection Agency)  
NTP (US National Toxicology Program)  
METI (Ministry of Economy, Trade and Industry in Japan)  
MHLW (Ministry of Health, Labour and Welfare in Japan)  
MOE (Ministry of the Environment in Japan)  
JSOH (Japan Society for Occupational Health)  
ISHA (Industrial Safety and Health Act in Japan)  
CSCL (Chemical Substances Control Law in Japan)  
EU (European Union)  
EC50 (Effective Concentration, 50%)  
NOEC (No Observed Effect Concentration)  
BOD (Biochemical Oxygen Demand)  
COD (Chemical Oxygen Demand)  
BCF (Bioconcentration Factor)  
anh (anhydride)

#### General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2022).