Material Safety Data Sheet

According to OSHA and ANSI

Printing date 05/28/2011 Reviewed on 05/23/2011

1 Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Aluminum fluoride

Stock number: 44435
CAS Number:
7784-18-1
EINECS Number:
232-051-1
Relevant identified uses of the substance or mixture and uses advised against.
Sector of Use SU24 Scientific research and development

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Information Department: Health, Safety and Environmental Department
Emergency telephone number:
During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification

Classification of the substance or mixture

GHS06 Skull and crossbones

H301 Toxic if swallowed.

GHS05 Corrosion

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R25: Toxic if swallowed.

C; Corrosive

R34: Causes burns.

Label elements

Labelling according to EU guidelines:

Code letter and hazard designation of product:
T Toxic

Risk phrases:
25 Toxic if swallowed.
34 Causes burns.

Safety phrases:
20 When using do not eat or drink.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately.
Hazard description:
WHMIS classification

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Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

HEALTH	3
FIRE	0
REACTIVITY	1

Health (acute effects) = 3
Flammability = 0
Reactivity = 1

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances
(CAS#) Description:
Aluminum fluoride, anhydrous (CAS# 7784-18-1): 100%
Identification number(s):
EINECS Number: 232-051-1

4 First aid measures

Description of first aid measures
General information
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
Rub in calcium gluconate solution or calcium gluconate gel immediately.
After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing
Do not induce vomiting; immediately call for medical help.
Seek immediate medical advice.

5 Firefighting measures

Extinguishing media
Suitable extinguishing agents
Product is not flammable. Use fire fighting measures that suit the surrounding fire.
Special hazards arising from the substance or mixture
In case of fire, the following can be released:
Metal oxide fume
Hydrogen fluoride (HF)
Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Environmental precautions:
Do not allow material to be released to the environment without proper governmental permits.
Methods and material for containment and cleaning up:
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

7 Handling and storage

Handling
Precautions for safe handling
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Information about protection against explosions and fires: The product is not flammable

Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and receptacles:
Unsuitable material for container: ceramic, glass
Information about storage in one common storage facility:
Store away from oxidizing agents.
Store away from water/moisture.
Further information about storage conditions:
This product is hygroscopic.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from humidity and water.

8 Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters
Components with limit values that require monitoring at the workplace:

Fluorides (as F)

	mg/m3
ACGIH TLV	2.5
Austria MAK	2.5
Belgium TWA	2.5
Finland TWA	2.5
France TWA	2.5
Germany MAK	2.5
Hungary TWA	1; 2-STEL
Netherlands MAC-K	3.5
Norway TWA	0.6
Poland TWA	1; 3-STEL
Sweden NGV	2
Switzerland MAK-W	1.5; 3-KZG-W
United Kingdom TWA	2.5
Russia TWA	2
Denmark TWA	2.5
USA PEL	2.5

Additional information: No data

Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition.
Material of gloves
The selection of suitable gloves not only depends on the material, but also on quality.
Quality will vary from manufacturer to manufacturer.
Eye protection:
Safety glasses
Tightly sealed goggles
Full face protection

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Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties	
General Information	
Appearance:	
Form:	Powder
Odor:	Odorless
Odour threshold:	Not determined.
pH-value:	Not applicable.
Change in condition	
Melting point/Melting range:	1291°C (2356 °F)
Boiling point/Boiling range:	1537°C (2799 °F)
Sublimation temperature / start:	Not determined
Flash point:	Not applicable
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not applicable.
Density at 20°C (68 °F):	2.882 g/cm³ (24.05 lbs/gal)
Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Segregation coefficient (n-octonol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity
Chemical stability
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Incompatible materials:
Acids
Water/moisture
Oxidizing agents
Hazardous decomposition products:
Metal oxide fume
Hydrogen fluoride

11 Toxicological information

Information on toxicological effects
Acute toxicity:

LD/LC50 values that are relevant for classification:		
Oral	LD50	103 mg/kg (mouse)
Irritation of eyes	mild	500 mg/24H (rabbit)

Primary irritant effect:
on the skin:
Corrosive effect on skin and mucous membranes.
Irritant to skin and mucous membranes.

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on the eye:
Strong corrosive effect.
Irritating effect.
Sensitization: No sensitizing effects known.
Subacute to chronic toxicity:
Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects.
Aluminum may be implicated in Alzheimers disease. Inhalation of aluminum containing dusts may cause pulmonary disease.
Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:
Musculoskeletal - changes in teeth and supporting structures.
Subacute to chronic toxicity:
Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.
Additional toxicological information:
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information

Toxicity
Acquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Behavior in environmental systems:
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.
Additional ecological information:
General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Do not allow material to be released to the environment without proper governmental permits.
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

DOT regulations:

Hazard class:	8
Identification number:	UN3260
Packing group:	III
Proper shipping name (technical name):	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Aluminum fluoride)

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Label 8

Land transport ADR/RID (cross-border)

ADR/RID class:	8 (C2) Corrosive substances
Danger code (Kemler):	80
UN-Number:	3260
Packaging group:	III
UN proper shipping name:	3260 CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Aluminum fluoride)

Maritime transport IMDG:

IMDG Class:	8
UN Number:	3260
Label	8
Packaging group:	III
Marine pollutant:	No
Segregation groups	Acids
Proper shipping name:	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Aluminum fluoride)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class:	8
UN/ID Number:	3260
Label	8
Packaging group:	III
Proper shipping name:	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Aluminum fluoride)

UN "Model Regulation": UN3260, CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S., 8, III
Special precautions for user Warning: Corrosive substances
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Product related hazard informations:

Hazard symbols:
T Toxic

Risk phrases:
25 Toxic if swallowed.
34 Causes burns.

Safety phrases:
20 When using do not eat or drink.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.

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Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact:

Zachariah C. Holt

Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent