

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/09/2010

Reviewed on 06/08/2010

1 Identification of substance:**Product details:****Product name:** Aluminum chloride**Stock number:** 89914**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company
 Johnson Matthey Catalog Company, Inc.
 30 Bond Street
 Ward Hill, MA 01835-8099
 Emergency Phone: (978) 521-6300
 CHEMTREC: (800) 424-9300
 Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:**Chemical characterization:****Description: (CAS#)**

Aluminum chloride (CAS# 7446-70-0)

Identification number(s):**EINECS Number:** 231-208-1**Index number:** 013-003-00-7**3 Hazards identification****Hazard description:**

C Corrosive

Information pertaining to particular dangers for man and environment

R 34 Causes burns.

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

HEALTH	3
FIRE	0
REACTIVITY	2

Health (acute effects) = 3

Flammability = 0

Reactivity = 2

GHS label elements

Danger

3.2/1B - Causes severe skin burns and eye damage.

Prevention:

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

Response:

IF ON SKIN: Wash with plenty of soap and water.

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

Immediately call a POISON CENTER or doctor/physician.

Storage:

Store in a dry place. Store in a closed container.

4 First aid measures**General information** Immediately remove any clothing soiled by the product.**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.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

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After swallowing Seek immediate medical advice.**5 Fire fighting measures****Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

For safety reasons unsuitable extinguishing agents Water**Special hazards caused by the material, its products of combustion or resulting gases:**

Reacts violently with water

In case of fire, the following can be released:

Metal oxide fume

Hydrogen chloride (HCl)

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Handle under dry protective gas.

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**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from water/moisture.

Store away from strong bases.

Further information about storage conditions:

Store under dry inert gas.

This product is moisture sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and water.

8 Exposure controls and 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.

Components with limit values that require monitoring at the workplace:

Aluminum, soluble salts (as Al)

mg/m³

ACGIH TLV 5 (welding fumes); 5 (pyro powders)

10 (metal dust)

Austria MAK

6 (dust)

Belgium TWA

10; 2 (salts), 5 (fumes), 5 (resp. dust)

Denmark TWA

10 (dust or fume)

Finland TWA

2 (salts)

France VME

10; 5 (fumes), 5 (resp. dust)

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Germany MAK 6
 Hungary TWA 2; 5-STEL, 4-STEL (salts)
 Korea TLV 5 (welding fumes); 5 (pyro powders)
 10 (metal dust)
 Norway TWA 5
 Russia 2-STEL
 Sweden NGV 4 (resp. dust); 10 (total dust)
 Switzerland MAK-W 6
 United Kingdom TWA 4 (resp. dust)
 USA PEL 15 (total dust); 5 (resp. fraction)

Additional information: No data**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

Body protection: Protective work clothing.**9 Physical and chemical properties:****General Information**

Form: Powder
Color: Light yellow
Odor: Acidic

Change in condition

Melting point/Melting range: 190°C (374°F) (subl)
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined

Flash point: Not applicable**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

Lower: Not determined
Upper: Not determined

Vapor pressure: Not determined**Density at 20°C (68°F):** 2.44 g/cm³**Solubility in / Miscibility with****Water:** Reacts**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Water/moisture

Oxidizing agents

Bases

Active metals

Dangerous reactions

Reacts violently with water

Reacts with water forming hydrochloric acid (HCl)

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Dangerous products of decomposition:Metal oxide fume
Hydrogen chloride (HCl)**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	1130 mg/kg (mouse) (RTECS) 3450 mg/kg (rat) (RTECS)
Dermal	LD50	>2 gm/kg (rabbit) (RTECS)
Irritation of skin	severe	10 % (rabbit)

Primary irritant effect:**on the skin:** Corrosive effect on skin and mucous membranes.**on the eye:** Strong corrosive effect.**Sensitization:** No sensitizing effects known.**Subacute to chronic toxicity:**

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:

Brain and Coverings - other degenerative changes.

Gastrointestinal - other changes.

Kidney, Ureter, Bladder - hematuria.

Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).

Nutritional and Gross Metabolic - changes in phosphorus.

Nutritional and Gross Metabolic - changes in iron.

Nutritional and Gross Metabolic - changes in metals, not otherwise specified.

Behavioral - changes in motor activity (specific assay).

Behavioral - alteration of operant conditioning.

Behavioral - food intake (animal).

Blood - changes in serum composition.

Blood - changes in leukocyte (WBC) count.

Blood - changes in erythrocyte (RBC) count.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - phosphatases.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other enzymes.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - true cholinesterase.

Musculoskeletal - osteomalacia.

Musculoskeletal - other changes.

Reproductive - Effects on Newborn - weaning or lactation index (e.g., # alive at weaning per # alive at day 4).

Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain).

Reproductive - Effects on Newborn - behavioral.

Reproductive - Effects on Newborn - other neonatal measures or effects.

Reproductive - Effects on Newborn - delayed effects.

Reproductive - Fertility - post-implantation mortality (e.g. dead/or resorbed implants per total number of implants).

Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).

Reproductive - Specific Developmental Abnormalities - musculoskeletal system.

Reproductive - Maternal Effects - other effects.

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.

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12 Ecological information:**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.

13 Disposal considerations**Product:****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: UN1726
Packing group: II
Proper shipping name (technical name): ALUMINIUM CHLORIDE, ANHYDROUS
Label: 8

Land transport ADR/RID (cross-border)

ADR/RID class: 8 (C2) Corrosive substances
Danger code (Kemler): 80
UN-Number: 1726
Packaging group: II
Description of goods: 1726 ALUMINIUM CHLORIDE, ANHYDROUS

Maritime transport IMDG:

IMDG Class: 8
UN Number: 1726
Label: 8
Packaging group: II
Marine pollutant: No
Segregation groups: Acids
Proper shipping name: ALUMINIUM CHLORIDE, ANHYDROUS

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 8
UN/ID Number: 1726
Label: 8
Packaging group: II
Proper shipping name: ALUMINIUM CHLORIDE, ANHYDROUS

UN "Model Regulation": UN1726, ALUMINIUM CHLORIDE, ANHYDROUS, 8, II

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15 Regulations**Product related hazard informations:****Hazard symbols:**

C Corrosive

Risk phrases:

34 Causes burns.

Safety phrases:

7/8 Keep container tightly closed and dry.

28 After contact with skin, wash immediately with plenty of water

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.

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 Holt

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)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

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

HMS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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