

**SAFETY DATA SHEET**

according to the Global Harmonized System (and with all of the information required by the HPR)

Revision Date 06/17/2018

Version 2.2

**SECTION 1. Identification****Product identifier**

Product number	AX0705
Product name	Aluminum Nitrate Nonahydrate GR ACS
CAS-No.	7784-27-2

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

Identified uses	Reagent for analysis
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**Details of the supplier of the safety data sheet**

Company	Millipore (Canada) Ltd   109 Woodbine Downs Blvd. Unit 5   Etobicoke   Ontario M9W 6Y1   Canada   General Inquiries: +1 800-645-5476   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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**SECTION 2. Hazards identification****GHS Classification**

Serious eye damage, Category 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

**GHS-Labeling***Hazard pictograms**Signal Word*

Danger

*Hazard Statements*

H318 Causes serious eye damage.

*Precautionary Statements*

P280 Wear protective gloves/ eye protection/ face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P310 Immediately call a POISON CENTER/doctor.

## Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature	Aluminum nitrate nonahydrate	
Formula	$\text{Al}(\text{NO}_3)_3 \cdot 9 \text{H}_2\text{O}$	$\text{AlN}_3\text{O}_9 \cdot 9 \text{H}_2\text{O}$ (Hill)
Molar mass	375.13 g/mol	

## Hazardous ingredients

*Chemical name (Concentration)*

CAS-No.

*Aluminium nitrate nonahydrate ( $\geq 90\%$  -  $\leq 100\%$ )*

7784-27-2

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## SECTION 4. First aid measures

### Description of first-aid measures

*Inhalation*

After inhalation: fresh air.

*Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

*Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

*Ingestion*

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

### Most important symptoms and effects, both acute and delayed

Cough, Nausea, Vomiting, CNS disorders

Irritation and corrosion

Risk of serious damage to eyes.

The following applies to aluminum compounds in general: After swallowing: only slightly absorbable via the gastrointestinal tract. Serious disorders in man (from about 4000 mg aluminum up): phosphate metabolism, calcium metabolism.

The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.

### Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

#### *Suitable extinguishing media*

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

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

nitrous gases, nitrogen oxides

### Advice for firefighters

#### *Special protective equipment for fire-fighters*

In the event of fire, wear self-contained breathing apparatus.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

### Conditions for safe storage, including any incompatibilities

Tightly closed. Do not store near combustible materials.

Store at room temperature.

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**SECTION 8. Exposure controls/personal protection****Exposure limit(s)***Ingredients*

Basis	Value	Threshold limits	Remarks
<i>Aluminium nitrate nonahydrate 7784-27-2</i>			
CAD AB OEL	Time Weighted Average (TWA):	2 mg/m <sup>3</sup>	Expressed as: as AI
CAD BC OEL	Time Weighted Average (TWA):	1 mg/m <sup>3</sup>	Form of exposure: Respirable.
CAD MB OEL	Time Weighted Average (TWA):	1 mg/m <sup>3</sup>	Form of exposure: Respirable fraction.
CAD ON OEL	Time Weighted Average (TWAEV):	1 mg/m <sup>3</sup>	Form of exposure: Respirable fraction.
CAD SK OEL	15 minute average contamination limit:	4 mg/m <sup>3</sup>	Expressed as: as AI
	15 minute average contamination limit:	20 mg/m <sup>3</sup>	Form of exposure: Dust. Expressed as: as AI
	8 hour average contamination limit:	2 mg/m <sup>3</sup>	Expressed as: as AI
	8 hour average contamination limit:	10 mg/m <sup>3</sup>	Form of exposure: Dust. Expressed as: as AI
OEL (QUE)	Time Weighted Average (TWA):	2 mg/m <sup>3</sup>	Expressed as: as AI

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

*Eye/face protection*

Tightly fitting safety goggles

*Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

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The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Other protective equipment:*

protective clothing

*Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

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## SECTION 9. Physical and chemical properties

Physical state	solid
Color	colorless
Odor	of nitric acid
Odor Threshold	No information available.
pH	2.0 - 4.0 at 50 g/l 68 °F (20 °C)
Melting point	163 °F (73 °C)
Boiling point/boiling range	275 °F (135 °C) (decomposition)
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	No information available.
Relative vapor density	No information available.

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Density	1.72 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	41.9 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	275 °F (135 °C)
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	Oxidizing potential
Ignition temperature	Not applicable
Bulk density	ca.880 kg/m <sup>3</sup>

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## SECTION 10. Stability and reactivity

### Reactivity

See below

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Risk of explosion with:

Reducing agents, Cyanides, Esters, Strong acids, Isocyanates, Powdered metals, sulfur

### Conditions to avoid

Exposure to moisture.

Strong heating (decomposition).

### Incompatible materials

various metals, Mild steel

### Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

*Likely route of exposure*

Eye contact, Skin contact, Ingestion

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### *Acute oral toxicity*

LD50 Rat: 3,263 mg/kg

OECD Test Guideline 401

### *Acute inhalation toxicity*

Symptoms: Possible damages:, mucosal irritations, Cough

### *Skin irritation*

Rabbit

Result: No irritation

OECD Test Guideline 404

The value is given in analogy to the following substances: Aluminium nitrate

### *Eye irritation*

Rabbit

Result: Causes serious eye damage.

OECD Test Guideline 405

The value is given in analogy to the following substances: Aluminium nitrate

Causes serious eye damage.

### *Specific target organ systemic toxicity - single exposure*

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

### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## **Further information**

After absorption of toxic quantities:

CNS disorders, Methaemoglobinemia, Nausea, Vomiting

The following applies to aluminum compounds in general: After swallowing: only slightly absorbable via the gastrointestinal tract. Serious disorders in man (from about 4000 mg aluminum up): phosphate metabolism, calcium metabolism.

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The following applies to nitrites/nitrates in general: methemoglobinemia after the uptake of large quantities.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### Ecotoxicity

#### *Toxicity to fish*

semi-static test LC50 Danio rerio (zebra fish): > 0.105 mg/l; 96 h

Analytical monitoring: yes

OECD Test Guideline 203 (above the solubility limit in the test medium) The value is given in analogy to the following substances: aluminium sulfate tetradecahydrate

#### *Toxicity to bacteria*

static test EC50 activated sludge: > 1,000 mg/l; 3 h

OECD Test Guideline 209 The value is given in analogy to the following substances:

aluminium(III) chloride, anhydrous

### Persistence and degradability

#### *Biodegradability*

The methods for determining the biological degradability are not applicable to inorganic substances.

### Bioaccumulative potential

No information available.

### Mobility in soil

No information available.

#### *Additional ecological information*

Hazard for drinking water supplies.

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

UN number

UN 1438

Proper shipping name

ALUMINIUM NITRATE

Class

5.1

Packing group

III

Environmentally hazardous

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### Air transport (IATA)

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**UN number** UN 1438  
**Proper shipping name** ALUMINIUM NITRATE  
**Class** 5.1  
**Packing group** III  
**Environmentally hazardous** --  
**Special precautions for user** no

### Sea transport (IMDG)

**UN number** UN 1438  
**Proper shipping name** ALUMINIUM NITRATE  
**Class** 5.1  
**Packing group** III  
**Environmentally hazardous** --  
**Special precautions for user** yes  
EmS F-A S-Q

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## SECTION 15. Regulatory information

### United States of America

### Canada

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

### Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Labeling

#### *Hazard pictograms*



#### *Signal Word*

Danger

#### *Hazard Statements*

H318 Causes serious eye damage.

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## *Precautionary Statements*

Prevention

P280 Wear eye protection.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

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

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 06/17/2018

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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