

• SAFETY DATA SHEET

Version 8.1
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SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Aluminum sulfate

Product Number : A0843
Brand : Sigma-Aldrich
CAS-No. : 17927-65-0

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : MilliporeSigma Canada Ltd.
2149 WINSTON PARK DRIVE
OAKVILLE ON L6H 6J8
CANADA

Telephone : +1 905 829-9500
Fax : +1 905 829-9292

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 CHEMTREC
(International)
24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Corrosive to metals : Category 1

Serious eye damage : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H318 Causes serious eye damage.

Precautionary statements : **Prevention:**
P234 Keep only in original packaging.
P280 Wear eye protection/ face protection.
Response:
P305 + P351 + P338 + P310 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/ doctor.
P390 Absorb spillage to prevent material damage.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance
CAS-No. : 17927-65-0

Components

Chemical name	CAS-No.	Concentration (% w/w)
Aluminium sulphate hydrate	17927-65-0	>= 80 - <= 100 *

* Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Show this safety data sheet to the doctor in attendance.
If inhaled : After inhalation: fresh air.
In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact : After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.
If swallowed : After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in

both acute and delayed	section 11
Protection of first-aiders	: For personal protection see section 8.
Notes to physician	: No data available

SECTION 5. FIREFIGHTING MEASURES

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.
Specific hazards during fire fighting	: Not combustible.
	Ambient fire may liberate hazardous vapours.
Hazardous combustion products	: Sulphur oxides Aluminum oxide
Specific extinguishing methods	: No data available
Further information	: Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	: In the event of fire, wear self-contained breathing apparatus.

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
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procedures, consult an expert.
Advice for emergency responders:
For personal protection 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.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Conditions for safe storage : No metal containers.

Further information on storage conditions : Tightly closed.
Dry.

Storage class : 11, Combustible Solids

Recommended storage temperature : Recommended storage temperature see product label.

Further information on storage stability : hygroscopic

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Aluminium sulphate hydrate	17927-65-0	TWA	2 mg/m ³ (Aluminium)	CA AB OEL
		TWAEV (respirable aerosol fraction)	5 mg/m ³	CA QC OEL

Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when dusts are generated.

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Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type P2

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

Hand protection

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.11 mm
Protective index : Full contact
Manufacturer : KCL 741 Dermatril® L

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.11 mm
Protective index : Splash contact
Manufacturer : KCL 741 Dermatril® L

Remarks : This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Tightly fitting safety goggles

Skin and body protection : protective clothing

Hygiene measures : Change contaminated clothing. Wash hands after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: powder
Color	: white
Odor	: odourless
Odor Threshold	: Not applicable
pH	: ca. 3.5 (25 °C) Concentration: 50 g/l
Melting point/ range	: 86.5 °C
Boiling point/boiling range	: No data available
Flash point	: Not applicable
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Flammability (liquids)	: No data available
Burning rate	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapor pressure	: No data available
Relative vapour density	: No data available
Relative density	: No data available
Density	: 1.69 g/cm ³ (25 °C) Method: lit.
Solubility(ies) Water solubility	: 600 g/l soluble (20 °C)
Partition coefficient: n- octanol/water	: No data available
Autoignition temperature	: No data available

Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Molecular weight	: 342.15 g/mol
Metal corrosion rate	: May be corrosive to metals.
Particle characteristics	
Particle size	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No data available
Chemical stability	: The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	: No data available
Conditions to avoid	: Air Exposure to moisture no information available
Incompatible materials	: Incompatible with strong bases and oxidizing agents. Ammonia Amines
Hazardous decomposition products	: In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)

The value is given in analogy to the following substances: aluminium sulfate

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Oral: (in analogy to similar products)

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: aluminium sulfate

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye

(OECD Test Guideline 405)

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Special properties/effects:

adstringent

However, when the product is handled appropriately, hazardous effects are unlikely to occur.

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Aluminium sulphate hydrate:

Toxicity to fish	: LC50 (Danio rerio (zebra fish)): > 87.5 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: OECD Test Guideline 203 GLP: yes Remarks: (in analogy to similar products)
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 200 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 202 GLP: yes Remarks: (in analogy to similar products) The value is given in analogy to the following substances: aluminium sulfate
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (microalgae)): 0.24 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes Remarks: (in analogy to similar products) The value is given in analogy to the following substances: aluminium sulfate
Toxicity to fish (Chronic toxicity)	: NOEC (Salvelinus fontinalis (Brook trout)): 0.024 mg/l End point: mortality Exposure time: 60 d Test Type: semi-static test Analytical monitoring: yes Remarks: (ECHA) (in analogy to similar products) The value is given in analogy to the following substances: aluminium sulfate
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 12 mg/l Exposure time: 28 d Test Type: Reproduction Test Method: US-EPA

Remarks: (anhydrous substance)
The value is given in analogy to the following
substances: aluminium sulfate

Toxicity to microorganisms : EC50 (activated sludge): > 200 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes
Remarks: (in analogy to similar products)
The value is given in analogy to the following
substances: aluminium sulfate

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : UN 3260
Proper shipping name : Corrosive solid, acidic, inorganic, n.o.s.
(Aluminium sulphate hydrate)
Class : 8
Packing group : III
Labels : Class 8 - Corrosive substances
Packing instruction (cargo) : 864

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aircraft)
Packing instruction : 860
(passenger aircraft)

IMDG-Code

UN number : UN 3260
Proper shipping name : CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
(Aluminium sulphate hydrate)
Class : 8
Packing group : III
Labels : 8
EmS Code : F-A, S-B
Marine pollutant : no

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

Not applicable for product as supplied.

National Regulations

TDG

UN number : UN 3260
Proper shipping name : CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
(Aluminium sulphate hydrate)
Class : 8
Packing group : III
Labels : 8
ERG Code : 154
Marine pollutant : no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

Canadian lists

No substances are subject to a Significant New Activity Notification.

No substances are subject to CEPA Section 84 Ministerial Conditions.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

CA AB OEL : Canada. Alberta, Occupational Health and Safety Code
(table 2: OEL)
CA QC OEL : Québec. Regulation respecting occupational health
and safety, Schedule 1, Part 1: Permissible exposure
values for airborne contaminants
CA AB OEL / TWA : 8-hour Occupational exposure limit
CA QC OEL / TWAEV : Time-weighted average exposure value

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AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MERCOSUR - The Agreement for the Facilitation of the Transport of Dangerous Goods; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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