SAFETY DATA SHEET

Aluminium sulphate solution

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

1.1. Product identifier

Trade name

Aluminium sulphate solution

Other names / Synonyms

Often called alum, but this term can be misleading, and is not approved
REACH registration number 01-2119531538-36

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

▼Relevant identified uses of the substance or mixture

Treatment of drinking water, European Committee Approval , This product has been approved as a chemical used for the treatment of drinking water, under the appropriate BS EN Standard (see Sales Specification), and so it is also approved under Regulation 31 of the Water Supply (Water Quality) Regulations 2000. Regulation (EC) No 1907/2006 of the European Parliament and the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market., Treatment of waste water, Plating and metal surface treatment agents, pH regulating, Pulp and paper manufacturing, Tanning agent, Laboratory Agent , Photochemical agents, Manufacture of substance, Flocculation agent
Restricted to professional users.

Uses advised against

None known.

1.3. Details of the supplier of the safety data sheet

▼Company and address

Industrial Chemicals Limited
Jupiter House,
Warley Hill Business Park,
The Drive,
Warley,
Brentwood,
Essex,
CM13 3BE
United Kingdom
+44 (0)1375 389000
+44 (0)1375 389110
www.icgl.co.uk

E-mail

sds@icgl.co.uk

Revision

12/02/2024

SDS Version

9.0

Date of previous version

18/07/2023 (8.0)

1.4. Emergency telephone number

Contact The National Poisons Information Service (dial 111, 24 h service).
See section 4 “First aid measures”.

SECTION 2: Hazards identification

Classified according to Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

2.1. Classification of the substance or mixture

Met. Corr. 1; H290, May be corrosive to metals.

Eye Dam. 1; H318, Causes serious eye damage.

2.2. Label elements

Hazard pictogram(s)

Signal word

Danger

Hazard statement(s)

May be corrosive to metals. (H290)
Causes serious eye damage. (H318)

Precautionary statement(s)

General

-

Prevention

Wear protective gloves/protective clothing/eye protection/face protection. (P280)

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338)
Immediately call a POISON CENTER/doctor. (P310)
Absorb spillage to prevent material damage. (P390)

Storage

Store in a container with a resistant inner liner. (P406)

Disposal

-

Hazardous substances

Aluminium sulphate

Additional labelling

Not applicable.

2.3. Other hazards

▼Additional warnings

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.
This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable. This product is a mixture.

3.2. Mixtures

Product/substance	Identifiers	% w/w	Classification	Note
Water	CAS No.: 7732-18-5 EC No.: 231-791-2 UK-REACH: Index No.:	60-75%		
Aluminium sulphate	CAS No.: 10043-01-3 EC No.: 233-135-0 UK-REACH: 01-9020873518-4-0005 Index No.:	25-35%	Met. Corr. 1, H290 Eye Dam. 1, H318	
sulphuric acid ... %	CAS No.: 7664-93-9 EC No.: 231-639-5 UK-REACH: 20-5418564336-5-0000 Index No.: 016-020-00-8	<1%	Skin Corr. 1A, H314	[1]

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other information

[1] European occupational exposure limit.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

Skin contact

Upon irritation: rinse with water. In the event of continued irritation, seek medical assistance.

Eye contact

If in eyes: Flush eyes with plenty of water or salt water (20-30 °C) for at least 30 minutes and continue until irritation stops. Remove contact lenses. Make sure you flush under the upper and lower eyelids. Seek medical assistance immediately and continue flushing during transport.

Ingestion

If the person is conscious, rinse the mouth with water and stay with the person. Never give the person anything to drink.

In case of malaise, seek medical advice immediately and bring the safety data sheet or label from the product. Do not induce vomiting, unless recommended by the doctor. Have the person lean forward with head down to avoid inhalation of or choking on vomited material.

Burns

Not applicable.

4.2. Most important symptoms and effects, both acute and delayed

The product contains substances that cause serious eye damage. Contact with these substances can cause irreversible effects on the eye / serious eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

IF exposed or concerned:

Get immediate medical advice/attention.

Information to medics

Bring this safety data sheet or the label from this product.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Not applicable.

5.2. Special hazards arising from the substance or mixture

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

If the product is exposed to high temperatures, e.g. in the event of fire, dangerous decomposition compounds are produced. These are:

Sulphur oxides

Some metal oxides

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact The National Poisons Information Service (dial 111, 24 h service) in order to obtain further advice.

Hazchem Code: 2X

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid direct contact with spilled substances.

Ensure adequate ventilation, especially in confined areas.

Contaminated areas may be slippery.

6.2. Environmental precautions
Avoid discharge to lakes, streams, sewers, etc.
Keep unauthorized persons away from the spill

6.3. Methods and material for containment and cleaning up
Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.
Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

6.4. Reference to other sections
See section 13 “Disposal considerations” on handling of waste.
See section 8 "Exposure controls/personal protection" for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid direct contact with the product.
Smoking, drinking and consumption of food is not allowed in the work area.
See section 8 "Exposure controls/personal protection" for information on personal protection.

7.2. Conditions for safe storage, including any incompatibilities
Containers that have been opened must be carefully resealed and kept upright to prevent leakage.
Store in a container with a resistant inner liner.

Recommended storage material
Use containers made of the following materials: Suitable plastic material. Polyethylene-lined mild steel.

Storage temperature
Dry, cool and well ventilated
Corrosive storage.
Use containers made of the following materials: Suitable plastic material. Polyethylene-lined mild steel. Avoid contact with metals (except 316 and 304 stainless steel).

Incompatible materials
chlorites
hypochlorites

7.3. Specific end use(s)
This product should only be used for applications quoted in section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Aluminium sulphate
Long term exposure limit (8 hours) (mg/m^3): 2

sulphuric acid ... %
Long term exposure limit (8 hours) (mg/m^3): 0,05 (Mist) (Thoraic fraction)

The Control of Substances Hazardous to Health Regulations 2002. SI 2002/2677 The Stationery Office 2002.
EH40/2005 Workplace exposure limits (Fourth Edition 2020).

DNEL
Aluminium sulphate

Duration:	Route of exposure:	DNEL:
Long term – Local effects - General population	Dermal	441 µg/cm^2
Long term – Local effects - Workers	Dermal	882 µg/cm^2
Long term – Systemic effects - General population	Dermal	855 µg/kgbw/day
Long term – Systemic effects - Workers	Dermal	1.71 mg/kg bw/day
Short term – Local effects - General population	Dermal	441 µg/cm^2
Short term – Local effects - Workers	Dermal	882 µg/cm^2
Short term – Systemic effects - General population	Dermal	23.35 mg/kg bw/day
Short term – Systemic effects - Workers	Dermal	46.7 mg/kg bw/day
Long term – Local effects - General population	Inhalation	1.5 mg/m^3

Long term – Local effects - Workers	Inhalation	3 mg/m³
Long term – Systemic effects - General population	Inhalation	1.5 mg/m³
Long term – Systemic effects - Workers	Inhalation	3 mg/m³
Short term – Local effects - General population	Inhalation	1 mg/m³
Short term – Local effects - Workers	Inhalation	2 mg/m³
Short term – Systemic effects - General population	Inhalation	1 mg/m³
Short term – Systemic effects - Workers	Inhalation	2 mg/m³
Long term – Systemic effects - General population	Oral	1.9 mg/kg bw/day
Short term – Systemic effects - General population	Oral	92.4 mg/kg bw/day

PNEC

Aluminium sulphate

Route of exposure:	Duration of Exposure:	PNEC:
Air		2 mg/m³
Freshwater		4.5 mg/L
Freshwater sediment		10 mg/kg
Intermittent release (freshwater)		30.11 mg/L
Marine water		64 mg/L
Marine water sediment		31.4 mg/kg
Predators		150 mg/kg
Sewage treatment plant		60.2 mg/L
Soil		58 mg/kg

8.2. ▼Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.

General recommendations

Smoking, drinking and consumption of food is not allowed in the work area.

Exposure scenarios

There are no exposure scenarios implemented for this product.

Exposure limits

Professional users are subjected to the legally set maximum concentrations for occupational exposure. See occupational hygiene limit values above.

Appropriate technical measures

The formation of vapours must be kept at a minimum and below current limit values (see above). Installation of a local exhaust system if normal air flow in the work room is not sufficient is recommended. Ensure eyewash and emergency showers are clearly marked.
Ensure that eyewash stations and safety showers are located within easy reach.
Apply standard precautions during use of the product. Avoid inhalation of vapours.

▼Hygiene measures

In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Pay special attention to hands, forearms and face.

Measures to avoid environmental exposure

No specific requirements.

Individual protection measures, such as personal protective equipment

Generally

Use only UKCA marked protective equipment.

Respiratory Equipment

No specific requirements

Skin protection

Recommended	Type/Category	Standards	
Eye Wash			
Wear appropriate protection clothing, e.g. coveralls in polypropylene or	-	-	

Recommended	Type/Category	Standards
working clothes in cotton or polyester.		

Hand protection

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards
Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible.			

Eye protection

Type	Standards
Chemical splash goggles	

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state
Liquid

Colour
Straw

Odour / Odour threshold
Odourless

pH
<3

▼Density (g/cm^3)
-

Relative density
1.33 (15 °C)

Kinematic viscosity
26.5 mPa.s (10 °C)

Particle characteristics
Does not apply to liquids.

Phase changes

Melting point/Freezing point (°C)
8.5% as Al2O3 0°C. 8.0% -7C°C Can form solid mass without obvious symptoms or crystallisation!

Softening point/range (waxes and pastes) (°C)
Does not apply to liquids.

Boiling point (°C)
Testing not relevant or not possible due to the nature of the product.

Vapour pressure
30 mmHg (0 °C)

Relative vapour density
Testing not relevant or not possible due to the nature of the product.

Decomposition temperature (°C)
Testing not relevant or not possible due to the nature of the product.

Data on fire and explosion hazards

Flash point (°C)
Testing not relevant or not possible due to the nature of the product.

Flammability (°C)
Testing not relevant or not possible due to the nature of the product.

Auto-ignition temperature (°C)
Testing not relevant or not possible due to the nature of the product.

Lower and upper explosion limit (% v/v)
Testing not relevant or not possible due to the nature of the product.

Solubility

Solubility in water

Miscible with Water

n-octanol/water coefficient (LogKow)

Testing not relevant or not possible due to the nature of the product.

Solubility in fat (g/L)

Testing not relevant or not possible due to the nature of the product.

9.2. Other information

Sensitivity to shock

In contact with metals liberates flammable hydrogen gas, which may form explosive mixtures in a confined space

Molecular Weight (g/mol)

342.14

Oxidizing properties

Testing not relevant or not possible due to the nature of the product.

Other physical and chemical parameters

Avoid contact with chlorites, hypochlorites, and sulfites Incompatible with other aluminium salts and iron salts. Special care must be taken regarding mixing with products previously used in order to avoid gel formation or precipitation

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

The product is stable under the conditions, noted in section 7 “Handling and storage”.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

chlorites
hypochlorites

10.6. Hazardous decomposition products

The product is not degraded when used as specified in section 1.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 as retained and amended in UK law

Acute toxicity

Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Serious eye damage/irritation

Causes serious eye damage.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

Skin sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Long term effects

The product contains substances that cause serious eye damage. Contact with these substances can cause irreversible effects on the eye / serious eye damage.

▼Endocrine disrupting properties

This mixture/product does not contain any substances known to have hormone-disrupting properties in relation to health.

Other information

sulphuric acid ... % has been classified by IARC as a group 1 carcinogen.

SECTION 12: Ecological information

12.1. Toxicity

No data available.

12.2. ▼Persistence and degradability

Based on available data, the classification criteria are not met.

12.3. ▼Bioaccumulative potential

Based on available data, the classification criteria are not met.

12.4. Mobility in soil

No data available.

12.5. ▼Results of PBT and vPvB assessment

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

12.6. ▼Endocrine disrupting properties

This mixture/product does not contain any substances considered to have endocrine-disrupting properties in relation to the environment.

12.7. Other adverse effects

None known.

SECTION 13: Disposal considerations

Waste treatment methods

Product is covered by the regulations on hazardous waste.
HP 4 - Irritant (skin irritation and eye damage)
Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

EWC code

Not applicable.

Specific labelling

Contaminated packing

Packaging containing residues of the product must be disposed of similarly to the product.

SECTION 14: Transport information

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
ADR	UN3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminium sulphate)	Transport hazard class: 8 Label: 8 Classification code: C1 	III	No	Limited quantities: 5 L Tunnel restriction code: (E) See below for additional information.
IMDG	UN3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminium sulphate)	Transport hazard class: 8 Label: 8 Classification code: C1	III	No	Limited quantities: 5 L EmS: F-A S-B See below for

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
						additional information.
IATA	UN3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminium sulphate)	Transport hazard class: 8 Label: 8 Classification code: C1 	III	No	See below for additional information.

* Packing group

** Environmental hazards

Additional information

ADR / See Table A, section 3.2.1 for any information on special provisions, requirements, or warnings in connection with transport. See section 5.4.3, for instructions in writing regarding mitigation of damages in relation to incidents or accidents during transport.
IMDG / See section 3.2.1, for any information on special provisions, requirements, or warnings in connection with transport.
IATA / See Table 4.2 for any information on special provisions, requirements, or warnings in connection with transport.
This product is within scope of the regulations of transport of dangerous goods.
Hazchem Code: 2X

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15: Regulatory information

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

Restrictions for application

Restricted to professional users.

Demands for specific education

No specific requirements.

SEVESO - Categories / dangerous substances

Not applicable.

Regulation on drug precursors

sulphuric acid ... % is included (Category 3)

Regulation on explosives precursors

sulphuric acid ... % (Annex I)

Additional information

Not applicable.

Sources

The Management of Health and Safety at Work Regulations 1999.
Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.
The Controlled Drugs (Drug Precursors) Regulations 2008.
Council Regulation (EC) No 2019/1148 on explosives precursors as retained and amended in UK law.
Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as retained and amended in UK law.
Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as retained and amended in UK law.

15.2. Chemical safety assessment

No

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3

H290, May be corrosive to metals.
H314, Causes severe skin burns and eye damage.
H318, Causes serious eye damage.

▼Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service
CE = Conformité Européenne (European conformity)
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
CSA = Chemical Safety Assessment
CSR = Chemical Safety Report
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
EUH statement = CLP-specific Hazard statement
EuPCS = European Product Categorisation System
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer (IARC)
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OECD = Organisation for Economic Co-operation and Development
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SCL = A specific concentration limit
SVHC = Substances of Very High Concern
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TWA = Time weighted average
UN = United Nations
UVBC = Unknown or variable composition, complex reaction products or of biological materials
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative

Additional information

The classification of the substance/mixture in regard of health hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

▼The safety data sheet is validated by

LWetton

Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a blue triangle.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
Country-language: GB-en