

## SAFETY DATA SHEET

## Aluminium chloride solution

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

## 1.1. Product identifier

## Trade name

Aluminium chloride solution

## Other names / Synonyms

ICLOR, Aluminium chloride, basic, Aluminium trichloride solution  
REACH registration number 01-2119531563-43

## 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 , Flocculation agent, Water treatment chemicals,  
Treatment of waste water, Laboratory use, Intermediate, Raw Material, Adhesive  
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**

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Warley Hill Business Park,  
The Drive,  
Warley,  
Brentwood,  
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CM13 3BE  
United Kingdom  
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## E-mail

sds@icgl.co.uk

## Revision

22/02/2024

## SDS Version

10.0

## Date of previous version

19/07/2023 (9.0)

## 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.  
Skin Corr. 1B; H314, Causes severe skin burns and eye damage.  
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 severe skin burns and eye damage. (H314)

**Precautionary statement(s)**

General

-

**Prevention**

Do not breathe vapour/mist. (P260)  
Wear face protection/protective gloves/protective clothing. (P280)

**Response**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water . (P303+P361+P353)  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338)

**Storage**

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

**Disposal**

Dispose of contents/container in accordance with local regulation (P501)

**Hazardous substances**

aluminium chloride, anhydrous  
hydrogen chloride

**Additional labelling**

Not applicable.

**2.3. Other hazards**

▼ **Additional warnings**

Cosmetic products are exempt classification rules, but must comply with the cosmetics legislation.  
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.:	68-75%		
aluminium chloride, anhydrous	CAS No.: 7446-70-0 EC No.: 231-208-1 UK-REACH: UK-01-6417839201-1-0004 Index No.: 013-003-00-7	26-31%	Skin Corr. 1B, H314	
hydrogen chloride	CAS No.: 7647-01-0 EC No.: 231-595-7 UK-REACH: 01-4393370836-4-0014 Index No.: 017-002-00-2	<1%	Skin Corr. 1B, H314 STOT SE 3, H335	[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

Flush exposed area with water for a long time - at least 30 minutes. It may be necessary to flush for several hours. Use a comfortable water temperature (20-30 °C). Contact Poison Information/doctor/hospital for further advice on follow-up and treatment.

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

In the case of ingestion, contact a doctor immediately. If the person is conscious, give them water. DO NOT try to induce vomiting unless this is recommended by a doctor. Hold head facing down to prevent vomit from returning to the mouth and throat. Prevent shock by keeping the injured person warm and calm. Initiate immediate resuscitation if breathing stops. If unconscious, roll the injured person into recovery position. Call an ambulance.

##### Burns

Not applicable.

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

Tissue-damaging effects: This product contains substances with skin corrosive properties. Inhaled vapour or aerosols may produce adverse effects to lungs, irritations and burns in the respiratory organs as well as coughing. Dermal contact and contact with the eye cause irreversible effects.

#### 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:

Halogenated compounds

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

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

#### Storage temperature

Corrosive storage.

#### Incompatible materials

chlorites  
 hypochlorites  
 Aluminium

### 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 chloride, anhydrous  
 Long term exposure limit (8 hours) (mg/m<sup>3</sup>): 2

hydrogen chloride  
 Long term exposure limit (8 hours) (ppm): 1  
 Long term exposure limit (8 hours) (mg/m<sup>3</sup>): 2  
 Short term exposure limit (15 minutes) (ppm): 5  
 Short term exposure limit (15 minutes) (mg/m<sup>3</sup>): 8

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 chloride, anhydrous

Duration:	Route of exposure:	DNEL:
Long term – Systemic effects - General population	Oral	300 µg/kgbw/day

hydrogen chloride

Duration:	Route of exposure:	DNEL:
Long term	Inhalation	8 mg/m <sup>3</sup>

Short term	Inhalation	15 mg/m <sup>3</sup>
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**PNEC**

No data available.

**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**

Keep damming materials near the workplace. If possible, collect spillage during work.

**Individual protection measures, such as personal protective equipment**

**Generally**

Use only UKCA marked protective equipment.

**Respiratory Equipment**

Type	Class	Colour	Standards
no respiratory needed			

**Skin protection**

Recommended	Type/Category	Standards
Dedicated work clothing should be worn.	-	-



Eye Wash

**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	
Face shield	EN166



**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

Physical state

Liquid

Colour

Yellowish

Odour / Odour threshold

Almost Odourless

pH

0.5 - 1.0

▼ Density (g/cm<sup>3</sup>)

-

Relative density

1.3

Kinematic viscosity

30 cP (20 °C)

Particle characteristics

Does not apply to liquids.

Phase changes

Melting point/Freezing point (°C)

Below -25°C

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

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

Relative vapour density

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

Decomposition temperature (°C)

Chlorine. Hydrogen chloride (HCl).

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 (Miscible with water. Dilute solutions hydrolyse to precipitate Al(OH)<sub>3</sub> Dispersible in 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

Decomposition temperature (Self-reactive substances and mixtures) (°C)

May decompose to give hydrogen chloride and chlorine vapours at high temperatures

Explosive power

In contact with some metals can generate hydrogen gas, which can form explosive mixtures with air. The following materials may react strongly with the product: Strong acids. Strong alkalis. Organic compounds. Some metals.

Oxidizing properties

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

Other physical and chemical parameters

Avoid excessive heat for prolonged periods of time

## 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

Aluminium

#### 10.6. ▼ Hazardous decomposition products

Thermal decomposition may produce corrosive vapours.

### 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

Causes severe skin burns and eye damage.

##### 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

Tissue-damaging effects: This product contains substances with skin corrosive properties. Inhaled vapour or aerosols may produce adverse effects to lungs, irritations and burns in the respiratory organs as well as coughing. Dermal contact and contact with the eye cause irreversible effects.

##### ▼ Endocrine disrupting properties

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

##### Other information

hydrogen chloride has been classified by IARC as a group 3 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 8 – Corrosive

Dispose of contents/container to an approved waste disposal plant.

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**

	<b>14.1 UN / ID</b>	<b>14.2 UN proper shipping name</b>	<b>14.3 Hazard class(es)</b>	<b>14.4 PG*</b>	<b>14.5 Env**</b>	<b>Other information:</b>
ADR	UN2581	ALUMINIUM CHLORIDE SOLUTION	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	UN2581	ALUMINIUM CHLORIDE SOLUTION	Transport hazard class: 8 Label: 8 Classification code: C1 	III	No	Limited quantities: 5 L EmS: F-A S-B See below for additional information.
IATA	UN2581	ALUMINIUM CHLORIDE SOLUTION	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.

People under the age of 18 shall not be exposed to this product.

##### Demands for specific education

No specific requirements.

##### SEVESO - Categories / dangerous substances

hydrogen chloride

##### Regulation on drug precursors

hydrogen chloride is included (Category 3)

##### Additional information

Not applicable.

##### Sources

The Management of Health and Safety at Work Regulations 1999.

Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products.

Control of Major Accident Hazards (COMAH) Regulations 2015.

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.

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

H314, Causes severe skin burns and eye damage.

H335, May cause respiratory irritation.

#### ▼ 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

In accordance with UK-REACH, a safety data sheet is not required for this product. This safety data sheet has been created on a voluntary basis to distribute relevant information as required by UK-REACH.

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

M Bartlett

#### 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