

SAFETY DATA SHEET

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

1.1 Product identifier

- Product Name: PAC
- Chemical Name: Polyaluminium chloride (PAC), 10%
- Synonyms: Aluminum chloride hydroxide sulfate
- CAS Number: 39290-78-3
- EC No.: 254-400-7
- REACH Registration Number: 01-2119531540-51

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

- Use of the substance/mixture: Pool / spa treatment
- Use advised against: No information available

1.3 Details of the supplier of the safety data sheet

- Name of Supplier: Total Pool Chemicals Ltd
- Address of Supplier: Unit 1-5 , Pool Bank Business Park
High Street, Tarvin
Chester
UK
CH3 8JH
- Telephone: +44 (0)1829 740290
- Email: sales@totalpool.co.uk

1.4 Emergency telephone number

- +44 (0)1829 740290 (Office Hours)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

- Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]: Met. Corr. 1, H290; Eye Irrit. 2, H319
- Additional information: For full text of Hazard- and EU Hazard-statements: see section 16

2.2 Label elements



- Signal Word: Warning
- Hazard statements
 - H290 - May be corrosive to metals.
 - H319 - Causes serious eye irritation.
- Precautionary statements
 - P261 - Avoid breathing spray.
 - P264 - Wash hands thoroughly after handling.
 - P280 - Wear protective gloves/eye protection/face protection.
 - 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 or doctor/physician.
 - P406 - Store in corrosive resistant container with a resistant inner liner.
 - P501 - Dispose of contents/container to an authorised waste collection point
- Supplemental Hazard information (EU)
 - None

SECTION 2: Hazards identification (....)

2.3 Other hazards

- Not a PBT according to REACH Annex XIII
- Not a vPvB according to REACH Annex XIII

SECTION 3: Composition/information on ingredients

3.1 Substances

- Polyaluminium chloride solution, 10%
CAS Number: 39290-78-3
EC Number: 254-400-7
Classification (REGULATION (EC) No 1272/2008) [CLP/GHS]: Met. Corr. 1, H290; Eye Irrit. 2, H319
REACH Registration Number: 01-2119531540-51
Substance with a workplace exposure limit, see Section 8

(The product is formed by the action of hydrochloric and sulfuric acids on aluminium trihydroxide, to give a solution in water. Total aluminium content is 5.3% (10% as Al₂O₃); total strength as PAC is about 25%)

3.2 Mixtures

SECTION 4: First aid measures

4.1 Description of first aid measures

- Contact with eyes
If substance has got into eyes, immediately wash out with plenty of water for several minutes
Irrigate eyes thoroughly whilst lifting eyelids
Remove contact lenses, if present and easy to do. Continue rinsing.
Get immediate medical advice/attention.
- Contact with skin
After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of soap and water
Contaminated clothing should be laundered before reuse
If skin irritation occurs: Get medical advice/attention.
- Ingestion
Rinse mouth with water (do not swallow)
Give plenty of water to drink
Do NOT induce vomiting.
Get immediate medical advice/attention.
- Inhalation
If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
Rinse mouth and nose with water.
When in doubt or symptoms persist, seek medical attention

4.2 Most important symptoms and effects, both acute and delayed

- Contact with eyes
Causes redness and irritation
In cases of severe exposure, redness and swelling may develop
- Contact with skin
May cause redness and irritation
- Ingestion
May cause gastro-intestinal irritation

SECTION 4: First aid measures (....)

May cause nausea/vomiting

- Inhalation
May cause respiratory tract irritation.
May cause coughing and tightness of chest

4.3 Indication of any immediate medical attention and special treatment needed

- Treat symptomatically
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SECTION 5: Firefighting measures**5.1 Extinguishing media**

- Suitable extinguishing media: Not flammable. In case of fire use extinguishing media appropriate to surrounding conditions
- Unsuitable extinguishing media: None

5.2 Special hazards arising from the substance or mixture

- May give off corrosive gases or vapours
- Decomposition products may include sulphur oxides
- Decomposition products may include hydrogen chloride

5.3 Advice for firefighters

- Keep container(s) exposed to fire cool, by spraying with water
 - Collect contaminated fire extinguishing water separately. This MUST not be discharged into drains. Prevent fire extinguishing water from contaminating surface or ground water.
 - Special protective equipment: Wear self-contained breathing apparatus (SCBA). Wear full protective clothing including chemical protection suit.
-

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

- Rescuers should take suitable precautions to avoid becoming casualties themselves
- Only trained and authorised personnel should carry out emergency response
- Personal precautions for non-emergency personnel: Do not touch or walk through spilt material; Do not breathe spray/mists; Do not get in eyes, on skin, or on clothing; Wear protective clothing as per section 8; Wash thoroughly after handling.
- Personal precautions for emergency responders: Evacuate the area and keep personnel upwind; Wear self-contained breathing apparatus (SCBA); Wear suitable protective clothing, eye/face protection and gloves; PVC or rubber gloves are recommended

6.2 Environmental precautions

- Avoid release to the environment.
- Do not allow to enter public sewers and watercourses
- If contamination of drainage systems or water courses is unavoidable, immediately inform appropriate authorities

6.3 Methods and material for containment and cleaning up

- Stop leak if safe to do so.
 - Small spills
Dilute with a large volume of water
Wipe up spillage with damp absorbent cloth or towel
 - Large spills
Contain the spillage using bunding
Cover drains to prevent the product from entering the environment.
Absorb spillage in inert material and shovel up
Contaminated absorbent must be removed in sealed, plastic lined drums.
Seal containers and label them
Remove contaminated material to safe location for subsequent disposal
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SECTION 6: Accidental release measures (....)

Seek expert advice for removal and disposal of all contaminated materials and wastes
Flush spill area with copious amounts of water

6.4 Reference to other sections

- See section(s): 7, 8 & 13

SECTION 7: Handling and storage**7.1 Precautions for safe handling**

- Organise work methods to prevent or minimise contact with the product
- Use only in well ventilated areas
- Avoid formation of spray/mist/aerosols
- Do not breathe spray/mists
- Avoid contact with skin and eyes
- Wear protective clothing as per section 8
- Contaminated clothing should be laundered before reuse
- Wash thoroughly after handling.
- Ensure eyewash stations and safety showers are nearby

7.2 Conditions for safe storage, including any incompatibilities

- Keep in a cool, dry, well ventilated place
- Avoid extremes of temperature
- Avoid freezing
- Store in corrosive resistant container with a resistant inner liner.
- Storage containers should not be made from metal
- Opened containers should be carefully resealed and stored in an upright position
- Keep in acid store
- Keep in an area equipped with impermeable flooring.
- Incompatible with alkalis (strong bases)
- Incompatible with metals

7.3 Specific end use(s)

- Pool / spa treatment

SECTION 8: Exposure controls/personal protection**8.1 Control parameters**

- For currently recommended monitoring procedures, see HSE series 'Methods for the Determination of Hazardous Substances' (MDHS)
- WEL (long term): 2 mg/m³ (UK, as soluble aluminium salts)
- DNEL (inhalational) 40.1 mg/m³ Industry, Long Term, Systemic Effects
- DNEL (dermal) 12.6 mg/kg (bw/day) Industry, Long Term, Systemic Effects
- DNEL (inhalational) 10.9 mg/m³ Consumer, Long Term, Systemic Effects
- DNEL (dermal) 6.3 mg/kg (bw/day) Consumer, Long Term, Systemic Effects
- DNEL (oral) 6.31 mg/kg (bw/day) Consumer, Long Term, Systemic Effects
- PNEC aqua (freshwater) 25 ug/l
- PNEC aqua (intermittent releases, freshwater) 742 ug/l
- PNEC aqua (marine water) 2.5 ug/l
- PNEC (STP) 100 mg/l
- PNEC sediment (freshwater) 3.736 mg/kg
- PNEC sediment (marine water) 3.736 mg/kg
- PNEC terrestrial (soil) 4.94 mg/kg
- PNEC secondary poisoning (food) 8.24 mg/kg

8.2 Exposure controls

- Selection and use of personal protective equipment should be based on a risk assessment of exposure potential

SECTION 8: Exposure controls/personal protection (....)

- Engineering controls
 - Ensure adequate ventilation
 - If practicable, engineering controls should be provided where airborne concentrations exceed exposure limits
 - Use local exhaust ventilation and/or enclosures.
- Respiratory protection
 - In case of insufficient ventilation, wear suitable respiratory equipment
 - Where a reusable half mask respirator is required, use EN 140, with gas/vapour filter EN 14387 type ABEK, or EN 405; EN 1827
 - Where a full face mask respirator is required, use EN 136, with gas/vapour filter EN 14387 type ABEK
- Eye/face protection
 - Wear safety glasses approved to standard EN 166.
 - When handling this substance, e.g. diluting, wear goggles giving complete eye protection
- Skin protection
 - Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374.
 - The selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances. Breakthrough time is dependent on the characteristics of the brand of glove used and the supplier should be consulted.
 - PVC or rubber gloves are recommended
 - Wear suitable protective clothing
 - Contaminated work clothing should not be allowed out of the workplace.
 - Contaminated clothing should be laundered before reuse
- Hygiene measures
 - Do not eat, drink or smoke when using this product.
 - Use good personal hygiene practices
 - Wash thoroughly after handling.
 - Ensure eyewash stations and safety showers are nearby
- Environmental exposure controls
 - Do not empty into drains
 - Do not allow to penetrate the ground/soil.



SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance: Straw coloured liquid
- Odour: Faint
- Odour threshold: No information available
- pH: (concentrated solution) 1.8 - 2.5
- Melting point/freezing point: -26 °C @ 102.4 kPa
- Initial boiling point and boiling range: 105 °C @ 102.4 kPa
- Flashpoint: Not applicable
- Evaporation Rate: No information available
- Flammability (solid,gas): Not flammable
- Upper/lower flammability or explosive limits: Not applicable

SECTION 9: Physical and chemical properties (....)

- Vapour Pressure: 0.001 Pa @ 20 °C
- Vapour Density: No information available
- Relative Density: 1.21 @ 20°C
- Solubility(ies): Miscible with water.
Dilute solutions hydrolyse to precipitate Al(OH)₃.
Water solubility 1 000 g/L @ 20 °C and pH 3.4
- Partition Coefficient (n-Octanol/Water): No information available
- Autoignition Temperature: No information available
- Decomposition temperature: No information available
- Viscosity: 4 cP @ 20°C
- Explosive Properties: No information available
- Oxidising properties: No information available

9.2 Other information

- No information available

SECTION 10: Stability and reactivity

10.1 Reactivity

- Contact with metals liberates flammable gas

10.2 Chemical stability

- Considered stable under normal conditions

10.3 Possibility of hazardous reactions

- Reacts with metals liberating hydrogen

10.4 Conditions to avoid

- Avoid extremes of temperature

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

- Decomposition products may include hydrogen chloride
- Decomposition products may include sulphur oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute Toxicity
Based on available data, the classification criteria are not met
LD50 (oral, rat) 2 000 mg/kg bw
LC50 (inhalation, rat) 5 mg/l/4h
LD50 (dermal, rat) 2 000 mg/kg bw
- Skin corrosion/irritation
Based on available data, the classification criteria are not met
- Serious eye damage/irritation
Causes serious eye irritation.
- Respiratory or skin sensitisation
Based on available data, the classification criteria are not met

SECTION 11: Toxicological information (....)

- Germ cell mutagenicity
No evidence of mutagenic effects
- Carcinogenicity
No evidence of carcinogenic effects
- Reproductive toxicity
No evidence of reproductive effects
NOAEL (oral, rat): 1 890 mg/kg bw/day (effect on fertility)
NOAEL (oral, rat): 631 mg/kg bw/day (effect on developmental toxicity)
- Specific target organ toxicity (STOT) - single exposure
Based on available data, the classification criteria are not met
- Specific target organ toxicity (STOT) - repeated exposure
Based on available data, the classification criteria are not met
NOAEL (oral, rat): 1 890 mg/kg bw/day
- Aspiration hazard
Based on available data, the classification criteria are not met
- Contact with eyes
Causes redness and irritation
In cases of severe exposure, redness and swelling may develop
- Contact with skin
May cause redness and irritation
- Ingestion
May cause gastro-intestinal disturbances
May cause nausea/vomiting
- Inhalation
May cause respiratory tract irritation.
May cause coughing and tightness of chest

SECTION 12: Ecological information

12.1 Toxicity

- Based on available data, the classification criteria are not met
- LC50 (fish) 1- 186 mg/l (4 days)
- EC50 (aquatic algae) 200 mg/l (48 hr)
- EC50 (aquatic invertebrates) 14 mg/l (72 hr)

12.2 Persistence and degradability

- Hydrolyses when diluted in water, forming Al(OH)₃

12.3 Bioaccumulative potential

- Bioaccumulation is not expected

12.4 Mobility in soil

- Soluble in water

12.5 Results of PBT and vPvB assessment

- Not a PBT according to REACH Annex XIII
- Not a vPvB according to REACH Annex XIII

12.6 Other adverse effects

- May cause adverse effects in the aquatic environment due to low pH

SECTION 13: Disposal considerations

13.1 Waste treatment methods

SECTION 13: Disposal considerations (....)

- Disposal should be in accordance with local, state or national legislation
- Do not discharge into drains or the environment, dispose to an authorised waste collection point
- Do not reuse empty containers without commercial cleaning or reconditioning
- Small spills may be neutralised with sodium carbonate, lime, or calcium carbonate, and flushed to sewer.
- Large amounts of aluminium salts should be contained, and then be neutralised with a weak alkali solution.

13.2 Classification

- The waste must be identified according to the List of Wastes (2000/532/EC)
 - Hazardous Property Code(s): HP 4 Irritant
-

SECTION 14: Transport information**14.1 UN number**

- UN No.: 3264

14.2 UN proper shipping name

- Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Polyaluminium Chloride Solution, 10%)

14.3 Transport hazard class(es)

- Hazard Class: 8

14.4 Packing group

- Packing Group: III

14.5 Environmental hazards

- Not applicable

14.6 Special precautions for user

- No information available

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- Not applicable

14.8 Road/Rail (ADR/RID)

- Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(Polyaluminium Chloride Solution, 10%)
- ADR UN No.: 3264
- ADR Hazard Class: 8
- ADR Packing Group: III
- Tunnel Code: E

14.9 Sea (IMDG)

- Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S (Polyaluminium Chloride Solution, 10%).
- IMDG UN No.: 3264
- IMDG Hazard Class: 8
- IMDG Pack Group.: III

14.10 Air (ICAO/IATA)

SECTION 14: Transport information (....)

- Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Polyaluminium Chloride Solution, 10%)
 - ICAO UN No.: 3264
 - ICAO Hazard Class: 8
 - ICAO Packing Group: III
-

SECTION 15: Regulatory information

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

- This safety data sheet is provided in compliance with REACH Regulation (EC) No 1907/2006 as amended by Regulation (EU) 2015/830
- Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) applies in Europe

15.2 Chemical safety assessment

- A REACH chemical safety assessment has been carried out
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SECTION 16: Other information

The statements made herein are based on our best present experience and are intended to describe product safety requirements. They should not therefore be considered as a warranty of specific properties.

Sources of data: Information from published literature and supplier safety data sheets

Revision No. 2.0.0. Revised October 2013.

Changes made: Classification in Sections 2 and 14 amended. Other minor amendments in other sections.

Revision No. 3.0.0. Revised October 2019.

Changes made: New CAS Number and revisions to all sections to conform to Regulation (EU) 2015/830.

Notes on storage conditions and product stability

Poyaluminium chloride solutions are stable indefinitely when stored under benign conditions (sealed vessel, constant temperature). However, some users may experience product instability, which can arise from two potential problems:

1) The product is designed to break down on contact with water, to allow water treatment to occur. As a result, water vapour condensing on inside tank surfaces may lead to colourless crystals forming when the water drops back into the bulk liquid. These crystals can only be dissolved using hot water. Condensation should thus be minimised by tank design and location. If possible, avoid tanks that are dark in colour, in direct sunlight, and off the ground, as these factors will lead to large day/night temperature fluctuations.

2) Long-term storage in open/vented vessels may result in evaporation of water, leading to over concentration of the PAC, and formation of a very fine, cream-coloured deposit. This deposit is easily dissolved in cold water.

Text not given with phrase codes where they are used elsewhere in this safety data sheet:

- H290: May be corrosive to metals
- H319: Causes serious eye irritation.

Acronyms

- CAS: Chemical Abstracts Service
 - DNEL: Derived No-Effect Level
 - EC: European Community
 - EC50: Effective Concentration, 50%
 - GHS: Globally Harmonised System
 - LC50: Lethal Concentration, 50%
 - LD50: Lethal Dose, 50%
 - NOEC: No observed effect concentration
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Revision: 23 October 2019

SECTION 16: Other information (....)

- NOAEL: No observed adverse effect level
- OEL: Occupational Exposure Limit
- PBT: Persistent, Bioaccumulative and Toxic
- PNEC: Predicted No-Effect Concentration
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- vPvB: very Persistent and very Bioaccumulative
- WEL: Workplace Exposure Limit

--- end of safety datasheet ---
