1. Identification of the substance/preparation and of the company/undertaking

1.1 Product Identifier

Trade Name: Polyaluminium Chloride Hydroxide Sulphate (PAC)
CAS No: 329290 - 78 - 3
EC No: 254 - 400 - 7

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

Uses: Water treatment chemical
Restrictions: At this time we do not yet have information on identified restrictions.

1.3 Details of the supplier of the safety data sheet

Company: Complete Pool Controls Ltd
Unit 2, The Park
Stoke Orchard
Bishops Cleeve
Gloucestershire
GL52 7RS

Telephone: +44 (0) 8712 229081
Fax: +44 (0) 8712 229083
E-mail: sales@cpc-chemicals.co.uk

1.4 Emergency Telephone

Tel: +44 (0) 8712 229081 (office hours) +44 (0) 1242 300271 (outside of office hours)

2. Hazard Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Hazard Class	Hazard Category	Target Organs	Hazard Statements
Serious eye damage	Category 1		H318
Corrosive to metals	Category 1		H290

For the full text of the H statements mentioned in this section see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Hazard Symbol/Category of danger	Risk phrases
Irritant (Xi)	R41

For the full text of the R phrases mentioned in this section see Section 16.

Most important adverse effects

Human Health: See section 11 for toxilogical information
Physical & Chemical Hazards: See section 9 for physicochemical information
Potential environmental effects: See section 12 for environmental information

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols: 

Signal word: Danger

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

2. Hazard Identification

Precautionary statements:

Prevention

P280	Wear protective gloves/protective clothing/eye protection/face protection
P261	Avoid breathing spray

Response

P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P310	Immediately call a POISON CENTER/doctor.

Storage

P406	Store in corrosive resistant container with a resistant inner liner.

Hazardous components which must be listed on the label Aluminium chloride hydroxide sulphate

2.3 Other Hazards For Results of PBT and vPvB assessment see section 12.5.

3. Composition/information on ingredients

3.1 Mixture

Chemical nature: Aqueous solution

Aluminum chloride hydroxide sulfate		%	Risks	Hazards
CAS-No.	39290-78-3	<100%	R41	H290 / H318
EC-No.	254-400-7			
Registration	01-2119531540-51-xxxx			

4. First Aid measures

4.1 Description of first aid measures

General Advice:	Take off all contaminated clothing immediately Show this safety data sheet to the doctor in attendance.
If Inhaled:	Move to fresh air. If symptoms persist, call a physician. If unconscious place in recovery position and seek medical advice.
In case of skin contact:	Wash off immediately with soap and plenty of water. If irritation persists call a doctor.
In case of eye contact:	Rinse immediately with plenty of water, also under the eyelids for at least 15 minutes. Consult an eye specialist immediately. Use lukewarm water if possible.
If swallowed:	Rinse mouth with water. Do NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position. If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:	corrosive effects, Serious eye damage, See Section 11 for more detailed information on health effects and symptoms.
Effects:	See Section 11 for more detailed information on health effects

4.3 Indication of immediate medical attention and special treatment needed

Treatment	Treat symptomatically

5. Fire fighting measures

5.1 Extinguishing media:

Suitable extinguishing media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Not combustible.

Unsuitable extinguishing media: None known

5.2 Special hazards arising from the substance or mixture

Specific Hazards during firefighting: Incomplete combustion may form toxic pyrolysis products.

Hazardous combustion products: Hydrogen chloride, Sulphur oxides

5.3 Advice for firefighters

Special protective equipment: Wear self-contained breathing apparatus and full protective suit when necessary.

Further Information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

6. Accidental release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions: Wear personal protective equipment. Avoid contact with skin and eyes

6.2 Environmental precautions

Environmental precautions: No special precautions required. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up: Restrict spread of spillage by use of inert absorbent material if possible.
small spillage: Dilute with plenty of water. Neutralize with lime. Allow to solidify. Shovel or sweep up. Dispose of in accordance with local regulations.
large spillage: Use a suitable vacuum cleaner. Dilute with plenty of water. Neutralize with lime. Allow to solidify. Shovel or sweep up. Dispose of in accordance with local regulations.

6.4 Reference to other sections

For personal protection see section 8.

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling: Avoid contact with skin, eyes and clothing. Possibility to wash the eye at the place of work. Provide sufficient air exchange and/or exhaust in work rooms. Ensure adequate ventilation, especially in confined areas.

Hygiene measures: Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Avoid contact with skin and eyes. Small amounts of hydrogen chloride may be release at temperatures above the boiling point.

(continued on Page 4)

7. Handling and storage continued

7.2 Conditions for safe storage, including any incompatabilities.

Requirements for storage areas and containers:	Keep containers tightly closed in a cool, well-ventilated place.
Advice on protection against fire and explosion:	Normal measures for preventative fire protection
Further information on storage:	Keep container tightly closed.
Advice on common storage	Materials to avoid: Chlorite Sulphite Iron Galvanised surfaces Hypochlorites
Storage Temperature:	> 0 - < 30 °C

7.3 Specific end uses Water treatment chemical

8. Exposure control/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)		
DNEL	Industrial use, Ingestion	11.4 mg/kg bw/day
DNEL	Consumer use, Ingestion	0.3 mg/kg bw/day

Aluminium chloride hydroxide sulphate		329290-78-3
Regulatory List:	**Value type:**	**Value:**
EH40 WEL	Time Weighted Average (TWA):	2mg/m^3
ELV (IE)	Time Weighted Average (TWA):	2mg/m^3

8.2 Exposure controls

Engineering measures

Refer to protective measures listed in sections 7 and 8

Personal protective equipment

Respiratory protection

Breathing apparatus needed only when aerosol or mist is formed.
In case of intensive or longer exposure use self-contained breathing apparatus.
In case of brief exposure or low pollution use breathing filter apparatus.
Combination filter: A-P2

Hand protection

Wear protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374.

Material	Break through time		Guideline
PVC	> 480 min	0.75mm	DIN EN 374
Neoprene	> 480 min	0.75mm	DIN EN 374

Eye protection

Tightly fitting safety goggles approved to standard EN 166.

Skin and body protection

Protective work clothing
Rubber or plastic boots

Environmental exposure controls

General advice:

No special precautions required.

Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form:	Liquid	
Colour:	Clear yeloowish	
Odour:	not significant	
Odour Threshold:	no data available	
pH @ 20°C:	1.5 - 2.5	
Crystallization point	-11 °C	
Boiling point/boiling range	100 - 120 °C	
Flash point:	not applicable	
Evaporation rate:	no data available	
Flammability (solid, gas)	The product is not flammable.	
Upper explosion limit:	not applicable	
Lower explosion limit:	not applicable	
Vapour pressure:	no data available	
Relative vapour density:	no data available	
Density @ 20°C:	1.19 - 1.23 g/cm^3	
Water solubility:	completely soluble	
Partition coeffcient:n-octanol/water:	not applicable	
Auto-ignition temperature	no data available	
Thermal decomposition:	> 200 °C	Do not allow evaporation to dryness.
Viscosity, kinematic:	no data available	
Explosive properties:	not applicable	
Oxidising properties:	none	

9.2 Other Information No further information available

10. Stability and reactivity

10.1 Reactivity

Advice: No decomposition if stored and applied as directed. Is corrosive to metals.

10.2 Chemical stability

Advice: Stable under recommended storage conditions.

10.3 Possibilty of hazardous reactions

Hazardous reactions: In contact with metals generates hydrogen gas, which together with air can form explosive mixtures. Strong bases cause violent reaction by neturalisation.

10.4 Conditions to avoid

Conditions to avoid: Extremes of temperature and direct sunlight.Keep from freezing.

Thermal decomposition: >200 °C Do not allow evaporation to dryness.

10.5 Incompatible materials

Materials to avoid: hypochlorites, Chlorite, Sulphite, Galvanised metals, Iron

10.6 Hazardous decomposition products

Hazardous decomposition products: No decomposition if stored and applied as directed. Thermal decomposition causes the release of, Hydrogen chloride, Sulphur oxides

11. Toxilogical Information

11.1 Information on toxilogical effects

Acute toxicity

Oral:	No data available
Inhalation:	No data available
Dermal:	No data available

Irritation

Skin:	Prolonged or repeated contact may dry skin and cause irritation.
Eyes:	May cause irreversible eye damage.

Sensitisation: not sensitizing

CMR effects

CMR Properties

Carcinogenicity:	Contains no ingredient listed as a carcinogen
Mutagenicity:	Contains no ingredient listed as a mutagen
Teratogenicity:	It is not considered teratogenic.
Reproductive toxicity:	Contains no ingredient listed as toxic to reproduction

Specific Target Organ Toxicity

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

Other toxic properties

Repeated dose toxicity:	Repeated or prolongued skin contact may cause skin irritation and/or dry skin.
Aspiration hazard:	No aspiration toxicity classification

Acute Toxicity		**Aluminum chloride hydroxide sulfate**			**Comment**
Inhalation	LD50	rat		2360 mg/kg	
Oral	LC50	rat, male and female	4 h vapour	>5 mg/l	OECD Test Guideline 403
Dermal	LD50	rat, male and female		> 2000mg/kg	OECD Test Guideline 402

Irritation

Skin	No skin irritation (rabbit)	OECD Test Guideline 404
Eyes	No valid data available.	

Sensitisation	not sensitizing (guinea pig)	Read-across (Analogy)	OECD Test Guideline 406

CMR effects

CMR Properties

Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	Ames test: negative Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity	Did not show mutagenic or teratogenic effects in animal experiments.
Reproductive toxicity	No toxicity to reproduction

12. Ecological Information

12.1 Toxicity

Acute Toxicity — **Aluminum chloride hydroxide sulfate**

Fish

NOEC	>= 1000 mg/l (Danio rerio (zebra fish); 96 h) (OECD Test Guideline 203)
EC50	>= 0.156 mg/l (Danio rerio (zebra fish); 96 h; Test substance: dissolved Al) (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

EC50	98 mg/l (Daphnia magna (Water flea); 48 h) (static test; OECD Test Guideline 202)

algae

NOEC	1 mg/l (Selenastrum capricornutum; 72 h) (static test; OECD Test Guideline 201)
EC10	3.1 mg/l (Selenastrum capricornutum; 72 h) (static test; OECD Test Guideline 201)
EC50	14 mg/l (Selenastrum capricornutum; 72 h) (static test; OECD Test Guideline 201)

Bacteria

EC50	> 100 mg/l (3 h) (static test; OECD Test Guideline 209)
EC50	> 4.4 mg/l (3 h; Test substance: dissolved Al) (static test; OECD Test Guideline 209)

12.2 Persistance and degradability

Persistence	no data available
Biodegradability	The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumlative potential

Bioaccumulation	Does not bioaccumulate. Inorganic compound

12.4 Mobility in soil

Mobility	The product is water soluble., Known distribution to environmental compartments

12.5 Results of PBT and PvB assessment

PBT and PvB assessment	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)., This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

Additional ecological information

Remarks:	Solutions with low pH value must be neutralized before discharge. Ecological injuriers are not known or expected under normal use.

13. Disposal Considerations

13.1 Waste treatment methods

Product:	Disposal together with normal waste is not allowed. Contact waste disposal services.
Contaminated packaging:	Empty remaining contents. Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. Suitable cleaning agents: Water
European Waste Catalogue	No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in cosultation with the regional waste disposer.

14. Transport Information

14.1 UN Number 3264

14.2 UN proper shipping name

ADR:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminium chloride hydroxide sulfate)
RID:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminium chloride hydroxide sulfate)
IMDG:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminium chloride hydroxide sulfate)

14.3 Transport hazard class(es)

ADR Class	8
(Label, classification code; Hazard ID; Tunnel Restriction code)	8:C1;80;(E)
RID Class	8
(Label, Classification Code; Hazard ID;)	8:C1;80;
ADR Class	8
(Labels; EmS)	8;F-A,S-B

14.4 Packaging Group

ADR:	III
RID:	III
IMDG:	III

14.5 Environmental hazards

Labelling according to 5.2.1.8 ADR:	No
Labelling according to 5.2.1.8 RID:	No
Labelling according to 5.2.1.8 IMDG:	No

Classification as environmentally hazardous accoding to 2.9.3 IMDG: No

14.6 Special precautions for user Not applicable

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

IMDG: Not applicable

15. Regulatory information

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

15.2 Chemical Safety Assessment

There is no data available for this product.

16. Other information

Full text of R-phrases referred to under sections 2 and 3

R41	Risk of serious damage to eyes.

Full text of H-statements referred to under sections 2 and 3

H290	May be corrosive to metals
H318	Causes serious eye damage

This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty or merchantability, or fitness for any particular use, or any other warranty, express or implied, with respect to this information, and we assume no liability resulting from use of this information Users should make their own investigations to determine the suitability of the information for their particular needs and uses.

Indicates updated section.