SAFETY DATA SHEET
Polyaluminium Chloride Solution, 10%

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name: Polyaluminium Chloride Solution, 10%
Synonyms, Trade Names: PAC, PACL, Polyaluminium Chloride Hydroxide Sulfate, Aluminium chloride hydroxide sulfate, Aluminium hydroxychlorosulfate
REACH Registration number: 01-2119531540-51
CAS-No.: 39290-78-3
EC No.: 254-400-7

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

Identified uses: Treatment of drinking water, has received approval by the European Committee for Standardisation.
Treatment of waste water.

1.3. Details of the supplier of the safety data sheet

Supplier: Industrial Chemicals Limited
Hogg Lane
Grays
Essex
RM17 5DU
United Kingdom
T:+44 (0)1375 389000
F:+44 (0)1375 389110
sds@icgl.co.uk

1.4. Emergency telephone number

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)
Human health: Eye Irrit. 2 - H319
Environment: Not classified.

Classification (67/548/EEC)
Xi; R36.
The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2. Label elements

EC No.: 254-400-7
Label In Accordance With (EC) No. 1272/2008

Signal Word: Warning
Hazard Statements: H290 May be corrosive to metals.
Polyaluminium Chloride Solution, 10%

H319 Causes serious eye irritation.

Precautionary Statements

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash contaminated skin thoroughly after handling.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Product name Polyaluminium Chloride Solution, 10%
REACH Registration number 01-2119531540-51
CAS-No. 39290-78-3
EC No. 254-400-7
Gross Formula Al(OH)xCl(3-x-2y)(SO4)y, where 0.6<x<2.5 and 0.05<y<0.5 and (x+y/2)<2.4

Composition Comments
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%.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation
Remove victim immediately from source of exposure. Keep the affected person warm and at rest. Get prompt medical attention.

Ingestion
NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Get medical attention immediately!

Skin contact
Remove affected person from source of contamination. Remove contaminated clothing. Wash skin with soap and water. Get medical attention if irritation persists after washing.

Eye contact
Remove victim immediately from source of exposure. Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention immediately. Continue to rinse.

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

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

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media
This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products
Fire or high temperatures create: Corrosive gases/vapours/fumes of: Hydrogen chloride (HCl). Sulphurous gases (SOx).

5.3. Advice for firefighters

Special Fire Fighting Procedures
Water spray should be used to cool containers. Avoid breathing fire vapours. Wear acid-resistant protective clothing

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

6.2. Environmental precautions

Avoid discharge into water courses or onto the ground. Contain spillages with sand, earth or any suitable adsorbent material.
Polyaluminium Chloride Solution, 10%

6.3. Methods and material for containment and cleaning up
Stop leak if possible without risk. Dam and absorb spillages with sand, earth or other non-combustible material. Shovel into dry containers. Cover and move the containers. Flush the area with water.

6.4. Reference to other sections

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling
Avoid spilling, skin and eye contact. Wear full protective clothing for prolonged exposure and/or high concentrations. Eye wash facilities and emergency shower must be available when handling this product.

7.2. Conditions for safe storage, including any incompatibilities
Use storage tank made of: Suitable plastic material. Plastic lined steel drum.

7.3. Specific end use(s)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Ingredient Comments
WEL = Workplace Exposure Limits
Biological Limit Values
2 mg/m3, 8-hour TWA (soluble Al salts)
EH40/2005 Workplace exposure limits (UK Health and Safety Executive)

8.2. Exposure controls

Other Protection
Wear appropriate clothing to prevent any possibility of skin contact. Wear rubber footwear.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Colour          Straw.
Odour           Almost odourless.
Solubility      Miscible with water Dilute solutions hydrolyse to precipitate Al(OH)3
Melting point (°C)  Below -25
Relative density 1.21
Vapour pressure  30 mm Hg @ 0C
pH-Value, Conc. Solution 1.8 - 2.5
Viscosity       4 cP at 20C

9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
In contact with metals generates hydrogen gas, which together with air can form explosive mixtures.

10.2. Chemical stability

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

10.5. Incompatible materials
Polyaluminium Chloride Solution, 10%

Materials To Avoid
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.

10.6. Hazardous decomposition products

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Skin contact
Irritating to skin.

Eye contact
Irritating and may cause redness and pain.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

12.2. Persistence and degradability
Hydrolyses when diluted in water, forming Al(OH)3.

12.3. Bioaccumulative potential
Bioaccumulative potential
The product is not bioaccumulating.

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects
Product is acidic, and will reduce the pH of water courses and drains, and cause damage to flora and fauna. It should not be allowed to enter controlled waters in large quantities - in such causes the National Rivers Authority should be contacted.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Do not dispose directly into rivers or drains. 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 alkal solution. The resulting suspension (mainly alumina) may be regarded as neutral waste and disposal should be in accordance with local or state or national legislation.

SECTION 14: TRANSPORT INFORMATION

General
The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

14.2. UN proper shipping name

14.3. Transport hazard class(es)
ADR/RID/ADN Class Not classified for transportation.

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user
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14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15: REGULATORY INFORMATION

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

EU Legislation
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 by the British Drinking Water Inspectorate.

National Regulations
Workplace Exposure Limits 2005 (EH40)

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General information
Notes on storage conditions and product stability

Polyaluminium 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.

Industrial Chemicals Limited thus recommends that tanks be designed to minimise temperature effects, have a top hatch to allow routine quarterly inspection for any deposits, and have a bottom drain in case the need for washout occurs. In addition, when switching from the use of another water treatment chemical to PAC, the user is strongly recommended to wash out the tanks and dosing system to remove any incompatible materials before the PAC is unloaded.

Some sedimentation can occur in this product. Even after filtering, slow sedimentation will occur. To avoid problems caused by this sedimentation, storage tanks should be cleaned every 1 to 2 years.

Revision Comments
Updated Section(s) 16,
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Supersedes date 20/08/2013

Risk Phrases In Full
R36 Irritating to eyes.

Hazard Statements In Full
H319 Causes serious eye irritation.
H290 May be corrosive to metals.

Disclaimer
This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.