

SAFETY DATA SHEET

ClearFlo C36

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier:

- Commercial Product name: **CLEARFLO C36**

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

- **Use of substance/preparation:** Water treatment chemical.
Hydrophobation of paper and board.
ES 2., Industrial use, formulation and distribution.
ES 3., Industrial use, use of substance in synthesis as a process chemical and as an intermediate.
- ES4., Industrial use, professional use, spraying formulations.
Exposure scenario available on request.
ES 5., Industrial use, professional use, non-spraying formulations.
Exposure scenario available on request.
ES6., Industrial use, professional use, water treatment chemical, products such as pH-regulators, flocculants, pre-cipitants, neutralization agents.
ES7., Industrial use, professional use, laboratory chemicals.
- **Recommended restrictions on use:** There are no uses advised against.

1.3 Details of the supplier of the safety data sheet:

Supplier: GPC CLEAR SOLUTIONS LIMITED
Unit 57
Riverside Estate
Sir Thomas Longley Road
Medway City Estate
Rochester
Kent
ME2 4DP
United Kingdom

Telephone Number: +44 (0) 1634 326920

Mobile: +44 (0) 7787564967

Email: sales@gpcclearsolutions.co.uk

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1.4 Emergency Telephone Number (Out of office hours only):

GPC Clear Solution Ltd (Office hours only): +44 (0) 7787 564 967

National Poison Information Service: NHS Direct: 0845 4647 or 111 (24/24, 7/7)
Scotland: NHS 24-08454 24 24 24 (24/24, 7/7)

2. HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

- **Classification according to Regulation EC 1272/2008 (CLP):** Serious eye damage; Category 1; Causes serious eye damage.
Corrosive to metals; Category 1; May be corrosive to metals.
- **Classification according to EU Directives 67/548/EEC or 1999/45/EC:** Irritant; Risk of serious damage to eyes.

2.2 Labelling elements:

Labelling (REGULATION (EC) No 1272/2008)

- Hazard pictograms:



- **Signal word:** Danger.
- **Hazard statements:** H318 – Causes serious eye damage.
H290 – May be corrosive to metals.
- **Precautionary statements:** P264 – Wash hands thoroughly after handling.
 - a) **Prevention:** P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P261 – Avoid breathing spray.

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b) Response: P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 – Immediately call a POISON CENTRE or doctor/physician.

c) Storage: P406 – Store in corrosive resistant container with a resistant inner liner.

- **Hazardous components which must be listed on the label:** 1327-41-9 Polyaluminium chloride.

2.3 Other hazards

- **Advice:** Heating above the decomposition temperature will release toxic gases.
- **Potential environmental effects:** May lower the pH of water and thus be harmful to aquatic organisms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances: Not applicable.

3.2 Mixtures:

- **Chemical nature of the mixture:** Water solution containing polyaluminium chloride.
- **CAS/EU number/REACH Registration Number:** 1327-41-9
215-477-2
01-2119531563-43
- **Chemical name of the substance:** Polyaluminium chloride.
- **Concentration:** 30 - 40%
- **Classification according to Regulation (EU) 1272/2008 (CLP):** Met. Corr. Category 1;H290
Eye Dam. Category 1;H318
- **Classification according to EU Directives 67/548/EEC or 1999/45/EC:** Xi, R41

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- **Further information:** For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

- **General information:** Show this safety data sheet to the doctor in attendance.
- **After inhalation:** Move to fresh air.
- **Skin contact:** Rinse with plenty of water. If skin irritation persists, call a physician.
- **Eye contact:** Important! Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes. If possible, use lukewarm water. Seek medical advice.
- **Ingestion:** Rinse mouth with water. Drink 1 or 2 glasses of water. Do NOT induce vomiting. Obtain medical attention.

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

Corrosive effects, may cause irreversible eye damage.

4.3 Indication of any immediate medical attention and special treatment:

Rinse with plenty of water.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

- **Extinguishing media:** The product itself does not burn.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- **Unsuitable extinguishing media:** No special requirements.

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- 5.2 Special hazards arising from the substance or mixture:** Heating above the decomposition temperature can cause formation of hydrogen chloride. Exposure to decomposition products may be a hazard to health.
- 5.3 Special protective actions for firefighters:** In case of respirable dust and/or fumes, use self-contained breathing apparatus and dust imperious protective suit.
- 5.4 Specific methods:** If possible remove containers/tanks from the dangerous area. Cool containers/tanks with water spray.

6. ACCIDENTAL REALEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:** For personal protection see Section 8.
- 6.2 Environmental precautions:** Soak up inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Cover the drains. Must be disposed of in accordance with local and national regulations. Local authorities should be advised if significant spillages cannot be contained.
- 6.3 Methods and material for containment and clean up:**
- **Clean up methods – small spillage:** Dilute residues with water and then neutralize with lime or limestone powder to a solid consistency. Shovel or sweep up. Must be disposed of in accordance with local and national regulations.
 - **Clean up methods – large spillage:** Remove spill using a vacuum truck. Dilute residues with water and then neutralize with lime or limestone powder to a solid consistency. Shovel or sweep up remaining material. Must be disposed of in accordance with local and national regulations.
- 6.4 Reference to other sections:** Inform the rescue service in case of entry into waterways, soil or drains.

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7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling:** The workplace and work methods shall be organised in such a way that direct contact with the product is prevented or minimized. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. For personal protection see Section 8. Small amount of hydrogen chloride may be released at temperature above the boiling point.
- 7.2 Conditions for safe storage, including any incompatibilities:**
- **For quality reasons:** Keep at temperatures below 30°C.
Keep at temperatures above 0°C. Handling operations become difficult due to increased viscosity.
 - **Materials for packaging:** Suitable material: Plastic (PE, PP, PVC), fiberglass-reinforced polyester, epoxy-coated concrete, titanium, acidproof or rubber-coated steel, polyester with fibre glass reinforcement, rubber-coated steel, titanium.
 - **Materials to avoid:** Chlorites, hypochlorites, sulphites, galvanized surfaces, iron, strong bases.
 - **Storage stability:**
 - a) **Storage period:** 8 months.
- 7.3 Specific end use(s):** See the technical data sheet on this product for further information.

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8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

- **Polyaluminium chloride:** TWA = 2 mg/m³, calculated as Al.

DNEL

Polyaluminium chloride

- **End Use:** Workers.
- **Exposure routes:** Oral.
- **Potential health effects:** Long-term exposure – systemic effects.
- **Value:** 0.5 mg/kg bw/day
Calculated as Al

- **End use:** Workers.
- **Exposure routes:** Inhalation.
- **Potential health effects:** Long-term exposure – systemic effects.
- **Value:** 1.8 mg/m³
Calculated as Al

- **End use:** Consumers.
- **Exposure routes:** Oral
- **Potential health effects:** Long-term exposure – systemic effects
- **Value:** 0.3 mg/kg bw/day
Calculated as Al

- **End use:** Consumers.
- **Exposure routes:** Inhalation.
- **Potential health effects:** Long-term exposure – systemic effects
- **Value:** 1.1 mg/m³
Calculated as Al.

PNEC

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PNEC

Aluminium sulphate

- **Sewage treatment plant:** The PNEC value would be highly depending on conditions as pH and organic matter, and therefore a true PNEC cannot and does not need to be derived.
- **Oral:** Bioaccumulative potential, Secondary poisoning, not significant, Derivation of the PNEC, Not relevant.
- **Soil:** Study scientifically unjustified.
- **Water:** Not relevant, the compound is considered to have no long term effects in aquatic systems due to the rapid formation of insoluble hydroxides.

The PNEC value would be highly depending on conditions as pH and organic matter, and therefore a true PNEC cannot and does not need to be derived.
- **Fresh water sediment:** The PNEC value would be highly depending on conditions as pH and organic matter, and therefore a true PNEC cannot and does not need to be derived.
- **Marine sediment:** The PNEC value would be highly depending on conditions as pH and organic matter, and therefore a true PNEC cannot and does not need to be derived.

8.2 Exposure controls:

- **Appropriate engineering controls:** Avoid contact with skin and eyes.
Handle in accordance with good industrial hygiene and safety practice.
Eye wash bottle or emergency eye-wash fountain must be found in the workplace.
- **Individual protection measures, such as personal protective equipment:**
 - a) **Hand protection:** Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.
Glove material: PVC and neoprene gloves.
Break through time: > 480 min

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- | | |
|-------------------------------------|---|
| b) Eye protection: | Tightly fitting safety goggles or face-shield. Eye wash bottle with pure water. |
| c) Skin and body protection: | Long sleeved clothing. Wear protective clothing if necessary. Use rubber boots. |
| d) Respiratory protection: | Respiratory protection is not required under normal handling conditions. If significant amount of vapour, mist or aerosol are present use respiratory protection (filter P2). |

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General information (appearance, odour)

- | | |
|--------------------------|---------------------------|
| - Physical state: | Liquid, Aqueous solution. |
| - Colour: | Light yellow, clear. |
| - Odour: | Not significant. |

Important health safety and environmental information

- | | |
|---------------------------------------|---|
| - pH: | ca. 1,0 |
| - Crystallisation point/range: | -10°C |
| - Boiling point/boiling range: | 105 - 115°C |
| - Flash point: | Not applicable, inorganic compound.
In accordance with column 2 of REACH Annex VII, the study does not need to be conducted. |
| - Flammability (solid, gas): | The product is not flammable. |

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- **Explosive properties:**
 - a) **Lower explosion limit:** Not applicable.
 - b) **Upper explosion limit:** Not applicable.
- **Density:** 1.34 – 1.40 g/cm³
- **Water solubility:** (20°C) completely soluble.
- **Partition coefficient: n-octanol/water:** Not applicable, inorganic compound. In accordance with column 2 of REACH Annex VII, the study does not need to be conducted.
- **Thermal decomposition:** > 200°C
- **Oxidizing:** Not oxidizing.

9.2 **Other data:** Not applicable.

10. STABILITY AND REACTIVITY

- 10.1 **Reactivity:** Corrosive to metals.
- 10.2 **Chemical stability:** Stable under normal conditions.
- 10.3 **Possibility of hazardous reactions**
- **Hazardous reactions:** Bases cause exothermic reactions.

Contact with certain metals (e.g. aluminium, zinc) may form explosive gas mixtures with air.
- 10.4 **Conditions to avoid:** Avoid freezing.
Do not expose to temperatures above 200°C
- 10.5 **Incompatible materials:** Chlorites
Hypochlorites
Sulphites
Galvanized surfaces
Iron

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Strong bases

10.6 Hazardous decomposition products:

Small amounts of hydrogen chloride may be released at temperatures above the boiling point.

- **Thermal decomposition:**

>200°C

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

- **Acute toxicity:**

Low order of acute toxicity

- **Polyaluminium chloride:**

LD50/oral/rat > 2000 mg/kg

LD50/oral/> 487 mg/kg

Calculated as Al

LC50/Inhalation/rat > 5.6 mg/l

LC50/Inhalation/rat > 1.4 mg/l

Calculated as Al

LD50/Dermal/> 2000 mg/kg

Remarks: Read-across (Analogy), CAS-No., 39290-78-3

LD50/Dermal/> 550 mg/kg

Remarks: Calculated as Al

- **Irritation and corrosion**

a) **Skin:**

Repeated or prolonged skin contact may cause: Skin irritation dry skin.

b) **Eyes:**

May cause irreversible eye damage.

c) **Respiratory system:**

Inhalation of mist may cause irritation of the respiratory system.

d) **Mucous membranes:**

May cause irritation of the mucous membranes.

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- **Polyaluminium chloride**

a) **Skin:**

Rabbit/OECD Test Guideline 404: No skin irritation.
Remarks: (45% solutions)

b) **Eyes:**

Rabbit/OECD Test Guideline 405: Eye irritation.
Remarks: (45% solution)

Rabbit/OECD Test Guideline 405:
Cause severe irritation to eyes in animal experiments.

may cause irreversible eye damage.

- **Sensitisation:**

Not sensitizing.

- **Long term toxicity**

a) **Polyaluminium chloride:**

Repeated dose toxicity
Oral/rat
NOAEL: 1000 mg/kg
Remarks: Systemic toxicity bw/day

NOAEL: 90 mg/kg
Remarks: bw/day Calculated as AI

Oral/rat/OECD Test Guideline 422:
NOAEL: 200 mg/kg
Remarks: bw/day Local effects

NOAEL: 18 mg/kg
Remarks: bw/day Calculated as AI

b) **Carcinogenicity:**

Not believed to be a carcinogen.

c) **Mutagenicity:**

Mutagenicity (Salmonella typhimurium – reverse mutation assay)/
AMES test/OECD Test Guideline 471
Result: negative
Metabolic activation: with and without

In vitro mammalian cells/micronucleus test/OECD Test Guideline
487
Result: negative
Metabolic activation: with and without

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In vitro gene mutation study in mammalian cells/Lymphoma/OECD Test Guideline 476
Result: negative
Metabolic activation: with and without

d) Reproductive toxicity:

Oral/rat/female/reproductive effects/OECD Test Guideline 452
NOAEL: 3225 mg/kg
NOAEL F1:
Remarks: bw/day Read-across (Analogy) CAS-NO. 31142-56-0
No known effect.

Oral/rat/male and female/screening test/OECD Test Guideline 422:
NOAEL: 1000 mg/kg
NOAEL F1: No known effect.

Not believed to be toxic for reproduction.

e) Teratogenicity:

Oral/rat/OECD Test Guideline 452
NOAEL: 1.075 mg/kg
Read-Across (Analogy) Did not show mutagenic or teratogenic effects in animal experiments. CAS No. 31142-56-0.

12. ECOLOGICAL INFORMATION

12.1 Toxicity:

- **Aquatic toxicity:**

This material is not classified as dangerous for the environment. At environmentally relevant pH 5, 5 – 8, the solubility of aluminium is low. Aluminium salts dissociate with water resulting in rapid formation and precipitation of aluminium hydroxides. At pH <5.5, the free ion (Al^{3+}) becomes the prevalent form, the increased availability at this pH is reflected in higher toxicity. At pH 6.0 – 7.5, solubility declines due to the presence of insoluble $Al(OH)_3$. At higher pH (pH >8.0), the more soluble $Al(OH)_4^-$ species predominate, which again increased availability.

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Aluminium salts must not be released to rivers and lakes in an uncontrolled way and pH variations around 5 – 5.5 should be avoided.

- **Polyaluminium chloride:**

LC50/96h/Danio rerio/OECD Test Guideline 203: > 1000 mg/lg
LC50: > 243 mg/l
Calculated as Al

NOEC/Danio rerio/OECD Test Guideline 203: > 1000 mg/l
LC50: > 0,156 mg/l
Calculated as Al Maximum soluble concentration under the test conditions.

EC50/Daphnia magna (water flea)/semi-static test/OECD Test Guideline 202: 98 mg/l
EC50: 24 mg/l
Calculated as Al

EC50/72 h/Pseudokirchneriella subcapitata (green algae)/static test/OECD Test Guideline 201: 1,1 mg/l
NOEC: 0,27 mg/l
Calculated as Al

- **Toxicity to other organisms:**

No data available.

12.2 Persistence and degradability:

- **Biological degradability:**

The methods for determining the biological degradability are not applicable to inorganic substances.

- **Biological degradability:
Polyaluminium chloride:**

The methods for determining the biological degradability are not applicable to inorganic substances.

- **Chemical degradation:
Polyaluminium chloride:**

When reacting with water on pH range 5.8 – 8 precipitates of aluminium hydroxides are formed.

12.3 Bioaccumulative potential:

The product is not expected to bioaccumulate.
Partition coefficient: n-octanol/water: Not applicable, inorganic compound, in accordance with column 2 of REACH Annex VII, the study does not need to be conducted.

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- **Polyaluminium chloride:** Partition coefficient: n-octanol/water: Not applicable, inorganic compound.
- 12.4 Mobility in soil**
- **Mobility:** Water solubility: completely soluble (20°C)
- 12.5 Results of PBT and vPvB assessment:** This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).
This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).
- 12.6 Other adverse effects:** May lower the pH of water and thus be harmful to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

- 13.1 Waste treatment methods:** Classified as hazardous waste. Dilute residues with water and then neutralize with lime or limestone powder. Must be disposed of in accordance with local and national regulations.
- **Contaminated packaging:** Packages that cannot be cleaned must be disposed of the same way as the unused product.

14. TRANSPORT INFORMATION

- 14.1 UN number:** 3264
- Land transport ADR/RID**
- **UN proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S (Polyaluminium chloride).
 - **Transport hazard class(es):** 8
 - **Packing group:** III

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- Risk code: 80

Sea transport IMDG

- UN proper shipping name: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S (POLYALUMINIUM CHLORIDE).
- Transport hazard class(es): 8
- Packing group: III
- IMDG Labels: 8
- Environmental hazards: Not a marine pollutant.

Air transport ICAO/IATA

- UN proper shipping name: UN3254, Corrosive liquid, acidic, inorganic, n.o.s (Polyaluminium chloride).
- Transport hazard class(es): 8
- Packing group: III
- ICAO Labels: 8

15. REGULATORY INFORMATION

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

- Other regulations: No restriction identified other than those already covered in regulations.
- Notification status: All components of this product are included in the United States TSCA Chemical Inventory or are required to be listed on the United States TSCA Chemical Inventory.

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All components of this product are included in the Canada Domestic Substance List (DSL) or are not required to be listed on the Canada Substance List (DSL).

Inventory of Chemical Substances (AICS) or are not required to be listed on the Australian Inventory of Chemical Substances (AICS).

All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

All components of this product are included in the Korean (ECL) inventory or are not required to be listed on the Korean (ECL) inventory.

All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine (PICCS) inventory.

All components of this product are included on the Japanese (ENCS) inventory or are not required to be listed on the Japanese (ENCS) inventory.

All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

All components of this product are included in the New Zealand inventory (NZIoC).

This product's Taiwan Toxic Chemical Substances Control Act Inventory status has NOT been determined.

15.2 Chemical Safety Assessment:

A Chemical Safety Assessment has been carried out for this substance.

16. OTHER INFORMATION

16.1 Full text of H-Statements referred to under Section 3:

H318 – Causes serious eye damage.

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		H290 – May be corrosive to metals.
16.2	Text of R-phrases mentioned in Section 3:	R41 – Risk of serious damage to eyes.
16.3	Training advice:	Read the safety data sheet before using the product.
16.4	Further information:	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. the 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, unless specified in the text.
16.5	Sources of key data used to compile the Safety Data Sheet:	Regulations, databases, literature, own tests.
16.6	Additions, Deletions, Revisions:	Relevant changes have been marked with vertical lines.