

SECTION 6: Accidental release measures (....)

of insufficient ventilation, wear suitable respiratory equipment; Wear suitable protective clothing, eye/face protection and gloves; Wash thoroughly after dealing with spillage

6.2 Environmental precautions

Do not allow to penetrate the ground/soil.

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

Spillage may cause slippery surface

Stop leak if safe to do so.

Cover drains to prevent the product from entering the environment.

Restrict the spread of the spillage by using inert absorbent material (sand, gravel)

Small spills

Dilute with water

Neutralize with lime or limestone powder.

Allow to solidify

Sweep or shovel-up spillage and remove to a safe place

Dispose of contents/container in accordance with local/regional/national/international regulations.

Large spills

Remove larger spills using a vacuum truck

Dilute residues with water and neutralize with lime or limestone powder.

Allow to solidify

Sweep or shovel-up spillage and remove to a safe place

Ventilate the area and wash spill site after material pick-up is complete

Seek expert advice for removal and disposal of all contaminated materials and wastes

6.4 Reference to other sections

See section(s): 7, 8 & 13

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

Ensure adequate ventilation

Do not get in eyes, on skin, or on clothing.

Wear goggles giving complete eye protection

Wear protective clothing as per section 8

Contaminated clothing should be laundered before reuse

Spillage causes slippery surface

Use good personal hygiene practices

Do not eat, drink or smoke when using this product.

Wash thoroughly after handling.

Ensure eyewash stations and safety showers are nearby

7.2 Conditions for safe storage, including any incompatibilities

SECTION 7: Handling and storage (....)

Store in a cool, dry well-ventilated place. Keep container tightly closed.

Shelf life: 8 months

Store at > 0 °C

Keep away from heat and sources of ignition

Protect from frost

Keep away from direct sunlight

Keep away from food, drink and animal feedingstuffs

Incompatible with galvanised metals, metals, alkalis (strong bases), copper, aluminium, iron, leather, chlorite, hypochlorites, metal salts

Store in corrosive resistant container with a resistant inner liner.

Suitable packaging materials: plastics, PVC, PP, fibreglass-reinforced polyester, rubber-coated steel, polyethylene-lined mild steel, titanium

Unsuitable packaging materials: non acid-proof metals (such as aluminium, copper and iron), galvanised metals

7.3 Specific end use(s)

Pool / spa treatment

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

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace exposure - Measurement of exposure by inhalation to chemical agents - Strategy for testing compliance with occupational exposure limit values). European Standard EN 14042 (Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents). European Standard EN 482 (Workplace exposure. General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Aluminum chloride hydroxide sulfate

WEL (long term): 2 mg/m³ (UK, as soluble aluminium salts)
DNEL (inhalational) 40.1 mg/m³ Industry, Long Term, Systemic Effects
DNEL (inhalational) 10 µg/m³ Industry, Acute/Short 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 µg/L
PNEC aqua (intermittent releases, freshwater) 74 µg/L
PNEC aqua (marine water) 2.5 µg/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

Engineering controls should be provided which maintain airborne concentrations below the relevant guidelines

Respiratory protection

No respiratory protection is required unless subject to contact with mist or aerosols

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 goggles giving complete eye protection approved to standard EN 166.

Skin protection

Wear suitable protective clothing

Wear chemical resistant boots

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.

Neoprene or PVC are recommended

Break through time > 480 min

Thermal hazards

Not applicable

Hygiene measures

Do not eat, drink or smoke when using this product.

Use good personal hygiene practices

Wash thoroughly after handling.

Contaminated clothing should be laundered before reuse

Contaminated work clothing should not be allowed out of the workplace.

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

Physical state: Liquid

Colour: Yellowish, clear

Odour: Slight

Crystallization point: -11 °C

Melting point/freezing point: -25 °C

Boiling point or initial boiling point and boiling range: 100 - 120 °C

Flammability: Not flammable

Lower and upper explosion limit: Not applicable

Flash point: Not applicable

Auto-ignition temperature: No data available

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

Decomposition temperature:	> 200 °C
pH:	1.5 - 2.5
Kinematic viscosity:	No data available
Dynamic viscosity:	ca. 10 - 20 mPa.s @ 20 °C
Solubility:	1 000 g/L @ 20 °C and pH 3.4
Partition coefficient n-octanol/water (log value):	Not applicable, inorganic
Vapour pressure:	0.04 bar
Density and/or relative density:	1.19 - 1.23
Relative vapour density:	No data available
Particle characteristics:	Not applicable

9.2 Other information

No information available

SECTION 10: Stability and reactivity**10.1 Reactivity**

No decomposition if stored normally.

Contact with metals may evolve flammable hydrogen gas

10.2 Chemical stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

Contact with metals may evolve flammable hydrogen gas

Exothermic reaction with strong bases

10.4 Conditions to avoid

Keep away from heat and sources of ignition

Avoid extremes of temperature

Thermal decomposition: > 200 °C

Keep away from direct sunlight

10.5 Incompatible materials

Incompatible with galvanised metals, metals, alkalis (strong bases), copper, aluminium, iron, leather, chlorite, hypochlorites, metal salts

10.6 Hazardous decomposition products

Decomposition products may include carbon oxides, sulphur oxides, hydrogen chloride

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute Toxicity**

Based on available data, the classification criteria are not met

Substances

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SECTION 11: Toxicological information (....)

Chemical Name	LD ₅₀ (oral, rat)	LC ₅₀ (inhalation, rat)	LD ₅₀ (dermal, rabbit)
Aluminum chloride hydroxide sulfate	> 2 000 mg/kg	(4 h) 5 mg/L	> 2 000 mg/kg (rat)

Skin corrosion/irritation

Based on available data, the classification criteria are not met

Substances

Chemical Name	Irritation/corrosion
Aluminum chloride hydroxide sulfate	No adverse effect observed (not irritating)

Serious eye damage/irritation

H319: Causes serious eye irritation.

Substances

Chemical Name	Irritation/corrosion
Aluminum chloride hydroxide sulfate	Adverse effect observed (irritating)

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met

Substances

Chemical Name	Skin sensitisation	Respiratory sensitisation
Aluminum chloride hydroxide sulfate	No adverse effect observed (not sensitising)	No study available

Germ cell mutagenicity

No evidence of mutagenic effects

Substances

Chemical Name	Toxicity - In Vitro	Toxicity - In Vivo
Aluminum chloride hydroxide sulfate	No adverse effect observed (negative)	No adverse effect observed (negative)

Carcinogenicity

No evidence of carcinogenic effects

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Aluminum chloride hydroxide sulfate	No data available	No data available	No data available

Reproductive toxicity

No evidence of reproductive effects

Substances

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SECTION 11: Toxicological information (....)

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Aluminum chloride hydroxide sulfate	1 890 mg/kg bw/day (Effect on fertility) 631 mg/kg bw/day (Effect on developmental toxicity)	No data available	No data available

Specific target organ toxicity (STOT) - single exposure

Based on available data, the classification criteria are not met

Substances

Chemical Name	Route	Remarks
Aluminum chloride hydroxide sulfate	Respiratory	No study available

Specific target organ toxicity (STOT) - repeated exposure

Based on available data, the classification criteria are not met

Substances

Chemical Name	NOAEL (oral, rat)	NOAEC (inhalation, rat)	NOAEL (dermal, rat)
Aluminum chloride hydroxide sulfate	18 - 1 000 mg/kg bw/day	No data available	No data available

Aspiration hazard

Based on available data, the classification criteria are not met

Contact with eyes

Causes severe irritation

May possibly cause irreversible eye damage

Contact with skin

Prolonged or repeated exposure may cause irritation

Ingestion

May cause gastro-intestinal irritation

Inhalation

Vapour in high concentrations may irritate the respiratory system

11.2 Information on other hazards

Has not been identified as having endocrine disrupting properties

SECTION 12: Ecological information

12.1 Toxicity

Based on available data, the classification criteria are not met

Substances

Chemical Name	LC ₅₀ (fish)	EC ₅₀ (aquatic invertebrates)	EC ₅₀ (aquatic algae)
Aluminum chloride hydroxide sulfate	(4 days) 1 - 186 mg/L	(48 h) 214 - 200 000 µg/L	(72 h) 75 - 16 500 µg/L

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SECTION 12: Ecological information (....)

12.2 Persistence and degradability

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

Substances

Chemical Name	Biodegradation
Aluminum chloride hydroxide sulfate	Not applicable, inorganic

12.3 Bioaccumulative potential

Substances

Chemical Name	Bioconcentration Factor (BCF)	Log Kow
Aluminum chloride hydroxide sulfate	Bioaccumulation is not expected	Not applicable, inorganic

12.4 Mobility in soil

Soluble in water

Substances

Chemical Name	Adsorption/desorption
Aluminum chloride hydroxide sulfate	No data available

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 Endocrine disrupting properties

No information available

12.7 Other adverse effects

Do not allow to penetrate the ground/soil.

Do not allow to enter public sewers and watercourses

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal should be in accordance with local, state or national legislation

This material and its container must be disposed of as hazardous waste

Do not discharge into drains or the environment, dispose to an authorised waste collection point

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

SECTION 14: Transport information (....)

14.1 UN number or ID number

UN No.: 3264

14.2 UN proper shipping name

Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum chloride hydroxide sulfate)

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 Maritime transport in bulk according to IMO instruments

Not applicable

14.8 Road/Rail (ADR/RID)

ADR UN No.: 3264

Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum chloride hydroxide sulfate)

ADR Hazard Class: 8

ADR Packing Group: Not applicable

Tunnel Code: (E)

14.9 Sea (IMDG)

IMDG UN No.: 3264

Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum chloride hydroxide sulfate)

IMDG Hazard Class: 8

IMDG Packing Group.: III

14.10 Air (ICAO/IATA)

ICAO UN No.: 3264

Proper Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum chloride hydroxide sulfate)

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) 2020/878) and UK REACH

SECTION 15: Regulatory information (....)

The GB Classification, Labelling and Packaging Regulation (GB CLP) applies in Great Britain

Regulation (EC) No. 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP Regulation) applies in Europe

Restrictions on use according to Annex XVII to REACH Regulation: Entry 3 - Liquid substances or mixtures which are regarded as dangerous

Seveso III Directive (2012/18/EU, Dangerous Substances in Annex I: Not applicable

15.2 Chemical safety assessment

No information available

SECTION 16: Other information

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 PLASTICA'S limited knowledge and belief, accurate, and reliable as of the date of authorisation of this safety data sheet. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to be satisfied as to the suitability and completeness of such information for the product as used.

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

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Changes made: Updated to conform to latest version of REACH Annex II

Training advice

Workers must be informed of the presence of hazardous ingredients and trained in the proper use and handling of this product as required under applicable regulations

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Eye Irrit. 2, H319: Classification based on calculation and concentration thresholds

Met. Corr. 1, H290: Classification based on calculation and concentration thresholds

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

H319: Causes serious eye irritation.

H290: May be corrosive to metals

Acronyms

ATE: Acute Toxicity Estimate

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%

NOAEC: No Observed Adverse Effect Concentration

NOAEL: No Observed Adverse Effect Level

OEL: Occupational Exposure Limit

SECTION 16: Other information (....)

PBT: Persistent, Bioaccumulative and Toxic

PNEC: Predicted No-Effect Concentration

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals

SCL: Specific Concentration Limit

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

WEL: Workplace Exposure Limit