

1. Identification of the Substance/Preparation and Company

Product name: **Aluminium chloride**

Application: Waste water treatment.

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Emergency Phone No.: Not applicable

2. Hazards Identification

Due to its low pH, the product may have an irritating effect. See section 11.
The product, when reacting with different bases, will generate toxic gases. See section 10. For possible environmental hazard see section 12.

3. Composition/Information on Ingredients

Synonyms: Aluminium chloride
IUPAC Name: Aluminium chloride

Chemical analysis of the product indicate the following composition:

	CAS No.	Einecs No.	Weight %	Symbol	R-phrases
Aluminium chloride, (AlCl ₃) [†]	7784-13-6		28-30	-	-
Hydrochloric acid	-	231-595-7	0,1 - 0,4	C, Xi	R34, R37
Ferric(II)chloride (FeCl ₂)	7758-94-3	231-843-4	<0,1		
Ferric (III) chloride (FeCl ₃)	7705-08-0	231-729-4	<0,1		
Nickel chloride (NiCl ₂)	7718-54-9	231-743-0	<0,1	K1, T, N	49-25-42/43-50/53
Water (H ₂ O)	-	-	Rest		

[†]) The CAS-No for aluminium chloride given is for aluminium hexahydrate.

4. First Aid Measures

Inhalation: Fresh air, ordinary first aid. Oxygen when unconscious or difficulty with breathing.
Skin contact: Immediately remove polluted clothes and rinse with excess of water.
Eye contact: Immediately, with open eyes, rinse with excess of water. Continuous rinsing until qualified personnel takes over.
Ingestion: Give water or milk to drink immediately. Do not provoke vomiting. If considerable amounts are ingested, transport to hospital.

5. Fire Fighting Measures

Extinguishing media: Dry sand, CO₂ or dry powder.

The product is not combustible. Heating of the product may evolve toxic fume. See section 10.

6. Accidental Release Measures

Ensure good ventilation and prevent further run-off of waste. Collect in suitable containers. See section 7. Neutralize considerable amounts with slaked lime (Ca(OH)₂) or limestone (CaCO₃).

7. Handling and Storage

Handling: Avoid handling that creates waste. Wear suitable protective equipment. See section 8.
Storage: Store in suitable containers, e.g. gummed steel, plastic (PVC, PE, PP) or glass.
Ensure good ventilation when storing indoors, keep separated from bases. See section 10.

8. Exposure Controls/Personal Protection

A: Occupational exposure controls

Ensure good ventilation. Wear eye protection/safety mask, and protective gloves in acid proof material (e.g. neoprene, natural rubber, nitrile or PVC). Eye flushing facilities, washrooms and showers facilities should be located near the work place.

Workplace Exposure Limits (HSE, EH40/2005):

Substance	CAS Number	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Aluminium salts, soluble	-	-	2	-	-
Hydrogen chloride (gas and aerosol mists)	7647-01-0	1	2	5	8
Nickel and its organic compounds	-	-	0.1	-	-

B: Environmental exposure controls

See section 6, 7 and 12.

9. Physical and Chemical Properties

Form : liquid.
Colour : colourless
Solubility : water-soluble.
Specific density (Water = 1) : 1.28 – 1.32
pH : 1 - 3

10. Stability and Reactivity

Conditions to avoid:

Heating (see below).

Materials to avoid:

Bases/ alkaline compounds (see below).

Hazardous decomposition products:

Chemical reactions with strong bases, e.g. NaOH or KOH, will create a strong exothermic reaction and HCl-gas will evolve. In addition, if the HCl-gas gets in contact with unprecious metals, explosive hydrogen (H₂) gas (4 vd %) will form.

11. Toxicological Information

Acute effects:

Inhalation: Inhalation of aerosol may irritate mucous membranes in the airways and lungs.
Lung oedema may evolve up to two days after exposure.

Skin contact: Dust exposure may irritate skin.

Eye contact: Splashes of the product in the eyes, may lead to permanent eye injury, e.g. loss of sight.

Ingestion: Ingestion will irritate mucous membranes.

Chronic effects:

No chronic effects known.

12. Ecological Information

Depending on the local physical and chemical conditions in the recipient, different chemical species of dissolved aluminium may cause fish death (masking of gills following chemical polymerization).

Spill from the product may cause a significant reduction of the pH in the environment, this may harm or kill organisms in the water.

MOBILITY: Soluble in water.

PERSISTENCE: Not relevant for inorganic compounds.

BIOACCUMULATION: Varies.

ECO-TOXICITY: The product has a limited biological, and thus bioavailability at neutral pH and/or in presence of complexing compounds, and as a consequence of this moderate to low aquatic toxicity.

Test organism	pH	LC ₅₀ (mg Al/l)
<i>Daphnia magna</i>	7,4-8,2	3,9 (48 hours)
<i>Nitocra spinipes</i>	8	10 (96 hours)
<i>Salmo salar</i>	4,92	0,137 (hours)

13. Disposal Considerations

The material should be recovered for recycling where possible.

Waste from the product is not considered as hazardous waste according to Commission Decisions 2000/532/EC and 2001/118/EC. Waste code: 06 03 14 (solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13).


Excess materials should be collected and delivered to an approved disposal facility for hazardous waste.

14. Transport Information

UN no.	2581 (Aluminium chloride solution)
IMO/IMDG:	Class 8
ADR/RID:	Class 8
ICAO/IATA:	Class 8

15. Regulatory Information

Product classification and labelling: ¹⁾

		Danger code: Xi Danger class: Irritating ²⁾
R-phrases:	36/37/38	Irritating to respiratory system and skin.
S-phrases:	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

¹⁾ The text of this Safety Data Sheet is prepared in compliance with:
- Commission Directive 2001/58/EC and 1999/45/EC.

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

²⁾ The classification as irritating is not based on tests, but in accordance the guidelines for solutions with extreme pH, see J.R. Young. How, A.P. Walker and W.M.H. Worth (1988) "Classification as corrosive or irritant to skin of preparations containing acidic or alkaline substances, without testing on animals" Toxic. In Vitro 2(1):19-26.

16. Other Information

Literature references are available upon application to the manufacturer.

Relevant R-phrases:

R34: Causes burns.

R37: Irritating to respiratory system.