



SAFETY DATA SHEET ALUMINIUM CHLORIDE BASIC SOLUTION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	ALUMINIUM CHLORIDE BASIC SOLUTION
Product number	10975
Synonyms; trade names	PAX XL 60, KLORAL 81, PAX 18, FLOCCULANTE 973, PAX XL 610, PAC 18, FLOGOGIL 418, PLUSPAC 500, FLOGOGIL 424, PAX XL60 (POLY ALUM CHLORIDE), FLOGOGIL 408, IMA FLOC, FLOGOGIL 408S, PHAL 18

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

Identified uses	Chemical Flocculating Agent
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	10975

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Met. Corr. 1 - H290
Health hazards	Eye Dam. 1 - H318
Environmental hazards	Not Classified

2.2. Label elements

Hazard pictograms



Signal word	Danger
Hazard statements	H318 Causes serious eye damage. H290 May be corrosive to metals.

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Precautionary statements	<p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P264 Wash skin thoroughly after handling.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P310 Immediately call a POISON CENTER/ doctor.</p> <p>P406 Store in a corrosion-resistant container with a resistant inner liner.</p>
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Contains ALUMINIUM CHLORIDE BASIC

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

ALUMINIUM CHLORIDE BASIC	> 15%
CAS number: 1327-41-9	EC number: 215-477-2
	REACH registration number: 01-2119531563-43-XXXX
Classification	
Met. Corr. 1 - H290	
Eye Dam. 1 - H318	

The full text for all hazard statements is displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Remove affected person from source of contamination. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse nose and mouth with water. Get medical attention if any discomfort continues.
Ingestion	Rinse mouth thoroughly with water. Give plenty of water to drink. Never give anything by mouth to an unconscious person. Do not induce vomiting. Get medical attention if any discomfort continues.
Skin contact	Remove affected person from source of contamination. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Get medical attention if any discomfort continues.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately.

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

Skin contact	Prolonged contact may cause redness, irritation and dry skin.
Eye contact	Causes serious eye damage.

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

Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Use fire-extinguishing media suitable for the surrounding fire.

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Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards When heated and in case of fire, toxic vapours/gases may be formed.

Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen chloride (HCl). Oxides of the following substances: Carbon.

5.3. Advice for firefighters

Protective actions during firefighting Contain and collect extinguishing water. Avoid the spillage or runoff entering drains, sewers or watercourses.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid the spillage or runoff entering drains, sewers or watercourses. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Keep unnecessary and unprotected personnel away from the spillage. Do not touch or walk into spilled material.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with non-combustible, absorbent material. Neutralise spilled material with crushed limestone, slaked lime (calcium hydroxide), soda ash (sodium carbonate) or sodium bicarbonate. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Flush contaminated area with plenty of water.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Observe good chemical hygiene practices. Avoid contact with skin and eyes. Provide adequate ventilation. Avoid spilling. Avoid release to the environment. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Suitable containers: polyethylene, glass lined. Unsuitable container materials: Common metals. Store at temperatures not exceeding 50°C. Store away from the following materials: Chemically-active metals. Inorganic cyanides. Strong alkalis. Strong oxidising agents. Strong reducing agents.

Storage class Corrosive storage.

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7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

ALUMINIUM CHLORIDE BASIC

Long-term exposure limit (8-hour TWA): WEL 2 mg/m³

WEL = Workplace Exposure Limit.

Ingredient comments No exposure limits known for ingredient(s).

ALUMINIUM CHLORIDE BASIC (CAS: 1327-41-9)

DNEL	Workers - Oral; Long term systemic effects: 0.5 mg/kg/day Workers - Dermal; Long term systemic effects: 4.6 mg/kg Workers - Inhalation; Long term systemic effects: 16.4 mg/m ³ Consumer - Oral; Long term systemic effects: 2.3 mg/kg/day Consumer - Dermal; Long term systemic effects: 2.32 mg/kg/day Consumer - Inhalation; Long term systemic effects: 4.0 mg/m ³
PNEC	Fresh water; 0.3 µg/l marine water; 0.03 µg/l STP; 20 mg/l

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimise worker exposure.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Polyvinyl chloride (PVC). Neoprene. Nitrile rubber. To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

ALUMINIUM CHLORIDE BASIC SOLUTION

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Clear. to Yellow.
Odour	Almost odourless.
Odour threshold	No information available.
pH	pH (concentrated solution): 0.4 - 2.0
Melting point	<-10°C
Initial boiling point and range	100 - 200°C
Flash point	No information available.
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	No information available.
Vapour density	No information available.
Relative density	1.30 - 1.37
Bulk density	1100 - 1400 kg/m ³
Solubility(ies)	Miscible with water.
Partition coefficient	: <3
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	10 - 50 mPa s @ 20°C
Explosive properties	No information available.
Explosive under the influence of a flame	No information available.
Oxidising properties	No information available.

9.2. Other information

Other information	Not determined.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	No information available.
Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.

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Volatile organic compound No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity The following materials may react with the product: Metals Other metals or alloys.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions In contact with some metals can generate hydrogen gas, which can form explosive mixtures with air.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials to avoid Chemically-active metals. Inorganic cyanides. Strong alkalis. Strong oxidising agents. Reducing agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen chloride (HCl). Oxides of the following substances: Carbon.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 2,000.0

Species Rat

Skin corrosion/irritation

Animal data Prolonged contact may cause redness, irritation and dry skin.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation No information available.

Germ cell mutagenicity

Genotoxicity - in vitro No information available.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No information available.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

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Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard No information available.

Inhalation Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion May cause discomfort if swallowed.

Skin contact Prolonged contact may cause redness, irritation and dry skin.

Eye contact Causes serious eye damage.

Toxicological information on ingredients.

ALUMINIUM CHLORIDE BASIC

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ >2000 mg/kg, Oral, Rat

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ >2000 mg/kg, Dermal, Rabbit LD₅₀ > 5000 mg/kg, Dermal, Rat

Acute toxicity - inhalation

Notes (inhalation LC₅₀) LC₅₀ > 5 mg/l, Inhalation, Rat

Skin corrosion/irritation

Skin corrosion/irritation Not irritating. Rabbit OECD 404

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage. Rabbit OECD 405

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising. OECD 406

Germ cell mutagenicity

Genotoxicity - in vitro Bacterial reverse mutation test: Negative with metabolic activation., Negative without metabolic activation. OECD 471
Gene mutation: Negative with metabolic activation., Negative without metabolic activation. OECD 476
DNA damage and/or repair: Negative. OECD 487

Genotoxicity - in vivo DNA damage and/or repair: Negative., Rat OECD 474

Carcinogenicity

Carcinogenicity No evidence of carcinogenicity in animal studies. Read-across data.

Reproductive toxicity

Reproductive toxicity - fertility No evidence of reproductive toxicity in animal studies.
Fertility - NOAEL 1000 mg/kg/day, Oral, Rat P 4 weeks 7 days/week OECD 422

Reproductive toxicity - development No evidence of reproductive toxicity in animal studies. Maternal toxicity: - NOAEL: (P) 1000 mg/kg/day, , Rat Developmental toxicity: - NOAEL: (F1) 1000 mg/kg/day, , Rat

Specific target organ toxicity - single exposure

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STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure NOAEL 1000 mg/kg/day, Oral, Rat 28 - 53 days OECD 422
 LOAEL 15.3 mg/m³, Inhalation, Aerosol, Rat 13 weeks 6 hours/day 5 days/week
 Read-across data.

SECTION 12: Ecological information

Ecotoxicity The product is not expected to be hazardous to the environment. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Toxicity Not considered toxic to fish.

Ecological information on ingredients.

ALUMINIUM CHLORIDE BASIC

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hour: > 0.156 mg/l, Brachydanio rerio (Zebra Fish)
 (as Al³⁺)
 LC₅₀, 96 hours: 186 mg/l, Brachydanio rerio (Zebra Fish)
 OECD 203

Acute toxicity - aquatic invertebrates LC₅₀, 48 hour: > 0.15 mg/l, Daphnia magna
 (as Al³⁺)
 EC₅₀, 48 hours: 98 mg/l, Daphnia magna
 OECD 203

Acute toxicity - aquatic plants EC₅₀, 72 hours: > 1.319 mg/l, Algae

Acute toxicity - microorganisms EC₅₀, 3 hours: > 1000 mg/l, Activated sludge
 OECD 209

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates NOEC, 8 days: 3.8 mg/l,

12.2. Persistence and degradability

Persistence and degradability The product contains mainly inorganic substances which are not biodegradable. The other substances in the product are not expected to be readily biodegradable.

Ecological information on ingredients.

ALUMINIUM CHLORIDE BASIC

Persistence and degradability Not applicable. Substance is inorganic.

12.3. Bioaccumulative potential

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

Partition coefficient : <3

Ecological information on ingredients.

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Bioaccumulative potential The product is not bioaccumulating.

12.4. Mobility in soil

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients.

ALUMINIUM CHLORIDE BASIC

Results of PBT and vPvB assessment Not applicable. Substance is inorganic.

12.6. Other adverse effects

Other adverse effects Not determined.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Do not puncture or incinerate, even when empty. Waste is classified as hazardous waste.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General Wear protective clothing as described in Section 8 of this safety data sheet.

14.1. UN number

UN No. (ADR/RID) 3264

UN No. (IMDG) 3264

UN No. (ICAO) 3264

UN No. (ADN) 3264

14.2. UN proper shipping name

Proper shipping name (ADR/RID) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS ALUMINIUM CHLORIDE BASIC)

Proper shipping name (IMDG) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS ALUMINIUM CHLORIDE BASIC)

Proper shipping name (ICAO) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS ALUMINIUM CHLORIDE BASIC)

Proper shipping name (ADN) CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS ALUMINIUM CHLORIDE BASIC)

14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID classification code C1

ADR/RID label 8

IMDG class 8

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ICAO class/division 8

ADN class 8

Transport labels



14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

ADN packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

EmS F-A, S-B

ADR transport category 3

Emergency Action Code 2X

Hazard Identification Number (ADR/RID) 80

Tunnel restriction code (E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

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

EU legislation 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) (as amended).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
Commission Regulation (EU) No 2015/830 of 28 May 2015.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

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Canada - DSL/NDSL

All the ingredients are listed or exempt.
DSL

Australia - AICS

All the ingredients are listed or exempt.

Japan - ENCS

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines – PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

SECTION 16: Other information

ALUMINIUM CHLORIDE BASIC SOLUTION

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

12/04/2019

Version number

2.000

Supersedes date

05/12/2016

SDS number

10975

ALUMINIUM CHLORIDE BASIC SOLUTION

SDS status	Approved.
Hazard statements in full	H290 May be corrosive to metals. H318 Causes serious eye damage.
Signature	Lisa Bland



Exposure scenario

Manufacture of Aluminium salts (aqueous solution)

Identification

Product name	Aluminium Chloride, Basic
REACH registration number	01-2119531563-43-XXXX
CAS number	1327-41-9
EC number	215-477-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Manufacture of Aluminium salts (aqueous solution)
Process scope	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of the substance
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Manufacture of Aluminium salts (aqueous solution)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid, vapour pressure < 10 Pa (STP) (aqueous)

Concentration details Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Clear transfer lines prior to de-coupling.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Drain down and flush system prior to equipment break-in or maintenance.

PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Drain down and flush system prior to equipment break-in or maintenance. Use drum pumps.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Assumes a good basic standard of occupational hygiene is implemented. Clear spills immediately. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Additional advice Avoid frequent contact with substance.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.



Exposure scenario
Formulation and Distribution of Aluminium salts (aqueous solutions)

Identification

Product name	Aluminium Chloride, Basic
REACH registration number	01-2119531563-43-XXXX
CAS number	1327-41-9
EC number	215-477-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation and Distribution of Aluminium salts (aqueous solutions)
Process scope	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture
<u>Worker</u>	

Formulation and Distribution of Aluminium salts (aqueous solutions)

Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC14 Tableting, compression, extrusion, pelletisation, granulation</p> <p>PROC15 Use as laboratory reagent.</p> <p>PROC19 Manual activities involving hand contact</p>
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid, vapour pressure < 10 Pa (STP) (aqueous)

Concentration details Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Formulation and Distribution of Aluminium salts (aqueous solutions)

Technical protective measures PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Clear transfer lines prior to de-coupling.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent. Drain down and flush system prior to equipment break-in or maintenance.

PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Drain down and flush system prior to equipment break-in or maintenance. Use drum pumps.

PROC19 Manual activities involving hand contact Industrial use.
Concentration of substance in product: 25% Avoid carrying out operation for more than 1 hour.
Concentration of substance in product: 5% Avoid carrying out operation for more than 4 hours.
No specific measures identified. Concentration of substance in product: 1%

PROC19 Manual activities involving hand contact Professional use.
Concentration of substance in product: 25% Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Avoid carrying out operation for more than 15 minutes.
Concentration of substance in product: 5% Avoid carrying out operation for more than 1 hour.
Concentration of substance in product: 1% Avoid carrying out operation for more than 4 hours.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Assumes a good basic standard of occupational hygiene is implemented. Clear spills immediately. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Additional advice Avoid frequent contact with substance.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.



Exposure scenario

Use of Aluminium salts (aqueous solutions) in synthesis as a process chemical and as an intermediate

Identification

Product name	Aluminium Chloride, Basic
REACH registration number	01-2119531563-43-XXXX
CAS number	1327-41-9
EC number	215-477-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use of Aluminium salts (aqueous solutions) in synthesis as a process chemical and as an intermediate
Process scope	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities. Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Main sector	SU3 Industrial uses
Sector of use	SU6b Manufacture of pulp, paper and paper products SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU14 Manufacture of basic metals, including alloys

Environment

Environmental release category	ERC1 Manufacture of the substance ERC2 Formulation into mixture ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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Worker

Use of Aluminium salts (aqueous solutions) in synthesis as a process chemical and as an intermediate

Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC15 Use as laboratory reagent.</p>
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid, vapour pressure < 10 Pa (STP) (aqueous)

Concentration details Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Clear transfer lines prior to de-coupling.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent. Drain down and flush system prior to equipment break-in or maintenance.

PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Drain down and flush system prior to equipment break-in or maintenance. Use drum pumps.

Organisational measures to prevent/limit releases, dispersion and exposure

Use of Aluminium salts (aqueous solutions) in synthesis as a process chemical and as an intermediate

Organisational measures Ensure operatives are trained to minimise exposures. Assumes a good basic standard of occupational hygiene is implemented. Clear spills immediately. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Additional advice Avoid frequent contact with substance.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.



Exposure scenario
Industrial and Professional Use of Aluminium salts in spraying formulations (aqueous solutions)

Identification

Product name	Aluminium Chloride, Basic
REACH registration number	01-2119531563-43-XXXX
CAS number	1327-41-9
EC number	215-477-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial and Professional Use of Aluminium salts in spraying formulations (aqueous solutions)
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU5 Manufacture of textiles, leather, fur SU6b Manufacture of pulp, paper and paper products SU7 Printing and reproduction of recorded media

Environment

Environmental release category	ERC3 Formulation into solid matrix ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor) ERC10a Widespread use of articles with low release (outdoor) ERC11a Widespread use of articles with low release (indoor)
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Worker

Industrial and Professional Use of Aluminium salts in spraying formulations (aqueous solutions)

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC11 Non industrial spraying PROC15 Use as laboratory reagent. PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid, vapour pressure < 10 Pa (STP) (aqueous)

Concentration details Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Industrial and Professional Use of Aluminium salts in spraying formulations (aqueous solutions)

Technical protective measures PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Clear transfer lines prior to de-coupling.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent. Drain down and flush system prior to equipment break-in or maintenance.

PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Drain down and flush system prior to equipment break-in or maintenance. Use drum pumps.

PROC7 Industrial spraying

Concentration of substance in product: 25% Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Avoid carrying out operation for more than 1 hour. Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. Avoid carrying out operation for more than 1 hour.

Concentration of substance in product: 5% Avoid carrying out operation for more than 4 hours. Wear a respirator conforming to EN140 with Type A/P2 filter or better.

Concentration of substance in product: 1% Avoid carrying out operation for more than 15 minutes.

PROC11 Non industrial spraying

Concentration of substance in product: 25% Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. Avoid carrying out operation for more than 15 minutes.

Concentration of substance in product: 5% Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. Avoid carrying out operation for more than 1 hour.

Concentration of substance in product: 1% Avoid carrying out operation for more than 15 minutes.

PROC19 Manual activities involving hand contact Industrial

Concentration of substance in product: 25% Avoid carrying out operation for more than 1 hour.

Concentration of substance in product: 5% Avoid carrying out operation for more than 4 hours.

Concentration of substance in product: 1% No specific measures identified.

Industrial and Professional Use of Aluminium salts in spraying formulations (aqueous solutions)

PROC19 Manual activities involving hand contact Professional

Concentration of substance in product: 25% Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Avoid carrying out operation for more than 15 minutes.

Concentration of substance in product: 5% Avoid carrying out activities involving exposure for more than 1 hour.

Concentration of substance in product: 1% Avoid carrying out operation for more than 4 hours.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Assumes a good basic standard of occupational hygiene is implemented. Clear spills immediately. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Additional advice Avoid frequent contact with substance.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.



Exposure scenario

Industrial and Professional use of Aluminium salts in non-spraying formulations (aqueous solutions)

Identification

Product name	Aluminium Chloride, Basic
REACH registration number	01-2119531563-43-XXXX
CAS number	1327-41-9
EC number	215-477-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial and Professional use of Aluminium salts in non-spraying formulations (aqueous solutions)
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery SU5 Manufacture of textiles, leather, fur SU6b Manufacture of pulp, paper and paper products SU7 Printing and reproduction of recorded media SU13 Manufacture of other non-metallic mineral products SU19 Building and construction work

Environment

Environmental release category	ERC2 Formulation into mixture ERC3 Formulation into solid matrix ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8c Widespread use leading to inclusion into/onto article (indoor) ERC8f Widespread use leading to inclusion into/onto article (outdoor) ERC10a Widespread use of articles with low release (outdoor) ERC11a Widespread use of articles with low release (indoor)
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Industrial and Professional use of Aluminium salts in non-spraying formulations (aqueous solutions)

Worker

Process category	<p>PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions</p> <p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC6 Calendering operations.</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC10 Roller application or brushing</p> <p>PROC13 Treatment of articles by dipping and pouring.</p> <p>PROC14 Tableting, compression, extrusion, pelletisation, granulation</p> <p>PROC15 Use as laboratory reagent.</p> <p>PROC19 Manual activities involving hand contact</p>
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid, vapour pressure < 10 Pa (STP) (aqueous)

Concentration details Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Industrial and Professional use of Aluminium salts in non-spraying formulations (aqueous solutions)

Technical protective measures PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Clear transfer lines prior to de-coupling.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent. Drain down and flush system prior to equipment break-in or maintenance.

PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Drain down and flush system prior to equipment break-in or maintenance. Use drum pumps.

PROC10 Roller application or brushing Industrial Use long handled tools.
Concentration of substance in product: 25% Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. , or: Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Avoid carrying out operation for more than 1 hour.
Concentration of substance in product: 5% Avoid carrying out operation for more than 4 hours.
Concentration of substance in product: 1% No specific measures identified.

PROC10 Roller application or brushing Professional Use long handled tools.
Concentration of substance in product: 25% Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. Avoid carrying out operation for more than 1 hour.
Concentration of substance in product: 5% Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20.
Concentration of substance in product: 1% Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20.

PROC19 Manual activities involving hand contact Industrial
Concentration of substance in product: 25% Avoid carrying out operation for more than 1 hour.
Concentration of substance in product: 5% Avoid carrying out operation for more than 4 hours.
Concentration of substance in product: 1% No specific measures identified.

PROC19 Manual activities involving hand contact Professional
Concentration of substance in product: 25% Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Avoid carrying out operation for more than 15 minutes.
Concentration of substance in product: 5% Avoid carrying out activities involving exposure for more than 1 hour.
Concentration of substance in product: 1% Avoid carrying out operation for more than 4 hours.

Industrial and Professional use of Aluminium salts in non-spraying formulations (aqueous solutions)

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Assumes a good basic standard of occupational hygiene is implemented. Clear spills immediately. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Additional advice Avoid frequent contact with substance.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.



Exposure scenario

Industrial and Professional use of Aluminium salts in aqueous solutions as a flocculant or coagulant in water and waste water treatment

Identification

Product name	Aluminium Chloride, Basic
REACH registration number	01-2119531563-43-XXXX
CAS number	1327-41-9
EC number	215-477-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial and Professional use of Aluminium salts in aqueous solutions as a flocculant or coagulant in water and waste water treatment
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU2 Mining (including offshore industries) SU5 Manufacture of textiles, leather, fur SU6b Manufacture of pulp, paper and paper products SU10 Formulation [mixing] of preparations and/or re-packaging SU23 Electricity, steam, gas, water supply and sewage treatment

Environment

Environmental release category	ERC2 Formulation into mixture ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article) ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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Worker

Industrial and Professional use of Aluminium salts in aqueous solutions as a flocculant or coagulant in water and waste water treatment

Process category	<p>PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions</p> <p>PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition</p> <p>PROC4 Chemical production where opportunity for exposure arises</p> <p>PROC5 Mixing or blending in batch processes</p> <p>PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities</p> <p>PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities</p> <p>PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)</p> <p>PROC19 Manual activities involving hand contact</p>
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid, vapour pressure < 10 Pa (STP) (aqueous)

Concentration details Covers concentrations up to 25 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Industrial and Professional use of Aluminium salts in aqueous solutions as a flocculant or coagulant in water and waste water treatment

Technical protective measures PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Clear transfer lines prior to de-coupling.

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Drain down and flush system prior to equipment break-in or maintenance.

PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Drain down and flush system prior to equipment break-in or maintenance. Use drum pumps.

PROC19 Manual activities involving hand contact Industrial
Concentration of substance in product: 25% Avoid carrying out operation for more than 1 hour.
Concentration of substance in product: 5% Avoid carrying out operation for more than 4 hours.
Concentration of substance in product: 1% No specific measures identified.

PROC19 Manual activities involving hand contact Professional
Concentration of substance in product: 25% Wear a respirator conforming to EN140 with Type A/P2 filter or better. , or: Avoid carrying out operation for more than 15 minutes.
Concentration of substance in product: 5% Avoid carrying out activities involving exposure for more than 1 hour.
Concentration of substance in product: 1% Avoid carrying out operation for more than 4 hours.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Assumes a good basic standard of occupational hygiene is implemented. Clear spills immediately. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Additional advice Avoid frequent contact with substance.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.



Exposure scenario

Use of Aluminium salts in Industrial and Professional laboratory settings (aqueous solution)

Identification

Product name	Aluminium Chloride, Basic
REACH registration number	01-2119531563-43-XXXX
CAS number	1327-41-9
EC number	215-477-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use of Aluminium salts in Industrial and Professional laboratory settings (aqueous solution)
Process scope	Use of small quantities within laboratory settings, including material transfers and equipment cleaning.
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid, vapour pressure < 10 Pa (STP) (aqueous)
Concentration details	Covers concentrations up to 25 %.

Frequency and duration of use

Use of Aluminium salts in Industrial and Professional laboratory settings (aqueous solution)

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Drain down and flush system prior to equipment break-in or maintenance.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Ensure operatives are trained to minimise exposures. Assumes a good basic standard of occupational hygiene is implemented. Clear spills immediately. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374) and eye protection.

Additional advice Avoid frequent contact with substance.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Assessment method The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.