We create chemistry

Safety data sheet

BASF Safety data sheet according to Regulation (EC) No. 1907/2006 as amended from time to time.
Date / Revised: 11.01.2023 Version: 11.0
Date previous version: 16.12.2020 Previous version: 10.0
Date / First version: 20.12.2010
Product: **Aluminium chloride anhydrous ground**
(ID no. 30041207/SDS_GEN_IE/EN)
Date of print 10.10.2025

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

1.1. Product identifier

Aluminium chloride anhydrous ground

Chemical name: aluminium chloride, anhydrous
INDEX-Number: 013-003-00-7
CAS Number: 7446-70-0

REACH registration number: 01-2119459371-39-0006, 01-2119459371-39-0002, 01-2119459371-39-0009

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

Relevant identified uses: Chemical
Recommended use: Intermediate, catalyst, process chemical

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY

Contact address:
BASF Ireland DAC
Asgard House, 19-20 City Quay
Dublin, D02 K744
Ireland

Telephone: +353 21 451-7100
E-mail address: product-safety-uk-and-ireland@basf.com

1.4. Emergency telephone number

For products classified as hazardous in accordance with CLP:
National Poisons Information Centre, Beaumont Hospital, Dublin 9

Emergency medical information: 8am-10pm (seven days)
Tel.: 01 8092566
International emergency number:
Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Skin Corr./Irrit. 1B	H314 Causes severe skin burns and eye damage.
Eye Dam./Irrit. 1	H318 Causes serious eye damage.

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]

Pictogram:

Signal Word:

Danger

Hazard Statement:

H314	Causes severe skin burns and eye damage.

Precautionary Statements (Prevention):

P280	Wear protective gloves, protective clothing and eye protection or face protection.
P260	Do not breathe dust or mist.
P264	Wash contaminated body parts thoroughly after handling.

Precautionary Statements (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 CENTER or physician.
P303 + P361 + P353	IF ON SKIN (or hair): Remove or Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

Precautionary Statements (Storage):

P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

Labeling of special preparations (GHS):
EUH014: Reacts violently with water. EUH071: Corrosive to the respiratory tract.

Hazard determining component(s) for labelling: aluminium chloride, anhydrous

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.
Corrodes metals in the presence of water or moisture.
The product does not contain a substance above legal limits fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.
Product does not contain a substance above legal limits included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties or is identified to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

aluminium chloride, anhydrous

	Skin Corr./Irrit. 1B
CAS Number: 7446-70-0	Eye Dam./Irrit. 1
EC-Number: 231-208-1	H314
INDEX-Number: 013-003-00-7	EUH014
	, EUH071

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

Immediately remove contaminated clothing. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position).

If inhaled:

Keep patient calm, remove to fresh air. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

On skin contact:
Wipe dry. Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

On contact with eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

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

Symptoms: skin corrosion, irritates the eyes and respiratory tract

Hazards: No hazard is expected under intended use and appropriate handling.

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

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:
dry powder

Unsuitable extinguishing media for safety reasons:
water

5.2. Special hazards arising from the substance or mixture

Endangering substances: hydrogen chloride
Advice: The substances/groups of substances mentioned can be released if the product is involved in a fire.

5.3. Advice for fire-fighters

Special protective equipment:
Wear a self-contained breathing apparatus.

Further information:
Contaminated extinguishing water must be disposed of in accordance with official regulations.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Breathing protection required.

6.2. Environmental precautions

Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

6.3. Methods and material for containment and cleaning up

For large amounts: Sweep/shovel up. Dispose of absorbed material in accordance with regulations.
For residues: Rinse away with water.
Avoid raising dust.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Keep container tightly sealed. Before opening venting of container is recommended; beware of escaping gases and vapours. Avoid dust formation. Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Protection against fire and explosion:
The substance/product is non-combustible.

7.2. Conditions for safe storage, including any incompatibilities

Suitable materials for containers: glass, enamelled, Carbon steel (Iron), polyvinylchloride (PVC), Stainless steel 1.4301 (V2)
Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place. Keep container dry.

Storage stability:
Product is hygroscopic.
Improper storage may result in pressure build up in the drums.

7.3. Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

7446-70-0: aluminium chloride, anhydrous
TWA value 2 mg/m3 (OEL (IE))

PNEC

freshwater:
No hazard identified.

marine water:
No hazard identified.

intermittent release:
No hazard identified.

sediment (freshwater):
No hazard identified.

sediment (marine water):
No hazard identified.

soil:
No hazard identified.

STP:
No hazard identified.

DNEL

consumer:
Long-term exposure- systemic effects, oral: 1.5 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Gas filter for gases/vapours of inorganic compounds (e.g. EN 14387 Type B) Combination filter for gases/vapours of organic, inorganic, acid inorganic, alkaline compounds and toxic particles (e. g. EN 14387 Type ABEK-P3)

Hand protection:
Chemical resistant protective gloves (EN ISO 374-1)
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):
polyvinylchloride (PVC) - 0.7 mm coating thickness
nitrile rubber (NBR) - 0.4 mm coating thickness

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Tightly fitting safety goggles (cage goggles) (e.g. EN 166) and face shield.

Body protection:
chemical-protection suit (f.e. according to EN 14605)

General safety and hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Take off immediately all contaminated clothing. Hands and/or face should be washed before breaks and at the end of the shift.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

State of matter:	solid	
Form:	powder	
Colour:	yellowish	
Odour:	pungent odour	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
Melting point:	190 °C (2,500 hPa)	
Boiling point:	(1,013.25 hPa) Study scientifically not justified., Sublimation	
Sublimation temperature:	181.2 °C (1,013.25 hPa) Literature data.	
Flammability:	not highly flammable	(Regulation 440/2008/EC, A.10)
Lower explosion limit:	For solids not relevant for classification and labelling.	
Upper explosion limit:	For solids not relevant for classification and labelling.	
Flash point:	not applicable, the product is a solid	

Self-ignition temperature:		Test type: Self-ignition at high temperatures. (Method: Regulation 440/2008/EC, A.16)
	not self-igniting	
Thermal decomposition:	No decomposition if correctly stored and handled.	
pH value:	2.4 (100 g/l)	(OECD Guideline 122)
Viscosity, kinematic:		
	not applicable, the product is a solid	
Viscosity, dynamic:		
	Study scientifically not justified.	
Solubility in water:	Literature data. 450 g/l (20 °C)	
Partitioning coefficient n-octanol/water (log Kow):		
	Study scientifically not justified.	
Vapour pressure:	< 1 mbar (20 °C) Literature data.	
Relative density:	2.48 Literature data.	(other)
Density:	2.44 g/cm3 (25 °C) Literature data.	
Relative vapour density (air):		
	The product is a non-volatile solid.	

Particle characteristics

Particle size distribution:	10.0 µm	(D10, ISO 13320-1)
	118.0 µm	(D90, ISO 13320-1)
	430.0 µm	(D50, ISO 13320-1)

9.2. Other information

Information with regard to physical hazard classes

Explosives

Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.

Oxidizing properties

Fire promoting properties:	not fire-propagating	(Regulation 440/2008/EC, A.17)

Pyrophoric properties

Self-ignition temperature:		Test type: Spontaneous self-ignition at room-temperature.
	Based on its structural properties the product is not classified as self-igniting.	

Self-heating substances and mixtures

Self heating ability: It is not a substance capable of spontaneous heating.

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases: (Regulation 440/2008/EC, A.12)
Forms no flammable gases in the presence of water.

Corrosion to metals

Corrodes metals in the presence of water or moisture.

Other safety characteristics

Bulk density:	1,200 kg/m3	
pKA:	Study scientifically not justified.	
Hygroscopy:	hygroscopic	
Adsorption/water - soil:	KOC: 3700 Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.	(other)
Surface tension:	Based on chemical structure, surface activity is not to be expected.	
Molar mass:	133.34 g/mol	
Angle of repose:	41 °	(funnel test (plant lab))
Evaporation rate:	not applicable, The product is a non-volatile solid.	

SECTION 10: Stability and Reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:	Corrodes metals in the presence of water or moisture.	
Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
	Method:	Flammability (Contact with water)

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Reacts violently with water. Develops hydrochloric acid (HCL) on contact with water. The formation of gaseous decomposition products builds up pressure in tightly closed containers.

10.4. Conditions to avoid

See SDS section 7 - Handling and storage. Avoid humidity.

10.5. Incompatible materials

Substances to avoid:
water

10.6. Hazardous decomposition products

Hazardous decomposition products:
hydrogen chloride
The substances/substance groups mentioned are formed by hydrolysis.

SECTION 11: Toxicological Information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Assessment of acute toxicity:
The toxicity of the product is based on its corrosivity.

Of low toxicity after single ingestion.

Experimental/calculated data:
LD50 rat (oral): 3,450 - 3,470 mg/kg

(by inhalation):Study does not need to be conducted.

(dermal):Study does not need to be conducted.

Irritation

Assessment of irritating effects:
Corrosive! Damages skin and eyes.

Experimental/calculated data:
Skin corrosion/irritation
: The European Union (EU) has classified this substance with 'Causes burns.' (R34).

Serious eye damage/irritation
: Study does not need to be conducted.

Respiratory/Skin sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:
Guinea pig maximization test guinea pig: Non-sensitizing.

Germ cell mutagenicity

Assessment of mutagenicity:
No mutagenic effect was found in various tests with microorganisms and mammals. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Carcinogenicity

Assessment of carcinogenicity:
No reliable data was available concerning carcinogenic activity. The chemical structure does not suggest a specific alert for such an effect.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:
The potential to cause toxicity to development cannot be excluded when given in high doses. The product has not been tested. The statement has been derived from the structure of the product.

Specific target organ toxicity (single exposure)

Remarks: No applicable information available.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

The substance may cause damage to the upper respiratory tract after repeated inhalation, as shown in animal studies. After repeated administration the prominent effect is the induction of corrosion.

The information available on the product provides no indication of toxicity on target organs after repeated exposure. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Aspiration hazard

not applicable

Interactive effects

No data available.

11.2. Information on other hazards

Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms.
The effect strongly depends on the pH-value.

Toxicity to fish:
LC50 (96 h) 20.3 mg/l, Pimephales promelas (EPA 72-1, semistatic)

Aquatic invertebrates:
EC50 (48 h) 27.3 mg/l, Daphnia magna (Directive 84/449/EEC, C.2, static)
The details of the toxic effect relate to the nominal concentration.

Aquatic plants:
EC50 (72 h) 1.05 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
other TS

EC10 (72 h) 0.16 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

other TS

Microorganisms/Effect on activated sludge:
EC10 (180 min) > 1,000 mg/l, activated sludge, domestic, non-adapted (OECD Guideline 209, aerobic)
The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to fish:
No observed effect concentration (7 d) 0.16 mg/l, Pimephales promelas (other, semistatic)

Chronic toxicity to aquatic invertebrates:
No observed effect concentration (6 d) 0.34 mg/l, Ceriodaphnia dubia (other, semistatic)

Assessment of terrestrial toxicity:
No toxic effects have been observed in studies with soil living organisms.

Soil living organisms:
LC50 (14 d) > 1,000 mg/kg, Eisenia sp. (Range-finding-study, artificial soil)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Terrestrial plants:
No data available.

Other terrestrial non-mammals:
No data available.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
Not applicable for inorganic substances.

Elimination information:
not applicable

Assessment of stability in water:
In contact with water the substance will hydrolyse rapidly.

Information on Stability in Water (Hydrolysis):
not applicable

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
Significant accumulation in organisms is not to be expected.

Bioaccumulation potential:

Bioconcentration factor(BCF): 400 - 1,365, Fish (other)

12.4. Mobility in soil

Assessment transport between environmental compartments:
Adsorption in soil: No data available.

12.5. Results of PBT and vPvB assessment

The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative).

12.6. Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

12.7. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.8. Additional information

Other ecotoxicological advice:
Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Must be disposed of by special means, e.g. suitable dumping after chemical/physical pretreatment (consolidation).

Check for possible recycling.
Contact waste centre regarding recycling.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

SECTION 14: Transport Information

Land transport

ADR

UN number or ID number:	UN1726
UN proper shipping name:	ALUMINIUM CHLORIDE, ANHYDROUS
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no
Special precautions for user:	Tunnel code: E

RID

UN number or ID number:	UN1726
UN proper shipping name:	ALUMINIUM CHLORIDE, ANHYDROUS
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no
Special precautions for user:	None known

Inland waterway transport

ADN

UN number or ID number:	UN1726
UN proper shipping name:	ALUMINIUM CHLORIDE, ANHYDROUS
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no
Special precautions for user:	None known

Transport in inland waterway vessel
Not evaluated

Sea transport

IMDG

UN number or ID number:	UN 1726
UN proper shipping name:	ALUMINIUM CHLORIDE, ANHYDROUS

Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	no Marine pollutant: NO
Special precautions for user:	EmS: F-A; S-B

Air transport

IATA/ICAO

UN number or ID number:	UN 1726
UN proper shipping name:	ALUMINIUM CHLORIDE, ANHYDROUS
Transport hazard class(es):	8
Packing group:	II
Environmental hazards:	No Mark as dangerous for the environment is needed
Special precautions for user:	None known

14.1. UN number or ID number
See corresponding entries for “UN number or ID number” for the respective regulations in the tables above.

14.2. UN proper shipping name
See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

14.3. Transport hazard class(es)
See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

14.4. Packing group
See corresponding entries for “Packing group” for the respective regulations in the tables above.

14.5. Environmental hazards
See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user
See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory Information

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

Prohibitions, Restrictions and Authorizations

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 75

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU): List entry in regulation: O1

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

15.2. Chemical Safety Assessment

Chemical Safety Assessment performed

SECTION 16: Other Information

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Acute Tox. 5 (oral)
Skin Corr./Irrit. 1B
Eye Dam./Irrit. 1

This product is of industrial quality and unless otherwise specified or agreed intended exclusively for industrial use.

Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
H314	Causes severe skin burns and eye damage.

Abbreviations
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Vertical lines in the left hand margin indicate an amendment from the previous version.

Annex: Exposure Scenarios

Index

1. Use as Reactive process agent, (in inorganic synthesis), (in organic synthesis), (use in industrial settings)
SU8, SU9; ERC4, ERC6a, ERC6b; PROC1, PROC2, PROC3

2. After hydrolysis, Use as a Process chemical, Use in process water treatment, Use in sewage water treatment, (use in industrial settings)
ERC6b; PROC3, PROC5, PROC8b

3. Use in laboratories, (use in industrial settings)
ERC4, ERC6a, ERC6b; PROC15

4. After hydrolysis, Use as a Process chemical, Use in process water treatment, Use in sewage water treatment, (use in professional settings)
SU5, SU6b, SU23; ERC8b; PROC3, PROC5, PROC8b

5. Use in laboratories, (use in professional settings)
ERC8b; PROC15

*** * * * * * * * * * * * * * * ***

1. Short title of exposure scenario

Use as Reactive process agent, (in inorganic synthesis), (in organic synthesis), (use in industrial settings)
SU8, SU9; ERC4, ERC6a, ERC6b; PROC1, PROC2, PROC3

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	ERC6a: Use of intermediate As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	ERC6b: Use of reactive processing aid at industrial site (no

	inclusion into or onto article) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV Handle substance within closed system.	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Physical state	Solid, low dustiness
Vapour pressure of the substance	0.003 Pa

during use	
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV Handle substance within closed system.	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV Handle substance within closed system.	

Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

****

2. Short title of exposure scenario

After hydrolysis, Use as a Process chemical, Use in process water treatment, Use in sewage water treatment, (use in industrial settings)
ERC6b; PROC3, PROC5, PROC8b

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6b: Use of reactive processing aid at industrial site (no inclusion into or onto article) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Physical state	liquid
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under	

containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV Handle substance within closed system.	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Ensure that no inhalable aerosols are generated.	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Physical state	liquid
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Ensure that no inhalable aerosols are generated.	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and

	discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Physical state	liquid
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Ensure that no inhalable aerosols are generated.	
Avoid inhalation of the product., In case of insufficient ventilation:, Wear a suitable respiratory protection with adequate effectiveness .	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

****

3. Short title of exposure scenario

Use in laboratories, (use in industrial settings)
ERC4, ERC6a, ERC6b; PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Operational conditions	

Contributing exposure scenario	
Use descriptors covered	ERC6a: Use of intermediate As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	ERC6b: Use of reactive processing aid at industrial site (no inclusion into or onto article) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Avoid inhalation of the product., Use a local exhaust ventilation with adequate effectiveness.	

Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

* * * * * * * * * * * * * * * * *

4. Short title of exposure scenario

After hydrolysis, Use as a Process chemical, Use in process water treatment, Use in sewage water treatment, (use in professional settings)
SU5, SU6b, SU23; ERC8b; PROC3, PROC5, PROC8b

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8b: Widespread use of reactive processing aid (no inclusion into or onto article, indoor) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: professional
Operational conditions	
Physical state	liquid
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV Handle substance within closed system.	
Avoid inhalation of the product.	
Use suitable eye protection.	

Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Ensure that no inhalable aerosols are generated.	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: professional
Operational conditions	
Physical state	liquid
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Ensure that no inhalable aerosols are generated.	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: professional
Operational conditions	
Physical state	liquid
Vapour pressure of the substance	0.003 Pa

during use	
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Ensure that no inhalable aerosols are generated.	
Avoid inhalation of the product., In case of insufficient ventilation:, Wear a suitable respiratory protection with adequate effectiveness .	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

****

5. Short title of exposure scenario

Use in laboratories, (use in professional settings)
ERC8b; PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8b: Widespread use of reactive processing aid (no inclusion into or onto article, indoor) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: professional

Operational conditions	
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.003 Pa
Risk Management Measures	
Avoid skin contact. Clean up contamination as soon as they occur. Ensure good work practices are implemented. Provide basic employee training to prevent/minimize exposures. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Ensure material transfers are under containment or extract ventilation Fill containers/cans at dedicated filling points supplied with LEV	
Avoid inhalation of the product.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
Avoid inhalation of the product., Use a local exhaust ventilation with adequate effectiveness.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

****