(in accordance with Regulation (EU) 2020/878)

# **Flocculant**



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# SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING.

## 1.1 Product identifier.

Product Name: Flocculant
Chemical Name: sulfato de aluminio
CAS No: 10043-01-3
EC No: 233-135-0

Registration No: 01-2119531538-36-XXXX

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

Flocculant

#### Uses advised against:

Uses other than those recommended.

Exposure scenarios covering uses can be found in the Annex.

1.3 Details of the supplier of the safety data sheet.

Company: FLUIDRA COMERCIAL ESPAÑA

Address: Av. Alcalde Barnils, 69
City: 08174 Sant Cugat del Vallès

Province: Barcelona (España)
Telephone: telf: 902 42 32 22
Fax: +34 93 713 41 11
E-mail: fds@inquide.com
Web: www.ctxprofessional.com

## 1.4 Emergency telephone number: (Available 24 hours)

Anti poisoning centre:

ITALY (Rome): 06/305 43 43 ITALY (Milan): 02/66 10 10 29 SPAIN: +34 91 562 04 20

FRANCE (Paris): 01 40 05 48 48 FRANCE (Tolousse): 05 61 77 74 47 FRANCE (Marseille): 04 91 75 25 25

PORTUGÀL: 808 250 143

BELGIQUE (Brussel): (+34) 070 245 245

CAV accreditati: Roma +39 06 68 59 3726; Foggia +39 800 18 34 59; Napoli +39 081 54 53 333; Roma +39 06 49 97 80 00; Roma +39 06 30 54 343; Firenze +39 055 79 47 819; Pavia +39 0382 24 444; Milano +39 02 66 10 10 29; Bergamo +39 800 88 33 00; Verona +39 800 01 18 58.

## **SECTION 2: HAZARDS IDENTIFICATION.**

## 2.1 Classification of the substance or mixture.

In accordance with Regulation (EU) No 1272/2008:

Eye Dam. 1 : Causes serious eye damage.

## 2.2 Label elements.

## Labelling in accordance with Regulation (EU) No 1272/2008:

Pictograms:



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Signal Word:

## **Danger**

Hazard statements:

H318 Causes serious eye damage.

Precautionary statements:

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read carefully and follow all instructions.

P280 Wear protective gloves/protective clothing/eye protection.

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 a doctor.

Contains:

Aluminium sulfate

#### 2.3 Other hazards.

The substance is not PBT The substance is not vPvB

Substance does not have endocrine disrupting properties.

In normal use conditions and in its original form, the product itself does not involve any other risk for health and the environment.

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS.**

## 3.1 Substances.

			(*)Classification - Regulation (EC) No 1272/2008	
Identifiers	Name	Concentrate	Classification	Specifics concentration limits and Acute toxicity estimate
CAS No: 10043-01-3 EC No: 233-135-0	Aluminium sulfate	3 - 100 %	Eye Dam. 1, H318	-

## 3.2 Mixtures.

Not Applicable.

# **SECTION 4: FIRST AID MEASURES.**

## 4.1 Description of first aid measures.

In case of doubt or when symptoms of feeling unwell persist, get medical attention. Never administer anything orally to persons who are unconscious.

## Inhalation.

Take the victim into open air; keep them warm and calm. If breathing is irregular or stops, perform artificial respiration.

#### Eve contact.

Wash eyes with plenty of clean and cool water for at least 10 minutes while pulling eyelids up, and seek medical assistance. Dont let the person to rub the affected eye.

## Skin contact.

Remove contaminated clothing. Wash skin vigorously with water and soap or a suitable skin cleaner. NEVER use solvents or thinners.

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#### Ingestion.

If accidentally ingested, seek immediate medical attention. Keep calm. NEVER induce vomiting.

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

Corrosive Product, contact with eyes or skin can cause burns; ingestion or inhalation can cause internal damage, if this occurs immediate medical assistance is required.

Contact with eyes may cause irreversible damage.

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

Request immediate medical attention. Never administer anything orally to persons who are unconscious. Do not induce vomiting. If the person vomits, clear the respiratory tract. Cover the affected area with a dry sterile bandage. Protect the affected area from pressure or friction.

#### **SECTION 5: FIREFIGHTING MEASURES.**

The product is NOT classified as flammable, in case of fire the following measures should be taken:

#### 5.1 Extinguishing media.

#### Suitable extinguishing media:

Extinguisher powder or CO2. In case of more serious fires, also alcohol-resistant foam and water spray.

#### **Unsuitable extinguishing media:**

Do not use a direct stream of water to extinguish. In the presence of electrical voltage, you cannot use water or foam as extinguishing media.

## 5.2 Special hazards arising from the substance or mixture.

#### Special risks.

Exposure to combustion or decomposition products can be harmful to your health.

## 5.3 Advice for firefighters.

Use water to cool tanks, cisterns, or containers close to the heat source or fire. Take wind direction into account. Prevent the products used to fight the fire from going into drains, sewers, or waterways.

## Fire protection equipment.

According to the size of the fire, it may be necessary to use protective suits against the heat, individual breathing equipment, gloves, protective goggles or facemasks, and boots.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES.**

## 6.1 Personal precautions, protective equipment and emergency procedures.

For exposure control and individual protection measures, see section 8.

## 6.2 Environmental precautions.

Product not classified as hazardous for the environment, avoid spillage as much as possible.

#### 6.3 Methods and material for containment and cleaning up.

Contain and collect spillage with inert absorbent material (earth, sand, vermiculite, Kieselguhr...) and clean the area immediately with a suitable decontaminant.

Deposit waste in closed and suitable containers for disposal, in compliance with local and national regulations (see section 13).

## 6.4 Reference to other sections.

For exposure control and individual protection measures, see section 8.

For later elimination of waste, follow the recommendations under section 13.

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## **SECTION 7: HANDLING AND STORAGE.**

#### 7.1 Precautions for safe handling.

For personal protection, see section 8.

In the application area, smoking, eating, and drinking must be prohibited.

Follow legislation on occupational health and safety.

Never use pressure to empty the containers. They are not pressure-resistant containers. Keep the product in containers made of a material identical to the original.

## 7.2 Conditions for safe storage, including any incompatibilities.

Store according to local legislation. Observe indications on the label. Store the containers between 5 and 25 ° C, in a dry and well-ventilated place, far from sources of heat and direct solar light. Keep far away from ignition points. Keep away from oxidising agents and from highly acidic or alkaline materials. Do not smoke. Prevent the entry of non-authorised persons. Once the containers are open, they must be carefully closed and placed vertically to prevent spills.

The product is not affected by Directive 2012/18/EU (SEVESO III).

## 7.3 Specific end use(s).

None in particular.

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION.**

#### 8.1 Control parameters.

The product does NOT contain substances with Professional Exposure Environmental Limit Values. The product does NOT contain substances with Biological Limit Values. Concentration levels DNEL/DMEL:

Name	DNEL/DMEL	Туре	Value
	DNEL	Dermal, Chronic, Local effects	10 (mg/kg)
Alumainiuma aulfata	(Workers)		
Aluminium sulfate CAS No: 10043-01-3	DNEL	Oral, Chronic, Systemic effects	5 (mg/kg)
	(Consumers)		
EC No: 233-135-0	DNEL	Dermal, Chronic, Systemic effects	1,8
	(Workers)		(mg/m3)

DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not anticipated.

DMEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be considered a tolerable minimum.

Concentration levels PNEC:

Name	Details	Value
Aluminium sulfate	Water (freshwater)	34,6 (mg/kg)
CAS No: 10043-01-3	Sediment (marine water)	3,46 (mg/kg)
EC No: 233-135-0	Soil	33,1 (mg/kg)

PNEC: Predicted No Effect Concentration, concentration of the substance below which adverse effects are not expected in the environmental compartment.

CAS: 10043-01-3 TLV TWA - 2 mg/m3 (AI) 8.2 Exposure controls.

## Measures of a technical nature:

Provide adequate ventilation, which can be achieved by using good local exhaust-ventilation and a good general exhaust system.

Concentration:	100 %
Uses:	Flocculant

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**Breathing protection:** 

PPE: Particle filter mask

«CE» marking, category III. Made of filtering material, it covers nose, mouth and Characteristics:

chin. CFN standards: FN 149

Check for any tears, defects, etc. before use. Since it is disposable individual protection equipment, it Maintenance:

should be replaced after use.

Does not protect worker unless properly adjusted. Follow the manufacturer's instructions regarding Observations:

suitable use of the equipment.

Filter Type needed:

Hand protection:

PPE: Protective gloves.

Characteristics: «CE» marking, category II.

CEN standards: EN 374-1, En 374-2, EN 374-3, EN 420

Keep in a dry place, away from any sources of heat, and avoid exposure to sunlight as much as possible.

Maintenance: Do not make any changes to the gloves that may alter their resistance, or apply paints, solvents or

adhesives.

Gloves should be of the appropriate size and fit the user's hand well, not being too loose or too tight. Observations:

Always use with clean, dry hands.

Breakthrough time Material thickness PVC (polyvinyl chloride) > 480 0,35 Material: (min.): (mm):

Eye protection:

PPE: Face shield

Characteristics: «CE» marking, category II. Face and eye protector against splashing liquid.

CEN standards: EN 165, EN 166, EN 167, EN 168

Visibility through lenses should be ideal. Therefore, these parts should be cleaned daily. Protectors should

Maintenance: be disinfected periodically following the manufacturer's instructions. Make sure that mobile parts move

Face shields should offer a field of vision with a dimension in the central line of, at least, 150 mm Observations:

vertically once attached to the frame.

Skin protection: Protective clothing. PPF:

«CE» marking, category II. Protective clothing should not be too tight or loose in Characteristics:

order not to obstruct the user's movements.

CEN standards: EN 340

In order to guarantee uniform protection, follow the washing and maintenance instructions provided by Maintenance:

the manufacturer.

The protective clothing should offer a level of comfort in line with the level of protection provided in Observations:

terms of the hazard against which it protects, bearing in mind environmental conditions, the user's level

of activity and the expected time of use.

PPF. Work footwear.

«CE» marking, category II. EN ISO 13287, EN 20347 Characteristics: CFN standards:

This product adapts to the first user's foot shape. That is why, as well as for hygienic reasons, it should Maintenance:

not be used by other people.

Work footwear for professional use includes protection elements aimed at protecting users against any Observations:

injury resulting from an accident

#### **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES.**

## 9.1 Information on basic physical and chemical properties.

Physical state: Solid Colour: White cream Odour: Odourless

Odour threshold: Not applicable/Not available due to the nature/properties of the product Melting point: Not applicable/Not available due to the nature/properties of the product

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Freezing point: Not applicable/Not available due to the nature/properties of the product

Boiling point or initial boiling point and boiling range: Not applicable/Not available due to the nature/properties of the product

Flammability: Not applicable/Not available due to the nature/properties of the product

Lower explosion limit: Not applicable/Not available due to the nature/properties of the product Upper explosion limit: Not applicable/Not available due to the nature/properties of the product

Flash point: Not applicable/Not available due to the nature/properties of the product

Auto-ignition temperature: Not applicable/Not available due to the nature/properties of the product Decomposition temperature: Not applicable/Not available due to the nature/properties of the product pH: 2 - 4 (1%)

Kinematic viscosity: Not applicable/Not available due to the nature/properties of the product

Solubility: Not applicable/Not available due to the nature/properties of the product

Hydrosolubility: 900 g/l (20 °C)

Liposolubility: Not applicable/Not available due to the nature/properties of the product

Partition coefficient n-octanol/water (log value): Not applicable/Not available due to the nature/properties of the product

Vapour pressure: Not applicable/Not available due to the nature/properties of the product Absolute density: Not applicable/Not available due to the nature/properties of the product

Relative density: 1 - 1,1

Relative vapour density: Not applicable/Not available due to the nature/properties of the product Particle characteristics: Not applicable/Not available due to the nature/properties of the product

#### 9.2 Other information

Viscosity: Not applicable/Not available due to the nature/properties of the product

Explosive properties: Not applicable/Not available due to the nature/properties of the product

Oxidizing properties: No

Dropping point: Not applicable/Not available due to the nature/properties of the product

Blink: Not applicable/Not available due to the nature/properties of the product

## **SECTION 10: STABILITY AND REACTIVITY.**

## 10.1 Reactivity.

The product does not present hazards by their reactivity.

## 10.2 Chemical stability.

Unstable in contact with:

- Bases.

#### 10.3 Possibility of hazardous reactions.

Neutralization can occur on contact with bases.

## 10.4 Conditions to avoid.

- Avoid contact with bases.

## 10.5 Incompatible materials.

Avoid the following materials:

- Bases.

## 10.6 Hazardous decomposition products.

Depending on conditions of use, can be generated the following products:

- Corrosive vapors or gases.

## **SECTION 11: TOXICOLOGICAL INFORMATION.**

## 11.1 Information on hazard classes as defined in Regulation (EC) $N^0$ 1272/2008.

Splatters in the eyes can cause irritation and reversible damage.

#### Toxicological information.

N	A
Name	Acute toxicity

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	Туре	Test	Kind	Value
	Oval	LD50	Rat	>2000 mg/kg [1]
	Oral	[1] OCDE	401	
Aluminium sulfate	Dermal	LD50	Rabbit	>5000 mg/kg [1]
	Definal	[1] OCDE	402	
CAS No: 10043-01-3	3-135-0 Inhalation			

a) acute toxicity;

Not conclusive data for classification.

b) skin corrosion/irritation;

Not conclusive data for classification.

c) serious eye damage/irritation;

Product classified:

Serious eye damage, Category 1: Causes serious eye damage.

d) respiratory or skin sensitisation;

Not conclusive data for classification.

e) germ cell mutagenicity;

Not conclusive data for classification.

f) carcinogenicity;

Not conclusive data for classification.

g) reproductive toxicity;

Not conclusive data for classification.

h) STOT-single exposure;

Not conclusive data for classification.

i) STOT-repeated exposure;

Not conclusive data for classification.

j) aspiration hazard;

Not conclusive data for classification.

## 11.2 Information on other hazards.

## **Endocrine disrupting properties**

This product does not contain components with endocrine-disrupting properties with effects on human health.

## Other information

There is no information available on other adverse health effects.

## **SECTION 12: ECOLOGICAL INFORMATION.**

## 12.1 Toxicity.

Name	Ecotoxicity			
Name	Туре	Test	Kind	Value
	Fish	LC50	Fish	> 1000 mg/l (96 h)
Aluminium sulfate	Aquatic invertebrates	LC50	Daphnia	> 160 mg/l (48h)
	Aquatic plants			

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CAS No: 10043-01-3 EC No: 233-135-0

#### 12.2 Persistence and degradability.

No information is available regarding the biodegradability

No information is available on the degradability

No information is available about persistence and degradability of the product.

#### 12.3 Bioaccumulative potential.

No information is available regarding the bioaccumulation.

#### 12.4 Mobility in soil.

No information is available about the mobility in soil.

The product must not be allowed to go into sewers or waterways.

Prevent penetration into the ground.

## 12.5 Results of PBT and vPvB assessment.

No information is available about the results of PBT and vPvB assessment of the product.

#### 12.6 Endocrine disrupting properties.

This product doesn't contain components with environmental endocrine disrupting properties.

#### 12.7 Other adverse effects.

No information is available about other adverse effects for the environment.

#### **SECTION 13: DISPOSAL CONSIDERATIONS.**

## 13.1 Waste treatment methods.

Do not dump into sewers or waterways. Waste and empty containers must be handled and eliminated according to current, local/national legislation.

Follow the provisions of Directive 2008/98/EC regarding waste management.

## **SECTION 14: TRANSPORT INFORMATION.**

Transportation is not dangerous. In case of road accident causing the product's spillage, proceed in accordance with point 6.

### 14.1 UN number or ID number.

Transportation is not dangerous.

# 14.2 UN proper shipping name.

Description:

ADR/RID: Not classified as hazardous for transport. IMDG: Not classified as hazardous for transport.

ICAO/IATA: Not classified as hazardous for transport.

## 14.3 Transport hazard class(es).

Transportation is not dangerous.

## 14.4 Packing group.

Transportation is not dangerous.

## 14.5 Environmental hazards.

Transportation is not dangerous.

Transport by ship, FEm – Emergency sheets (F – Fire, S - Spills): Not applicable.

## 14.6 Special precautions for user.

Transportation is not dangerous.

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#### 14.7 Maritime transport in bulk according to IMO instruments.

Transportation is not dangerous.

## **SECTION 15: REGULATORY INFORMATION.**

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

The product is not affected by the Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer.

Product classification according to Annex I of Directive 2012/18/EU (SEVESO III): N/A

The product is not affected by Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products.

The product is not affected by the procedure established Regulation (EU) No 649/2012, concerning the export and import of dangerous chemicals.

Kind of pollutant to water (Germany): nwg: Non-hazardous to water. (Autoclassified according to the AwSV Regulations)

#### 15.2 Chemical safety assessment.

The supplier has carried out a Chemical Safety Assessment for the substance/mixture. Available Product Exposure Scenario.

#### **SECTION 16: OTHER INFORMATION.**

Classification codes:

Eye Dam. 1: Serious eye damage, Category 1

Changes regarding to the previous version:

- Modification of specific hazards (SECTION 2.3).
- Modification in the firefighting measures (SECTION 5.2).
- Modifications in the accidental release measures (SECTION 6.1).
- Modification in the values of the physical and chemical properties (SECTION 9).
- Change in the hazard classification (SECTION 11.1).
- Modification of the classification ADR/IMDG/ICAO/IATA/RID (SECTION 14).

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

On basis of test data Physical hazards Health hazards Calculation method **Environmental hazards** Calculation method

It is advisable to carry out basic training with regard to health and safety at work in order to handle this product correctly.

Available Product Exposure Scenario.

Abbreviations and acronyms used:

Facility Regulations for handling substances that are hazardous for the water. AwSV:

CEN: European Committee for Standardization.

DMEL: Derived Minimal Effect Level, exposure level corresponding to a low risk, that risk should be

considered a tolerable minimum.

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DNEL: Derived No Effect Level, level of exposure to the substance below which adverse effects are not

anticipated.

EC50: Half maximal effective concentration. PPE: Personal protection equipment. LC50: Lethal concentration, 50%.

LD50: Lethal dose, 50%.

PNEC: Predicted No Effect Concentration, concentration of the substance below which adverse effects are

not expected in the environmental compartment.

WGK: Water hazard classes.

Key literature references and sources for data:

http://eur-lex.europa.eu/homepage.html

http://echa.europa.eu/

Regulation (EU) 2020/878. Regulation (EC) No 1907/2006. Regulation (EU) No 1272/2008.

The information given in this Safety Data Sheet has been drafted in accordance with COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemical substances and mixtures (REACH).

The information in this Safety Data Sheet on the Preparation is based on current knowledge and on current EC and national laws, as far as the working conditions of the users is beyond our knowledge and control. The product must not be used for purposes other than those that are specified without first having written instructions on how to handle. It is always the responsibility of the user to take the appropriate measures in order to comply with the requirements established by current legislation. The information contained in this Safety Sheet only states a description of the safety requirements for the preparation, and it must not be considered as a guarantee of its properties.

# Annex I – Exposure scenarios

Section 1	Exposure Scenario Title
Title	Manufacture of Aluminium salts - solid - high dust; Aluminium content = max. 25%
Use Descriptor	Sector of Use: SU8, SU9
	Process Categories: PROC1: Use in a closed process, no likelihood of exposure PROC2: Use in a closed continuous process, with occasional controlled exposure PROC3: Use in a closed batch process (synthesis or formulation) PROC4: Use in a batch and other process (synthesis) where opportunity for exposure arises PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15: Use as a laboratory reagent
	Environmental Release Categories: ERC1: Manufacture of substances
Processes, tasks, activities covered	Manufacture of the substance. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities
Exposure criteria	DNEL, inhalation long term: 1.8 mg/m³
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, high dustiness [OC6]
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15] Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [E119]
Contributing Scenarios	Risk Management Measures

Below pH2 and above pH11 the substance has corrosive properties:				
Jse suitable eye protection [PPE26]				
Avoid skin contact: Wear suitable gloves tested to EN374 [PPE15]				
PROC1:	No specific measures identified [El18].			
General exposures				
(closed systems) [CS15].	Recommendations:			
Continuous process	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}			
[CS54].				
Process sampling [CS2]				
(closed systems) [CS107]				
PROC2:	Industrial workers:			
General exposures [CS1].	No specific measures identified [EI18].			
Continuous process [CS54].				
Process sampling [CS2] (open	Professional workers:			
systems) [CS108]	Ensure material transfers are under containment or extract ventilation (80% efficiency)			
	[E66].  Provide extract ventilation to material transfer points and other openings			
	(80% efficiency) [E82].			
	(00 % eniciency) [L02].			
	Recommendations:			
	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear			
	spills immediately [C&H13]}			
PROC3:	Industrial workers:			
General exposures [CS1]. Use in	No specific measures identified [El18].			
contained batch processes	No specific measures identified [Erro].			
[CS37].	Professional workers:			
With sample collection	Ensure material transfers are under containment or extract ventilation (80% efficiency)			
[CS56].	[E66].			
Equipment cleaning and	Provide extract ventilation to material transfer points and other openings			
maintenance	(80% efficiency) [E82]			
[CS39].				
	Recommendations:			
	{Ensure the system is closed}			
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.			
	{Clear spills immediately [C&H13]}.			
PROC4:	Industrial			
General exposures (open	workers:			
systems) [CS16]. Batch process	5-25%:			
[CS55] (open systems) [CS108];	Ensure material transfers are under containment or extract ventilation (90% efficiency)			
Drum/batch transfers [CS8].	[E66].			
With sample collection [CS56].	Provide extract ventilation to material transfer points and other openings			
Equipment cleaning and	(90% efficiency) [E82].			
maintenance [CS39].	Professional			
	workers: 5-			
	25%:			
	Ensure material transfers are under containment or extract ventilation (80% efficiency)			
	[E66].			
L	6   4			

Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]. Avoid carrying out operation for more than 1 hour [OC11] Or: Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29] 1-5%: Avoid carrying out operation for more than 15 minutes [OC10] <1%: Avoid carrying out operation for more than 1 hour [OC11] Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}. PROC8b: Industrial General exposures. workers: open systems [CS16]. Dedicated 5-25%: facility [CS81] Ensure material transfers are under containment or extract ventilation (90% efficiency) Material transfers [CS3]. Equipment cleaning and Provide extract ventilation to material transfer points and other openings maintenance [CS39]. (90% efficiency) [E82]. Bulk transfers [CS14]. Use bulk or semi-bulk handling systems [E43]. Discharge sacks via suitable vented charge chute [E44]. Professional workers: 5-25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]. Avoid carrying out operation for more than 1 hour [OC11] Use bulk or semi-bulk handling systems [E43]. Discharge sacks via suitable vented charge chute [E44]. Or: Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%: Avoid carrying out operation for more than 15 minutes [OC10] <1%: Avoid carrying out operation for more than 1 hour [OC11]

Recommendations:

	{Drain down and flush system prior to equipment break-in or maintenance [E55]}
	{Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}.
	{Clear spills immediately [C&H13]}.
PROC15:	Carry out in a vented booth or extracted enclosure (80% efficiency) [E57].
General exposures [CS1].	
Laboratory activities	Recommendations:
[CS36].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.
Small scale [CS61].	(Clean equipment and the work area every day [C&H3]).
	{Clear spills immediately [C&H13]}.
Section 2.2	Control of environmental exposure
environment). Aluminum (Al) is the rand is therefore found in great abunda (30,000-80,000 ppm) are not uncom	ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust dance in both the terrestrial and sediment environments. Concentrations of 3-8% amon. The relative contributions of anthropogenic aluminum to the existing natural pools is very small, and therefore, not relevant either in terms of added amounts or in terms of
Section 3	Exposure Estimation
3.1. Health	
Predicted exposures are not expec	ted to exceed the applicable exposure limits (given in section8 of the SDS) when the
·	nent measures given in section 2 are implemented [G29]
3.2. Environment	
N.A.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
The ECETOC TRA (V2.0) tool has b	peen used to estimate workplace exposures unless otherwise indicated [G21]
4.2. Environment	
N.A.	
Section 5	Additional good practice advice beyond the REACH Chemical
	Safety Assessment - (Section Optional)
	this section have not been taken into account in the exposure estimates related  They are not subject to obligation laid down in Article 37 (4) of REACH.
Control of Worker Exposure	· · · · · · · · · · · · · · · · · · ·
Use of PPE	Skin protection:
	Gloves:
	-Observe breakthrough time of the gloves used
	Respiratory protection:
	Respirators:
	-Wear a disposable mask only once
	-Clean non-disposable masks after each use and store in a clean box in a
	clean area
	-Wear respirators ≤ 2 hrs/day
	1 1704 100phatoro = 2 morady

ES1 - Manufacture of Aluminium salts - solid - low dust; Aluminium content= max. 25%		salts - solid - low dust; Aluminium content= max. 25%
	Section 1	Exposure Scenario Title

Title	Manufacture of Aluminium salts - solid - low dust; Aluminium content = max. 25%
Use Descriptor	Sector of Use: Industrial (SU8, SU9)
	Process Categories: PROC1: Use in a closed process, no likelihood of exposure PROC2: Use in a closed continuous process, with occasional controlled exposure PROC3: Use in a closed batch process (synthesis or formulation) PROC4: Use in a batch and other process (synthesis) where opportunity for exposure arises PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15: Use as a laboratory reagent Environmental Release Categories: ERC1: Manufacture of substances
Processes, tasks, activities covered	Manufacture of the substance. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities
Exposure criteria	DNEL, inhalation long term: 1.8 mg/m³
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, low dustiness [OC1]
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
Below pH2 and above pH11 the properties: Use suitable eye prot Avoid skin contact: Wear suitable	
PROC1: General exposures (closed systems) [CS15]. Continuous process [CS54]. Process sampling [CS2] (closed systems) [CS107]	No specific measures identified [El18].  Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}.

PROC2:	No specific measures identified [EI18].
General exposures [CS1].	140 openio medadrea identined [E110].
Continuous process [CS54].	Recommendations:
Process sampling [CS2]	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}.
(open systems) [CS108]	(
PROC3:	No specific measures identified [El18].
General exposures [CS1]. Use in	
contained batch processes	Recommendations:
[CS37].	{Ensure the system is closed}
With sample collection	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clear
[CS56].	spills immediately [C&H13]}.
Equipment cleaning and	
maintenance	
[CS39].	
PROC4:	No specific measures identified [El18].
General exposures (open	The specific measures restrained [2110].
systems) [CS16]. Batch process	Recommendations:
[CS55] (open systems)	{Ensure the system is closed};
[CS108]; Drum/batch	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clear
transfers [CS8]. With	spills immediately [C&H13]}.
sample collection [CS56].	spins inititediately [Odiffo]].
Equipment cleaning and	
maintenance [CS39].	
PROC8b:	No apposition recovers identified [FI40]
	No specific measures identified [El18].
General exposures, open	December and the second
systems [CS16]. Dedicated	Recommendations:
facility [CS81]	{Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pumps
Material transfers [CS3].	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Equipment cleaning and	
maintenance [CS39].	
Bulk transfers [CS14].	N
PROC1	No specific measures identified [El18].
5:	
General exposures [CS1].	Recommendations:
Laboratory activities	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean
[CS36].	equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Small scale [CS61].	
Section 2.2	Control of environmental exposure

Aluminum, aluminum powders, aluminum oxide and soluble aluminum compounds are non hazardous (not classified for the environment). Aluminum (AI) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore found in great abundance in both the terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. The relative contributions of anthropogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and therefore, not relevant either in terms of added amounts or in terms of toxicity.

Section 3 Exposure Estimation

## 3.1. Health

Predicted exposures are not expected to exceed the applicable exposure limits (given in section8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]

## 3.2. Environment

N.A.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
The ECETOC TRA (V2.0) tool has	been used to estimate workplace exposures unless otherwise indicated [G21]
4.2. Environment	
N.A.	
Section 5	Additional good practice advice beyond the REACH Chemical
	Safety Assessment - (Section Optional)
	this section have not been taken into account in the exposure estimates related to the are not subject to obligation laid down in Article 37 (4) of REACH.
Use of PPE	Skin protection:
	Gloves:
	-Observe breakthrough time of the gloves used
	Respiratory protection: Respirators: -Wear a disposable mask only once -Clean non-disposable masks after each use and store in a clean box in a clean area -Wear respirators ≤ 2 hrs/day

ES2 - Formulation and I	Distribution of Aluminium salts - solid, high dustiness; max. Aluminium content= 25%
Section 1	Exposure Scenario Title
Title	Formulation and Distribution of Aluminium salts; max. Aluminium content = 25%
Use Descriptor	Sector of Use: SU10
	Process Categories:
	PROC1: Use in a closed process, no likelihood of exposure PROC2: Use in a closed continuous process, with occasional controlled exposure PROC3: Use in a closed batch process (synthesis or formulation)
	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletization PROC15: Use as a laboratory reagent
	PROC19: Hand-mixing with intimate contact and only PPE available
	Environmental Release Categories:

	ERC2: Formulation of preparations
Processes, tasks, activities covered	Adding Al. salts (Al. content = max. 25%) to liquid and solid formulations; includes distribution and associated laboratory activities. Distribution: loading and (re)packing of the substances.
GES exposure criteria	DNEL, inhalation long term: 1.8 mg/m3
Section 2	Control of worker exposure
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, high dustiness [OC6]
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Other Operational Conditions affecting worker exposure	Assumes use at not > 20 ℃ above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposure [EI19]
Contributing Scenarios	Risk Management Measures
Below pH2 and above pH11 the	e substance has corrosive properties:
Use suitable eye protection [PP	E26].
	cally resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC1: General exposures (closed systems) [CS15]. Continuous process [CS54]. Process sampling [CS2] (closed systems) [CS107]	No specific measures identified [EI18].  Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}.
PROC2: General exposures [CS1]. Continuous process [CS54]. Process sampling [CS2] (open systems) [CS108]	Industrial workers: No specific measures identified [EI18].  Professional workers: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].

	Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}
PROC3: General exposures [CS1].	Industrial workers: No specific measures identified [El18].
Use in contained batch processes [CS37]. With sample collection [CS56]. Equipment cleaning and maintenance [CS39].	Professional workers: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]
	Recommendations:
	{Ensure the system is closed} {Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clear spills immediately [C&H13]}.
PROC4:	Industrial workers: 5-25%:
General exposures (open systems) [CS16]. Batch process [CS55] (open systems) [CS108];	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].
Drum/batch transfers [CS8]. With sample collection [CS56].	Professional workers: 5-25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency)
Equipment cleaning and maintenance [CS39].	[E82]. Avoid carrying out operation for more than 1 hour [OC11] Or:
	Avoid carrying out operation for more than 4 hours [OC12] plus. Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29] 1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%: Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC5:	Industrial workers:
General exposures (open systems) [CS16]. Mixing operations	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].
(open systems) [CS30]. Material	Professional workers: 5-25%:
transfers [CS3].	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency)

Batch process [CS55].	[E82].
Cleaning [CS47].	Avoid carrying out operation for more than 1 hour [OC11]
	OR:
	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140
	with Type A/P2 filter or better [PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps
	[E53]]. {Clean equipment and the work area every day [C&H3]}. {Clear spills
	immediately [C&H13]}.
PROC8a:	5-25%:
General exposures (open	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide
systems) [CS16];	extract ventilation to material transfer points and other openings (80% efficiency)
Non-dedicated facility [CS82];	[E82].
Material transfers [CS3].	Avoid carrying out operation for more than 1 hour [OC11]
Equipment cleaning and	OR:
maintenance [CS39]. Bulk transfers [CS14].	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
Buik transiers [CS14].	1-5%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. ; Provide
	extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 4 hours [OC12]
	Avoid carrying out operation for more than 4 hours [OC12]
	Recommendations:
	Use bulk or semi-bulk handling systems [E43].;
	Discharge sacks via suitable vented charge chute [E44].{Drain down and flush system prior to
	equipment break-in or maintenance [E55]}.;
	{Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]} .{Clear spills
	immediately [C&H13]}
PROC8b:	Industrial workers: 5-25%:
General exposures, open	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]
systems [CS16].	Provide extract ventilation to material transfer points and other openings (90% efficiency)
Dedicated facility [CS81]	[E82].
Material transfers [CS3].	
Equipment cleaning and	Use bulk or semi-bulk handling systems [E43].
maintenance [CS39].	Discharge sacks via suitable vented charge chute [E44].
Bulk transfers [CS14].	
	Professional workers: 5-25%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].; Provide
	extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 1 hour [OC11] Use bulk or semi-bulk handling systems [E43].
	Discharge sacks via suitable vented charge chute [E44].
	Pisonalyo saons via sullable veriled charge chute [L44].

Or: Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%: Avoid carrying out operation for more than 15 minutes [OC10] <1%: Avoid carrying out operation for more than 1 hour [OC11]  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%: Avoid carrying out operation for more than 15 minutes [OC10] <1%: Avoid carrying out operation for more than 1 hour [OC11]  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pumps	
1-5%: Avoid carrying out operation for more than 15 minutes [OC10] <1%: Avoid carrying out operation for more than 1 hour [OC11]  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
Avoid carrying out operation for more than 15 minutes [OC10] <1%: Avoid carrying out operation for more than 1 hour [OC11]  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
<1%: Avoid carrying out operation for more than 1 hour [OC11]  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
<1%: Avoid carrying out operation for more than 1 hour [OC11]  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
Avoid carrying out operation for more than 1 hour [OC11]  Recommendations:  {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
{Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
{Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pump	
	ne
	•
[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]	
PROC9: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Prov	vide
General exposures [CS1]. extract ventilation to material transfer points and other openings (80% efficiency)	
Dedicated facility [CS81] [E82].	
Drum and small package Avoid carrying out operation for more than 4 hours [OC12]{	
filling [CS6].	
Equipment cleaning and	
maintenance [CS39]. Recommendations:	
Use bulk or semi-bulk handling systems [E43].;	
Discharge sacks via suitable vented charge chute [E44].Drain down and flush system prior to	
equipment break-in or maintenance [E55]}. {Clean equipment and the work area every day [C&H3	31}.
{Clear spills immediately [C&H13]}.	1,
PROC14 Industrial:	
General exposures (open Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Prov	vide
systems) [CS16] extract ventilation to material transfer points and other openings (90% efficiency)	
Production or preparation or [E82].	
articles by tabletting, Or:	
compression,  Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]	
extrusion or pelletization  Or:	
Avoid carrying out operation for more than 4 hours [OC12	
<1%:	
No specific measures identified [El18].	
Duefo exists of 5 050/	
Professional: 5-25%:	- لمانيم
Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].; Pro	ovide
extract ventilation to material transfer points and other openings (80% efficiency). [E82].	
Avoid carrying out operation for more than 1 hour [OC11]	
Or:	
Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;	
Provide extract ventilation to material transfer points and other openings (80% efficiency)	
[E82].	
Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]	
1-5%:	
Avoid carrying out operation for more than 15 minutes [OC10]	
<1%:	
Avoid carrying out operation for more than 1 hour [OC11]	
Recommendations:	

{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Carry out in a vented booth or extracted enclosure (80% efficiency) [E57].
Recommendations:
{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean equipment and
the work area every day [C&H3]}.
{Clear spills immediately [C&H13]}.
Industrial workers:
5-25%:
Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29]
<5%:
Avoid carrying out operation for more than 1 hour [OC11]
<1%:
Avoid carrying out operation for more than 4 hours [OC12
Professional workers::
5-25%:
Avoid carrying out operation for more than 4 hours [OC12]
Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
<5%:
Avoid carrying out operation for more than 15 minutes [OC10]
<1%:
Avoid carrying out operation for more than 1 hour [OC11]{
Recommendations:
{Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}
{Stay upwind/keep distance from source [El22]}
Industrial workers:
5-25%:
Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29]
<5%: Avoid carrying out operation for more than 1 hour [OC11]
<1%:
Avoid carrying out operation for more than 4 hours [OC12
Professional workers::
5-25%:
Avoid carrying out operation for more than 4 hours [OC12]
Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
<5%:
Avoid carrying out operation for more than 15 minutes [OC10] <1%:
Avoid carrying out operation for more than 1 hour [OC11]{
Recommendations:
{Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]} {Stay upwind/keep distance from source [El22]}

#### Section 2.2

Control of environmental exposure

Aluminum, aluminum powders, aluminum oxide and soluble aluminum compounds are non hazardous (not classified for the environment). Aluminum (Al) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore found in great abundance in both the terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. The relative contributions of anthropogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and therefore, not relevant either in terms of added amounts or in terms of toxicity.

#### Section 3

Exposure Estimation

#### 3.1. Health

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]

#### 3.2. Environment N.A.

Section 4

Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

The ECETOC TRA (V2.0) tool has been used to estimate workplace exposures unless otherwise indicated [G21]

#### 4.2. Environment

N.A.

Section 5	Additional good practice advice beyond the REACH Chemical Safety
	Assessment - (Section Ontional)

Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.

#### Control of Worker Exposure

Use of PPE	Skin protection:
	Gloves:
	-Observe breakthrough time of the gloves used
	Respiratory protection:
	Respirators:
	-Wear a disposable mask only once
	-Clean non-disposable masks after eah use and store in a clean box in a clean area
	-Wear respirators ≤ 2 hrs/day

ES2 - Formulation and Dis	stribution of Aluminium salts - solid, low dust; Max. Aluminium content = 25%
Section 1	Exposure Scenario Title
Title	Formulation and Distribution of Aluminium salts (solid, low dust); Max. Aluminium content = 25%
Use Descriptors	Sector of Use: SU10
Ose Descriptors	Process Categories:
	PROC1: Use in a closed process, no likelihood of exposure
	PROC2: Use in a closed continuous process, with occasional controlled exposure PROC3: Use in a
	closed batch process (synthesis or formulation)
	PROC4: Use in batch and other process (synthesis) where opportunity for exposure

non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletization PROC15: Use as a laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available
weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletization PROC15: Use as a laboratory reagent
Environmental Release Categories: ERC2: Formulation of preparations
Adding Alu salts (solid, low dust) to liquid and solid formulations; includes distribution and associated laboratory activities (max Alu content = 25%). Distribution: loading and (re)packing of the substances. Max. Alu content = 25%
DNEL, inhalation long term: 1.8 mg/m3
Operational conditions and risk management measures
Control of worker exposure
<u> </u>
Solid, low dustiness [OC1]
Covers percentage substance in the product up to 25% [G12].
Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Covers daily exposures up to 8 hours (unless stated differently) [G2]
Not applicable
Assumes use at not > 20oC above ambient [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposure [EI19]
Risk Management Measures
bstance has corrosive properties: 5]. y resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
No specific measures identified [EI18].  Recommendations:  {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}.

PROC2: General exposures [CS1]. Continuous process [CS54]. Process sampling [CS2] (open systems) [CS108]	No specific measures identified [El18].  Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}.
PROC3: General exposures [CS1]. Use in contained batch processes [CS37].; With sample collection [CS56]. Equipment cleaning and maintenance [CS39]. PROC4: General exposures (open systems) [CS16]. Batch process [CS55] (open systems)	No specific measures identified [EI18].  Recommendations: {Ensure the system is closed}; {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clear spills immediately [C&H13]}.  No specific measures identified [EI18].  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps
[CS108]; Drum/batch transfers [CS8]. With sample collection [CS56]. Equipment cleaning and maintenance [CS39].	[E53]}. {Clean equipment and the work area every day [C&H3]}. ; {Clear spills immediately [C&H13]}.
PROC5: General exposures (open systems) [CS16]. Mixing operations (open systems) [CS30]. Material transfers [CS3].; Batch process [CS55].; Cleaning [CS47].	No specific measures identified [EI18].  Recommendations:  {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC8a: General exposures (open systems) [CS16]; Non-dedicated facility [CS82]; Material transfers [CS3].; Equipment cleaning and maintenance [CS39].; Bulk transfers [CS14].	No specific measures identified [EI18].  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}
PROC8b: General exposures, open systems [CS16]. Dedicated facility [CS81] Material transfers [CS3]. Equipment cleaning and maintenance [CS39]	No specific measures identified [EI18].  {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.

Bulk transfers [CS14].	
PROC9:	No specific measures identified [El18].
General exposures [CS1].	
Dedicated facility [CS81]	Recommendations:
Drum and small package	{Drain down and flush system prior to equipment break-in or maintenance [E55]} .{Clean
filling [CS6].	equipment and the work area every day [C&H3]}.{Clear spills immediately [C&H13]}.
Equipment cleaning and	
maintenance [CS39].	
PROC14:	No specific measures identified [El18].
General exposures (open	
systems) [CS16] Production or	Recommendations:
preparation or articles by	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
tabletting, compression,	equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
extrusion or pelletization	
[CS100]	
PROC15:	No specific measures identified [El18].
General exposures [CS1].	
Laboratory activities	Recommendations:
[CS36].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
Small scale [CS61].	equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC19:	No specific measures identified [El18].
General exposures	
[CS1]. Mixing	Recommendations:
operations (open	{Clean equipment and the work area every day [C&H3]}.; {Clear spills
systems) [CS30].	immediately [C&H13]}
Manual [CS34].	
Section 2.2	Control of environmental exposure

Aluminum, aluminum powders, aluminum oxide and soluble aluminum compounds are non hazardous (not classified for the environment). Aluminum (Al) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore found in great abundance in both the terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. The relative contributions of anthropogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and therefore, not relevant either in terms of added amounts or in terms of toxicity.

Section 3 Exposure Estimation

#### 3.1. Health

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]

3.2. Environment	
N.A.	
Section 4	Guidance to check compliance with the Exposure Scenario.
4.1. Health	
The ECETOC TRA (V2.0) tool has been used to estimate workplace exposures unless otherwise indicated [G21]	
4.9 Engineerment	

#### 4.2. Environment

Ν	.A.
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Section 5
Additional good practice advice beyond the REACH Chemical Safety

	Assessment - (Section Optional)
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.  Control of Worker Exposure	
Use of PPE	Skin protection:
	Gloves:
	- Observe breakthrough time of the gloves used
	Respiratory protection:
	Respirators:
	- Wear a disposable mask only once
	- Clean non-disposable masks after each use and store in a clean box in a clean area
	- Wear respirators ≤ 2 hrs/day

Section 1	Exposure Scenario Title
Title	Use of Aluminium salts (solid, high dustiness) in synthesis as a process chemical and as an intermediate; Aluminium content = max. 25%
Use Descriptor	Sector of Use: SU6b, SU8, SU9, SU14  Process Categories:  PROC1: Use in a closed process, no likelihood of exposure  PROC2: Use in a closed continuous process, with occasional controlled exposure  PROC3: Use in a closed batch process (synthesis or formulation)  PROC4: Use in a batch and other process (synthesis) where opportunity for exposure arises  PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large  containers at non-dedicated facilities  PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large  containers at dedicated facilities  PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  PROC15: Use as a laboratory reagent
	Environmental Release Categories:  ERC1: Manufacture of substances  ERC2: Formulation of preparations
	ERC4: Industrial use ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC8a: Wide dispersive indoor use of processing aids in open systems
Processes, tasks, activities covered	Use of Aluminium salts (solid, high dustiness) in synthesis as a process chemical and as an intermediate Includes material transfers and associated laboratory activities. Max. Aluminium content = 25%

Exposure criteria	DNEL, inhalation long term: 1.8 mg/m³
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	Control of Worker expectation
Physical form of product	Solid, high dustiness [OC6]
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15] Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
Use suitable eye protection [PPE2	ubstance has corrosive properties:  26]  Illy resistant gloves (tested to EN374) in combination with specific activity training [PPE17]  No specific measures identified [EI18].  Recommendations:
[CS15]. Continuous process [CS54]. Process sampling [CS2] (closed systems) [CS107]	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}
PROC2: General exposures [CS1]. Continuous process [CS54].	Industrial workers:  No specific measures identified [EI18].
Process sampling [CS2] (open systems) [CS108]	Professional workers: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].
	Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}
PROC3: General exposures [CS1]. Use in contained batch processes [CS37].	Industrial workers:  No specific measures identified [El18].  Professional workers:
With sample collection [CS56]. Equipment cleaning and maintenance [CS39].	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].  Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]

	Recommendations: {Ensure the system is closed} {Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clear spills immediately [C&H13]}.
PROC4: General exposures (open systems) [CS16]. Batch process [CS55] (open systems) [CS108];	Industrial workers: 5-25%: Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].
Drum/batch transfers [CS8].  With sample collection [CS56].  Equipment cleaning and maintenance [CS39].	Professional workers: 5-25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].  Avoid carrying out operation for more than 1 hour [OC11]  Or:  Avoid carrying out operation for more than 4 hours [OC12] plus
	Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29] 1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10] <1%:  Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:  {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC8a: General exposures (open systems) [CS16]; Non-dedicated facility [CS82];	5-25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].
Material transfers [CS3].  Equipment cleaning and	Avoid carrying out operation for more than 1 hour[OC11] OR:
maintenance [CS39]. Bulk transfers [CS14].	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].; Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].
	Avoid carrying out operation for more than 4 hours [OC12]  Recommendations:
	Use bulk or semi-bulk handling systems [E43].; Discharge sacks via suitable vented charge chute [E44].{Drain down and flush system prior to equipment break-in or maintenance [E55]}.; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]} .{Clear spills
PROC8b:	immediately [C&H13]}. Industrial workers: 5-25%:
General exposures, open systems [CS16]. Dedicated	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]
facility [CS81]	Provide extract ventilation to material transfer points and other openings (90% efficiency)

Material transfers [CS3].	[E82].
Equipment cleaning and	
maintenance [CS39].	Use bulk or semi-bulk handling systems [E43].
Bulk transfers [CS14].	Discharge sacks via suitable vented charge chute [E44].
	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -
	Professional workers: 5-25%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 1 hour [OC11] Use bulk or
	semi-bulk handling systems [E43].
	Discharge sacks via suitable vented charge chute [E44].
	Or:
	Avoid carrying out operation for more than 4 hours [OC12] plus
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pumps
	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC9:	Ensure material transfers are under containment or extract ventilation (80% efficiency)
General exposures [CS1].	[E66].
Dedicated facility [CS81]	Provide extract ventilation to material transfer points and other openings (80% efficiency)
Drum and small package filling	[E82].
[CS6].	Avoid carrying out operation for more than 4 hours [OC12]{
Equipment cleaning and maintenance [CS39].	Recommendations:
mamenanos (occo).	Use bulk or semi-bulk handling systems [E43].; Discharge sacks via suitable vented charge chute [E44].Drain down and flush system prior to
	equipment break-in or maintenance [E55]]. {Clean equipment and the work area every day [C&H3]}.
	{Clear spills immediately [C&H13]}.
PROC15:	Carry out in a vented booth or extracted enclosure (80% efficiency) [E57].
General exposures [CS1].	, ,
Laboratory activities	Recommendations:
[CS36].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean
·	
Small scale [CS61].	equipment and the work area every day [C&H3]}.
	equipment and the work area every day [C&H3]}.  {Clear spills immediately [C&H13]}.
Small scale [CS61].  Section 2.2	{Clear spills immediately [C&H13]}.  Control of environmental exposure
Small scale [CS61].  Section 2.2  Aluminum, aluminum powders, alum	{Clear spills immediately [C&H13]}.  Control of environmental exposure  ninum oxide and soluble aluminum compounds are non hazardous (not classified for the
Small scale [CS61].  Section 2.2  Aluminum, aluminum powders, alum environment). Aluminum (Al) is the n	{Clear spills immediately [C&H13]}.  Control of environmental exposure  ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore
Small scale [CS61].  Section 2.2  Aluminum, aluminum powders, alum environment). Aluminum (Al) is the n found in great abundance in both the	{Clear spills immediately [C&H13]}.  Control of environmental exposure  ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon.
Small scale [CS61].  Section 2.2  Aluminum, aluminum powders, alum environment). Aluminum (Al) is the n found in great abundance in both the The relative contributions of anthrope	{Clear spills immediately [C&H13]}.  Control of environmental exposure  ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. ogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and
Small scale [CS61].  Section 2.2  Aluminum, aluminum powders, alumenvironment). Aluminum (Al) is the notation found in great abundance in both the The relative contributions of anthropotherefore, not relevant either in terms	{Clear spills immediately [C&H13]}.  Control of environmental exposure  ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore elementerial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. ogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and so of added amounts or in terms of toxicity.
Small scale [CS61].  Section 2.2  Aluminum, aluminum powders, alumenvironment). Aluminum (Al) is the notation found in great abundance in both the The relative contributions of anthropetherefore, not relevant either in terms Section 3	{Clear spills immediately [C&H13]}.  Control of environmental exposure  ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. ogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and
Small scale [CS61].  Section 2.2  Aluminum, aluminum powders, alumenvironment). Aluminum (Al) is the notation of another the relative contributions of anthropotherefore, not relevant either in terms Section 3  3.1. Health	{Clear spills immediately [C&H13]}.  Control of environmental exposure  ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore elementerial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. ogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and so of added amounts or in terms of toxicity.

conditions/risk management measures given in section 2 are implemented [G29]			
3.2. Environment			
N.A.			
Section 4	Guidance to check compliance with the Exposure Scenario		
4.1. Health	4.1. Health		
The ECETOC TRA (V2.0) tool has b	The ECETOC TRA (V2.0) tool has been used to estimate workplace exposures unless otherwise indicated [G21]		
4.2. Environment	4.2. Environment		
N.A.			
Section 5	Additional good practice advice beyond the REACH Chemical		
	Safety Assessment - (Section Optional)		
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.			
Control of Worker Exposure			
Use of PPE	Skin protection: Gloves:  -Observe breakthrough time of the gloves used  Respiratory protection: Respirators:  -Wear a disposable mask only once -Clean non-disposable masks after each use and store in a clean box in a clean area -Wear respirators ≤ 2 hrs/day		

ES3 - Use of Aluminium salts (solid, low dustiness) in synthesis as a process chemical and as an intermediate; Aluminium content =		
max. 25%	max. 25%	
Section 1	Exposure Scenario Title	
Title	Use of Aluminium salts (solid, low dustiness) in synthesis as a process chemical and as an	
	intermediate; Aluminium content = max. 25%	
Use Descriptor	Sector of Use: SU6b, SU8, SU9, SU14	
Coc Bescriptor	Process Categories:	
	PROC1: Use in a closed process, no likelihood of exposure	
	PROC2: Use in a closed continuous process, with occasional controlled exposure	
	PROC3: Use in a closed batch process (synthesis or formulation)	
	PROC4: Use in a batch and other process (synthesis) where opportunity for exposure arises	
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
	PROC15: Use as a laboratory reagent	
	Environmental Release Categories:	
	ERC1: Manufacture of substances	

	ERC2: Formulation of preparations  ERC4: Industrial use  ERC5: Industrial use resulting in inclusion into or onto a matrix
	ERC6a: Industrial use resulting in manufacture of another substance (use of
	intermediates)
	ERC8a: Wide dispersive indoor use of processing aids in open systems
Processes, tasks, activities covered	Use of Aluminium salts (solid, low dustiness) in synthesis as a process chemical and as an intermediate.  Includes material transfers and associated laboratory activities. Max. Aluminium content = 25%
Exposure criteria	DNEL, inhalation long term: 1.8 mg/m <sup>3</sup>
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, low dustiness [OC6]
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]
affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives
	are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
Below pH2 and above pH11 the s Use suitable eye protection [PPE2	substance has corrosive properties:
	ally resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC1:	No specific measures identified [El18].
General exposures	
(closed systems)	Recommendations:
[CS15]. Continuous	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}
process [CS54].	
Process sampling [CS2] (closed systems) [CS107]	
PROC2:	
General exposures [CS1].	No specific measures identified [El18].
Continuous process [CS54].	Recommendations:
Process sampling [CS2] (open	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately
systems) [CS108]	[C&H13]].
PROC3:	No specific measures identified [EI18].
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General exposures [CS1]. Use in contained batch processes	Recommendations:
[CS37].	{Ensure the system is closed};
With sample collection [CS56].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clear
Equipment cleaning and	spills immediately [C&H13]}.
maintenance [CS39].	
PROC4:	No specific measures identified [El18].
General exposures (open	
systems) [CS16]. Batch process	Recommendations:
[CS55] (open systems) [CS108];	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps
Drum/batch transfers [CS8].	[E53]}. {Clean equipment and the work area every day [C&H3]}.; {Clear spills immediately [C&H13]}.
With sample collection [CS56].	
Equipment cleaning and	
maintenance [CS39].	
PROC8a:	No specific measures identified [El18].
General exposures (open	
systems) [CS16]; Non-dedicated	Recommendations:
facility [CS82];	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Use drum pumps
Material transfers [CS3].	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Equipment cleaning and	
maintenance [CS39].	
Bulk transfers [CS14].	
PROC8b:	No specific measures identified [El18].
General exposures, open	
systems [CS16]. Dedicated	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Use drum pumps
facility [CS81]	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Material transfers [CS3].	
Equipment cleaning and	
maintenance [CS39].	
Bulk transfers [CS14].	
PROC9:	No specific measures identified [El18].
General exposures [CS1].	
Dedicated facility [CS81]	Recommendations:
Drum and small package filling	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean
[CS6].	equipment and the work area every day [C&H3]}.{Clear spills immediately [C&H13]}.
Equipment cleaning and	
maintenance [CS39].	
PROC15:	No specific measures identified [El18].
PROC15: General exposures [CS1].	
PROC15: General exposures [CS1]. Laboratory activities	Recommendations:
PROC15: General exposures [CS1]. Laboratory activities [CS36].	Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
PROC15: General exposures [CS1]. Laboratory activities	Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC15: General exposures [CS1]. Laboratory activities [CS36].	Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean

Aluminum, aluminum powders, aluminum oxide and soluble aluminum compounds are non hazardous (not classified for the environment). Aluminum (Al) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore found in great abundance in both the terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. The relative contributions of anthropogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and

therefore, not relevant either in terms of added amounts or in terms of toxicity.		
Section 3	Exposure Estimation	
3.1. Health		
Predicted exposures are not expected to exceed the applicable exposure limits (given in section8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]		
3.2. Environment		
N.A.		
Section 4	Guidance to check compliance with the Exposure Scenario	
4.1. Health		
The ECETOC TRA (V2.0) tool has been used to estimate workplace exposures unless otherwise indicated [G21]		
4.2. Environment		
N.A.		
Section 5	Additional good practice advice beyond the REACH Chemical	
	Safety Assessment - (Section Optional)	
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.		
Control of Worker Exposure		
Use of PPE	Skin protection: Gloves:  -Observe breakthrough time of the gloves used  Respiratory protection: Respirators: -Wear a disposable mask only once	
	-Clean non-disposable masks after each use and store in a clean box in a clean area -Wear respirators ≤ 2 hrs/day	
	-vveai respirators > 2 fils/day	

ES4 - Industrial and Professional use of Aluminium salts in spraying formulations - solid, high dustiness; max. Aluminium content = 25%		
Section 1	Exposure Scenario Title	
Title	Industrial and Professional use of Aluminium salts in spraying	
	formulations - solid, high dustiness; max. Aluminium content = 25%	
Use Descriptor	Sector of Use: SU5, SU6b, SU7	
	Process Categories:	
	PROC1: Use in a closed process, no likelihood of exposure	
	PROC2: Use in a closed continuous process, with occasional controlled exposure	
	PROC3: Use in a closed batch process (synthesis or formulation)	
	PROC5: Mixing or blending in batch processes for formulation of preparations and articles	
	(multistage and/or significant contact)	
	PROC7: Industrial spraying	
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large	
	containers at non-dedicated facilities	
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large	
	containers at dedicated facilities	

	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including
	weighing)
	PROC11: Non industrial spraying
	PROC19: Hand-mixing with intimate contact and only PPE available
	Environmental Release Categories:
	ERC3: Formulation in materials
	ERC4: Industrial use
	ERC5: Industrial use resulting in inclusion into or onto a matrix
	ERC6a: Industrial use resulting in manufacture of another substance (use of
	intermediates)
	ERC6b: Industrial use of reactive processing aids
	ERC8a: Wide dispersive indoor use of processing aids in open systems
	ERC8b: Wide dispersive indoor use of reactive substances in open systems
	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
	ERC10a: Wide dispersive outdoor use of long-life articles and materials with low
	release
	ERC11a: Wide dispersive indoor use of long-life articles and materials with low release
Processes, tasks, activities	Industrial and Professional use of Aluminium salts in spraying formulations - solid -high dustiness.
covered	Includes equipment cleaning and maintenance.
Exposure criteria	DNEL, inhalation long term: 1.8 mg/m³
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, high dustiness [OC6]
Concentration of substance in	Output and the state of the sta
product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Illumina factions and	Mat applicable
Human factors not	Not applicable
influenced by risk	
management	Assumes use at set 100cO above embient [C4F]
Other Operational Conditions	Assumes use at not > 200C above ambient [G15]
affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives
Contributing Socration	are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
	substance has corrosive properties:
Use suitable eye protection [PPE2	
	ally resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC1:	No specific measures identified [EI18].
General exposures	
(closed systems)	Recommendations:
[CS15]. Continuous	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}
process [CS54].	

Description (OCC)	
Process sampling [CS2] (closed systems) [CS107]	
PROC2:	Industrial workers:
General exposures [CS1].	No specific measures identified [El18].
Continuous process [CS54].	
Process sampling [CS2] (open	Professional workers:
systems) [CS108]	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Recommendations:
	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately
	[C&H13]}
PROC3:	Industrial workers:
General exposures [CS1]. Use in	No specific measures identified [El18].
contained batch processes	Duefeesierel werkere
[CS37].	Professional workers:  Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
With sample collection [CS56].	Provide extract ventilation to material transfer points and other openings (80% efficiency)
Equipment cleaning and maintenance [CS39].	[E82]
mamonanos (eccej.	
	Recommendations:
	{Ensure the system is closed}
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clear spills immediately [C&H13]}.
PROC5:	Industrial workers:
General exposures (open	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66].
systems) [CS16]. Mixing	Provide extract ventilation to material transfer points and other openings (90% efficiency)
operations (open systems)	[E82].
[CS30]. Material transfers [CS3].  Batch process [CS55].	Duefeesianal washaya 5 OFG/
Batch process [CS55]. Cleaning [CS47].	Professional workers: 5-25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 1 hour[OC11]
	OR:
	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes[OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps
	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC7:	5-25%:
General exposures	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66].

[CS1]. Spraying [CS10].	Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].  Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29] OR:  Avoid carrying out operation for more than 1 hour [OC11] 1-5%: Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82]. Avoid carrying out operation for more than 4 hours [OC12] <1%: Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66].
	Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].  Recommendations: {Clean equipment and the work area every day [C&H3]}. ; {Clear spills immediately [C&H13]}.
PROC8a: General exposures (open systems) [CS16]; Non-dedicated facility [CS82]; Material transfers [CS3]. Equipment cleaning and maintenance [CS39]. Bulk transfers [CS14].	5-25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]. Avoid carrying out operation for more than 1 hour [OC11] OR: Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].; Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]. Avoid carrying out operation for more than 4 hours [OC12]  Recommendations: Use bulk or semi-bulk handling systems [E43].; Discharge sacks via suitable vented charge chute [E44].{Drain down and flush system prior to equipment break-in or maintenance [E55]}.; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]} .{Clear spills immediately [C8 H3]} .{Clear spills immediately [C8 H3]}
PROC8b: General exposures, open systems [CS16]. Dedicated facility [CS81] Material transfers [CS3]. Equipment cleaning and maintenance [CS39]. Bulk transfers [CS14].	immediately [C&H13]}.  Industrial workers: 5- 25%: Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66] Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].  Use bulk or semi-bulk handling systems [E43]. Discharge sacks via suitable vented charge chute [E44].  Professional workers: 5-

	Tark
	25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].; Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]. Avoid carrying out operation for more than 1 hour [OC11] Use bulk or semi-bulk handling systems [E43]. Discharge sacks via suitable vented charge chute [E44].
	Or:
	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%: Avoid carrying out operation for more than 15 minutes [OC10] <1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC9: General exposures [CS1]. Dedicated facility [CS81]	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].  Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].
Drum and small package filling [CS6].	Avoid carrying out operation for more than 4 hours [OC12]{
Equipment cleaning and maintenance [CS39].	Recommendations:
	Use bulk or semi-bulk handling systems [E43].;
	Discharge sacks via suitable vented charge chute [E44]. Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC11:	5-25%:
General exposures [CS1]. Spraying [CS10].	Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings (80% efficiency) [E60].  Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 [E70].
	Avoid carrying out operation for more than 4 hours [OC12]  Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%:  Minimize exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings (80% efficiency) [E60].;
	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 [E70].
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations; {Clean equipment and the work area every day [C&H3]}.; {Clear spills immediately [C&H13]}.
PROC19	Industrial workers:
General exposures [CS1]. Mixing operations (open systems) [CS30].;	5-25%: Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29} <5%:

Manual [CS34].	Avoid carrying out operation for more than 1 hour [OC11]
Manual [0004].	<1%:
	Avoid carrying out operation for more than 4 hours [OC12
	Professional workers::
	5-25%:
	Avoid carrying out operation for more than 4 hours [OC12]
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	<5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]{
	Recommendations:
	(Clean equipment and the work area every day [C&H3]). (Clear spills
	immediately [C&H13]}
	{Stay upwind/keep distance from source [EI22]}
Section 2.2	Control of environmental exposure
Aluminum aluminum noudore alum	ginum evide and coluble aluminum compounds are non-hazardaya (not alconified for the
The state of the s	ninum oxide and soluble aluminum compounds are non hazardous (not classified for the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore
	e terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon.
	pogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and
	s of added amounts or in terms of toxicity.
Section 3	Exposure Estimation
	Exposure Estimation
3.1. Health	
1	ected to exceed the applicable exposure limits (given in section8 of the SDS) when the operational res given in section 2 are implemented [G29]
· ·	res given in section 2 are implemented [G29]
3.2. Environment	
N.A.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
	been used to estimate workplace exposures unless otherwise indicated [G21]
4.2. Environment	
N.A.	
Section 5	Additional good practice advice beyond the REACH Chemical
Note: The managers reported in t	Safety Assessment - (Section Optional)
scenario above. They are not sub Control of Worker Exposure	Safety Assessment - (Section Optional) this section have not been taken into account in the exposure estimates related to the exposure
scenario above. They are not sub	Safety Assessment - (Section Optional) this section have not been taken into account in the exposure estimates related to the exposure
scenario above. They are not sub Control of Worker Exposure	Safety Assessment - (Section Optional)  this section have not been taken into account in the exposure estimates related to the exposure estimates estimates estimates estimates estimates exposure estimates estimates estimates estimates estimates estimates estimates estimates estimates exposure estimates estimate
scenario above. They are not sub Control of Worker Exposure	Safety Assessment - (Section Optional)  this section have not been taken into account in the exposure estimates related to the exposure estima
scenario above. They are not sub Control of Worker Exposure	Safety Assessment - (Section Optional)  this section have not been taken into account in the exposure estimates related to the exposure estima
scenario above. They are not sub Control of Worker Exposure	Safety Assessment - (Section Optional)  this section have not been taken into account in the exposure estimates related to the exposure estima

-Clean non-disposable masks after each use and store in a clean box in a clean area
-Wear respirators ≤ 2 hrs/day

Section 1	
	Exposure Scenario Title
Title	Industrial and Professional use of Aluminium salts - solid, low dust -in spraying formulations;
	Aluminium content: max. 25%
Han Danadatan	Sector of Use: SU5, SU6b, SU7
Use Descriptor	Process Categories:
	PROC1: Use in a closed process, no likelihood of exposure
	PROC2: Use in a closed continuous process, with occasional controlled exposure
	PROC3: Use in a closed batch process (synthesis or formulation)
	PROC5: Mixing or blending in batch processes for formulation of preparations and articles
	(multistage and/or significant contact)
	PROC7: Industrial spraying
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large
	containers at non-dedicated facilities
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large
	containers at dedicated facilities
	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including
	weighing)
	PROC11: Non industrial spraying
	Environmental Release Categories:
	ERC3: Formulation in materials
	ERC4: Industrial use
	ERC5: Industrial use resulting in inclusion into or onto a matrix
	ERC6a: Industrial use resulting in manufacture of another substance (use of
	intermediates)
	ERC6b: Industrial use of reactive processing aids
	ERC8a: Wide dispersive indoor use of processing aids in open systems
	ERC8b: Wide dispersive indoor use of reactive substances in open systems
	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
	ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release
	ERC11a: Wide dispersive indoor use of long-life articles and materials with low release
Processes, tasks, activities	Industrial and Professional use of Aluminium salts - solid, low dust - in spraying formulations
covered	
Exposure criteria	DNEL, inhalation long term: 1.8 mg/m³
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	1
Physical form of product	Solid, low dustiness [OC6]

Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varion between millitary (complies) and subject to the restored for the COCC
	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15] Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
Use suitable eye protection [PPE2	
	Illy resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC1: General exposures (closed systems) [CS15]. Continuous process [CS54]. Process sampling [CS2] (closed systems) [CS107]	No specific measures identified [EI18].  Recommendations:  {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}
PROC2: General exposures [CS1]. Continuous process [CS54]. Process sampling [CS2] (open systems) [CS108]	No specific measures identified [El18].  Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}.
PROC3: General exposures [CS1]. Use in contained batch processes [CS37]. With sample collection [CS56]. Equipment cleaning and maintenance [CS39].	No specific measures identified [EI18].  Recommendations: {Ensure the system is closed}; {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clear spills immediately [C&H13]}.
PROC5: General exposures (open systems) [CS16]. Mixing operations (open systems) [CS30]. Material transfers [CS3].; Batch process [CS55].; Cleaning [CS47].	No specific measures identified [EI18].  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. ; {Clear spills immediately [C&H13]}.
PROC8a: General exposures (open systems) [CS16]; Non-dedicated facility [CS82];	No specific measures identified [EI18].  Recommendations:  {Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Use drum pumps

Material transfers [CS3]. Equipment cleaning and maintenance [CS39]. Bulk transfers [CS14].	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC8b:	No specific measures identified [El18].
General exposures, open	25 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
systems [CS16]. Dedicated	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Use drum pumps
facility [CS81]	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Material transfers [CS3].	
Equipment cleaning and maintenance [CS39].	
Bulk transfers [CS14].	
PROC9:	No specific measures identified [EI18].
General exposures [CS1].	[2.13]
Dedicated facility [CS81]	Recommendations:
Drum and small package filling	{Drain down and flush system prior to equipment break-in or maintenance [E55]} .{Clean
[CS6].	equipment and the work area every day [C&H3]}.{Clear spills immediately [C&H13]}.
Equipment cleaning and	
maintenance [CS39].	
PROC11:	No specific measures identified [El18].
General exposures	
[CS1]. Spraying [CS10].	Recommendations:
	{Clean equipment and the work area every day [C&H3]}.; {Clear spills immediately [C&H13]}.
PROC19:	No specific measures identified [El18].
General exposures	
[CS1]. Mixing	Recommendations:
operations (open	{Clean equipment and the work area every day [C&H3]}. ; {Clear spills immediately [C&H13]}
systems) [CS30].	
Manual [CS34].  Section 2.2	Control of environmental exposure
Section 2.2	Control of environmental exposure

Aluminum, aluminum powders, aluminum oxide and soluble aluminum compounds are non hazardous (not classified for the environment). Aluminum (Al) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore found in great abundance in both the terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. The relative contributions of anthropogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and therefore, not relevant either in terms of added amounts or in terms of toxicity.

Section 3 Exposure Estimation

#### 3.1. Health

Predicted exposures are not expected to exceed the applicable exposure limits (given in section8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]

#### 3.2. Environment

Ν	 ٩.

Section 4 Guidance to check compliance with the Exposure Scenario

#### 4.1. Health

The ECETOC TRA (V2.0) tool has been used to estimate workplace exposures unless otherwise indicated [G21]

## 4.2. Environment

#### N.A.

Section 5	Additional good practice advice beyond the REACH Chemical
	Safety Assessment - (Section Optional)
	his section have not been taken into account in the exposure estimates related to the exposure ject to obligation laid down in Article 37 (4) of REACH.
Control of Worker Exposure	
Use of PPE	Skin protection:
	Gloves:
	-Observe breakthrough time of the gloves used
	Respiratory protection:
	Respirators:
	-Wear a disposable mask only once
	-Clean non-disposable masks after each use and store in a clean box in a clean area
	-Wear respirators ≤ 2 hrs/day

ES5 - Industrial and Professional use of Aluminium salts in non-spraying formulations - solid, high dustiness; max. Aluminium content		
= 25%		
Section 1	Exposure Scenario Title	
Title	Industrial and Professional use of Aluminium salts in non-spraying	
	formulations - solid, high dustiness; max. Aluminium content = 25%	
Use Descriptor	Sector of Use: SU1, SU5, SU6b, SU7, SU13, SU19	
OSC Descriptor	Process Categories:	
	PROC1: Use in a closed process, no likelihood of exposure	
	PROC2: Use in a closed continuous process, with occasional controlled exposure	
	PROC3: Use in a closed batch process (synthesis or formulation)	
	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises	
	PROC5: Mixing or blending in batch processes for formulation of preparations and articles	
	(multistage and/or significant contact)	
	PROC6: Calendering operations	
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large	
	containers at non-dedicated facilities	
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large	
	containers at dedicated facilities	
	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
	PROC10: Roller application or brushing	
	PROC13: Treatment of articles by dipping and pouring	
	PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletization	
	PROC15: Use as a laboratory reagent	
	PROC19: Hand-mixing with intimate contact and only PPE available	
	Environmental Release Categories:	
	ERC2: Formulation of preparations	
	ERC3: Formulation in materials	
	ERC4: Industrial use	
	ERC5: Industrial use resulting in inclusion into or onto a matrix	
	ERC6a: Industrial use resulting in manufacture of another substance (use of	

	,
	intermediates)
	ERC6b: Industrial use of reactive processing aids
	ERC8a: Wide dispersive indoor use of processing aids in open systems  ERC8b: Wide dispersive indoor use of reactive substances in open systems
	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
	ERC8f: Wide dispersive indexings resulting in inclusion into or onto a matrix
	ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release
	ERC11a: Wide dispersive indoor use of long-life articles and materials with low release
Dual control de la control de la	Industrial and Professional use of Aluminium salts in non-spraying formulations - solid -high dustiness.
Processes, tasks, activities	Includes equipment cleaning and maintenance.
covered Exposure criteria	
Section 2	DNEL, inhalation long term: 1.8 mg/m³
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, high dustiness [OC6]
Concentration of substance in	Covers percentage substance in the product up to 25% [G12].
product	
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not	Not applicable
influenced by risk	
management	
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]
affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives
O and tille at the second second second	are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
	substance has corrosive properties:
Use suitable eye protection [PPE	
	ally resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC1:	No specific measures identified [EI18].
General exposures	
(closed systems) [CS15]. Continuous	Recommendations:
process [CS54].	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}
Process [CS34].  Process sampling [CS2]	
(closed systems) [CS107]	
PROC2:	Industrial workers:
General exposures [CS1].	No specific measures identified [El18].
Continuous process [CS54].	The appears measured recreating [E110].
Process sampling [CS2]	Professional workers:
(open systems) [CS108]	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
(	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Recommendations:
	Recommendations:

	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}
PROC3: General exposures [CS1]. Use in	Industrial workers: No specific measures identified [El18].
contained batch processes [CS37]. With sample collection [CS56]. Equipment cleaning and maintenance [CS39].	Professional workers: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]
	Recommendations: {Ensure the system is closed} {Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clear spills immediately [C&H13]}.
PROC4:	Industrial workers: 5-
General exposures (open systems) [CS16]. Batch process [CS55] (open systems) [CS108]; Drum/batch transfers [CS8].	25%: Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].
With sample collection [CS56].	Professional workers: 5-
Equipment cleaning and maintenance [CS39].	25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].
	Avoid carrying out operation for more than 1 hour [OC11]
	Or: Avoid carrying out operation for more than 4 hours [OC12] plus
	Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29] 1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10] <1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC5:	Industrial workers:
General exposures (open systems) [CS16]. Mixing operations (open systems) [CS30]. Material transfers	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66].  Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].
[CS3].	Professional workers: 5-
Batch process [CS55]. Cleaning [CS47].	25%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].
	Avoid carrying out operation for more than 1 hour [OC11] OR:
	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to

	EN140 with Type A/P2 filter or better [PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use
	drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills
	immediately [C&H13]}.
PROC6:	Industrial worker: 5-
General exposures (open	25%:
systems) [CS16] Mixing	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66].
operations (open systems)	Provide extract ventilation to material transfer points and other openings (90% efficiency) [
[CS30]. Material transfers	[E82].
[CS3].	Or:
Batch process [CS55]. ;	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%:
Cleaning [CS47]	Avoid carrying out operation for more than 1 hour [OC11]
	<1%: A wide a series and a series for a series than 4 hours [OO40].
	Avoid carrying out operation for more than 4 hours [OC12]
	Professional worker: 5-
	25%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency)[ [E66]. Provide
	extract ventilation to material transfer points and other openings (80% efficiency) [ [E82].
	Plus:
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%:
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	(Clean equipment and the work area every day [C&H3]) (Clear spills
	immediately [C&H13]}.
PROC8a:	5-25%:
General exposures (open	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
systems) [CS16]; Non-dedicated	Provide extract ventilation to material transfer points and other openings (80% efficiency)
facility [CS82];	[E82].
Material transfers [CS3].	Avoid carrying out operation for more than 1 hour [OC11]
Equipment cleaning and	OR:
maintenance [CS39].	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to
Bulk transfers [CS14].	EN140 with Type A/P2 filter or better [PPE29]
	1-5%: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 4 hours [OC12]
	7. Wold sarrying out oportunor for more than 4 hours [OO12]
	Recommendations:
·	

	Hardwill and any ball bandling and the FT (0)
	Use bulk or semi-bulk handling systems [E43].;
	Discharge sacks via suitable vented charge chute [E44].{Drain down and flush system prior to
	equipment break-in or maintenance [E55]}.;
	{Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]} .{Clear spills
	immediately [C&H13]}.
PROC8b:	Industrial workers: 5-25%:
General exposures, open	Ensure material transfers are under containment or extract ventilation (90% efficiency)
systems [CS16]. Dedicated	[E66]
facility [CS81]	Provide extract ventilation to material transfer points and other openings (90% efficiency)
Material transfers [CS3].	[E82].
Equipment cleaning and	
maintenance [CS39].	Use bulk or semi-bulk handling systems [E43].
Bulk transfers [CS14].	Discharge sacks via suitable vented charge chute [E44].
	Professional workers: 5-25%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 1 hour [OC11] Use bulk or
	semi-bulk handling systems [E43].
	Discharge sacks via suitable vented charge chute [E44].
	Or:
	Avoid carrying out operation for more than 4 hours [OC12] plus
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pumps
	[E53]]. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC9:	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
General exposures [CS1].	Provide extract ventilation to material transfer points and other openings (80% efficiency)
Dedicated facility [CS81]	[E82].
Drum and small package filling	Avoid carrying out operation for more than 4 hours [OC12]{
[CS6].	
Equipment cleaning and	
maintenance [CS39].	Recommendations:
	Use bulk or semi-bulk handling systems [E43].;
	Discharge sacks via suitable vented charge chute [E44].Drain down and flush system prior to
	equipment break-in or maintenance [E55]}. {Clean equipment and the work area every day [C&H3]}.
	{Clear spills immediately [C&H13]}.
PROC10:	5-25%:
General exposures (open	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
systems) [CS16] Rolling,	Provide extract ventilation to material transfer points and other openings (80% efficiency)
Brushing [CS51].;	[E82].
Equipment cleaning and	Or:
maintenance [CS39]	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%:

	Avoid carrying out operation for more than 4 hours [OC12]
	<1%:
	No specific measures identified [EI18].
	Recommendations:
	{Use long handled tools where possible [E50]}. {Clean equipment and the work area every day
	[C&H3]]. {Clear spills immediately [C&H13]}. {Avoid splashing
	[C&H15]}.
PROC13	Minimize exposure by partial enclosure of the operation or equipment and provide extract
General exposures, open	ventilation at openings (80% efficiency) [E60].
systems [CS16]	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor
Dipping, immersion and pouring	of >20 [E70].
[CS4]	
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance
	[E55]].{Clean equipment and the work area every day [C&H3]}. {Clear spills immediately
	[C&H13]}.
PROC14	Industrial:
General exposures (open	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66].
systems) [CS16] Production or	Provide extract ventilation to material transfer points and other openings (90% efficiency)
preparation or articles by	[E82].
tabletting, compression,	Or:
extrusion or	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
pelletization [CS100]	Or:
	Avoid carrying out operation for more than 1 hour [OC11] 1-5%:
	Avoid carrying out operation for more than 4 hours [OC12
	<1%:
	No specific measures identified [EI18].
	Professional: 5-
	25%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 1 hour [OC11]
	Or:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Pacammandations
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
PROC15:	equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
FROOTS.	Carry out in a vented booth or extracted enclosure (80% efficiency) [E57].

General exposures [CS1].	
Laboratory activities [CS36].	Recommendations:
Small scale [CS61].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean
	equipment and the work area every day [C&H3]}.
	{Clear spills immediately [C&H13]}.
PROC19	Industrial workers:
General exposures [CS1].	5-25%:
Mixing operations (open	Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29]
systems) [CS30]. ; Manual	<5%:
[CS34].	Avoid carrying out operation for more than 1 hour [OC11]
	<1%:
	Avoid carrying out operation for more than 4 hours [OC12
	Professional workers::
	5-25%:
	Avoid carrying out operation for more than 4 hours [OC12]
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	<5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]{
	Recommendations:
	(Clean equipment and the work area every day [C&H3]). (Clear spills
	immediately [C&H13]}
	{Stay upwind/keep distance from source [El22]}
Section 2.2	Control of environmental exposure
Aluminum aluminum poudore alum	ninum oxide and soluble aluminum compounds are non hazardous (not classified for the
	most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore
	e terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon.
	ogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and
the state of the s	s of added amounts or in terms of toxicity.
Section 3	Exposure Estimation
2.1 Health	Exposure Estimation

# 3.1. Health

Predicted exposures are not expected to exceed the applicable exposure limits (given in section8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]

3.2. Environment	
N.A.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
The ECETOC TRA (V2.0) tool has I	been used to estimate workplace exposures unless otherwise indicated [G21]
4.2. Environment	
N.A.	
Section 5	Additional good practice advice beyond the REACH Chemical
	Safety Assessment - (Section Optional)

Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure

scenario above. They are not sub	oject to obligation laid down in Article 37 (4) of REACH.
Control of Worker Exposure	
Use of PPE	Skin protection:
	Gloves:
	-Observe breakthrough time of the gloves used
	Respiratory protection:
	Respirators:
	-Wear a disposable mask only once
	-Clean non-disposable masks after each use and store in a clean box in a clean area
	-Wear respirators ≤ 2 hrs/day

Section 1	Exposure Scenario Title
Title	Industrial and Professional use of Aluminium salts - solid, low dust -in non-spraying formulations;
	Aluminium content: max. 25%
	Sector of Use: SU1, SU5, SU6b, SU7, SU13, SU19
Jse Descriptor	Process Categories:
	PROC1: Use in a closed process, no likelihood of exposure
	PROC2: Use in a closed continuous process, with occasional controlled exposure
	PROC3: Use in a closed batch process (synthesis or formulation)
	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
	PROC5: Mixing or blending in batch processes for formulation of preparations and articles
	(multistage and/or significant contact)
	PROC6: Calendering operations
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large
	containers at non-dedicated facilities
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large
	containers at dedicated facilities
	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including
	weighing)
	PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
	PROC13: Treatment of articles by dipping and pouring  PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletization
	PROC15: Use as a laboratory reagent
	PROC19: Hand-mixing with intimate contact and only PPE available
	THOUSE THAT A HINNEY WITH HINNER CONTACT AND ONLY THE AVAILABLE
	Environmental Release Categories:
	ERC2: Formulation of preparations
	ERC3: Formulation in materials
	ERC4: Industrial use
	ERC5: Industrial use resulting in inclusion into or onto a matrix
	ERC6a: Industrial use resulting in manufacture of another substance (use of
	intermediates)
	ERC6b: Industrial use of reactive processing aids
	ERC8a: Wide dispersive indoor use of processing aids in open systems

	ERC8b: Wide dispersive indoor use of reactive substances in open systems
	ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix
	ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
1	ERC10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC11a: Wide dispersive indoor use of long-life articles and materials with low release
Processes, tasks, activities	Industrial and Professional use of Aluminium salts - solid, low dust - in non-spraying
covered	formulations
Exposure criteria	DNEL inhelation long torm: 1.9 mg/m3
Section 2	DNEL, inhalation long term: 1.8 mg/m³
	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, low dustiness [OC1]
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
: do:	
Human factors not	Not applicable
influenced by risk	
management	
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]
affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives
	are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
Below pH2 and above pH11 the s	substance has corrosive properties:
Use suitable eye protection [PPE2	26]
Avoid skin contact: wear chemica	ally resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC1:	No specific measures identified [EI18].
General exposures	
(closed systems)	Recommendations:
[CS15]. Continuous	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}
process [CS54].	
Process sampling [CS2]	
(closed systems) [CS107]	
PROC2:	No specific measures identified [EI18].
General exposures [CS1].	,
Continuous process [CS54].	Recommendations:
Process sampling [CS2] (open	{Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately
systems) [CS108]	[C&H13]}.
PROC3:	No specific measures identified [EI18].
General exposures [CS1]. Use in	
	Recommendations:
	· · · · · · · · · · · · · · · · · · ·
•	{Ensure the system is closed};
[CS37].	
•	{Ensure the system is closed};

Emiliaria de la col	
Equipment cleaning and	
maintenance [CS39].	No and the second of the secon
PROC4: General exposures (open	No specific measures identified [El18].
1 \	Recommendations:
systems) [CS16]. Batch process	
[CS55] (open systems) [CS108];	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. ; {Clear spills immediately [C&H13]}.
Drum/batch transfers [CS8].	[E33]]. (Olean equipment and the work area every day [Oar 13]]. , (Olean spins infinediately [Oar 13]].
With sample collection [CS56].	
Equipment cleaning and	
maintenance [CS39].	
PROC5:	No specific measures identified [EI18].
General exposures (open	
systems) [CS16]. Mixing	Recommendations:
operations (open systems)	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps
[CS30]. Material transfers	[E53]]. {Clean equipment and the work area every day [C&H3]}.; {Clear spills immediately [C&H13]}.
[CS3].;	
Batch process [CS55].;	
Cleaning [CS47].	
PROC8a:	No specific measures identified [El18].
General exposures (open	
systems) [CS16]; Non-dedicated	Recommendations:
facility [CS82];	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Use drum pumps
Material transfers [CS3].	[E53]]. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Equipment cleaning and maintenance [CS39].	
Bulk transfers [CS14].	
Bailt translere [6611].	
PROC8b:	No specific measures identified [El18].
General exposures, open	
systems [CS16]. Dedicated	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Use drum pumps
facility [CS81]	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
Material transfers [CS3].	
Equipment cleaning and	
maintenance [CS39].	
Bulk transfers [CS14].	No appoint magazina identified [E]191
PROC9:	No specific measures identified [El18].
General exposures [CS1].	Recommendations:
Dedicated facility [CS81]	{Drain down and flush system prior to equipment break-in or maintenance [E55]} .{Clean
Drum and small package filling	equipment and the work area every day [C&H3]}.{Clear spills immediately [C&H13]}.
[CS6]. Equipment cleaning and	, , , , , , , , , , , , , , , , , , ,
maintenance [CS39].	
PROC10:	No specific measures identified [El18].
General exposures	
[CS1]. Spraying [CS10].	Recommendations:
	{Use long handled tools where possible [E50]}. {Clean equipment and the work area every day
	[C&H3]}. {Clear spills immediately [C&H13]}. {Avoid splashing

	[C&H15]}.
PROC13:	No specific measures identified [EI18].
General exposures, open	
systems [CS16]	Recommendations:
Dipping, immersion and	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
pouring [CS4]	equipment and the work area every day [C&H3]} {Clear spills immediately [C&H13]}.
PROC14:	No specific measures identified [El18].
General exposures (open	No specific measures identified [Erro].
systems) [CS16] Production or	Recommendations:
preparation or articles by	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
tabletting, compression,	equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
extrusion or pelletization	
[CS100]	
PROC15:	No specific measures identified [El18].
General exposures [CS1].	
Laboratory activities	Recommendations:
[CS36].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clean
Small scale [CS61].	equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC19:	No specific measures identified [El18].
General exposures	
[CS1]. Mixing	Recommendations:
operations (open	{Clean equipment and the work area every day [C&H3]}.; {Clear spills immediately [C&H13]}
systems) [CS30].	
Manual [CS34].	
Section 2.2	Control of environmental exposure
Aluminum, aluminum powders, alum	ninum oxide and soluble aluminum compounds are non hazardous (not classified for the
	nost commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore
	e terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon.
	ogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and
	s of added amounts or in terms of toxicity.
Section 3	Exposure Estimation
3.1. Health	
	cted to exceed the applicable exposure limits (given in section8 of the SDS) when the operational
conditions/risk management measur	res given in section 2 are implemented [G29]
3.2. Environment	
N.A.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
The ECETOC TRA (V2.0) tool has be	peen used to estimate workplace exposures unless otherwise indicated [G21]
4.2. Environment	

Additional good practice advice beyond the REACH Chemical

Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure

Safety Assessment - (Section Optional)

N.A. Section 5

scenario above. They are not sub	ject to obligation laid down in Article 37 (4) of REACH.
Control of Worker Exposure	
Use of PPE	Skin protection:
	Gloves:
	-Observe breakthrough time of the gloves used
	Respiratory protection:
	Respirators:
	-Wear a disposable mask only once
	-Clean non-disposable masks after each use and store in a clean box in a clean area
	-Wear respirators ≤ 2 hrs/day

,	= max. 25%
Section 1	Exposure Scenario Title
Title	Industrial and Professional use of Aluminium as flocculants or coagulant in water and waste water
	treatment; solid, high dustiness; max. Aluminium content = 25%
	Sector of Use: SU2, SU5, SU6b, SU10, SU23
Use Descriptor	Process Categories:
	PROC2: Use in a closed continuous process, with occasional controlled exposure
	PROC3: Use in a closed batch process (synthesis or formulation)
	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
	PROC5: Mixing or blending in batch processes for formulation of preparations and articles
	(multistage and/or significant contact)
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large
	containers at non-dedicated facilities
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including
	weighing)  RROC10: Lland mixing with intimate contact and only RRF available
	PROC19: Hand-mixing with intimate contact and only PPE available
	Environmental Release Categories:
	ERC2: Formulation of preparations
	ERC4: Industrial use
	ERC6b: Industrial use of reactive processing aids
	ERC8a: Wide dispersive indoor use of processing aids in open systems
	ERC8b: Wide dispersive indoor use of reactive substances in open systems
	ERC8d: Wide dispersive outdoor use of processing aids in open systems
Processes, tasks, activities covered	Industrial and Professional use of Aluminium salts as flocculants or coagulant in water and waste water treatment.
Exposure criteria	DNEL inhelation long town, 1.9 mg/m³
Section 2	DNEL, inhalation long term: 1.8 mg/m³
	Operational conditions and risk management measures

Physical form of product	Solid, high dustiness [OC6]
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15] Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [E119]
Contributing Scenarios	Risk Management Measures
Use suitable eye protection [PPE	substance has corrosive properties:  26]  ally resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC2:	Industrial workers:
General exposures [CS1]. Continuous process [CS54].	No specific measures identified [El18].
Process sampling [CS2] (open systems) [CS108]	Professional workers:  Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].  Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82].
	Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}
PROC3: General exposures [CS1]. Use in	Industrial workers: No specific measures identified [El18].
contained batch processes [CS37]. With sample collection [CS56]. Equipment cleaning and maintenance [CS39].	Professional workers: Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (80% efficiency) [E82]
	Recommendations: {Ensure the system is closed} {Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clear spills immediately [C&H13]}.
PROC4: General exposures (open systems) [CS16]. Batch process [CS55] (open systems) [CS108]; Drum/batch transfers [CS8]. With sample collection [CS56].	Industrial workers: 5- 25%: Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66]. Provide extract ventilation to material transfer points and other openings (90% efficiency) [E82].  Professional workers: 5-
Equipment cleaning and	25%:

maintenance [CS39].	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82]. Avoid carrying out operation for more than 1 hour [OC11]
	Or:
	Avoid carrying out operation for more than 4 hours [OC12] plus  Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10] <1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps
2202	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC5:	Industrial workers:
General exposures (open systems) [CS16]. Mixing	Ensure material transfers are under containment or extract ventilation (90% efficiency) [E66].  Provide extract ventilation to material transfer points and other openings (90%
operations (open systems)	efficiency) [E82].
[CS30]. Material transfers	Sinciple [
[CS3].	Professional workers: 5-
Batch process [CS55]. Cleaning	25%:
[CS47].	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 1 hour [OC11]
	OR:
	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to
	EN140 with Type A/P2 filter or better [PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use
	drum pumps [E53]]. {Clean equipment and the work area every day [C&H3]}. {Clear spills
	immediately [C&H13]}.
PROC8a:	5-25%:
General exposures (open	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
systems) [CS16]; Non-dedicated	Provide extract ventilation to material transfer points and other openings (80% efficiency)
facility [CS82];	[E82].
Material transfers [CS3].	Avoid carrying out operation for more than 1 hour [OC11]
Equipment cleaning and	OR: Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to
maintenance [CS39]. Bulk transfers [CS14].	Avoid carrying out operation for more than 4 hours [OC12] plus Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
Duin transiers [OO14].	1-5%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
<u> </u>	

	Avoid carrying out operation for more than 4 hours [OC12]
	Recommendations:
	Use bulk or semi-bulk handling systems [E43].;
	Discharge sacks via suitable vented charge chute [E44].{Drain down and flush system prior to
	equipment break-in or maintenance [E55]}.;
	{Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]} .{Clear spills
	immediately [C&H13]}.
PROC8b:	Industrial workers: 5-25%:
General exposures, open	Ensure material transfers are under containment or extract ventilation (90% efficiency)
systems [CS16]. Dedicated	[E66]
facility [CS81]	Provide extract ventilation to material transfer points and other openings (90% efficiency)
Material transfers [CS3].	[E82].
Equipment cleaning and	
maintenance [CS39].	Use bulk or semi-bulk handling systems [E43].
Bulk transfers [CS14].	Discharge sacks via suitable vented charge chute [E44].
	Professional workers: 5-25%:
	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].;
	Provide extract ventilation to material transfer points and other openings (80% efficiency)
	[E82].
	Avoid carrying out operation for more than 1 hour [OC11] Use bulk or
	semi-bulk handling systems [E43].
	Discharge sacks via suitable vented charge chute [E44].
	Or:
	Avoid carrying out operation for more than 4 hours [OC12] plus
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29]
	1-5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]
	Recommendations:
	{Drain down and flush system prior to equipment break-in or maintenance [E55]} {Use drum pumps
	[E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC9:	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
General exposures [CS1].	Provide extract ventilation to material transfer points and other openings (80% efficiency)
Dedicated facility [CS81]	[E82].
Drum and small package filling	Avoid carrying out operation for more than 4 hours [OC12]{
[CS6].	
Equipment cleaning and	
maintenance [CS39].	Recommendations:
	Use bulk or semi-bulk handling systems [E43].;
	Discharge sacks via suitable vented charge chute [E44].Drain down and flush system prior to
	equipment break-in or maintenance [E55]}. {Clean equipment and the work area every day [C&H3]}.
7777	{Clear spills immediately [C&H13]}.
PROC10:	5-25%:
General exposures (open	Ensure material transfers are under containment or extract ventilation (80% efficiency) [E66].
systems) [CS16] Rolling,	Provide extract ventilation to material transfer points and other openings (80% efficiency)

Brushing [CS51].;	[E82].
Equipment cleaning and	Or:
maintenance [CS39]	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] 1-5%:
	Avoid carrying out operation for more than 4 hours [OC12]
	<1%:
	No specific measures identified [EI18].
	Recommendations:
	{Use long handled tools where possible [E50]}. {Clean equipment and the work area every day
	[C&H3]}. {Clear spills immediately [C&H13]}. {Avoid splashing
	[C&H15]}.
PROC19	Industrial workers:
General exposures [CS1].	5-25%:
Mixing operations (open	Wear a respirator conforming to EN140 with Type A/P2 filter or better {PPE29]
systems) [CS30]. ; Manual	<5%:
[CS34].	Avoid carrying out operation for more than 1 hour [OC11]
	<1%:
	Avoid carrying out operation for more than 4 hours [OC12
	Professional workers::
	5-25%:
	Avoid carrying out operation for more than 4 hours [OC12]
	Wear a respirator conforming to EN140 with Type A/P2 filter or better [PPE29] <5%:
	Avoid carrying out operation for more than 15 minutes [OC10]
	<1%:
	Avoid carrying out operation for more than 1 hour [OC11]{
	Recommendations:
	{Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}
	{Stay upwind/keep distance from source [El22]}
Section 2.2	Control of environmental exposure

Aluminum, aluminum powders, aluminum oxide and soluble aluminum compounds are non hazardous (not classified for the environment). Aluminum (Al) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore found in great abundance in both the terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. The relative contributions of anthropogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and therefore, not relevant either in terms of added amounts or in terms of toxicity.

Section 3 Exposure Estimation
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#### 3.1. Health

Predicted exposures are not expected to exceed the applicable exposure limits (given in section8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]

#### 3.2. Environment

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Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
The ECCTOC TRA (//2.0) tool has been used to estimate weekinges a measures unless otherwise indicated [CO1]	

The ECETOC TRA (V2.0) tool has been used to estimate workplace exposures unless otherwise indicated [G21]

1.2. Environment		
N.A.	N.A.	
Section 5 Additional good practice advice beyond the REACH Chemical		
	Safety Assessment - (Section Optional)	
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.		
Control of Worker Exposure		
Use of PPE	Skin protection: Gloves:	
	-Observe breakthrough time of the gloves used	
	Respiratory protection:	
	Respirators:	
-Wear a disposable mask only once -Clean non-disposable masks after each use and store in a clean box in a clean area -Wear respirators ≤ 2 hrs/day		

dust; Aluminium content	= max. 25%
Section 1	Exposure Scenario Title
Title	Industrial and Professional use of Aluminium salts as flocculant or coagulant in water and waste
	water treatment - solid-low dust; Aluminium content = max. 25%
I Ddatan	Sector of Use: SU2, SU5, SU6b, SU10, SU23
Jse Descriptor	Process Categories:
	PROC2: Use in a closed continuous process, with occasional controlled exposure
	PROC3: Use in a closed batch process (synthesis or formulation)
	PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
	PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
	PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
	PROC19: Hand-mixing with intimate contact and only PPE available
	Environmental Release Categories:
	ERC2: Formulation of preparations
	ERC4: Industrial use
	ERC6b: Industrial use of reactive processing aids
	ERC8a: Wide dispersive indoor use of processing aids in open systems
	ERC8b: Wide dispersive indoor use of reactive substances in open systems
	ERC8d: Wide dispersive outdoor use of processing aids in open systems

Processes, tasks, activities covered	Industrial and Professional use of Aluminium salts as flocculant or coagulant in water and waste water treatment. Aluminium content = max. 25%	
Exposure criteria	led	
Section 2		
0 " 04	Operational conditions and risk management measures	
Section 2.1	Control of worker exposure	
Product characteristics		
Physical form of product	Solid, low dustiness [OC1]	
Concentration of substance in product	Covers percentage substance in the product up to 25% [G12].	
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]	
Human factors not influenced by risk management	Not applicable	
Other Operational Conditions affecting worker exposure	Assumes use at not > 20oC above ambient [G15] Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives are trained to minimize exposures [EI19]	
Contributing Scenarios	Risk Management Measures	
Below pH2 and above pH11 the substance has corrosive properties:  Use suitable eye protection [PPE26]  Avoid skin contact: wear chemically resistant gloves (tested to EN374) in combination with specific activity training [PPE17]		
PROC2: General exposures [CS1]. Continuous process [CS54]. Process sampling [CS2] (open systems) [CS108]	No specific measures identified [EI18].  Recommendations: {Ensure the system is closed} {Clear transfer lines prior to de-coupling [E39]}. {Clear spills immediately [C&H13]}.	
PROC3: General exposures [CS1]. Use in contained batch processes [CS37]. With sample collection [CS56]. Equipment cleaning and maintenance [CS39].	No specific measures identified [EI18].  Recommendations: {Ensure the system is closed}; {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Clear spills immediately [C&H13]}.	
PROC4: General exposures (open systems) [CS16]. Batch process [CS55] (open systems) [CS108]; Drum/batch transfers [CS8]. With sample collection [CS56]. Equipment cleaning and maintenance [CS39]. PROC5:	No specific measures identified [EI18].  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. ; {Clear spills immediately [C&H13]}.  No specific measures identified [EI18].	

General exposures (open systems) [CS16]. Mixing operations (open systems) [CS30]. Material transfers [CS3].; Batch process [CS55].; Cleaning [CS47].	Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}; {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}.; {Clear spills immediately [C&H13]}.
PROC8a: General exposures (open systems) [CS16]; Non-dedicated facility [CS82]; Material transfers [CS3]. Equipment cleaning and maintenance [CS39]. Bulk transfers [CS14].	No specific measures identified [EI18].  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC8b: General exposures, open systems [CS16]. Dedicated facility [CS81] Material transfers [CS3]. Equipment cleaning and maintenance [CS39]. Bulk transfers [CS14].	No specific measures identified [EI18].  {Drain down and flush system prior to equipment break-in or maintenance [E55]}.{Use drum pumps [E53]}. {Clean equipment and the work area every day [C&H3]}. {Clear spills immediately [C&H13]}.
PROC9: General exposures [CS1]. Dedicated facility [CS81] Drum and small package filling [CS6]. Equipment cleaning and maintenance [CS39]. PROC19: General exposures [CS1]. Mixing operations (open systems) [CS30].	No specific measures identified [EI18].  Recommendations: {Drain down and flush system prior to equipment break-in or maintenance [E55]} .{Clean equipment and the work area every day [C&H3]}.{Clear spills immediately [C&H13]}.  No specific measures identified [EI18].  Recommendations: {Clean equipment and the work area every day [C&H3]}.;{Clear spills immediately [C&H13]}
Manual [CS34]. Section 2.2	Control of environmental exposure

environment). Aluminum (Al) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore found in great abundance in both the terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon. The relative contributions of anthropogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and therefore, not relevant either in terms of added amounts or in terms of toxicity.

Section 3	Exposure Estimation
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### 3.1. Health

Predicted exposures are not expected to exceed the applicable exposure limits (given in section8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented [G29]

3.2. Environment		
N.A.		
Section 4	Guidance to check compliance with the Exposure Scenario	
4.1. Health		
The ECETOC TRA (V2.0) tool has been used to estimate workplace exposures unless otherwise indicated [G21]		
4.2. Environment		
N.A.		
Section 5	Additional good practice advice beyond the REACH Chemical	
	Safety Assessment - (Section Optional)	
Note: The measures reported in t	his section have not been taken into account in the exposure estimates related to the exposure	
•	ject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure		
Use of PPE	Skin protection:	
	Gloves:	
	-Observe breakthrough time of the gloves used	
	Respiratory protection:	
	Respirators:	
	-Wear a disposable mask only once	
	-Clean non-disposable masks after each use and store in a clean box in a clean area	
	-Wear respirators ≤ 2 hrs/day	

Section 1	Exposure Scenario Title
Title	
	Use of Aluminium salts - solid, high dust - in industrial and
	professional laboratory settings; max Aluminium content = 25%
Use Descriptor	Sector of Use: SU9
	Process Categories:
	PROC15: Use as a laboratory reagent
	Environmental Palagae Cotagoriae
	Environmental Release Categories:
	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Processes, tasks, activities	Use of aluminium salts (solid, high dustiness) in small scale laboratory settings. Max.
covered	aluminium content = 25%
Exposure criteria	DNEL, inhalation long term: 1.8 mg/m³
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Solid, high dustiness [OC6]
Thyologi form of product	
Concentration of substance in	Covers percentage substance in the product up to 25% [G12].
product	Ouvers percentage substance in the product up to 25% [Citz].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]

Human factors not	Not applicable		
influenced by risk			
management			
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]		
affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure operatives		
	are trained to minimize exposures [EI19]		
Contributing Scenarios	Risk Management Measures		
	substance has corrosive properties:		
Use suitable eye protection [PPE26]			
	ally resistant gloves (tested to EN374) in combination with specific activity training [PPE17]		
PROC15:	Carry out in a vented booth or extracted enclosure (80% efficiency) [E57].		
General exposures [CS1].			
Laboratory activities [CS36].	Recommendations:		
Small scale [CS61].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean equipment		
	and the work area every day [C&H3]}.		
	{Clear spills immediately [C&H13]}.		
Section 2.2	Control of environmental exposure		
COGGOTT E.E.	Control of Control information exposure		
Aluminum, aluminum powders, alum	ninum oxide and soluble aluminum compounds are non hazardous (not classified for the		
environment). Aluminum (Al) is the r	nost commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore		
found in great abundance in both the	e terrestrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon.		
The relative contributions of anthrop	ogenic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and		
	s of added amounts or in terms of toxicity.		
Section 3	Exposure Estimation		
3.1. Health			
	cted to exceed the applicable exposure limits (given in section8 of the SDS) when the operational		
	res given in section 2 are implemented [G29]		
	cs given in section 2 are implemented [Q25]		
3.2. Environment			
N.A.			
Section 4	Guidance to check compliance with the Exposure Scenario		
4.1. Health			
The ECETOC TRA (V2.0) tool has be	peen used to estimate workplace exposures unless otherwise indicated [G21]		
4.2. Environment			
N.A.			
Section 5	Additional good practice advice howard the DEACLI Chamical		
	Additional good practice advice beyond the REACH Chemical		
	Safety Assessment - (Section Optional)		
Note: The measures reported in t	his section have not been taken into account in the exposure estimates related to the exposure		
scenario above. They are not sub	ject to obligation laid down in Article 37 (4) of REACH.		
Control of Worker Exposure			
Use of PPE	Skin protection:		
	Gloves:		
	-Observe breakthrough time of the gloves used		
	Respiratory protection:		
	Respirators:		
	-Wear a disposable mask only once		
	The ear a disposable mask only once		

-Clean non-disposable masks after each use and store in a clean box in a clean area
-Wear respirators ≤ 2 hrs/day

Section 1	Exposure Scenario Title
Title	Use of Aluminium salts - solid, low dust - in industrial and professional laboratory settings; max
	Aluminium content = 25%
	Sector of Use: SU9
Use Descriptor	Process Categories:
	PROC15: Use as a laboratory reagent
	1 110013. Use as a laboratory reagent
	Environmental Release Categories:
	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Processes, tasks, activities covered	Use of aluminium salts (solid, low dustiness) in small scale laboratory settings. Max.
	aluminium content = 25%
Exposure criteria	DNEL, inhalation long term: 1.8 mg/m <sup>3</sup>
Section 2	Operational conditions and risk management measures
Section 2.1	Control of worker exposure
Product characteristics	· · · · · · · · · · · · · · · · · · ·
	Solid law dustings [OC1]
Physical form of product	Solid, low dustiness [OC1]
Concentration of substance in	Course in a way and a real part and a substance in the pared at the DECK [C10]
product	Covers percentage substance in the product up to 25% [G12].
Amounts used	Varies between milliliters (sampling) and cubic meters (material transfers) [OC13]
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
: d	
Human factors not influenced	Not applicable
by risk management	
Other Operational Conditions	Assumes use at not > 20oC above ambient [G15]
affecting worker exposure	Assumes a good basic standard of occupational hygiene is implemented [G1]. Ensure
	operatives are trained to minimize exposures [EI19]
Contributing Scenarios	Risk Management Measures
Below pH2 and above pH11 the sub-	stance has corrosive properties:
Use suitable eye protection [PPE26]	
	resistant gloves (tested to EN374) in combination with specific activity training [PPE17]
PROC15:	No specific measures identified [El18].
General exposures [CS1]. Laboratory	Recommendations:
activities [CS36].	{Drain down and flush system prior to equipment break-in or maintenance [E55]}. {Clean
Small scale [CS61].	equipment and the work area every day [C&H3]}.
	{Clear spills immediately [C&H13]}.
	(closi opino miniosistory [ost rio]).

Aluminum, aluminum powders, aluminum oxide and soluble aluminum compounds are non hazardous (not classified for the environment). Aluminum (Al) is the most commonly occurring metallic element, comprising eight percent of the earth's crust and is therefore

	restrial and sediment environments. Concentrations of 3-8% (30,000-80,000 ppm) are not uncommon.
	nic aluminum to the existing natural pools of aluminum in soils and sediments is very small, and
therefore, not relevant either in terms of Section 3	·
	Exposure Estimation
3.1. Health	
	to exceed the applicable exposure limits (given in section8 of the SDS) when the operational given in section 2 are implemented [G29]
3.2. Environment	
N.A.	
Section 4	Guidance to check compliance with the Exposure Scenario
4.1. Health	
The ECETOC TRA (V2.0) tool has been	used to estimate workplace exposures unless otherwise indicated [G21]
4.2. Environment	
N.A.	
Section 5	Additional good practice advice beyond the REACH Chemical
	Safety Assessment - (Section Optional)
·	section have not been taken into account in the exposure estimates related to the exposure to obligation laid down in Article 37 (4) of REACH.
Control of Worker Exposure	
Use of PPE	Skin protection:
	Gloves:
	-Observe breakthrough time of the gloves used
	Respiratory protection:
	Respirators:
	-Wear a disposable mask only once
	-Clean non-disposable masks after each use and store in a clean box in a clean area
	-Wear respirators ≤ 2 hrs/day