SAFETY DATA SHEET

ACCORDING TO EC-REGULATION 1272/2008 (CLP/GHS).

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

1.1	**Product identifier**	
	Product Name	Calcium Chloride.
	Chemical Name (IUPAC)	Calcium Dichloride. Calcium Chloride.
	Trade name	Calcium Chloride 90-98%pellets Calcium Chloride 90-98% powder
	Alternative names	Calcium (2+) chloride, Calcium (II) chloride, E509 food additive.
	Formula	$CaCl_2$.
	№ EC	233-140-8
	REACH Registration No.	01-2119494219-28-0003.
	CAS No.	10043-52-4.
1.2	**Relevant identified uses of the substance or mixture and uses advised against**	
	Identified use(s)	• as de-icing agents (de-icers) • for road stabilization and dust control • for industrial processing • as additive in plastics • for calcium salt production • drainage aid for wastewater treatment etc. • as accelerator in concrete • for oil and gas well fluids • miscellaneous
	Uses advised against	None assigned.
1.3	**Details of the supplier of the Safety Data Sheet**	
1.3.1	Manufacturer	«HaloPolymer Kirovo-Chepetsk», LLC per. Pozharny, 2, 613040, Kirovo-Chepetsk, Kirov Region, The Russian Federation.
	Telephone	+7-83361-9-4281
	Fax	+7-83361-9-3594
	Website	www.halopolymer.com
1.3.2	Only representative of a non-Community manufacturer	URALCHEM Assist GmbH Johannssenstrasse 10 30159, Hannover, Germany
	Telephone	+49-511/45 99 444
	Fax	+49-511/45 99 446
	E-mail	info@uralchem-assist.de
1.4	**Emergency telephone number**	
	Manufacturer/supplier: **Emergency number**	+7-83361-9-4250 [24 hours.]
	Europe	112
	Great Britain	+44 (0) 203 394 9870 (24/7)
	The USA	+1-877 271 7077 Consult the relevant national official advisory body if necessary

2. SECTION 2: HAZARDS IDENTIFICATION

Classification and labeling have been performed according to Regulation (EC) No. 1272/2008 (CLP/GHP)

2.1	**Classification of the substance or mixture**	
2.1.1	**Regulation (EC) No. 1272/2008 (CLP)**	Eye Irrit. 2; Causes serious eye irritation.
2.2	**Label elements**	
2.2.1	**Label elements**	According to Regulation (EC) No. 1272/2008 (CLP).
	Product Name	Calcium Chloride.

Hazard Pictogram

GHS07

Signal word(s)	Warning.
Hazard statement(s)	H319: Causes serious eye irritation.
Precautionary statement(s)	P264: Wash hands thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face 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. P337 + P313: If eye irritation persists: Get medical advice/attention.

2.3 Other hazards

High atmospheric concentrations may lead to severe irritation of the nose, throat and respiratory tract. Repeated and/or prolonged skin contact may cause irritation.

2.3 Additional Information

See Also Section: 16.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Calcium Chloride: Inorganic substance.

3.1 Substances

Product identifier type in accordance with Article 18(2) of Regulation (EC) No 1272/2008	Identifier number	Identification name	Weight % content (or range)	EC Number
CAS number	10043-52-4	Calcium chloride	90 - 98	233-140-8
CAS number	7647-14-5	Sodium chloride	≤0.5	231-598-3
CAS number	1305-62-0	Calcium dihydroxide	≤0.15	215-137-3
CAS number	7786-30-3	Magnesium chloride	≤0.15	232-094-6
CAS number	7447-40-7	Potassium chloride	≤0.1	231-211-8
CAS number	7789-41-5	Calcium bromide	≤0.01	232-164-6
CAS number	7732-18-5	Water	2-10	231-791-2

3.2 Additional Information

For full text of H/P phrases see section 16.

4. SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist, obtain medical attention.
Skin Contact	Remove contaminated clothing and wash clothing before reuse. Wash affected skin with plenty of water. Launder clothes before re-use.
Eye Contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate eye thoroughly with eye wash solution or clean water for at least 10 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Do NOT induce vomiting. Wash out mouth with water and give 200-300 ml (half a pint) of water to drink. If symptoms persist, obtain medical

attention.

4.2	**Most important symptoms and effects, both acute and delayed**	Ingestion: Diarrhoea. Vomiting. Oesophagus.
4.3	**Indication of immediate medical attention and special treatment needed**	No special requirements.

5. SECTION 5: FIRE-FIGHTING MEASURES

5.1	**Extinguishing Media**	
	Suitable Extinguishing Media	As appropriate for surrounding fire.
	Unsuitable Extinguishing Media	None.
5.2	**Special hazards arising from the substance or mixture**	Non-combustible.
5.3	**Advice for fire-fighters**	No special measures are required. A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Caution - spillages may be slippery. Ensure suitable personal protection during removal of spillages.
6.2	**Environmental precautions**	Prevent uncontrolled discharges into the environment (rivers, water courses, sewers ets.). See exposure scenarios covering intended use in the environment like de-icing and dust suppression.
6.3	**Methods and material for containment and cleaning up**	Use vacuum equipment for collecting spilt materials, where practicable. Transfer to a container for disposal or recovery. Wash the spillage area with water.
6.4	**Reference to other sections**	See also Section: 8 and 13.
6.5	**Additional Information**	None.

7. SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Avoid inhalation of high concentrations of dusts. Avoid contact with skin and eyes. Wash hands thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. See Also Section: 8. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.
7.2	**Conditions for safe storage, including any incompatibilities**	Avoid excessive ventilation as the product can absorb moisture from the air. Calcium chloride liquors can cause pitting of and corrosion of some grades of stainless steel and under high temperature and stress conditions can promote stress corrosion cracking.
	Storage Temperature	Store in a cool/low-temperature, well-ventilated (dry) place.
	Storage Life	Stable under normal conditions.
	Incompatible materials	Water, certain metals, bromine trifluoride, Furan 2-peroxycarboxylic acid, Acids.
7.3	**Specific end use(s)**	

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note:
Calcium Chloride	10043-52-4	-	10 (Inhalable Dust) 5 (Respirable Dust.)	-	-	WEL(general dust limit value)

8.1.2 Biological limit value Not established.

8.1.3 PNECs and DNELs

DNEL	Oral	Inhalation	Dermal
Industry - Long Term - Local effects	-	5.0 mg/m3	-
Industry - Long Term - Systemic effects	-	-	-
Industry - Short term - Local effects	-	10.0 mg/m3	-
Industry - Short term - Systemic effects	-	-	-
Professional - Long Term - Local effects	-	5.0 mg/m3	-
Professional - Long Term - Systemic effects	-	-	-
Professional - Short term - Local effects	-	10.0 mg/m3	-
Professional - Short term - Systemic effects	-	-	-
Consumer - Long Term - Local effects	-	2.5 mg/m3	-
Consumer - Long Term - Systemic effects	-	-	-
Consumer - Short term - Local effects	-	5.0 mg/m3	-
Consumer - Short term - Systemic effects	-	-	-

	PNEC
Aquatic Compartment	Because the calcium and chloride concentration varies significantly between aquatic ecosystems (0.06-210 mg/L), it is not considered useful to derive a generic PNECwater or PNECwater-added.
Terrestrial Compartment	PNEC, Sensitive terrestrial plants: 215 mg Chloride/kg. NEdep: 150 g/m2.
Atmospheric Compartment	No information available.

NEdep: No-Effect-Deposition.

8.2 Exposure controls

8.2.1 Appropriate engineering controls Ensure adequate ventilation. Avoid accumulation of dust.

8.2.2 Personal protection equipment

Eye/face protection — Wear suitable eye/face protection.

Skin protection — Wear suitable gloves if prolonged skin contact is likely.
Wear: PVC. Neoprene. Nitrile rubber. Impervious gloves (EN 374).
Unsuitable gloves materials: Leather.
Wear suitable protective clothing.

Respiratory protection — Handling of larger amounts: Dust mask or dust respirator with particle filter type P2 may be appropriate

Thermal hazards — No information available.

8.2.3 Environmental Exposure Controls Avoid release to the environment.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Pellets / Powder
Colour	White.
Odour	Odourless
Odour Threshold (ppm)	Not established.
pH (Value)	4.5 – 8.5 @ 5% aqueous solution.
Melting Point (°C) / Freezing Point (°C)	772°C.
Boiling point/boiling range	>1600°C.

	Flash Point (°C)	Not applicable.
	Evaporation rate	Not applicable.
	Flammability (solid, gas)	Non-flammable.
	Explosive limit ranges.	Not applicable.
	Vapour Pressure (mm Hg)	0.005mm Hg @ 20$_0$C.
	Vapour Density (Air=1)	Not applicable.
	Density (g/ml) @ 23$_0$C	2.16g/cm³ @ 25$_0$C.
	Specific Gravity	2.15 @ 25$_0$C.
	Solubility (Water)	745g/l @ 20$_0$C
	Solubility (Other)	Ethanol, Acetone, Acetic acid.
	Partition Coefficient (n-Octanol/water)	Not available.
	Auto Ignition Temperature (°C)	Not applicable.
	Decomposition Temperature (°C)	Not available.
	Viscosity (mPa.s)	Not applicable.
	Explosive properties	Not explosive.
	Oxidising properties	Not oxidising.
9.2	**Other information**	No information available.

10.SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	Reacts violently with - Water, certain metals, bromine trifluoride, Furan 2-peroxycarboxylic acid, Acids.
10.4	**Conditions to avoid**	This product is hygroscopic. Keep away from moisture. Keep away from heat, sparks, open flame, hot surfaces - No smoking
10.5	**Incompatible materials**	Water, certain metals, bromine trifluoride, Furan 2-peroxycarboxylic acid, Acids.
10.6	**Hazardous Decomposition Product(s)**	Can react with - certain metals (Zinc, Aluminium, Tin, Lead) forming flammable hydrogen gas.

11.SECTION 11: TOXICOLOGICAL INFORMATION

11.1	**Information on toxicological effects**	
11.1.1	**Substances**	
	Acute toxicity	
	Ingestion	LD_{50}(oral): 2301 mg/kg bw. Low acute toxicity.
	Inhalation	High atmospheric concentrations may lead to severe irritation of the nose, throat and respiratory tract.
	Skin Contact	LD_{50}(Dermal): 5000 mg/kg bw. Low acute toxicity.
	Eye Contact	High concentrations: Irritation, Impaired vision
	Skin corrosion/irritation	Not classified. Repeated and/or prolonged skin contact may cause irritation.
	Serious eye damage/irritation	Xi IRRITANT; Irritating to eyes.
	Respiratory or skin sensitization	It is not a skin sensitiser.
	Mutagenicity	No evidence of genotoxicity.
	Carcinogenicity	There is no evidence that this product poses a carcinogenic risk under normal conditions of handling and use.
	Reproductive toxicity	Not classified. NOAEL: 169 mg/kg bw/day.
	STOT - single exposure	None anticipated.
	STOT - repeated exposure	None anticipated.
	Aspiration hazard	Not classified.
11.1.2	**Mixtures**	Not applicable.
11.2	**Other information**	None.

12.SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	Low toxicity to aquatic organisms. EC_{50}/LC_{50} Aquatic invertebrates: 2400 mg/l. NOEC Aquatic invertebrates: 320 mg/l. EC_{50}/LC_{50} Fresh water Algae: 2900 mg/l. NOEC Fresh water Algae: 1000 mg/l.
12.2	**Persistence and degradability**	The methods for determining the biological degradability are not applicable to inorganic substances.
12.3	**Bioaccumulative potential**	The substance has low potential for bioaccumulation.

12.4	**Mobility in soil**	The substance has high mobility in sediment.
12.5	**Results of PBT and VPVB assessment**	Not classified as PBT or vPvB.
12.6	**Other adverse effects**	No information available.

13.SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Recover or recycle if possible. Send to a licensed recycler, reclaimer or incinerator. Do not dispose with acids. Dispose of contents in accordance with local, state or national legislation.
13.2	**Additional Information**	WGK class 1 (official). Waste code: 06 09 04.

14.SECTION 14: TRANSPORT INFORMATION

Not classified as dangerous for transport.

14.1	**UN number**	Not applicable.
14.2	**Proper Shipping Name**	Calcium Chloride 90-98%pellets Calcium Chloride 90-98% powder
14.3	**Transport hazard class(es)**	Not applicable.
14.4	**Packing Group**	Not applicable.
14.5	**Environmental hazards**	Not applicable.
14.6	**Special precautions for user**	Not applicable.
14.7	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.

15.SECTION 15: REGULATORY INFORMATION

15.1	**Safety, health and environmental regulations/legislation specific for the substance or mixture**	
15.1.1	**EU regulations**	
	Authorizations and/or restrictions on use	None known.
15.1.2	**National regulations**	None known.
15.2	**Chemical Safety Assessment**	Available.

16.SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

16.1 Indication of Changes

This Safety Data Sheet has been fully revised with changes in each section.

16.2 LEGEND

Eye Irrit. 2	Serious eye damage/irritation Category 2
LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
STOT	Specific Target Organ Toxicity
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
WEL	Workplace Exposure Limit (UK HSE EH40)
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
WGK	Wassergefährdungsklassen, German Water Hazard Classification
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration

16.3	**Key Literature Reference**	Refer to Chemical Safety Report

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The Buyer of the product intended for a third party's usage is obliged to take all reasonable steps to afford access to all information contained in this SDS for any person making use of this product.
An Employer must inform employees and other persons of the dangers they can be incurred and precautionary measures they should apply.

ANNEX TO THE EXTENDED SAFETY DATA SHEET (ESDS)

On the next pages the Calcium Chloride Exposure Scenarios (ES) in the e-SDS format are presented.

ES	Life cycle stage	Calcium chloride
2	Industrial end use	ES 2: Use of calcium chloride as chemical intermediate
3	Formulation	ES 3: Formulation and/or distribution of Calcium Chloride
4	Industrial end use	ES 4: Use of calcium chloride as processing aid
5	Industrial end use	ES 5: Industrial outdoor use of calcium chloride-end use
6	Professional end use	ES 6: Professional indoor use of calcium chloride
7	Professional end use	ES 7: Professional outdoor use of calcium chloride
8	Industrial and professional end use	ES 8: Handling of (aqueous) calcium chloride
9	Industrial and professional end use	ES 9: Handling of calcium chloride with low dustiness
10	Consumer end use	ES 10: Use of calcium chloride by consumers

Prior to the description of the exposure scenarios an explanatory note is given for the customer, in order to get used to the terminology used.

Explanatory note for the customer:

The REACH exposure scenario hereunder is the summary of the results of the Chemical Safety Assessment of the substance that has been performed by the supplier. The operational conditions and risk management measures in the exposure scenario allow you to work safely with the substance.

Note to section 1: processes tasks, activities covered:

The process categories (PROC) given in the exposure scenario cover those identified uses that the supplier considers as being typically applied in the industry sector of the customer (so called "common practice").
They may be consecutive activities in the processing of the substance by the customer and may thus be considered as contributing scenario's in the total activity of the customer.
In the chemical safety assessment these processes categories were used as a starting point for the assessment.

Note to Section 2.1: under contributing scenario's:

For each process category (PROC), the risk management measures (RMM, in the right column) mentioned, are recommended to be applied in order to guarantee safe use during that specific (process) activity.

Note to Section 2.2: control of environmental exposure:

The chemical safety assessment of the emission of substances to the environment (waste water, air and soil) during the supplier's activity aims at defining conditions and risk management measures that should be implemented to guarantee absence of adverse effects in one or more of the environmental compartments (e.g. water, air and/or soil).

The following operational conditions mentioned under "control of environmental exposure" are preset or estimated values (based on best knowledge or on official guidance documents in environmental risk assessment):
- Amounts used
- Frequency and duration of use
- Environmental factors not influenced by risk management
- Other given operational conditions affecting environmental exposure

The implemented risk management measures (RMM) are based on these preset conditions. The customer should therefore check if the preset conditions apply to his local situation and conditions. If his local conditions differ from the preset conditions, the customer should adapt the preset values to his specific situation and recalculate the emissions to the environment (e.g. with the aid of EUSES) and compare the new predicted environmental concentrations (PECs) with the PNECs of the substance.

Exposure scenario 2: Use of calcium chloride as chemical intermediate

ES Annex to the e-SDS	
Section 1.	**Exposure Scenario Title**
Title	**Use of Calcium Chloride as chemical intermediate; CAS: 10043-52-4**
Sectors of use	Industrial: ▪ SU8: Manufacture of bulk, large scale chemicals (including petroleum products) ▪ SU9: Manufacture of fine chemicals ▪ SU14: Manufacture of basic metals, including alloys (The following additional sectors of use are considered to be covered by the main sectors of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites ▪ SU4: Manufacture of food products ▪ SU5: Manufacture of textiles, leather, fur ▪ SU6b: Manufacture of pulp, paper and paper products)
Process categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ PROC3: Use in closed batch process (synthesis or formulation) ▪ PROC4: Use in batch and other process (syn-thesis) where opportunity for exposure arises ▪ 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) ▪ PROC15: Use as laboratory reagent ▪ PROC22a / 22b: Potentially closed processing operations with minerals/metals at elevated temperature: pt ≤ mt – low / medium fugacity. Industrial setting. ▪ PROC22c: Potentially closed processing operations with minerals/metals at elevated temperature: pt > mt - high fugacity. Industrial setting. ▪ PROC23a / 23b: Open processing and transfer opera-tions with minerals/metals at elevated temperature: pt ≤ mt – low / medium fugacity ▪ PROC23c: Open processing and transfer opera-tions with minerals/metals at elevated temperature: pt > mt - high fugacity
Environmental Release Categories	▪ ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)
Processes, tasks, activities covered	Use of Calcium Chloride as chemical intermediate. Use as an intermediate. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Section 2.	**Operational conditions and risk management measures**
Field for additional statements to explain scenario if required.	

Section 2.1.	**Control of worker exposure**
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless

	stated differently) [G13].
Amounts used	*Not applicable*
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 more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection.*
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC1: General exposures [CS1]. With sample collection [CS56].	No specific measures identified [EI18].
PROC2: General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	No specific measures identified [EI18].
PROC3: General exposures [CS1]. Use in contained batch processes [CS37].	No specific measures identified [EI18].
PROC4: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC6: Calendering (including Banburys) [CS64]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8b: Process sampling [CS2]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8a: Process sampling [CS2]. Non-dedicated facility [CS82].	Avoid carrying out operation for more than 1 hour [OC11]
PROC9: Drum/batch transfers [CS8]. Transport [CS58].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or

	better [ ].
PROC15: Laboratory activities [CS36].	No specific measures identified [EI18].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8b: Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	Drain or remove substance from equipment prior to break-in or maintenance [E81], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC22a / 22b: General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature ≤ melting point of substance [ ]	No specific measures identified [EI18].
PROC22c: General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature > melting point of substance [ ]	Provide extract ventilation to points where emissions occur [E54], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC23a / 23b: Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature ≤ melting point of substance [ ]	No specific measures identified [EI18].
PROC23c: Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature > melting point of substance [ ]	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [EI18].
PROC2: Storage [CS67]. With sample collection [CS56].	No specific measures identified [EI18].
Section 2.2.	**Control of environmental exposure**
Not applicable, as for this intended use the substance is not hazardous for the environment.	

Section 3.	Exposure Estimation			
3.1. Health				
PROC no.	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
PROC1- General exposures [CS1]. With sample collection [CS56].	0.01	<0.01	0.02	<0.01
PROC2 - General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	0.50	0.10	1.00	0.10
PROC3 - General exposures [CS1]. Use in contained batch processes [CS37].	1.00	0.20	2.00	0.20
PROC4 - General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	3.50	0.70	7.00	0.70
PROC6 - Calendering (including Banburys) [CS64]	3.50	0.70	7.00	0.70
PROC8b - Process sampling [CS2]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC8a - Process sampling [CS2]. Non-dedicated facility [CS82]	1.00	0.20	2.00	0.20
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC15 - Laboratory activities [CS36].	0.50	0.10	1.00	0.10
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC8a- Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	4.00	0.80	8.00	0.80
PROC22a / 22b - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature ≤ melting point of substance [ ].	3.00	0.60	6.00	0.60
PROC22c - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature > melting point of substance [ ].	1.00	0.20	2.00	0.20
PROC23a / 23b - Material transfers [CS3]. Open systems [CS108].	3.00	0.60	6.00	0.60

Batch processes at elevated temperatures [CS136]. Process temperature ≤ melting point of substance [ ].				
PROC23c - Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature > melting point of substance [ ].	3.00	0.60	6.00	0.60
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.01	<0.01	0.02	<0.01

3.2. Environment

Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 4.	**Guidance to check compliance with the Exposure Scenario**
4.1. Health	
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].

4.2. Environment

Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 5.

Control of Worker Exposure

None

Control of environmental exposure

None.

Exposure scenario 3: Formulation and/or distribution of calcium chloride

ES Annex to the e-SDS	
Section 1.	**Exposure Scenario Title**
Title	**Formulation and/or distribution of Calcium Chloride; CAS: 10043-52-4**
Sectors of use	Industrial: ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) (The following additional sectors of use are considered to be covered by the main sector of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU2: Mining and offshore industries ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites ▪ SU4: Manufacture of food products ▪ SU5: Manufacture of textiles, leather, fur ▪ SU6b: Manufacture of pulp, paper and paper products ▪ SU8: Manufacture of bulk, large scale chemicals (including petroleum products) ▪ SU11: Manufacture of rubber products ▪ SU12: Manufacture of plastics products, including compounding and conversion ▪ SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement ▪ SU14: Manufacture of basic metals, including alloys ▪ SU15: Manufacture of fabricated metal products, except machinery and equipment ▪ SU19: Building and construction work ▪ SU20: Health services ▪ SU0- C23.5/ C23.6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ PROC3: Use in closed batch process (synthesis or formulation) ▪ 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) ▪ PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation ▪ PROC15: Use as laboratory reagent
Environmental release categories	▪ ERC2: Formulation of preparations
Processes, tasks, activities covered	Formulation and distribution , packing and re-packing (including drums and small packs) of the Calcium Chloride and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, loading (including marine vessel/barge, rail/road car and IBC loading), maintenance and associated laboratory activities. e.g. production of adsorbents, cosmetics, metals, fertilizers, plant protection, cement,

	haemodialysis solution and general distributor activities with Calcium Chloride
Section 2.	**Operational conditions and risk management measures**
Field for additional statements to explain scenario if required.	
Section 2.1.	**Control of worker exposure**
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	*Not applicable*
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 more than 20°C above ambient temperature, unless stated differently [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection.*
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC1: General exposures [CS1]. Continuous process [CS54].	No specific measures identified [EI18].
PROC2: General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	No specific measures identified [EI18].
PROC3: General exposures [CS1]. Use in contained batch processes [CS37].	No specific measures identified [EI18].
PROC5: Mixing operations (open systems) [CS30].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC6: Calendering (including Banburys) [CS64]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8b:	Provide a good standard of general ventilation (not less than 3 to 5

Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC9: Drum/batch transfers [CS8]. Transport [CS58].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC14: Tabletting, compression, extrusion or pelletisation [CS506].	No specific measures identified [EI18].
PROC15: Laboratory activities [CS36].	No specific measures identified [EI18].
PROC8b: Process sampling [CS2]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8a: Process sampling [CS2]. Non-dedicated facility [CS82].	Avoid carrying out operation for more than 1 hour [OC11].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	Drain or remove substance from equipment prior to break-in or maintenance [E81], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [EI18].
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [EI18].
Section 2.2.	**Control of environmental exposure**
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 3.	**Exposure Estimation**

3.1. Health

PROC no.	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
PROC1 - General exposures [CS1]. Continuous process [CS54].	0.01	<0,01	0.02	<0,01
PROC2 - General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	0.50	0.10	1.00	0.10
PROC3 - General exposures [CS1]. Use in contained batch processes [CS37].	1.00	0.20	2.00	0.20
PROC5 - Mixing operations (open systems) [CS30].	3.50	0.70	7.00	0.70
PROC6 - Calendering (including Banburys) [CS64]	3.50	0.70	7.00	0.70

PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC14 - Tabletting, compression, extrusion or pelletisation [CS506].	1.00	0.20	2.00	0.20
PROC15 - Laboratory activities [CS36].	0.50	0.10	1.00	0.10
PROC8b - Process sampling [CS2]. Dedicated facility [CS81].	3.50	0.70	7.00	0.70
PROC8a - Process sampling [CS2]. Non-dedicated facility [CS82].	1.00	0.20	2.00	0.20
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	4.00	0.80	8.00	0.80
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.01	<0.01	0.02	<0.01
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	0.50	0.10	1.00	0.10

3.2. Environment

Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 4.	**Guidance to check compliance with the Exposure Scenario**
4.1. Health	
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].

4.2. Environment

Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 5.

Control of Worker Exposure

None

Control of environmental exposure

None.

Exposure scenario 4: Use of calcium chloride as processing aid

ES Annex to the e-SDS	
Section 1.	**Exposure Scenario Title**
Title	**Use of Calcium Chloride as processing aid; CAS: 10043-52-4**
Sectors of use	Industrial: ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites (The following additional sectors of use are considered to be covered by the main sector of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU2a: Mining (without offshore industries) ▪ SU2b: Offshore industries ▪ SU4: Manufacture of food products ▪ SU5: Manufacture of textiles, leather, fur ▪ SU6b: Manufacture of pulp, paper and paper products ▪ SU8: Manufacture of bulk, large scale chemicals (including petroleum products) ▪ SU9: Manufacture of fine chemicals ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) ▪ SU11: Manufacture of rubber products ▪ SU12: Manufacture of plastics products, including compounding and conversion ▪ SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement ▪ SU14: Manufacture of basic metals, including alloys ▪ SU15: Manufacture of fabricated metal products, except machinery and equipment ▪ SU16: Manufacture of computer, electronic and optical products, electrical equipment ▪ SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment)
Process categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ PROC3: Use in closed batch process (synthesis or formulation) ▪ PROC4: Use in batch and other process (syn-thesis) where opportunity for exposure arises ▪ PROC6: Calendering operations ▪ 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) ▪ PROC10: Roller application or brushing ▪ PROC13: Treatment of articles by dipping and pouring ▪ PROC15: Use as laboratory reagent ▪ PROC22a / 22b: Potentially closed processing operations with minerals/metals at elevated temperature: pt ≤ mt – low / medium fugacity. Industrial setting. ▪ PROC22c: Potentially closed processing operations with minerals/metals at

	elevated temperature: pt > mt - high fugacity. Industrial setting. ▪ PROC23a / 23b: Open processing and transfer opera-tions with minerals/metals at elevated temperature: pt ≤ mt – low / medium fugacity ▪ PROC23c: Open processing and transfer opera-tions with minerals/metals at elevated temperature: pt > mt - high fugacity
Environmental release categories	▪ ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
Processes, tasks, activities covered	Use of Calcium Chloride as processing aid. Use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities. E.g. functions as adsorbent, coagulant, emulsion breaker, alginates, extraction agent, completion fluid, heat transfer fluid, water treatment chemical or use within the paper industry for example as antistatic.
Section 2.	**Operational conditions and risk management measures**
Field for additional statements to explain scenario if required.	
Section 2.1.	**Control of worker exposure**
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	*Not applicable*
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 more than 20°C above ambient temperature, unless stated differently [G15].; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.*
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC1: General exposures [CS1]. Continuous process [CS54].	No specific measures identified [EI18].
PROC2: General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	No specific measures identified [EI18].
PROC3: General exposures [CS1]. Use in contained batch processes [CS37].	No specific measures identified [EI18].
PROC4: General exposures (open systems) [CS16].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or:

Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC6: Calendering (including Banburys) [CS64]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC7: Spraying [CS10].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8b: Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC9: Drum/batch transfers [CS8]. Transport [CS58].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC10: Rolling, Brushing [CS51].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC13: Dipping, immersion and pouring [CS4].	No specific measures identified [EI18].
PROC15: Laboratory activities [CS36].	No specific measures identified [EI18].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	Drain or remove substance from equipment prior to break-in or maintenance [E81], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8b: Process sampling [CS2]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8a: Process sampling [CS2]. Non-dedicated facility [CS82]	Avoid carrying out operation for more than 4 hours [OC12].
PROC22a / 22b: General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature ≤ melting point of substance [ ].	No specific measures identified [EI18].
PROC22c: General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature > melting point of substance [ ].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC23a / 23b:	No specific measures identified [EI18].

Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature ≤ melting point of substance [ ].	
PROC23c: Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature > melting point of substance [ ].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [EI18].
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [EI18].
Section 2.2.	**Control of environmental exposure**
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 3.	**Exposure Estimation**

3.1. Health

PROC no.	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
PROC1 - General exposures [CS1]. Continuous process [CS54].	0.01	<0.01	0.02	<0.01
PROC2 - General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	0.50	0.10	1.00	0.10
PROC3 - General exposures [CS1]. Use in contained batch processes [CS37].	1.00	0.20	2.00	0.20
PROC4 - General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	3.50	0.70	7.00	0.70
PROC6 - Calendering (including Banburys) [CS64]	3.50	0.70	7.00	0.70
PROC7 - Spraying [CS10].	2.00	0.40	4.00	0.40
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82].	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading	3.50	0.70	7.00	0.70

[CS501]. Dedicated facility [CS81].				
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC10 - Rolling, Brushing [CS51].	3.50	0.70	7.00	0.70
PROC13 - Dipping, immersion and pouring [CS4].	1.00	0.20	2.00	0.20
PROC15 - Laboratory activities [CS36].	0.50	0.10	1.00	0.10
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	4.00	0.80	8.00	0.80
PROC8b - Process sampling [CS2]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC8a - Process sampling [CS2]. Non-dedicated facility [CS82]	1.00	0.20	2.00	0.20
PROC22a / 22b - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature ≤ melting point of substance [ ].	3.00	0.60	6.00	0.60
PROC22c - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature > melting point of substance [ ].	3.00	0.60	6.00	0.60
PROC23a / 23b - Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature ≤ melting point of substance [ ].	3.00	0.60	6.00	0.60
PROC23c - Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature > melting point of substance [ ].	3.00	0.60	6.00	0.60
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.01	<0.01	0.02	<0.01
PROC2 - Storage [CS67].General exposures (closed systems) [CS15]. With sample collection [CS56].	0.50	0.10	1.00	0.10
3.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 4.	**Guidance to check compliance with the Exposure Scenario**			
4.1. Health				
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in			

	Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].
4.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 5.	
Control of Worker Exposure	
None	
Control of environmental exposure	
None.	

Exposure scenario 5: Industrial outdoor use of calcium chloride - end use

ES Annex to the e-SDS	
Section 1.	**Exposure Scenario Title**
Title	**ES5: Industrial outdoor use of Calcium Chloride; CAS: 10043-52-4**
Sectors of use	Industrial: ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites (The following additional sectors of use are considered to be covered by the main sector of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU2a: Mining and offshore industries)
Process categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ 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) ▪ PROC13: Treatment of articles by dipping and pouring (in this ES: Spreading) ▪ PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	▪ ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Processes, tasks, activities covered	Industrial outdoor use of Calcium Chloride. Covers the end use of Calcium chloride either pure or in formulation by spreading, spraying and pouring. Including storage, materials transfers, mixing, loading and maintenance. E.g. the use of dust suppression - and de-icing- mixtures.
Section 2.	**Operational conditions and risk management measures**
Field for additional statements to explain scenario if required.	
Section 2.1.	**Control of worker exposure**
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	*Not applicable*
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 more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1]. Outdoor [OC9].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical*

	measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC5: Mixing operations (open systems) [CS30].	No specific measures identified [EI18].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	No specific measures identified [EI18].
PROC8b: Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	No specific measures identified [EI18].
PROC9: Drum/batch transfers [CS8]. Transport [CS58].	No specific measures identified [EI18].
PROC7: Spraying [CS10].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC7: Spraying [CS10].	Avoid carrying out operation for more than 1 hour [OC11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC13: Spreading [ ] Large surfaces [CS46].	No specific measures identified [EI18].
PROC19: Mixing operations (open systems) [CS30]. Manual [CS34].	No specific measures identified [EI18].
PROC19: Spreading [ ] Manual [CS34].	No specific measures identified [EI18].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	No specific measures identified [EI18].
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [EI18].
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [EI18].
Section 2.2.	**Control of environmental exposure**
Product characteristics	
Substance is a unique structure [PrC1].	
Inorganic substance [ ].	

Contributing scenario	**De-icing agent, application as a mixture of 70% NaCl and 30% of a 20% solution of CaCl2**
Amounts used	
Annual tonnage of road salt	1.5 tonnes/km
Fraction of CaCl2 in road salt	0.06
Annual tonnage of CaCl2	0.09 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**De-icing agent, application as liquid CaCl2 brine (max. 35% solution)**
Amounts used	
Annual tonnage of road salt	0.8 tonnes/km
Fraction of CaCl2 in road salt	0.35
Annual tonnage of CaCl2	0.28 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**De-icing agent, application as solid CaCl2 (up to 100%)**
Amounts used	

Annual tonnage of road salt	0.25 tonnes/km
Fraction of CaCl2 in road salt	1
Annual tonnage of CaCl2	0.25 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**Dust suppressor, application as solid CaCl2 (up to 80%)**
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl2 in road salt	0.8
Annual tonnage of CaCl2	2.4 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	3
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**Dust suppressor, application as CaCl2 solution (up to 37%)**
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl2 in road salt	0.37
Annual tonnage of CaCl2	1.11 tonnes/km
Frequency and duration of use	

Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	3
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Section 3.	**Exposure Estimation**
3.1. Health	

PROC no.	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
PROC5 - Mixing operations (open systems) [CS30].	3.50	0.70	7.00	0.70
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC7 - Spraying [CS10].	2.00	0.40	4.00	0.40
PROC7 - Spraying [CS10]. Outdoor	2.80	0.56	5.60	0.56
PROC13 - Spreading [ ] Large surfaces [CS46].	0.70	0.14	1.40	0.14
PROC19 - Mixing operations (open systems) [CS30]. Manual [CS34].	3.50	0.70	7.00	0.70
PROC19 - Spreading [ ] Manual [CS34].	3.50	0.70	7.00	0.70
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC1 - Storage [CS67].	<0.01	<0.01	0.01	<0.01

General exposures (closed systems) [CS15].				
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	<0.01	<0.01	0.01	<0.01
3.2. Environment				
Used EUSES model [EE4].				
Deposition of calcium chloride onto soil in low to medium traffic areas.				
Application	**Deposition volume (g/m^2)**	**RCR**		
De-icing agent, application as 70% NaCl and 30% CaCl2 solution	9	0.060		
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	28.0	0.187		
De-icing agent, application as solid calcium chloride (up to 100%)	25.0	0.167		
Dust suppressor, application as solid calcium chloride (up to 80%)	100	0.667		
Dust suppressor, application as calcium chloride solution (up to 37%)	111	0.740		
Deposition volumes onto soil in high traffic areas.				
Application	**Deposition volume (g/m^2)**	**RCR**		
De-icing agent, application as 70% NaCl and 30% CaCl2 solution	45	0.300		
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	140	0.933		
De-icing agent, application as solid calcium chloride (up to 100%)	125	0.833		
Section 4.	**Guidance to check compliance with the Exposure Scenario**			
4.1. Health				
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]			
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]			
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].			
4.2. Environment				
If scaling reveals a condition of unsafe use (i.e, RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required [DSU8].				
Section 5.				
Control of Worker Exposure				
None				
Control of environmental exposure				
None.				

Exposure Scenario 6: Professional indoor use of calcium chloride

Section 1	Exposure Scenario Title
Title	**ES6: Professional indoor use of Calcium Chloride; CAS: 10043-52-4**
Sectors of use	Professional: ▪ SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) (The following additional sectors of use are considered to be covered by the main sector of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) ▪ SU19: Building and construction work ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ PROC3: Use in closed batch process (synthesis or formulation) ▪ PROC4: Use in batch and other process (syn-thesis) 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) ▪ PROC10: Roller application or brushing ▪ PROC11: Non industrial spraying ▪ PROC15: Use as laboratory reagent ▪ PROC19: Hand-mixing with intimate contact and only PPE available ▪ PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
Environmental Release Categories	▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems
Processes, tasks, activities covered	Professional use of CaCl2. Covers the end use of Calcium chloride either pure or in formulation including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and by spraying, brushing, dipping, wiping automated and by hand. E.g. the use of, washing and cleaning products or use as heat transfer fluid.
Section 2	**Operational conditions and risk management measures**
Field for additional statements to explain scenario if required.	
Section 2.1	**Control of worker exposure**
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].

Amounts used	*Not applicable*
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 more than 20°C above ambient temperature, unless stated differently [G15].; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.*
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC3: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers [CS45].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC4: Application of cleaning products in closed systems [CS101] With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC5: Mixing operations (open systems) [CS30].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC8b: Bulk closed loading and unloading [CS501]. Dedicated facility [CS81].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC9: Pouring from small containers [CS9]. Transport [CS58].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].

PROC10: Rolling, Brushing [CS51].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC11: Spraying [CS10].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC19: Mixing operations (open systems) [CS30]. Manual [CS34].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC19: Manual spot cleaning (e.g. textiles etc) [CS52].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC20: Heat and pressure transfer fluids (closed systems) in dispersive use [ ].	No specific measures identified [EI18].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC15: Laboratory activities [CS36].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [EI18].
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [EI18].
Section 2.2.	**Control of environmental exposure**
Not applicable, as for this intended use the substance is not hazardous for the environment.	

Section 3.	**Exposure Estimation**

3.1. Health

PROC no.	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
PROC3 - General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers [CS45].	3.50	0.70	7.00	0.70
PROC4 - Application of cleaning products in closed systems [CS101].	3.50	0.70	7.00	0.70

With sample collection [CS56]. Filling / preparation of equipment from drums or containers [CS45].				
PROC5 - Mixing operations (open systems) [CS30].	3.50	0.70	7.00	0.70
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 -Pouring from small containers [CS9]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC10 - Rolling, Brushing [CS51].	3.50	0.70	7.00	0.70
PROC11 - Spraying [CS10].	4.00	0.80	8.00	0.80
PROC19 - Mixing operations (open systems) [CS30]. Manual [CS34].	3.50	0.70	7.00	0.70
PROC19 - Manual spot cleaning (e.g. textiles etc) [CS52].	3.50	0.70	7.00	0.70
PROC20 - Heat and pressure transfer fluids (closed systems) in dispersive use [ ].	1.00	0.20	2.00	0.20
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	3.50	0.70	7.00	0.70
PROC15 - Laboratory activities [CS36].	3.50	0.70	7.00	0.70
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.10	0.02	0.20	0.02
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	1.00	0.20	2.00	0.20

3.2. Environment
Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 4.	**Guidance to check compliance with the Exposure Scenario**
4.1. Health	
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].

4.2. Environment
Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 5.
Control of Worker Exposure
None
Control of environmental exposure
None.

Exposure scenario 7: Professional outdoor use of calcium chloride

ES Annex to the e-SDS	
Section 1.	**Exposure Scenario Title**
Title	**Professional outdoor use of calcium chloride; CAS: 10043-52-4**
Sectors of use	Professional: ▪ SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) (The following additional sectors of use are considered to be covered by the main sector of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU5: Manufacture of textiles, leather, fur ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) ▪ SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement ▪ SU19: Building and construction work ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ 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) ▪ PROC10: Roller application or brushing ▪ PROC11: Non industrial spraying ▪ PROC13: Treatment of articles by dipping and pouring (in this ES also: Spreading) ▪ PROC19: Hand-mixing with intimate contact and only PPE available ▪ PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
Environmental Release Categories	▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems
Processes, tasks, activities covered	Professional outdoor use of CaCl2. Covers the end use of Calcium chloride either pure or in formulation including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and by spraying, brushing, dipping, spreading automated and by hand. Including storage, equipment clean-downs and disposal. E.g. the use of agrochemicals, dust suppression- and de-icing- mixtures and the use of cement.
Section 2.	**Operational conditions and risk management measures**
Section 2.1.	**Control of worker exposure**
Product characteristics	
Physical form of product	Physical state: Solid, medium dustiness [OC2].

Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	*Not applicable.*
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 more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1]. Outdoor [OC9].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection*
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC5: Mixing operations (open systems) [CS30].	No specific measures identified [EI18].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82].	No specific measures identified [EI18].
PROC8a: Filling / preparation of equipment from drums or containers. [CS45]. Non-dedicated facility [CS82].	No specific measures identified [EI18].
PROC8b: Bulk closed loading and unloading [CS501]. Dedicated facility [CS81].	No specific measures identified [EI18].
PROC9: Drum/batch transfers [CS8]. Transport [CS58].	No specific measures identified [EI18].
PROC9: Pouring from small containers [CS9].	No specific measures identified [EI18].
PROC10: Rolling, Brushing [CS51].	No specific measures identified [EI18].
PROC11: Spraying [CS10].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [ ].
PROC11: Spraying [CS10].	Avoid carrying out operation for more than 1 hour [OC11], or: Wear a respirator conforming to EN143 with Type P2 filter or

	better [ ].
PROC13: Dipping, immersion and pouring [CS4].	No specific measures identified [EI18].
PROC13: Spreading [ ] Large surfaces [CS46].	No specific measures identified [EI18].
PROC19: Mixing operations (open systems) [CS30]. Manual [CS34].	No specific measures identified [EI18].
PROC19: Spreading [ ] Manual [CS34].	No specific measures identified [EI18].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	No specific measures identified [EI18].
PROC20: Heat and pressure transfer fluids (closed systems) in dispersive use [ ]	No specific measures identified [EI18].
PROC2: Storage [CS67].	No specific measures identified [EI18].
General exposures (closed systems) [CS15].	
PROC2: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [EI18].
With sample collection [CS56].	
Section 2.2.	**Control of environmental exposure**
Product characteristics	
Substance is a unique structure [PrC1].	
Inorganic substance [ ].	
Contributing scenario	**De-icing agent, application as a mixture of 70% NaCl and 30% of a 20% solution of CaCl2**
Amounts used	
Annual tonnage of road salt	1.5 tonnes/km
Fraction of CaCl2 in road salt	0.06
Annual tonnage of CaCl2	0.09 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0

Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**De-icing agent, application as liquid CaCl2 brine (max. 35% solution)**
Amounts used	
Annual tonnage of road salt	0.8 tonnes/km
Fraction of CaCl2 in road salt	0.35
Annual tonnage of CaCl2	0.28 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**De-icing agent, application as solid CaCl2 (up to 100%)**
Amounts used	
Annual tonnage of road salt	0.25 tonnes/km
Fraction of CaCl2 in road salt	1
Annual tonnage of CaCl2	0.25 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use	

affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**Dust suppressor, application as solid CaCl2 (up to 80%)**
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl2 in road salt	0.8
Annual tonnage of CaCl2	2.4 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	3
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	
Contributing scenario	**Dust suppressor, application as CaCl2 solution (up to 37%)**
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl2 in road salt	0.37
Annual tonnage of CaCl2	1.11 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].

Emission Days (days/year) [FD4]:	3
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [ ].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [ ].	

Section 3.	**Exposure Estimation**			
3.1. Health				
PROC no.	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
PROC5 - Mixing operations (open systems) [CS30]	3.50	0.70	7.00	0.70
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8a - Filling / preparation of equipment from drums or containers. [CS45]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC9 - Pouring from small containers [CS9].	3.50	0.70	7.00	0.70
PROC10 - Rolling, Brushing [CS51].	3.50	0.70	7.00	0.70
PROC11 - Spraying [CS10].	1.40	0.28	2.80	0.28
PROC11 - Spraying [CS10].	2.80	0.56	5.60	0.56
PROC13 - Dipping, immersion and pouring [CS4].	3.50	0.70	7.00	0.70
PROC13 - Spreading [ ] Large surfaces [CS46].	3.50	0.70	7.00	0.70
PROC19 - Mixing operations (open systems) [CS30]. Manual [CS34].	3.50	0.70	7.00	0.70

PROC19 - Spreading [ ] Manual [CS34].	3.50	0.70	7.00	0.70
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC20 - Heat and pressure transfer fluids (closed systems) in dispersive use [ ]	0.70	0.14	1.40	0.14
PROC2 - Storage [CS67].General exposures (closed systems) [CS15].	0.07	0.01	0.14	0.01
PROC2 - Storage [CS67].General exposures (closed systems) [CS15]. With sample collection [CS56].	0.70	0.14	1.40	0.14

3.2. Environment

Used EUSES model [EE4].

Deposition of calcium chloride onto soil in low to medium traffic areas.

Application	**Deposition volume (g/m^2)**	**RCR**
De-icing agent, application as 70% NaCl and 30% CaCl2 solution	9	0.060
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	28.0	0.187
De-icing agent, application as solid calcium chloride (up to 100%)	25.0	0.167
Dust suppressor, application as solid calcium chloride (up to 80%)	100	0.667
Dust suppressor, application as calcium chloride solution (up to 37%)	111	0.740

Deposition volumes onto soil in high traffic areas.

Application	**Deposition volume (g/m^2)**	**RCR**
De-icing agent, application as 70% NaCl and 30% CaCl2 solution	45	0.300
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	140	0.933
De-icing agent, application as solid calcium chloride (up to 100%)	125	0.833

Section 4.	**Guidance to check compliance with the Exposure Scenario**
4.1. Health	
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].
4.2. Environment	
Not applicable for wide dispersive uses [DSU5].	

Section 5.
Control of Worker Exposure
None
Control of environmental exposure
None.

Exposure scenario 8: Handling of aqueous solutions

ES Annex to the e-SDS	
Section 1.	**Exposure Scenario Title**
Title	**Handling of (aqueous) Calcium Chloride solutions ; CAS: 10043-52-4**
Sectors of use	▪ SU3: Industrial uses: Uses of substances as such or in preparations* at industrial sites ▪ SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) (The following additional sectors of use are considered to be covered by the main sectors of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU2a: Mining, (without offshore industries) ▪ SU4: Manufacture of food products ▪ SU5: Manufacture of textiles, leather, fur ▪ SU6b: Manufacture of pulp, paper and paper products ▪ SU8: Manufacture of bulk, large scale chemicals (including petroleum products) ▪ SU9: Manufacture of fine chemicals ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) ▪ SU11: Manufacture of rubber products ▪ SU12: Manufacture of plastics products, including compounding and conversion ▪ SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement ▪ SU14: Manufacture of basic metals, including alloys ▪ SU15: Manufacture of fabricated metal products, except machinery and equipment ▪ SU19: Building and construction work ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process Categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ PROC3: Use in closed batch process (synthesis or formulation) ▪ PROC4: Use in batch and other process (syn-thesis) where opportunity for exposure arises ▪ contact) ▪ PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) ▪ PROC6: Calendering operations ▪ 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) ▪ PROC10: Roller application or brushing ▪ PROC11: Non industrial spraying ▪ PROC13: Treatment of articles by dipping and pouring (in this ES: Spreading)

	▪ PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation ▪ PROC15: Use as laboratory reagent
Environmental Release Categories	▪ ERC1: Manufacture of substances ERC6a: Industrial use resulting in manufacture of another substance (use of interme-diates) ▪ ERC2: Formulation of prepara-tions ▪ ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems
Processes, tasks, activities covered	Handling of (aqueous) solutions containing Calcium Chloride.
Section 2.	**Operational conditions and risk management measures**
Field for additional statements to explain scenario if required.	
Section 2.1	**Control of worker exposure**
Product characteristics	
Physical form of product	Liquid, vapour pressure < 10 Pa [OC14].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	*Not applicable*
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 more than 20°C above ambient temperature, unless stated differently [G15].; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.*
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposure. Use suitable eye protection [PPE26].
General measures applicable to all activities [CS135].	No specific measures identified [EI18].
Section 2.2.	**Control of environmental exposure**
Not applicable, as for this intended use the substance is not hazardous for the environment.	

Section 3.	**Exposure Estimation**			
3.1. Health				
PROC no.	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
Reasonable worst case	1.00	0.20	2.00	0.20

3.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 4.	**Guidance to check compliance with the Exposure Scenario**
4.1. Health	
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].
4.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 5.	
Control of Worker Exposure	
None	
Control of environmental exposure	
None.	

Exposure Scenario 9: Handling of calcium chloride with low dustiness

ES Annex to the e-SDS	
Section 1.	**Exposure Scenario Title**
Title	**Handling of Calcium Chloride with low dustiness ; CAS: 10043-52-4**
Sectors of use	▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites ▪ SU22: Health services (The following additional sectors of use are considered to be covered by the main sectors of use mentioned above: ▪ SU1: Agriculture, forestry, fishery ▪ SU2a: Mining (without offshore industries) ▪ SU4: Manufacture of food products ▪ SU5: Manufacture of textiles, leather, fur ▪ SU6b: Manufacture of pulp, paper and paper products ▪ SU8: Manufacture of bulk, large scale chemicals (including petroleum products) ▪ SU9: Manufacture of fine chemicals ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) ▪ SU11: Manufacture of rubber products ▪ SU12: Manufacture of plastics products, including compounding and conversion ▪ SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement ▪ SU14: Manufacture of basic metals, including alloys ▪ SU15: Manufacture of fabricated metal products, except machinery and equipment ▪ SU19: Building and construction work ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	▪ PROC1: Use in closed process, no likelihood of exposure ▪ PROC2: Use in closed, continuous process with occasional controlled exposure ▪ PROC3: Use in closed batch process (synthesis or formulation) ▪ PROC4: Use in batch and other process (syn-thesis) where opportunity for exposure arises ▪ contact) ▪ PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) ▪ PROC6: Calendering operations ▪ 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) ▪ PROC10: Roller application or brushing ▪ PROC11: Non industrial spraying ▪ PROC13: Treatment of articles by dipping and pouring (in this ES: Spreading)

Environmental release categories	▪ ERC1: Manufacture of substances ERC6a: Industrial use resulting in manufacture of another substance (use of interme-diates) ▪ ERC2: Formulation of prepara-tions ▪ ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems
Processes, tasks, activities covered	Handling of Calcium Chloride pellets, flakes or other Calcium Chloride with low dustiness or preparations of these.
Section 2.	**Operational conditions and risk management measures**
Field for additional statements to explain scenario if required.	
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 100 % (unless stated differently) [G13].
Amounts used	*Not applicable*
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 more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	**Risk Management Measures** *Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.*
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposure. Use suitable eye protection [PPE26].
General measures applicable to all activities [CS135].	No specific measures identified [EI18].
Section 2.2.	**Control of environmental exposure**
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 3.	**Exposure Estimation**
3.1. Health	

PROC #	**Inhalation exposure – long term (mg/m^3)**	**RCR inhalation**	**Inhalation exposure – event exposure (mg/m^3)**	**RCR (inhalation)**
Reasonable worst case	1.00	0.20	2.00	0.20

3.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 4.	**Guidance to check compliance with the Exposure Scenario**
4.1. Health	
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]

	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].
4.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 5.	
Control of Worker Exposure	
None	
Control of environmental exposure	
None.	

Exposure Scenario 10: Use of calcium chloride by consumers

ES Annex to the e-SDS		
Section 1.	**Exposure Scenario Title**	
Title	Consumer use of Calcium Chloride and Calcium Chloride containing products	
Sector of Use	▪ SU21: Consumer uses: Private households (= general public = consumers)	
Product Categories	▪ PC2: Adsorbents ▪ PC4: Anti-Freeze and de-icing products ▪ PC12: Fertilizers ▪ PC16: Heat transfer fluids ▪ PC 27: Plant protection products ▪ PC35: Washing and cleaning products (including solvent based products) ▪ PC37: Water treatment chemicals ▪ PC0 - UCN code K35100: Cement/concrete/mortar	
Environmental Release Categories	▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems	
Processes, tasks, activities covered		
Section 2.	**Operational conditions (OC) and risk management measures (RMM)**	
Field for additional statements to explain scenario if required		
Section 2.1.	**Control of consumer exposure**	
Physical form of product		
Concentration of substance in product	Covers concentrations up to 100%. [ConsOC1]	
Amounts used	For each use event, covers use amounts up to 50 kg unless stated differently. [ConsOC2]	
Frequency and duration of use	Covers use up to 365 days/year, unless stated differently [ConsOC3]; Covers exposure up to 24 hours/event, unless stated differently [ConsOC14]	
Human factors not influenced by risk management	Inhalation rate up to 32,9 m3/day.	
Other Operational Conditions affecting consumer exposure	Covers use at ambient temperatures. [ConsOC15]; Room volume of 1 m^3 'Room volume' is interpreted here as personal space: a small area of 1 m^3 around the use. Minimum 0,6 Air Exchange Rate (1/hr). Covers use with a release area up to 125 m2, unless stated differently. Do not touch eyes when using this product.	
Chemical Product Categories		
PC2 (adsorbents) CaCl2 used as domestic dehumidifier.	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC4 (antifreeze + de-icing) CaCl2 used for de-icing and antifreeze	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC9b (Fillers, putties, plasters modelling clay) Calcium Chloride used in modelling clay	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC12 (fertilizers) Calcium Chloride in domestic fertilizers	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC16 (Heat transfer fluids) Calcium Chloride as energy source in self-heating-cup.	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC27 (plant protection) Calcium Chloride in plant protection formulations	OC	**Non-spraying activities** - No specific operational conditions identified

	RMM	No specific measures identified
	OC	**Spraying**- Covers concentration up to saturation (45%) [ConsOC1]; Covers spray duration up too 10 minutes/event. Covers use in room of 58m3 with room height of 2,5m.
	RMM	Spray away from person
PC35 (washing and cleaning products) Calcium Chloride containing washing and cleaning products	OC	**Non-spraying activities -** No specific operational conditions identified
	RMM	No specific measures identified
	OC	**Spraying**- Covers concentration up to saturation (45%) [ConsOC1]; Covers spray duration up too 10 minutes/event. Covers use in room of 58m3 with room height of 2,5m..
	RMM	Spray away from person
PC37 (water treatment chemicals) Calcium Chloride used as water treatment chemical e.g. in aquaria	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC0- UCN code K35100 (Cement/concrete/mortar) Calcium Chloride in Cement/concrete/mortar	OC	No specific operational conditions identified
	RMM	No specific measures identified

Section 2.2.	**Control of environmental exposure**			
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 3.	**Exposure Estimation**			
3.1. Consumer exposure				
PC2	<0.01	<0.01	0.005	<0.01
PC4	<0.01	<0.01	0.005	<0.01
PC9b	<0.01	<0.01	0.005	<0.01
PC12spreading and transfer	<0.01	<0.01	0.005	<0.01
PC12 spraying	0.69	0.14	0.687	0.27
PC12 total	0.70	0.14	0.692	0.28
PC16	<0.01	<0.01	0.005	<0.01
PC27spreading and transfer	<0.01	<0.01	0.005	<0.01
PC27 spraying	0.69	0.14	0.687	0.27
PC27 total	0.70	0.14	0.692	0.28
PC35	<0.01	<0.01	0.005	<0.01
PC37	<0.01	<0.01	0.005	<0.01
PC0-UCN code K35100	<0.01	<0.01	0.005	<0.01
3.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 4.	**Guidance to check compliance with the Exposure Scenario**			
4.1. Consumer exposure				
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]			
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]			
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [ ].			

4.2. Environment
Not applicable, as for this intended use the substance is not hazardous for the environment.
Section 5.
Control of consumer exposure
None
Control of environmental exposure
None.