



Calcium nitrate 19%Ca 15.5-0-0 PG 25kg

GHL item # 100-110-042600

Safety Data Sheet

Section 1 IDENTIFICATION OF THE SUBSTANCE AND COMPANY

1.1 Product identifier	
Trade name	CALCIUM NITRATE
Other names	Soluteck-Nitrato de cálcio Rega; Nitrato de cálcio Técnico; Nitrogal; Fertibersol; Technical Calcium Nitrate; Horticultural/Agricultural Grade
Chemical name	Nitric acid, ammonium calcium salt
INDEX number as listed in Annex VI of CLP	Not listed
CAS number	15245-12-2
EINECS number	239-289-5
REACH registration number	01-2119493947-16-0003
Molecular formula	5Ca(NO ₃) ₂ .NH ₄ NO ₃ .10H ₂ O

1.2 Relevant identified uses of the substance and uses advised against

Uses by professional workers:

- Professional use of substance as fertilizer.
- Professional use: mixing of substance on site to manufacture cement and concrete curing agent for refractory bricks and as a hardener in asphalt coatings for buildings.
- Professional handling and use of chemical substance in waste water stream.
- Professional use of substance as a heat transfer fluid.
- Professional use in soil remediation.

Use by consumers:

- Professional use of substance as fertilizer.

Uses by workers in industrial settings:

- Manufacturing of the substance, including handling, storage and quality control.
- Distribution, storage and quality control. Industrial setting.
- Industrial use to manufacture cement and concrete curing agent for refractory bricks and as a hardener in asphalt coatings for buildings.
- Industrial use: use in waste water treatment for septicity control, odour removal, corrosion inhibition.
- Industrial use: manufacturing of latex based printer inks.
- Use as intermediate or chemical agent to synthesise other substances or articles.
- Industrial use in the production of antibiotics, cultivation of bacteria and used as main source for synthesis of high purity calcium products.
- Industrial use for recycling plastic materials.
- Industrial use to rinse coated metals as part of curing process to improve coating performance. ☐ Industrial use of substance as a heat transfer fluid.

Uses advised against:

Others not specified.

1.3 Details of the supplier of the safety data sheet

Manufacturer's Name: Groupe Horticole Ledoux inc.

Address: 785 rue Paul-Lussier, Ste-Helene-de-bagot, Quebec (Canada) J0H1M0 www.ghlinc.com

Manufacturer's Country: Canada

General Information Telephone: 450-791-2222 Fax number: 450-791-2225

1.4 Emergency telephone numbers

Emergency Telephone: CANUTEC: 1-613-996-6666

Section 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance

2.1.1 Classification in accordance with Regulation (EC) 1272/2008 (CLP)

- Acute toxicity, Category 4, H302 (Acute Tox.4)
- Serious eye damage, Category 1, H318 (Eye Dam.1)



2.2 Label elements in accordance with Regulation (EC) 1272/2008 (CLP)

DANGER

- H302 Harmful if swallowed (Cat.4)
H318 Causes serious eye damage (Cat.1)

- P280 - Wear protective gloves and eye protection.
P305+ - IF IN EYES: Rinse cautiously with water for several minutes.
P351+ - Remove contact lenses, if present and easy to do. Continue rinsing.
P338+ - Immediately call a POISON CENTER or physician
P310 - Wash hands thoroughly after handling.
P264 - Do not eat, drink or smoke when using this product.
P270 - IF SWALLOWED: Call a POISON CENTER or physician if you feel P301+ unwell.
P301+
P312
P330 - Rinse mouth.



2.3 Other hazards which do not result in classification

2.3.1 PBT/vPvB criteria

According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since the substance is inorganic.

2.3.2 Physical and chemical hazards

Not combustible but it can support combustion, even in the absence of air. On heating it melts and further heating can cause decomposition, releasing toxic fumes containing nitrogen oxides and ammonia.

2.3.3 Health hazards

Causes serious eye damage. Harmful if swallowed.

2.3.4 Environmental hazards

The product contains nitrates. Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters or nitrate contamination. Do not discharge into the environment directly and avoid contamination of surface water or sewage system. See Section 12.

Section 3 - COMPOSITION/INFORMATION ON INGREDIENTS

According to the REACH Regulation the product is a mono-constituent substance.

Chemical name	Nº CAS	Nº EINECS	REACH Registration Nº	% (w/w)	Classification Regulation (CE) nº 1272/2008
Nitric acid, ammonium calcium salt	15245-12-2	239-289-5	01-2119493947	80 -100	

See section 16 for the complete text regarding H-codes of the Hazard statements.

Section 4 FIRST-AID MEASURES 4.1 Description of first aid measures

Eye contact: Immediately wash eyes with plenty of running water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Remove contact lenses, if present and easy to do. Seek medical assistance immediately.

Skin contact: Wash affected skin area with plenty of water and soap for at least 15 minutes thoroughly while removing contaminated clothing and shoes. Seek medical advice if irritation develops and persists. **Ingestion:** Seek medical advice if the victim feels unwell. Wash out mouth with plenty of water and give plenty of water to drink.

Never give anything by mouth to an unconscious person. Do not induce vomiting. **Inhalation:** Remove the victim from exposure into fresh air immediately if adverse effects (eg. dizziness, drowsiness or respiratory irritation) occur. If not breathing, give artificial respiration (do not perform mouth to mouth) or if breathing is difficult, give oxygen (if a qualified professional is present) and seek medical advice. Seek medical advice immediately when vapors are intensively inhaled.

4.2 Most important symptoms and effects, both acute and delayed

Acute effects: Eye irritation.

Delayed effects: None known.

4.3 Note to physician Not mentioned.

Section 5 - FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable: Use plenty of water.

Not suitable: Do NOT use chemical extinguisher or foam or attempt to smother the fire with steam or sand.

5.2 Special hazards arising from the substance

Hazardous thermal decomposition products are nitrogen oxides and metal oxide / oxides.

5.3 Advice for firefighters

In the event of fire, wear a self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode and a chemical protective suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid creating dusty conditions and prevent wind dispersal. Avoid contact with eyes, skin, and clothing. Use suitable protective equipment. Keep away from sources of ignition.

6.2 Environmental precautions

Prevent the material from entering surface water or sanitary sewer system. Do not discharge directly to a water source. If accidental spillage or washings enter drains or watercourses contact local authorities.

6.3 Methods and material for containment and cleaning up

Sweep up into suitable labeled containers for recovery or disposal. Do not mix with sawdust or other combustible material. Avoid creating dusty conditions and prevent wind dispersal. Residual trace can be wiped away.

6.4 Reference to other sections

See section 8 for personal protective equipment and section 13 for waste disposal.

Section 7 - HANDLING AND STORAGE

7.1- Precautions for safe handling

Technical measures and precautions: Avoid contact with eyes, skin and clothing. Avoid creating dusty conditions and prevent wind dispersal. Keep away from sources of ignition. Avoid contamination by any source including metals, dust and organic materials (eg. diesel, fats and other combustibles). Wear gloves when handling the product for long periods of time. Clean carefully all the equipments before maintenance and repair. Prevent moisture pick-up.

General occupation hygiene: Do not eat, drink or smoke in work areas. Wash the hands after use. Remove contaminated clothes and protective equipment after handling of the product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions: Keep in the original container. Keep container tightly closed in a cool, dry and well ventilated place. Keep product away from heat, sparks, flame and other sources of ignition, out of direct sunlight and away from incompatible materials. Prevent moisture pick-up. Ensure that the good practices of housekeeping in the storage areas are respected. Do not allow smoking, making fire or flames nor the use of naked lamps in the storage area. Restrict the height of the pile or stack (according to local or national regulation) and maintain a minimum distance of 1 meter between stacks or piles of bagged product.

Incompatible products: Keep away from combustible and reducing materials, referred in section 10. On farm, ensure that the fertilizer is not stored near hay, straw, diesel, etc. Packaging materials: Plastic synthetic materials and steel and are suitable. **7.3 Specific end uses** Not mentioned.

Section 8 -

8.1 Control parameters															
Regulated occupational exposure limit values:	Total inhalable dust – 10mg/m ³ Respirable dust – 5 mg/m ³														
Recommended occupational and consumer exposure limit values (following from the performed CSA):	0														
	<table border="1"> <thead> <tr> <th rowspan="2">Exposure pattern</th> <th colspan="2">Derived No Effect Level (DNEL)</th> </tr> <tr> <th>Workers</th> <th>General Population</th> </tr> </thead> <tbody> <tr> <td>Oral¹</td> <td>Not applicable</td> <td>10 mg/kg bw/day</td> </tr> <tr> <td>Dermal¹</td> <td>Not applicable</td> <td>Not applicable</td> </tr> <tr> <td>Inhalation¹</td> <td>Not applicable</td> <td>Not applicable</td> </tr> </tbody> </table>	Exposure pattern	Derived No Effect Level (DNEL)		Workers	General Population	Oral ¹	Not applicable	10 mg/kg bw/day	Dermal ¹	Not applicable	Not applicable	Inhalation ¹	Not applicable	Not applicable
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		Workers	General Population												
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Dermal ¹	Not applicable	Not applicable													
Inhalation ¹	Not applicable	Not applicable													
¹ : In accordance with ECHA Guidance on information requirements and chemical safety assessment	DNEL is observed when adverse effects are not observed in the highest recommended concentration.														
Limit values for environment exposure:	<table border="1"> <thead> <tr> <th colspan="2">Predicted No Effect Concentration (PNEC)</th> </tr> </thead> <tbody> <tr> <td>Fresh water</td> <td>Not calculated</td> </tr> <tr> <td>Marine water</td> <td>Not calculated</td> </tr> <tr> <td>Intermittent release</td> <td>Not calculated</td> </tr> <tr> <td>Sewage treatment plant</td> <td>18 mg/l</td> </tr> </tbody> </table>	Predicted No Effect Concentration (PNEC)		Fresh water	Not calculated	Marine water	Not calculated	Intermittent release	Not calculated	Sewage treatment plant	18 mg/l				
Predicted No Effect Concentration (PNEC)															
Fresh water	Not calculated														
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According to ECHA Guidance on IR & CSA Part B.8 the exposure to the aquatic environment is not assessed as no adverse effects are observed in the aquatic ecotoxicity studies at the highest recommended concentration.															

8.2 Exposure controls

Appropriate engineering controls: None required. Use of adequate ventilation is good industrial practice. In addition, an eyewash facility and a safety shower for facilities storing or utilizing this material is good industrial practice.

Individual protection measures, such as personal protective equipment

Respiratory protection: The use of dust masks with appropriate filter (EN 143, 149, filters P2, P3) is recommended when the concentration of dust is high and/or the ventilation is inadequate.

Hand protection: Wear chemical-resistant and impervious gloves, when handling the product for long periods of time.

Eye protection: Wear protection goggles (EN166) or a full face shield (EN402). Skin and body protection: Use work clothes.

Hygiene measures: Do not eat, drink or smoke when handling the product. Wash hands, forearms and face after handling the product, using the lavatory and at the end of the working period. Always follow the good practices of hygiene.

Environmental exposure controls: Treat the rinse water according to local and national regulations. Provide the containment and confinement of the product.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties Appearance, 20°C e

1013 hPa	White solid granule	
Odour		Odourless
pH (10% aqueous solution)		5-7
Melting point		>400°C (OECD 102, EC A.1)
Boiling point		Not determined, no melting up to 300°C.
Flash Point		Not relevant, as the substance is an inorganic solid.
Flammability		Non flammable into contact with an ignition source (EC A.10, UN), with water (EC A.12, UN) or with air (statement, EC A.13, UN).
Upper/lower flammability limits		Not applicable
Explosive properties		Not explosive (EC A.14, UN)
Auto ignition temperature		Will not auto-ignite between room temperature and melting temperature (based on molecular structure)
Decomposition temperature		> 170°C
Oxidizing properties		Not oxidising (decahydrate, EC A.17, UN)
Critical temperature		Not applicable
Relative density (D4 (20))		2.05 (OECD 109, EC A.3)
Vapour pressure		Considered negligible (based on melting point)
Vapour density		Not applicable
Partition coefficient n-octanol/water		Not relevant as the substance is inorganic, but considered to be low (based on high water solubility)
Viscosity		Not applicable to solids
Solubility in water		100 g/100ml at 20°C (experimental data)

9.2 Other information

		80% within 1 – 4 mm
Granulometry		
Bulk density		Between 900-1100kg/m ³
Specific conductivity		No data
Surface tension		Not surface active (based on molecular structure)

Section 10 - STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.2 Chemical stability

Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.3 Possibility of hazardous reactions

When strongly heated decomposes releasing toxic vapours.

10.4 Conditions to avoid

Proximity to heat sources or fire. The substance decomposes when heated.

10.5 Incompatible materials

Combustible materials, acids, alkalis, metals and reducing agents.

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire, toxic gases of nitrogen oxides are released.

Section 11 - TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects	
Acute Effects	
Acute oral toxicity (Rat):	300<LD ₅₀ <2000 mg/kg bw (OECD 423)
Acute dermal toxicity (Rat):	LD ₅₀ > 2000 mg/kg bw (OECD 402 with potassium pentacalcium nitrate decahydrate)
Acute inhalation toxicity:	No data. Vapour pressure considered to be low, particle size is high.
Local effects	
Skin irritation (Rabbit):	Not irritating (OECD 404 with potassium pentacalcium nitrate decahydrate)
Eye irritation(Rabbit):	Irritating (OECD 405, EC B.5)
Skin sensitization (Mouse):	Not sensitising (OECD 429, EC B.42)
Other	
Sub-acute toxicity (Rat):	Oral 28-day NOAEL ≥1000 mg/kg bw (OECD 407, with potassium pentacalcium nitrate decahydrate)
Mutagenicity:	Negative (Salmonelas typhimurium e E. Coli, OECD 471, EC B13/14) Negative (Human lymphocytes, OECD 473, EC B.10) Negative (mouse lymphoma cells, OECD 476)
Reproductive toxicity:	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)
Carcinogenicity:	No data

Section 12 - ECOLOGICAL INFORMATION

12.1 Toxicity	
Fish (short-term):	48-h LC ₅₀ : 447 mg/l (no guideline followed, with ammonium nitrate)
Fish (long-term):	No data
Daphnia magna (short-term):	48-h EC ₅₀ : >100 mg/l (OECD 202, EC C.2)
Daphnia magna (long-term):	No data
Algae:	72-h EC ₅₀ : >100 mg/l, NOEC: 100 mg/l (OECD 202)
Inhibition of microbial activity:	3-h EC ₅₀ : >1000 mg/l; NOEC: 180 mg/l (OECD 209, with sodium nitrate)
12.2 Persistence and degradability	
Biodegradation	Standard test is not applicable as the substance is inorganic. In addition, in the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite into nitrate. The average biodegradation rate in wastewater plant is 20°C is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N ₂ , N ₂ O and NH ₃ , the biodegradation rate in wastewater plant at 20°C is 70 g N/kg dissolved solid/day.
Hydrolysis:	No hydrolysable group is present, will completely dissociate into ions.
12.3 Bioaccumulative potential	
Octanol-water partition coefficient (K _{ow}):	Not relevant as the substance is inorganic, but considered low (based on high water solubility)
Bioconcentration factor (BCF):	Low potential for bioaccumulation (based on substance properties).
12.4 Mobility in soil	
Adsorption coefficient:	Low potential for adsorption (based on substance properties).
12.5 Results of PBT and vPvB assessment	
According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since nitric acid, ammonium calcium salt is inorganic.	

12.6 Other adverse effects

None Known.

Section 13 - DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Waste from residues: Depending on the level and nature of the contamination, reuse as fertilizer or send to an authorized collection site. The disposal should be performed according to local and national regulation. Avoid contamination of watercourses. Contact local authorities, in case of contamination. **Container:** Empty containers may retain some products residues, do not empty into drains. Containers should be cleaned by appropriate method and then re-used, sent for recycling or disposed as appropriate, in accordance with local and national regulations. Do not remove label until container is thoroughly cleaned.

Section 14 - TRANSPORT INFORMATION

International Transport Regulation						
Regulatory information	UN Number	Name	Transport hazard class	Packaging group	Label	Special precautions
ADR/RID	Not classified	Calcium Nitrate	-	-	-	-
ADNR	Not classified	Calcium Nitrate	-	-	-	-
IMDG	Not classified	Calcium Nitrate	-	-	-	-
IATA	Not classified	Calcium Nitrate	-	-	-	-

The meeting in 1990 of the sub-committee RID/ADR of the United Nations of the experts in dangerous good transportation and the meetings of the Code of Dangerous Goods (CDG/IMO) resulted in special disposition n°208 for calcium nitrate: "The fertilizer of commercial grade, when constituted mainly by a double salt (calcium nitrate and ammonium nitrate) containing no more than 10 % of ammonium nitrate and at least 12 % of crystallization water, is considered not dangerous".

Section 15 - REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance

- The substance complies with Regulation (EC) n° 2003/2003 of the European Parliament and of the Council of 13 October relating to fertilizers
- Regulation EU 830/2015
- Classification and Labeling according to Regulation (EC) n° 1272/2008 (CLP)

15.2 Chemical Safety Assessment

In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for this substance.

Section 16 - CHEMICAL SAFETY ASSESSMENT

16.1 Definitions and Acronyms

CAS: Chemical Abstract Service; **EC:** European Commission; **DNEL:** Derived No-Effect Level; **EC₅₀:** Median Effective concentration ; **EINECS:** European Inventory of Existing Commercial chemical Substances; **EU:** European Union; **LD₅₀:** Median Lethal dose; **NOAEL:** No Observed Adverse Effect Level; **NOEC:** No Observed Effect Concentration; **OECD:** Organization for Economic Co-operation and Development.; **PBT:** Persistent Bioaccumulative and Toxic; **Mono-constituent substance:** Defined by its composition, in which one main constituent is present in at least 80% (w/w); **SDS:** Safety data sheet; **vPvB:** very persistent and very bioaccumulative.

16.2 References

- Guidance documents available on ECHA web site and CSR.

16.3 Complete texts of the Codes relating to the

- Classification and Labelling in accordance with Regulation (EC) n° 1272/2008 (CLP) and Chemical Safety Assessment (CSA)

Classification/Codes/Complete texts:

Acute toxicity, Category 4, H302, Harmful if swallowed

Serious eye damage, Category 1, H318, Causes serious eye damage Codes/text:

P280 - Wear protective gloves and eye protection.

P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

P264 - Wash hands thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P301+P312 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. P330 - Rinse mouth.

16.4 Other references

Edition Date:	07/11/2017
Date of previous edition:	23/10-2017
Changes to this edition:	Marked with vertical line

The information in this Safety Data Sheet is given in good faith and belief in its accuracy based on our knowledge of the substance/mixture concerned at the date of publication. It does not imply the acceptance of any legal liability or responsibility whatsoever by the Company for the consequences of its use or misuse in any particular circumstances.

ANNEX

Exposure scenario (1)	
Manufacturing of the substance including handling, storage and quality control	
Use descriptors related to the life cycle stage	PROC1/2/3/4/8b/15 ERC1
Name of contributing environmental scenario (1) and corresponding ERC	1. Manufacturing of substances (ERC1)
List of names of contributing worker scenarios (2) and corresponding PROC	<ol style="list-style-type: none"> 1. Use in closed process, no likelihood of exposure (PROC1) 2. Manufacturing in a closed continuous process, with occasional exposure (PROC2) 3. Use in closed batch process (synthesis or formulation) (PROC3) 4. Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4) 5. Transfer of substance or preparation (charging/discharging) from/to vessels / large containers at dedicated facilities (PROC8b) 6. Use as laboratory reagent (PROC15)
<p>2.1 Contributing scenario (1) controlling environmental exposure Environmental release during manufacturing (ERC1) An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.</p> <p>2.2 Contributing scenario (2) controlling worker exposure for manufacturing of the substance including handling, storage and quality controls All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC1/2/3/4/8b/15</p>	
Product characteristic: Solid, low dustiness	
Amounts used: Not applicable	
Frequency and duration of use/exposure: Less than 8 hours per day	
Human factors not influenced by risk management: Not applicable	
Other given operational conditions affecting workers exposure: Activities performed indoors.	
Technical conditions and measures at process level (source) to prevent release: Not applicable	
<p>Technical conditions and measures to control dispersion from source towards the worker:</p> <ol style="list-style-type: none"> 1. Containment as appropriate 2. Good standard of general ventilation 	
Organisational measures to prevent /limit releases, dispersion and exposure: Not applicable	
<p>Conditions and measures related to personal protection, hygiene and health evaluation:</p> <ol style="list-style-type: none"> 1. Chemical goggles (Personal protective equipment to reduce exposure of eyes to a negligible level). 2. Work clothes and gloves resistant to chemical agents (EN374) 	
3 Exposure information and reference to its source	
<p>Information for contributing scenario 1 An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.</p>	

Information for contributing scenario 2

Due to the use of protective clothing, gloves resistant to chemical agents and glasses, the possibility of adverse local effects is ruled out.

4 Risk management measures related to workers at industrial sites and additional good practice advice beyond the REACH CSA

- Containment as appropriate;
- Minimize number of staff exposed;
- Segregation of the emitting process;
- Effective contaminant extraction;
- Good standard of general ventilation;
- Minimization of manual phases;
- Avoidance of contact with contaminated tools and objects;
- Regular cleaning of equipment and work area;
- Management/supervision in place to check that RMMS in place are being used correctly and OCs followed;
- Training staff on good practice;
- Good standard of personal hygiene.

5 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers.

Exposure scenario (2)	
Industrial use including distribution and other activities related to the process in industrial settings	
Use descriptors related to the life cycle stage	SU10 PC1/4/9a/11/12/15/16/20/21/29/35/37/39 PROC1/2/3/5/8b/9/8a/15/19/14 ERC2/3
Name of contributing environmental scenario (1) and corresponding ERC	1. Formulation of preparations (ERC2) Formulation in materials (ERC3)
List of names of contributing worker scenarios (2) and corresponding PROC	<ol style="list-style-type: none"> 1. Use in closed process, no likelihood of exposure (PROC1) 2. Use in closed, continuous process with occasional controlled exposure (PROC2) 3. Use in closed batch process (synthesis or formulation) (PROC3) 4. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC5) 5. Transfer of substance or preparation (charging/discharging) from/to vessels / large containers at dedicated facilities (PROC8b) 6. Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9) 7. Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a) 8. Use as laboratory reagent (PROC15) 9. Hand-mixing with intimate contact and only PPE available (PROC19) 10. Tableting, compression, extrusion, pelletisation, granulation (PROC14)
<p>2.1 Contributing scenario (1) controlling environmental exposure Formulation of preparations (ERC2) and formulation in materials (ERC3). An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment</p>	
<p>2.2 Contributing scenario (2) controlling worker exposure for industrial use for formulation of preparations/articles, intermediate use and end-use in industrial settings All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC1/2/3/4/5/8b/9/13/15/19/26</p>	
Product characteristic: - Solid or liquid (<100%)	
Amounts used: Not applicable	
Frequency and duration of use/exposure: Less than 8 hours per day	
Human factors not influenced by risk management: Not applicable	
Other given operational conditions affecting workers exposure: Activities performed indoors.	
Technical conditions and measures at process level (source) to prevent release: Not applicable	

<p>Technical conditions and measures to control dispersion from source towards the worker:</p> <ol style="list-style-type: none"> 1. Containment as appropriate 2. Good standard of general ventilation
<p>Organizational measures to prevent /limit releases, dispersion and exposure: Not applicable</p>
<p>Conditions and measures related to personal protection, hygiene and health evaluation:</p> <ol style="list-style-type: none"> 1. Chemical goggles (Personal protective equipment to reduce exposure of eyes to a negligible level). 2. Work clothes and gloves resistant to chemical agents (EN374) <p>3 Exposure information and reference to its source</p>
<p>Information for contributing scenario 1</p> <p>An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.</p>
<p>Information for contributing scenario 2</p> <p>Due to the use of protective clothing, gloves resistant to chemical agents and glasses, the possibility of adverse local effects is ruled out.</p> <p>4 Risk management measures related to workers at professional settings and additional good practice advice beyond the REACH CSA</p> <ul style="list-style-type: none"> - Containment as appropriate; - Minimize number of staff exposed; - Segregation of the emitting process; - Effective contaminant extraction; - Good standard of general ventilation; - Minimization of manual phases; - Avoidance of contact with contaminated tools and objects; - Regular cleaning of equipment and work area; - Management/supervision in place to check that RMMs in place are being used correctly and OCs followed; - Training staff on good practice; - Good standard of personal hygiene. <p>5 Guidance to DU to evaluate whether he works inside the boundaries set by the ES</p>
<p>No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers.</p>

Exposure scenario (3) Industrial use	
Use descriptors related to the life cycle stage	SU2a/2b/6a/6b/8/9/11/12/13/15/16/17/18/19/23 PC1/4/9a/11/14/15/16/19/20/35/37 PROC1/2/3/4/5/7/8a/8b/9/10/13/15/19/26 ERC4/5/6a/6b/6d/7
Name of contributing environmental scenario (1) and corresponding ERC	<ol style="list-style-type: none"> 1. Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) 2. Use at industrial site leading to inclusion into/onto article (ERC5) 3. Use of intermediate (ERC6a) 4. Use of reactive processing aid at industrial site (no inclusion into or onto article) (ERC6b) 5. Use of functional fluid at industrial site (ERC7)
List of names of contributing worker scenarios (2) and corresponding PROC	<ol style="list-style-type: none"> 1. Use in closed process, no likelihood of exposure (PROC1) 2. Use in closed, continuous process with occasional controlled exposure (PROC2) 3. Use in closed batch process (synthesis or formulation) (PROC3) 4. Chemical production where opportunity for exposure arises (PROC4) 5. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC5) 6. Industrial spraying (PROC7) 7. Transfer of substance or preparation (charging/discharging) from / to vessels / large containers at non-dedicated facilities (PROC8a) 8. Transfer of substance or preparation (charging/discharging) from / to vessels / large containers at dedicated facilities (PROC8b) 9. Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9) 10. Roller application or brushing (PROC10) 11. Treatment of articles by dipping and pouring (PROC13) 12. Use as laboratory reagent (PROC 15) 13. Hand-mixing with intimate contact and only PPE available (PROC19) 14. Handling of solid inorganic substances at ambient temperature (PROC26) <p>2.1 Contributing scenario (1) controlling environmental exposure Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4), Use of intermediate (ERC6a), Use of reactive processing aid at industrial site (no inclusion into or onto article) (ERC6b), Use of functional fluid at industrial site (ERC7) or Use at industrial site leading to inclusion into/onto article (ERC5)</p> <p>An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.</p> <p>2.2 Contributing scenario (2) controlling worker exposure for professional end-use in formulations or as such All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC1/2/3/5/8a/8b/9/10/11/13/19/26</p>
Product characteristic: - Solid or liquid (<100%)	

Amounts used: Not applicable
Frequency and duration of use/exposure: Less than 8 hours per day
Human factors not influenced by risk management: Not applicable
Other given operational conditions affecting workers exposure: Activities performed indoors or outdoors.
Technical conditions and measures at process level (source) to prevent release: Not applicable
Technical conditions and measures to control dispersion from source towards the worker: 1. Containment as appropriate 2. Good standard of general ventilation 3. Avoid splashing. Use specific dispensers and pumps specifically designed to prevent splashes/spills/exposure to occur
Organisational measures to prevent /limit releases, dispersion and exposure: Not applicable
Conditions and measures related to personal protection, hygiene and health evaluation: 1. Chemical goggles (Personal protective equipment to reduce exposure of the eye to a negligible level). 2. Work clothes and gloves resistant to chemical agents (EN374)
3 Exposure information and reference to its source
Information for contributing scenario 1 An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.
Information for contributing scenario 2 Due to the use of protective clothing, gloves resistant to chemical agents and glasses, the possibility of adverse local effects is ruled out.

4 Risk management measures related to workers at professional settings and additional good practice advice beyond the REACH CSA
<ul style="list-style-type: none"> - Containment as appropriate; - Minimize number of staff exposed; - Segregation of the emitting process; - Effective contaminant extraction; - Good standard of general ventilation; - Minimization of manual phases; - Avoidance of contact with contaminated tools and objects; - Regular cleaning of equipment and work area; - Management/supervision in place to check that RMMs in place are being used correctly and OCs followed; - Training staff on good practice; - Good standard of personal hygiene. -

5 Guidance to DU to evaluate whether he works inside the boundaries set by the ES
No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers.

Exposure scenario (4)

Professional Use

Use descriptors related to the life cycle stage	SU1/10/12/15/17/19/23/0(F41) PC4/9a/11/12/14/16/20/37/ A40200, H15000, K35900, P15100 PROC1/2/3/5/8a/8b/9/10/11/13/15/19/26 ERC8a/8b/8c/8d/8e/8f/9b
Name of contributing environmental scenario (1) and corresponding ERC	<ol style="list-style-type: none">1. Wide dispersive indoor use of processing aids in open systems (ERC8a)2. Wide dispersive indoor use of reactive substances in open systems (ERC8b)3. Widespread use leading to inclusion into/onto article (indoor) (ERC8c)4. Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)5. Wide dispersive outdoor use of reactive substances in open systems (ERC8e)6. Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)7. Widespread use of functional fluid (outdoor) (ERC9b)
List of names of contributing worker scenarios (2) and corresponding PROC	<ol style="list-style-type: none">1. Use in closed process, no likelihood of exposure (PROC1)2. Use in closed, continuous process with occasional controlled exposure (PROC2)3. Use in closed batch process (synthesis or formulation) (PROC3)4. Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC5)5. Transfer of substance or preparation (charging/discharging) from / to vessels / large containers at non-dedicated facilities (PROC8a)6. Transfer of substance or preparation (charging/discharging) from / to vessels / large containers at dedicated facilities (PROC8b)7. Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)8. Roller application or brushing (PROC10)9. Non industrial spraying (PROC11)10. Treatment of articles by dipping and pouring (PROC13)11. Use as laboratory reagent (PROC 15)12. Hand-mixing with intimate contact and only PPE available (PROC19)13. Handling of solid inorganic substances at ambient temperature (PROC26)

2.1 Contributing scenario (1) controlling environmental exposure

Wide dispersive indoor use of processing aids in open systems (ERC8a), Wide dispersive indoor use of reactive substances in open systems (ERC8b), Widespread use leading to inclusion into/onto article (indoor) (ERC8c), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d), Wide dispersive outdoor use of reactive substances in open systems (ERC8e), Widespread use leading to inclusion into/onto article (outdoor) (ERC8e), Widespread use of functional fluid (outdoor) (ERC9b)

An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.

2.2 Contributing scenario (2) controlling consumer exposure for end-use of fertilizers, heat transfer fluids and cosmetics

All Product Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC1/2/3/5/8a/8b/9/10/11/13/19/26

Product characteristic:

- Solid or liquid (<100%)

Amounts used: Not applicable

Frequency and duration of use/exposure: Less than 8 hours per day

Human factors not influenced by risk management: Not applicable

Other given operational conditions affecting workers exposure: Activities performed indoors or outdoors.

Technical conditions and measures at process level (source) to prevent release: Not applicable

Organisational measures to prevent /limit releases, dispersion and exposure:

1. Confinement when appropriate
2. Good general ventilation practices
3. Avoid splashing. Use specific packaging and pumps specifically designed to prevent splashing, spillage and the occurrence of exposure

Conditions and measures related to personal protection, hygiene and health evaluation:

1. Chemical goggles (Personal protective equipment to reduce exposure of the eye to a negligible level).
2. Work clothes and gloves resistant to chemical agents (EN374)

3 Exposure information and reference to its source**Information for contributing scenario 1**

An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.

Information for contributing scenario 2

Due to the use of protective clothing, gloves resistant to chemical agents and glasses, the possibility of adverse local effects is ruled out.

4 Guidance to consumers to evaluate whether he works inside the boundaries set by the ES

- Containment as appropriate;
- Minimize number of staff exposed;
- Segregation of the emitting process;
- Effective contaminant extraction;
- Good standard of general ventilation;
- Minimization of manual phases;
- Avoidance of contact with contaminated tools and objects;
- Regular cleaning of equipment and work area;
- Management/supervision in place to check that RMMs in place are being used correctly and OCs followed;
- Training staff on good practice;
- Good standard of personal hygiene

5 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers.

Exposure scenario (5)

Consumer end-use

Use descriptors related to the life cycle stage	SU- PC4/9a/12/37/39/0(H15100, K35900, P15100) ERC8a/8b/8c/8d/8e/8f
Name of contributing environmental scenario (1) and corresponding ERC	<ol style="list-style-type: none">1. Wide dispersive indoor use of processing aids in open systems (ERC8a)2. Wide dispersive indoor use of reactive substances in open systems (ERC8b)3. Widespread use leading to inclusion into/onto article (indoor) (ERC8c)4. Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)5. Wide dispersive outdoor use of reactive substances in open systems (ERC8e)6. Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)
List of names of contributing consumer scenarios (2) and corresponding PC and subproduct categories if applicable	<ol style="list-style-type: none">1. Anti-Freeze and de-icing products (PC4)2. Coatings and paints, thinners, paint removes (PC9a)3. Fertilizers (PC12)4. Heat transfer fluids (PC16)5. Water treatment chemicals (PC37)6. Cosmetics, personal care products (PC39)7. Cooling agents, hardeners, accelerators, other construction materials (PC0)
2.2 Contributing scenario (1) controlling environmental exposure Wide dispersive indoor use of processing aids in open systems (ERC8a), Wide dispersive indoor use of reactive substances in open systems (ERC8b), Widespread use leading to inclusion into/onto article (indoor) (ERC8c), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d), Wide dispersive outdoor use of reactive substances in open systems (ERC8e), Widespread use leading to inclusion into/onto article (outdoor) (ERC8f). An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	
2.2 Contributing scenario (2) controlling consumer exposure for end-use of fertilizers, heat transfer fluids and cosmetics All Product Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. Consumer use of cosmetics (PC39) is covered by the Cosmetics Directive. PC9a/12/16/37/39/0(A40200, H15000, K35900, P15100)	
Product characteristic: - Solid or liquid (<100%)	
Amounts used: Not applicable	
Frequency and duration of use/exposure: Less than 8 hours per day	
Human factors not influenced by risk management: Not applicable	
Other given operational conditions affecting workers exposure: Activities performed indoors or outdoors.	
Conditions and measures related to information and behavioral advice to consumers: Avoid splashing	
Labeling of the product as ocular corrosive (when concentration is $\geq 3\%$) or eye irritant (when concentration is $\geq 1\%$ but $< 3\%$).	
Conditions and measures related to personal protection and hygiene 1. Use chemical goggles	
3	Exposure information and reference to its source

Information for contributing scenario 1

An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.

Information for contributing scenario 2

A qualitative approach was used to conclude safe use for consumers. Consumers will avoid contact with the product as much as possible according to the label information. In addition, the need for eye protection between prudence advice will be included. Splashes are discarded due to the small amount expected to be used. Therefore, the risk of the substance to cause ocular effects is not significant.

4 Guidance to consumers to evaluate whether he works inside the boundaries set by the ES

No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers/consumers for use of fertilizer and heat transfer fluids:
Labeling of the product as ocular corrosive (when concentration is $\geq 3\%$) or eye irritant (when concentration is $\geq 1\%$ but $< 3\%$).