SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supercedes date 25-Oct-2023 **Revision date** 21-Oct-2025 **Revision Number** 6

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

1.1. Product identifier

Product Code(s)	21439
Safety data sheet number	21439
Product Name	CALCIUM CHLORIDE DIHYDRATE
Index No	017-013-00-2
EC Number	233-140-8
CAS No	10035-04-8
Synonyms	CALCIUM (II) CHLORIDE, CALCIUM DICHLORIDE, CALCIUM CLORIDE 2-HYDRATE DAB 10, CASO FOOD FLAKES, CASO TECHNICAL FLAKES, CALCIUM CHLORIDE 2AQ FCC ED7, CALCIUM CHLORIDE 78/80% SCH T, CALCIUM CHLOR-2-HYDRATE (31307), CALCIUM CHLORIDE 2H20 PE E509, CALCIUM CHLORIDE DIHYD FG E509, CALC CHLORIDE DIHYD EP USP E509, CALC CHLORIDE-2-HYDRATE EXPURE, CALC CHLOR FLK 77% TG TTA, CC TECH FLK 77%, CALC CHLORIDE DIHYD EP MCS
Pure substance/mixture	Substance

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

Recommended use	Pharmaceuticals Food/Feed additive Industrial application Chemical technical Laboratory chemicals For further information, see attached Exposure Scenario

1.3. Details of the supplier of the safety data sheet

Supplier
Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address	SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone	SGS - +32 (0)3 575 55 55 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Serious eye damage/eye irritation	Category 2 - (H319)

2.2. Label elements

Signal word
Warning

Hazard statements
H319 - Causes serious eye irritation

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P280 - Wear 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

No information available.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
CALCIUM CHLORIDE DIHYDRATE 10035-04-8	90 - 100%	233-140-8 (017-013-00-2)	-	Eye Irrit. 2 (H319)	-	-	-

Full text of H- and EUH-phrases: see section 16

This product does not contain candidate substances of very high concern at a concentration >= 0.1% (UK REACH Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice First aid personnel should wear appropriate protective equipment during any rescue. In case of accident or if you feel unwell, seek medical advice immediately (show safety data

sheet if possible). Never give anything by mouth to an unconscious person.

Inhalation IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Get medical attention if symptoms occur.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if symptoms occur.

Skin contact IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical attention if symptoms occur.

Ingestion Rinse mouth thoroughly with water. Drink plenty of water. Do NOT induce vomiting. Get medical attention if symptoms occur.

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

Symptoms

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eyes Causes serious eye irritation.

Dermal Dust or powder may irritate the skin.

Ingestion May cause irritation Stomach pain Nausea Diarrhoea.

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

Note to doctors Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical, CO2, alcohol-resistant foam or water spray.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

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

Hazardous combustion products Carbon oxides.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation. Use personal protection recommended in Section 8. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid generation of dust.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Remove spillage with vacuum cleaner. If not possible, collect spillage with shovel, broom or the like. Pick up and transfer to properly labelled containers. After cleaning, flush away traces with water.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Ensure adequate ventilation. Use personal protection recommended in Section 8. Avoid contact with eyes, skin and clothing. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash skin thoroughly after handling.

General hygiene considerations Do not eat, drink or smoke when using the product. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Specific use(s)
See section 1 for more information.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
CALCIUM CHLORIDE DIHYDRATE 10035-04-8			6.6 mg/m³ [5] [6] 13.2 mg/m³ [5] [7]

[5] Local health effects.
[6] Long term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
CALCIUM CHLORIDE DIHYDRATE 10035-04-8			3.3 mg/m³ [5] [6] 6.6 mg/m³ [5] [7]

[5] Local health effects.
[6] Long term.

Predicted No Effect Concentration (PNEC) No information available.

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
CALCIUM CHLORIDE DIHYDRATE 10035-04-8				0.150 mg/cm²	

8.2. Exposure controls

Engineering controls No information available.

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Use eye protection according to EN 166.

Hand protection Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374.

Gloves			
Duration of contact	PPE - Glove material	Glove thickness	Break through time
Long term (repeated)	Chloroprene rubber (CR)	> 0.5 mm	8 hours
Long term (repeated)	Wear protective nitrile rubber gloves	> 0.5 mm	8 hours
Long term (repeated)	Wear protective Neoprene™ gloves	> 0.5 mm	8 hours

Skin and body protection Wear appropriate clothing to prevent reasonably probable skin contact.

Respiratory protection Use appropriate respiratory protection.
Recommended filter type: Use half mask with dust filter P2.

General hygiene considerations Do not eat, drink or smoke when using the product. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state Solid
Appearance Flakes granules Powder solid Crystalline
Colour Colourless To white
Odour Odourless.
Odour threshold No information available

Property	Values	Remarks • Method
Melting point / freezing point	176 °C	
Initial boiling point and boiling range	> 1600 °C	
Flammability		The product is not flammable.
Flammability Limit in Air		Not applicable.
Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point		Not applicable.
Autoignition temperature		Not applicable.
Decomposition temperature	> 176 °C	
pH	5 - 8	solution (5 %).
pH (as aqueous solution)	9.5 - 10.5	solution (10 %).
Kinematic viscosity		Not applicable.
Dynamic viscosity		No information available.
Water solubility	745 Soluble in water 745 g/l @ 20 °C	
Solubility(ies)	soluble in Alcohol Acetic acid Acetone	
Partition coefficient		Not applicable.
Vapour pressure		Not applicable.
Relative density	1.835	25 °C.
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density		Not applicable.
Particle characteristics		No information available.
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	Not considered to be explosive.	
Oxidising properties	Does not meet the criteria for classification as oxidising	

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Stable under recommended storage conditions. The product is not flammable. Hygroscopic.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Exothermic reaction with water.

10.4. Conditions to avoid

Conditions to avoid Excessive heat. Humidity. Air.

10.5. Incompatible materials

Incompatible materials Strong oxidising agents. Strong reducing agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation Inhalation of dust in high concentration may cause irritation of respiratory system.

Eye contact Causes serious eye irritation.

Skin contact Dust or powder may irritate the skin.

Ingestion May cause irritation. Stomach pain. Nausea. Diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
CALCIUM CHLORIDE DIHYDRATE	3050 mg/kg (Rat)	> 6600 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data the classification criteria are not met.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity Based on available data the classification criteria are not met.

Carcinogenicity Based on available data the classification criteria are not met.

Reproductive toxicity Based on available data the classification criteria are not met.

STOT - single exposure Based on available data the classification criteria are not met.

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard Based on available data the classification criteria are not met.

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Not considered to be harmful to aquatic life.

CALCIUM CHLORIDE DIHYDRATE (10035-04-8)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
	Pimephales promelas	LC50	6100 mg/L	96 hours	
	Lepomis macrochirus	LC50	14100 mg/L	96 hours	
	Daphnia magna	LC50	3180 mg/L	48 hours	
	Selenastrum capricornutum	EC50	5300 mg/L		

12.2. Persistence and degradability

Persistence and degradability The product contains inorganic substances which are not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation Not likely to bioaccumulate.

12.4. Mobility in soil

Mobility in soil Soluble in water.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB.

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

IATA

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards No
14.6 Special precautions for user
Special Provisions None

IMDG

14.1 UN number or ID number Not regulated

14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	No
14.6 Special precautions for user Special Provisions	None

SECTION 15: Regulatory information

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

National regulations

Authorisations and/or restrictions on use:
This product does not contain substances subject to authorisation (UK REACH - Annex XIV).
This product does not contain substances subject to restriction (UK REACH - Annex XVII).

Persistent Organic Pollutants
Not applicable

Export Notification requirements
Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)
Not applicable

The Ozone-Depleting Substances Regulations 2015
Not applicable

The Biocidal Products Regulations 2001 (as amended)
Not applicable

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)
Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)
Not applicable

International Inventories

TSCA	Contact supplier for inventory compliance status
DSL/NDSL	Contact supplier for inventory compliance status
EINECS/ELINCS	Contact supplier for inventory compliance status
ENCS	Contact supplier for inventory compliance status

IECSC	Contact supplier for inventory compliance status
KECI	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AIIC	Contact supplier for inventory compliance status
NZIoC	Contact supplier for inventory compliance status

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report	A Chemical Safety Assessment has been carried out for this substance

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
H319 - Causes serious eye irritation

Legend
SVHC: Substances of Very High Concern for Authorisation:

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Revision Note SDS sections updated 1 2 3 4 5 6 7 8 9 10 11 12 14 16

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency

Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By	Lisa Bland
Supercedes date	25-Oct-2023
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This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	CALCIUM DICHLORIDE
Pure substance/mixture	Substance
REACH registration number	01-2119494219-28-XXXX
CAS No	10043-52-4 / 10035-04-8
EC No (EU Index No)	233-140-8
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Formulation & (re)packing of substances and mixtures , Distribution of substance
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC2 - Formulation of preparations (mixtures)
Process category(ies)	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 (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature PROC28 - Manual maintenance (cleaning and repair) of machinery
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

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

Control of worker exposure	
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Title	Use in closed process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards	Provide a basic standard of general ventilation (1 to 3 air changes per hour)

the worker	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Title	Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor

Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Title	Mixing operations (open systems)
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers , Process sampling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Process sampling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Drum and small package filling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Laboratory activities
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Title	Tabletting, compression, extrusion or pelletisation
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers

Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC28 - Manual maintenance (cleaning and repair) of machinery
Title	Equipment cleaning and maintenance
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Handle substance within a closed system Drain down and flush system prior to equipment break-in or maintenance Transfer via enclosed lines
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC28 - Manual maintenance (cleaning and repair) of machinery
Title	Equipment cleaning and maintenance
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Solid in solution
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Handle

control dispersion from source towards the worker	substance within a closed system Drain down and flush system prior to equipment break-in or maintenance Transfer via enclosed lines
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Section 3 - Exposure estimation

Environmental release category(ies) - ERC2 - Formulation of preparations (mixtures)

Predicted No Effect Concentration (PNEC)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - systemic 5 mg/m³
Worker - inhalative, short-term - systemic 10 mg/m³

Calculation method Used ECETOC TRA model
Exposure route Worker - inhalative

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.01 mg/m³	<0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.04 mg/m³	<0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC5 - Mixing or blending in batch processes for formulation of	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14

preparations and articles (multi-stage and/or significant contact)			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.1 mg/m³	0.02
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14

ambient temperature			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1
PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, short-term - systemic	2 mg/m³	0.2

Section 4 - Guidance to check compliance with the exposure scenario

Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	CALCIUM DICHLORIDE
Pure substance/mixture	Substance
REACH registration number	01-2119494219-28-XXXX
CAS No	10043-52-4 / 10035-04-8
EC No (EU Index No)	233-140-8
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Industrial use
Type	Worker
Main user group	Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental release category(ies)	ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
Process category(ies)	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 (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact) PROC6 - Calendaring 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 PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising PROC15 - Use as laboratory reagent PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC26 - Handling of solid inorganic substances at ambient temperature PROC27a - Production of metal powders (hot processes) PROC27b - Production of metal powders (wet processes) PROC28 - Manual maintenance (cleaning and repair) of machinery
Sector(s) of use	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment

and risk characterisation was performed.

Control of worker exposure	
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Title	Use in closed process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Title	Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Title	Mixing operations (open systems)
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC6 - Calendaring operations
Title	Calendaring operations
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC7 - Industrial spraying
Title	Spraying
Covers concentrations up to	35 %
Physical form of product	Liquid
Exposure duration	Avoid carrying out operation for more than 2 hours
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Ensure that spray direction is only horizontal or downward Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent	Assumes a good basic standard of occupational hygiene is implemented

/limit releases, dispersion and exposure	
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC7 - Industrial spraying
Title	Spraying
Covers concentrations up to	35 %
Physical form of product	Liquid
Exposure duration	Avoid carrying out operation for more than 2 hours
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC7 - Industrial spraying
Title	Spraying
Covers concentrations up to	35 %
Physical form of product	Liquid
Exposure duration	Avoid carrying out operation for more than 15 minutes
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Process sampling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Process sampling
Covers concentrations up to	100 %

Physical form of product	Solid, medium dustiness
Exposure duration	Avoid carrying out activities involving exposure for more than 1 hour
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Process sampling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Process sampling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).

Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 95%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature PROC27b - Production of metal powders (wet processes)
Title	Drum and small package filling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Drum and small package filling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC10 - Roller application or brushing
Title	Roller, spreader, flow application
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and	Assumes a good basic standard of occupational hygiene is implemented

exposure	
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC13 - Treatment of articles by dipping and pouring
Title	Treatment of articles by dipping and pouring
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising
Title	Tabletting, compression, extrusion or pelletisation
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature PROC27b - Production of metal powders (wet processes)
Title	Laboratory activities
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC27a - Production of metal powders (hot processes)
Title	Elevated temperature

Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 90%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC27a - Production of metal powders (hot processes)
Title	Elevated temperature
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC27a - Production of metal powders (hot processes)
Title	Elevated temperature
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC27a - Production of metal powders (hot processes)
Title	Elevated temperature
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of controlled ventilation (5 to 10 air changes per hour) Local exhaust ventilation - efficiency of at least 90%

Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC28 - Manual maintenance (cleaning and repair) of machinery
Title	Equipment cleaning and maintenance
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Handle substance within a closed system Drain down and flush system prior to equipment break-in or maintenance Transfer via enclosed lines
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Section 3 - Exposure estimation

Environmental release category(ies) - ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles
- ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Predicted No Effect Concentration (PNEC)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - systemic 5 mg/m³
Worker - inhalative, short-term - systemic 10 mg/m³

Calculation method Used ECETOC TRA model
Exposure route Worker - inhalative

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.01 mg/m³	<0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.04 mg/m³	<0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, short-term - systemic	2 mg/m³	0.2

PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC6 - Calendaring operations	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.7
PROC6 - Calendaring operations	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	1.2 mg/m³	0.24
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	9.6 mg/m³	0.96
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	1.2 mg/m³	0.24
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	9.6 mg/m³	0.96
PROC7 - Industrial spraying	Worker - inhalative, long-term - systemic	1.2 mg/m³	0.24
PROC7 - Industrial spraying	Worker - inhalative, short-term - systemic	9.6 mg/m³	0.96
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.1 mg/m³	0.02
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.1 mg/m³	0.02
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at	Worker - inhalative, long-term - systemic	0.05 mg/m³	0.01

dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	0.2 mg/m³	0.02
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.035 mg/m³	<0.01
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	0.14 mg/m³	0.014
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14

ambient temperature			
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.1 mg/m³	0.02
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature PROC27b - Production of metal powders (wet processes)	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature PROC27b - Production of metal powders (wet processes)	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC13 - Treatment of articles by dipping and pouring	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC14 - Production of preparations or articles by tableting, compression, extrusion, pelettising	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1

PROC27b - Production of metal powders (wet processes)			
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature PROC27b - Production of metal powders (wet processes)	Worker - inhalative, short-term - systemic	2 mg/m³	0.2
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC27a - Production of metal powders (hot processes)	Worker - inhalative, long-term - systemic	0.1 mg/m³	0.002
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC27a - Production of metal powders (hot processes)	Worker - inhalative, short-term - systemic	0.4 mg/m³	0.04
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC27a - Production of metal powders (hot processes)	Worker - inhalative, long-term - systemic	0.1 mg/m³	0.002
PROC22 - Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC27a - Production of metal powders (hot processes)	Worker - inhalative, short-term - systemic	0.4 mg/m³	0.04
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC27a - Production of metal powders (hot processes)	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC27a - Production of metal powders (hot processes)	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC27a - Production of metal powders (hot processes)	Worker - inhalative, long-term - systemic	0.03 mg/m³	<0.01
PROC23 - Open processing and transfer operations with minerals/metals at elevated temperature PROC27a - Production of metal powders (hot processes)	Worker - inhalative, short-term - systemic	0.12 mg/m³	0.012
PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, long-term - systemic	0.5 mg/m³	0.1
PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, short-term - systemic	2 mg/m³	0.2

Section 4 - Guidance to check compliance with the exposure scenario

Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are

adopted, then users should ensure that risks are managed to at least equivalent levels.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	CALCIUM DICHLORIDE
Pure substance/mixture	Substance
REACH registration number	01-2119494219-28-XXXX
CAS No	10043-52-4 / 10035-04-8
EC No (EU Index No)	233-140-8
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (Outdoor)
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8d - Wide dispersive outdoor use of processing aids in open systems
Process category(ies)	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 (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage 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 PROC26 - Handling of solid inorganic substances at ambient temperature PROC28 - Manual maintenance (cleaning and repair) of machinery
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8d - Wide dispersive outdoor use of processing aids in open systems

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

Control of worker exposure	
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Title	Use in closed process
Covers concentrations up to	100 %

Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Title	Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%

Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Title	Mixing operations (open systems)
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented

Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Drum and small package filling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC10 - Roller application or brushing
Title	Roller, spreader, flow application
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC11 - Non industrial spraying
Title	Spraying
Covers concentrations up to	35 %
Physical form of product	Liquid
Exposure duration	Avoid carrying out operation for more than 2 hours
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC11 - Non industrial spraying
Title	Spraying

Covers concentrations up to	35 %
Physical form of product	Liquid
Exposure duration	Avoid carrying out activities involving exposure for more than 15 minutes
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 95%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Laboratory activities
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Title	Manual Handling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities
Title	Equipment cleaning and maintenance
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards	Handle substance within a closed system Drain down and flush system prior to equipment break-in or maintenance Transfer via enclosed lines

the worker	
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems
Title	Functional fluids
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	No specific measures identified
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Outdoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8d - Wide dispersive outdoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - systemic 5 mg/m³
Worker - inhalative, short-term - systemic 10 mg/m³

Calculation method Used ECETOC TRA model
Exposure route Worker - inhalative

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.007 mg/m³	<0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.028 mg/m³	<0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC2 - Use in closed, continuous process with occasional controlled	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28

exposure			
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC11 - Non industrial spraying	Worker - inhalative, long-term	1.2 mg/m³	0.24

	- systemic		
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	9.6 mg/m³	0.96
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC11 - Non industrial spraying	Worker - inhalative, long-term - systemic	1.2 mg/m³	0.24
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	9.6 mg/m³	0.96
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28

Section 4 - Guidance to check compliance with the exposure scenario

Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	CALCIUM DICHLORIDE
Pure substance/mixture	Substance
REACH registration number	01-2119494219-28-XXXX
CAS No	10043-52-4 / 10035-04-8
EC No (EU Index No)	233-140-8
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Professional use (Indoor)
Type	Worker
Main user group	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems
Process category(ies)	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 (synthesis) where opportunity for exposure arises PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage 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 PROC26 - Handling of solid inorganic substances at ambient temperature PROC28 - Manual maintenance (cleaning and repair) of machinery
Sector(s) of use	SU22 - Professional uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

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

Control of worker exposure	
Process category(ies)	PROC1 - Use in closed process, no likelihood of exposure
Title	Use in closed process
Covers concentrations up to	100 %

Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC2 - Use in closed, continuous process with occasional controlled exposure
Title	Use in closed, continuous process with occasional controlled exposure
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC3 - Use in closed batch process (synthesis or formulation)
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Title	Batch process
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%

Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)
Title	Mixing operations (open systems)
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Material transfers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented

Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature
Title	Drum and small package filling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC10 - Roller application or brushing
Title	Roller, spreader, flow application
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC11 - Non industrial spraying
Title	Spraying
Covers concentrations up to	35 %
Physical form of product	Liquid
Exposure duration	Avoid carrying out operation for more than 2 hours
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Ensure that spray direction is only horizontal or downward Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature

Title	Laboratory activities
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC19 - Hand-mixing with intimate contact and only PPE available
Title	Manual Handling
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Local exhaust ventilation - efficiency of at least 80%
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems
Title	Functional fluids
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour)
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC28 - Manual maintenance (cleaning and repair) of machinery
Title	Equipment cleaning and maintenance
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)

control dispersion from source towards the worker	Handle substance within a closed system Drain down and flush system prior to equipment break-in or maintenance Transfer via enclosed lines
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Process category(ies)	PROC28 - Manual maintenance (cleaning and repair) of machinery
Title	Equipment cleaning and maintenance
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Use frequency	Covers daily exposures up to 8 hours (unless stated differently).
Technical conditions and measures to control dispersion from source towards the worker	Provide a basic standard of general ventilation (1 to 3 air changes per hour) Handle substance within a closed system Drain down and flush system prior to equipment break-in or maintenance Transfer via enclosed lines
Conditions and measures related to personal protection, hygiene and health evaluation	Use suitable eye protection Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Efficiency of at least 90% Wear suitable respiratory protection. Efficiency of at least 90%
Organisational measures to prevent /limit releases, dispersion and exposure	Assumes a good basic standard of occupational hygiene is implemented
Indoor/Outdoor use	Indoor
Operational conditions	Assumes activities are at ambient temperature (unless stated differently)

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Worker - inhalative, long-term - systemic 5 mg/m³
Worker - inhalative, short-term - systemic 10 mg/m³

Calculation method Used ECETOC TRA model
Exposure route Worker - inhalative

Process category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, long-term - systemic	0.01 mg/m³	<0.01
PROC1 - Use in closed process, no likelihood of exposure	Worker - inhalative, short-term - systemic	0.04 mg/m³	<0.01
PROC2 - Use in closed, continuous process with occasional controlled exposure	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC2 - Use in closed, continuous process with occasional controlled	Worker - inhalative, short-term - systemic	4 mg/m³	0.4

exposure			
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC3 - Use in closed batch process (synthesis or formulation)	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multi-stage and/or significant contact)	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	1.4 mg/m³	0.28
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	5.6 mg/m³	0.56
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC10 - Roller application or brushing	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC10 - Roller application or brushing	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC11 - Non industrial spraying	Worker - inhalative, long-term	1.2 mg/m³	0.24

	- systemic		
PROC11 - Non industrial spraying	Worker - inhalative, short-term - systemic	9.6 mg/m³	0.96
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, long-term - systemic	0.35 mg/m³	0.07
PROC15 - Use as laboratory reagent PROC26 - Handling of solid inorganic substances at ambient temperature	Worker - inhalative, short-term - systemic	1.4 mg/m³	0.14
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC19 - Hand-mixing with intimate contact and only PPE available	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, long-term - systemic	1 mg/m³	0.2
PROC20 - Heat and pressure transfer fluids in dispersive, professional use but closed systems	Worker - inhalative, short-term - systemic	4 mg/m³	0.4
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28
PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, long-term - systemic	0.7 mg/m³	0.14
PROC28 - Manual maintenance (cleaning and repair) of machinery	Worker - inhalative, short-term - systemic	2.8 mg/m³	0.28

Section 4 - Guidance to check compliance with the exposure scenario

Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Annex to the Safety Data Sheet according to Regulation (EC) No 1907/2006 [REACH]

Chemical name	CALCIUM DICHLORIDE
Pure substance/mixture	Substance
REACH registration number	01-2119494219-28-XXXX
CAS No	10043-52-4 / 10035-04-8
EC No (EU Index No)	233-140-8
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford GBR
Non-Emergency Telephone Number	+44 1274 267300 / +44 1274 267306
E-mail address	SDS.EMEA@univarsolutions.com

Section 1 - Title

Title	Consumer use
Type	Consumer
Main user group	Consumer uses: Private households (= general public = consumers)
Environmental release category(ies)	ERC8a - Wide dispersive indoor use of processing aids in open systems ERC8d - Wide dispersive outdoor use of processing aids in open systems
Product category(ies)	PC0 - Other Products PC2 - Adsorbent(s) PC4 - Anti-freeze and de-icing products PC12 - Fertilisers PC16 - Heat transfer fluids PC27 - Plant protection products PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals
Sector(s) of use	SU21 - Consumer uses

Section 2 - Operational conditions and risk management measures

Section 2.1 - Control of environmental exposure

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems
- ERC8d - Wide dispersive outdoor use of processing aids in open systems

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

Control of consumer exposure	
Title	Dust binding agents
Product categories [PC]	PC0 - Other Products
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Liquid
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Dust binding agents (Spraying)
Product categories [PC]	PC0 - Other Products
Covers concentrations up to	100 %
Physical form of product	Liquid
Exposure duration	0.167 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	58 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Product categories [PC]	PC0 - Other Products
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness or Liquid
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Product categories [PC]	PC0 - Other Products
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Adsorbents
Product categories [PC]	PC2 - Adsorbent(s)
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Anti-freeze and de-icing products
Product categories [PC]	PC4 - Anti-freeze and de-icing products
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day

Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Anti-freeze and de-icing products (Spraying)
Product categories [PC]	PC4 - Anti-freeze and de-icing products
Covers concentrations up to	100 %
Physical form of product	Liquid
Exposure duration	0.167 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	58 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Fertiliser
Product categories [PC]	PC12 - Fertilisers
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Fertiliser (Spraying)
Product categories [PC]	PC12 - Fertilisers
Covers concentrations up to	100 %
Physical form of product	Liquid
Exposure duration	0.167 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	58 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Heat transfer fluids
Product categories [PC]	PC16 - Heat transfer fluids
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Plant protection products
Product categories [PC]	PC27 - Plant protection products
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Plant protection products (Spraying)
Product categories [PC]	PC27 - Plant protection products
Covers concentrations up to	100 %
Physical form of product	Liquid
Exposure duration	0.167 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	58 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Water treatment chemicals
Product categories [PC]	PC37 - Water treatment chemicals
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Washing and cleaning products
Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	100 %
Physical form of product	Solid, medium dustiness
Amounts used	50000 g/event
Exposure duration	0.024 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	1 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Title	Washing and cleaning products (Spraying)
Product categories [PC]	PC35 - Washing and cleaning products (including solvent based products)
Covers concentrations up to	100 %
Physical form of product	Liquid

Exposure duration	0.167 hr/event
Use frequency	1 events per day
Risk management measures	Avoid direct eye contact with product, also via contamination on hands Use suitable eye protection
Use in room with a volume of minimum	58 m3
Minimum room ventilation rate for handling/application (air changes per hour)	0.6

Section 3 - Exposure estimation

Environmental release category(ies) - ERC8a - Wide dispersive indoor use of processing aids in open systems - ERC8d - Wide dispersive outdoor use of processing aids in open systems

Predicted No Effect Concentration (PNEC)

Remarks As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed. Qualitative approach used to conclude safe use

Derived No Effect Level (DNEL):

Consumer - inhalative, long-term - systemic 2.5 mg/m³

Calculation method The Consexpo model has been used to estimate consumer exposures unless otherwise indicated

Product category(ies)	Exposure route	predicted exposure level	Risk characterisation ratio (RCR)
PC0 - Other Products	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC0 - Other Products	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC0 - Other Products	Consumer - inhalative, long-term - systemic	0.687 mg/m³	0.275
PC0 - Other Products	Consumer - inhalative, short-term - systemic	0.69 mg/m³	0.138
PC0 - Other Products	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC0 - Other Products	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC0 - Other Products	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC0 - Other Products	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC2 - Adsorbent(s)	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC2 - Adsorbent(s)	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC4 - Anti-freeze and de-icing products	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC4 - Anti-freeze and de-icing products	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC4 - Anti-freeze and de-icing products	Consumer - inhalative, long-term - systemic	0.687 mg/m³	0.275
PC4 - Anti-freeze and de-icing products	Consumer - inhalative, short-term - systemic	0.69 mg/m³	0.138
PC12 - Fertilisers	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01

PC12 - Fertilisers	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC12 - Fertilisers	Consumer - inhalative, long-term - systemic	0.687 mg/m³	0.275
PC12 - Fertilisers	Consumer - inhalative, short-term - systemic	0.69 mg/m³	0.138
PC16 - Heat transfer fluids	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC16 - Heat transfer fluids	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC27 - Plant protection products	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC27 - Plant protection products	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC27 - Plant protection products	Consumer - inhalative, long-term - systemic	0.687 mg/m³	0.275
PC27 - Plant protection products	Consumer - inhalative, short-term - systemic	0.69 mg/m³	0.138
PC37 - Water treatment chemicals	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC37 - Water treatment chemicals	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	0.005 mg/m³	<0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, short-term - systemic	0.01 mg/m³	<0.01
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, long-term - systemic	0.687 mg/m³	0.275
PC35 - Washing and cleaning products (including solvent based products)	Consumer - inhalative, short-term - systemic	0.69 mg/m³	0.138

Section 4 - Guidance to check compliance with the exposure scenario

Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.