CalMag Iron Horticultural Grade

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

1.1. Product identifier
Trade name: Van Iperen CalMag Iron Horticultural Grade

The solid mixture of calcium nitrate and magnesium nitrate hexahydrate with small amounts of Fe (in biodegradation form of Fe IDHA), ammonium nitrate and water.

1.3. Details of the supplier of the safety data sheet
Van Iperen International BV
Smidsweg 24
3273 LK Westmaas - Nederland
T +31 (0) 186 578 888 - F +31 (0) 186 573 452
info@iperen.com - www.vaniperen.com

1.4. Emergency telephone number
In case of emergency contact the national emergency telephone number: UK and Ireland: 112 or 999

Country	Official advisory body	Address	Emergency number
Ireland (Republic of)	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	: +353 1 8379964
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	0870 243 2241

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification in accordance with Regulation 1272/2008 (CLP)
Acute Tox. 4, H302: Harmful if swallowed.
Eye Dem. 1, H318: Causes serious eye damage

2.2. Labelling in accordance with Regulation 1272/2008 (CLP)
Signal word: Danger
Hazard pictogram:
GHS07 GHS05

Hazard statements:
H302: Harmful if swallowed.
H318: Causes serious eye damage.

Precautionary statements:
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product
P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P330: Rinse mouth
P310: Immediately call a POISON CENTER or doctor/physician.
P501: Dispose content/containers to an authorized waste facility.

2.3. Other hazards
The mixture does not meet the criteria for PBT or vPvB in accordance with Annex XIII of the REACH Regulation. (see section 12).

SECTION 3: Composition/information on ingredients

3.1. Substances – not concern

3.2. Mixtures
Hazard substances:

Substance	Concentration		
Magnesium nitrate hexahydrate	37-40 % w/w	CAS No	13446-18-9
		EC No	233-826-7
		Index No	Not available
		REACH No	01-2119491164-38-xxxx
		Classification according to Regulation 1272/2008	Not classified
Calcium nitrate	50 – 53 % w/w	CAS No	10124-37-5
		EC No	233-332-1
		Index No	Not available
		REACH No	01-2119495093-35-xxxx
		Classification according to Regulation 1272/2008	Acute Tox 4, H302 Eye Dem. 1, H318
Ammonium nitrate	1,7-2,9 % w/w	CAS No	6484-52-2
		EC No	229-347-8
		Index No	Not available
		REACH No	01-2119490981-27-xxxx
		Classification according to Regulation 1272/2008	Ox. Solid, H272 Eye Irrit. 2, H319
FeIDHA	1,1-2,2 % w/w	CAS No	666828-40-6
		EC No	476-670-7
		Index No	Not available
		REACH No	01-0000019926-57-xxxx
		Classification according to	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures
General advice : The first step is to put the injured person from a contaminated environment.

If swallowed:
1. Rinse mouth, give 2-3 glasses of water to drink. Never give anything by mouth to an unconscious person.
2. Seek medical attention.

In case of eye contact:
1. Immediately flush eyes with large amounts of water for at least 15 minutes while holding the eyelids open to ensure that the entire surface is flushed.
2. Seek medical attention.

In case of skin contact:
1. Rinse off with plenty of water. Remove contaminated cloths.
2. If symptoms persist, seek medical attention.

If inhaled:
1. Unlikely route of exposure due to the form of the product - solid.
2. Move to fresh air. If needed, seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in section 2.

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

SECTION 5: Firefighting measures

5.1. Extinguishing media
Use water only! Contact professional fire-fighters immediately. For small fires, do NOT use chemicals, carbon dioxide, halon or foams. For large fires flood fire with water from a distance.

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition / combustion products: produces oxides of nitrogen on combustion: N_yO_x
Protective equipment:
High temperatures may cause pressure build-up in closed containers.

During the thermal decomposition produced of harmful compounds.
Reduce dust and vapour with water spray. Brown fumes containing toxic nitrogen oxides.
Explosive mixture: Not applicable-non-explosive.

5.3. Advice for firefighters
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Clothing resistant to high temperatures.
Independent self-contained breathing apparatus.

SECTION 6: Accidental release measures

General advice: Do not flush into public water courses. Do not empty into drains, ground or surface water and soil. If the product enters drains or water, immediately inform appropriate authorities.

6.1. Personal precautions, protective equipment and emergency procedures
Use personal protective equipment (section 8).
Avoid contact with eyes.
Do not let this chemical enter the environment.
Do not ingest.

6.2. Environmental precautions
Do not let product enter drains. If the product enters drains or water, immediately inform appropriate authorities.

6.3. Methods and material for containment and cleaning up
Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary:
Collect up the product and place it in a sealable container . Suitably labeled.
Transfer carefully to container.
Then take the spare containers to an area reserved for subsequent recycling or disposal.
Do not put the cast down material back into the original container, for re-use.
Avoid prolonged or repeated exposure.

6.4. Reference to other sections
For disposal see section 13.
For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Keep in original containers in a covered warehouse.
Storage in dry area.
Protect from direct sunlight.

7.2. Conditions for safe storage, including any incompatibilities
Keep away from incompatibles such as reducing agents, flammable agents, strong acids
Keep away from foodstuffs, beverages and feed.
Keep away from heat and sources of ignition.

7.3. Specific end use(s)
No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Regulated occupational exposure limit values: none

Recommended occupational, consumer and environmental exposure limit values for main ingredient – calcium nitrate (following from the performed CSA):

Exposure pattern	Derived No Effect Level (DNEL)	
	Workers	General population
Oral1	Not applicable	8,33 mg/kg bw/d
Dermal1	15,013,9 mg/kg bw/day	8,33 mg/kg bw/day
Inhalation1	98 mg/m^3	29 mg/m
	Predicted No Effect Level (PNEC)^2	
Aqua-freshwater	0.45 mg/l	
Aqua-marine water	0.045 mg/l	
Aqua-intermittent release	4.5 mg/l	
STP	18 mg/l	

1: As the substance is classified for acute oral toxicity an acute DNEL should be derived for the general population. However, peak exposure is considered not possible and therefore an acute DNEL systemic will not be derived. Therefore, the long-term DNEL is considered sufficient to ensure that effects from acute oral exposure to the substance do not occur. As an dermal and inhalation acute toxicity hazard leading to Classification and Labelling of the substance has not been identified, the long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur (in accordance with ECHA Guidance on information requirements and chemical safety assessment:

Chapter R.8: Characterisation of dose [concentration]-response for human health, May 2008 and Part B: Hazard Assessment, Draft new chapter

B.8 Scope of Exposure Assessment, March 2010).

2: PNECsediment/soil/oral are not derived as these are not applicable/not relevant.

8.2. Exposure controls
Personal protective equipment:

Eye/face protection : Use safety goggles
Skin/hands protection : The selected protective gloves have to satisfy the specifications of UE Directive 89-689- EEC and standard EN 374 derived from it.
Use work clothes and shoes.
Industrial hygiene : Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with eyes.

Engineering Controls: No engineering controls.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: Solid, flakes
Colour	: Yellowish
Odour	: Specific
pH value 1,0 % (w/v) solution	: 6 - 7
Melting point/freezing point	: No data available
Initial boiling point	: No data available
Flash point	: No data available
Evaporation rate	: No data available
Flammability (solid, gas)	: Not flammable
Upper/lower flammability or explosive limits	: Not applicable-non-combustible
Vapour pressure	: <0.00001 Pa at 20°C
Vapour density	: No data available
Relative/bulk density	: No data available
Solubility(ies)	: 210 g/100 g water
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: Not applicable (solid)
Explosive properties	: Not explosive
Oxidizing properties	: No oxidizing properties

9.2. Other information
No data.

SECTION 10: Stability and reactivity

10.1 Reactivity - Reactive with strong reducing agents.
10.2 Chemical stability – Under normal storage and use of the substance is chemically stable.
10.3 Possibility of hazardous reactions - The mixture reacts with strong reducing agents
10.4 Conditions to avoid – Avoid contact with strong heat sources such as solar radiation and flames.
10.5 Incompatible materials – Strong reducing agents.
10.6 Hazardous decomposition products – Intensive heated to temperatures> 330°C followed by decomposition with emission of toxic gases (nitrogen oxides).

SECTION 11: Toxicological information

There no available toxicological studies for the mixture as such. The assessment was made on the basis of ownership of components of the mixture.
a) Acute toxicity: harmful if swallowed
ingestion: swallowing small amounts can cause headache, dizziness.
Swallowing large quantities can cause severe gastrointestinal disorders.
b) Skin corrosion/irritation - no irritating
c) Serious eye damage/eye irritation - Causes serious eye damage
d) Respiratory or skin sensitization - no skin or respiratory sensitization
e) Germ cell mutagenicity - no mutagenic
f) Carcinogenicity - no carcinogenic
g) Reproductive toxicity – The mixture is not a threat to fertility.
h) Specific target organ toxicity (STOT) - single exposure – not harmful
i) Specific target organ toxicity (STOT)- repeated exposure - not harmful
j) Aspiration hazard – not applicable
Potential health effects- No data available.
Signs and Symptoms of Exposure- No data available.

ACUTE TOXICITY

	Calcium Nitrate	Amonium nitrate
Acute oral toxicity:	300 mg/kg bw < LD_{50} < 2000 mg/kg bw (OECD 423)	LD_{50}: 2950 mg/kg bw (OECD 401)
Acute dermal toxicity:	L D_{50}: > 2000 mg/kg bw	L D_{50}: > 5000 mg/kg bw (OECD 402)
Acute inhalation toxicity:	No data, low vapour pressure, no exposure	L D_{50}: > 88.8 mg/l (no guideline followed)
LOCAL EFFECTS		
Skin irritation:	Not irritating (OECD 404)	Not irritating (OECD 404)
Eye irritation:	Irritating (OECD 405)	Irritating (OECD 405)
Skin sensitization:	Not sensitizing (OECD 429)	Not sensitizing (OECD 429, with magnesium nitrate, nitric acid ammonium calcium salt, sodium nitrate)
OTHER		
Sub-acute toxicity:	Oral 28-day NOAEL ≥ 1000 mg/kg bw/day (OECD 422)	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)
		Oral 52-week NOAEL = 256 mg/kg bw/day (OECD 453, with ammonium sulfate)
		Inhalation 2-weeks NOAEL ≥ 185 mg/m^3 (OECD 412)
Mutagenicity:	Negative (OECD 471)	Negative (OECD 471, 473, with nitric acid ammonium calcium salt)
	Negative (OECD 473)	Negative (OECD 476, with potassium nitrate)
	Negative (OECD 476)	
Reproductive toxicity:	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422)	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)
Carcinogenicity:	No data	Not carcinogenic (OECD 453, with ammonium sulfate)

SECTION 12: Ecological information

12.1. Toxicity
There no available ecotoxicological studies for the mixture as such. The data were based on studies of similar substances**.**

	Calcium Nitrate	Amonium nitrate
Fish (short-term):	96-h LC_{50}: 1378 mg/l (OECD 203)	48-h LC_{50}: 447 mg/l (no guideline followed)
Fish (long-term):	No data	No data
Daphnia magna (short-term):	48-h EC_{50}: 490 mg/l	48-h EC_{50}: 490 mg/l (no guideline followed , with potassium nitrate)
Daphnia magna (long-term):	No data	No data
Algae:	10-d EC_{50}: > 1700 mg/l (seawater)	10-d EC_{50}: > 1700 mg/l (seawater, no guideline followed, performed with potassium nitrate)
Inhibition of microbial activity:	3-h EC_{50}: >1000 mg/l, NOEC: 180 mg/l (OECD 209)	3-h E C_{50}: >1000 mg/l, NOEC: 180 mg/ (COED 209, with sodium nitrate)

12.2 Persistence and degradability
Biodegradation:
Standard test is not applicable as the mixture is an inorganic. In addition, biodegradation of nitrate can occur under anaerobic conditions, both under natural conditions and as a controlled process in many wastewater treatment plants, resulting in degradation products like nitrite, oxide of nitrogen, nitrogen, or ammonia. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N2, N2O and NH3, the biodegradation rate in wastewater plant at 20ºC is 70 g N/kg dissolved solid/day.
Hydrolysis:
No hydrolysable group is present, will completely dissociate into ions.

12.3 Bioaccumulative potential
Octanol-water partition coefficient (Kow): Not relevant as the substance is inorganic, but considered to be low based on high water solubility)
Bioconcentration factor (BCF): Low potential for bioaccumulation (based on ingredients properties).

12.4 Mobility in soil
Adsorption coefficient:
Low potential for adsorption (based on ingredients properties).

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

12.6 Other adverse effects - no data available**.**

SECTION 13: Disposal considerations

Packaging mast be disposed of in compliance with the country-specific regulations or mast be passed to a packaging return system.

Waste Removal: Apply as fertilizer or transfer for disposal.
Disposing of the packaging: Empty containers contain residue of material on the inner surfaces. Thoroughly empty containers to be transmitted to authorized waste collector
Empty packaging completely.
Prevent pollution of surface waters.
Prohibition: Do not dispose of untreated packing with ordinary industrial wastes.

SECTION 14: Transport information

14.1	**UN number**	Not applicable
14.2	**UN proper shipping name**	Not applicable
14.3	**Transport hazard class(es)**	Not applicable
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	Not applicable
14.7	**Transport in bulk according to Annex II of MARPOL and the IBC Code**	Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
1. REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENTAND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC with amendments.

2. COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
3. REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
4. of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006; with amendments
5. European Agreement concerning the International Carriage of Dangerous Goods by Road
6. Regulation (EU) No 649/2012 Of The European Parliament and of The Council of 4 July 2012 concerning the export and import of hazardous chemicals.
7. Regulation (EC) No 850/2004 Of The European Parliament and of The Council Of 29 April 2004 On Persistent Organic Pollutants And Amending Directive 79/117/EEC.

15.2. Chemical Safety Assessment
The chemical safety assessment was not carried out.

SECTION 16: Other information

Other information:
Classification of mixture was carried on based on ingredients of the mixture (Additivity formula)

Abbreviations:
Acute Tox 4 – acute toxicity category 4
Eye Dem. 1 - Serious eye damage category 1
Ox. Solid - Oxidizing solid
H272 - May intensify fire; oxidizer.
Eye Irrit. 2 – eye irritation, category 2
H319 - Causes serious eye irritation.
NOAEL: No Observed Adverse Effect Level
NOEC: No observed effect concentration.
LD50: Lethal Dose 50%. The LD50 corresponds to the dose of a tested substance causing 50% lethality during a specified time interval.
LC50: Lethal Concentration 50%. The LC50 corresponds to the concentration of a tested substance causing 50% lethality during a specified time interval.
EC50: Effective Concentration 50%. The EC50 corresponds to the concentration of a tested substance causing 50% changes in response (e.g. on growth) during a specified time interval.
BCF: Bioconcentration factor
PBT: Persistent, bioaccumulative and toxic
vPvB: Very Persistent and very Bioccumulative

Company 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 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 proceed, unless specified in the text.

Exposure scenario (1) For calcium nitrate Professional formulation of fertilizer products	
Use descriptors related to the life cycle stage	SU : 1/9/10 PROC2/5/8a/8b/9 ERC1 PC 12: Fertilisers
Name of contributing environmental scenario (1) and corresponding ERC	1. Professional formulation of fertilizer products (ERC1)
List of names of contributing worker scenarios (2) and corresponding PROC	PROC 2: Use in closed, continuous process with occasional controlled exposure

	PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non- dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
2.1 Contributing scenario (1) controlling environmental exposure	
Environmental release during manufacturing ERC1 An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	
2.2 Contributing scenario (2) controlling worker exposure for manufacturing of the substance.	
All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC2/5/8a/8b/9	
Product characteristic	
Product related conditions, e.g. the concentration of the substance in a mixture, the physical state of that mixture (solid, liquid; if solid: level of dustiness), package design affecting exposure	Solid, very low dustiness
Amounts used	
Amounts used at a workplace (per task or per shift); note: sometimes this information is not needed for assessment of worker's exposure	Not applicable
Frequency and duration of use/exposure	
Duration per task/activity (e.g. hours per shift) and frequency (e.g. single events or repeated) of exposure	More than 4 hours per day
Human factors not influenced by risk management	
Particular conditions of use, e.g. body parts potentially exposed as a result of the nature of the activity	Not applicable
Other given operational conditions affecting workers exposure	
Other given operational conditions: e.g. technology or process techniques determining the initial release of substance from process into workers environment; room volume, whether the work is carried out outdoors/indoors, process conditions related to temperature and pressure.	Indoors
Technical conditions and measures at process level (source) to prevent release	
Process design aiming to prevent releases and hence exposure of workers; this in particular includes conditions ensuring rigorous containment; performance of containment to be specified (e.g. by quantification of residual losses or exposure)	Not applicable
Technical conditions and measures to control dispersion from source towards the worker	
Engineering controls, e.g. exhaust ventilation, general ventilation; specify effectiveness of measure	1. Containment as appropriate 2. Good standard of general ventilation
Organisational measures to prevent /limit releases, dispersion and exposure	
Specific organisational measures or measures needed to support the functioning of particular technical measures (e.g. training and supervision). Those measures need to be reported in particular for demonstrating strictly controlled conditions (to justify exposure based waiving).	Not applicable
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection, e.g. wearing of gloves, face protection, full body dermal protection, goggles, respirator; specify effectiveness of measure; specify the suitable material for the PPE (where relevant) and advise how long the protective equipment can be used before replacement (if relevant)	1. PPE
3 Exposure information and reference to its source	
Information for contributing scenario 1	
An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	

Information for contributing scenario 2
A qualitative approach was used to conclude safe use for workers. The leading toxicological effect is eye irritation (local endpoint), for which no DNEL can be derived as no dose-response information is available. Although acute orally harmful, the acute oral route is not considered a relevant exposure route in the exposure scenarios described and no peak exposure is possible via this route. The substance did not show any systemic effects in the repeated dose studies and thus a quantitative assessment for systemic toxicity is not considered relevant for this substance.
4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES
No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers.
5 Additional good practice advice beyond the REACH CSA Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets. Such as: - Containment as appropriate; - Minimise number of staff exposed; - Segregation of the emitting process; - Effective contaminant extraction; - Good standard of general ventilation; - Minimisation of manual phases; - Avoidance of contact with contaminated tools and objects; - Regular cleaning of equipment and work area; - Management/supervision in place to check that RMMs in place are being used correctly and OCs followed; - Training staff on good practice; - Good standard of personal hygiene;

Exposure scenario (2) For calcium nitrate Professional USE of substance as fertilizer	
Use descriptors related to the life cycle stage	SU : 0-1/1 PROC2/5/8a/8b/9/11/19 ER2 PC 12: Fertilisers
Name of contributing environmental scenario (1) and corresponding ERC	Professional USE of substance as fertilizer - solid at Farm - loading and spreading (includes soil conditioning) - solid in Greenhouse (e.g. Fertigation, pH control with acid) - as liquid fertilizer in open field (e.g. Fertigation) - maintenance of equipment
List of names of contributing worker scenarios (2) and corresponding PROC	PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non- dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging)

	from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 11: Non industrial spraying PROC 19: Hand-mixing with intimate contact and only PPE available
2.1 Contributing scenario (1) controlling environmental exposure	
Environmental release during manufacturing ERC 7 ERC 8b: Wide dispersive indoor use of reactive substances in open systems ERC 8e: Wide dispersive outdoor use of reactive substances in open systems An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	
2.2 Contributing scenario (2) controlling worker exposure for manufacturing of the substance.	
All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical. PROC2/5/8a/8b/9	
Product characteristic	
Product related conditions, e.g. the concentration of the substance in a mixture, the physical state of that mixture (solid, liquid; if solid: level of dustiness), package design affecting exposure	Solid, very low dustiness
Amounts used	
Amounts used at a workplace (per task or per shift); note: sometimes this information is not needed for assessment of worker's exposure	Not applicable
Frequency and duration of use/exposure	
Duration per task/activity (e.g. hours per shift) and frequency (e.g. single events or repeated) of exposure	More than 4 hours per day
Human factors not influenced by risk management	
Particular conditions of use, e.g. body parts potentially exposed as a result of the nature of the activity	Not applicable
Other given operational conditions affecting workers exposure	
Other given operational conditions: e.g. technology or process techniques determining the initial release of substance from process into workers environment; room volume, whether the work is carried out outdoors/indoors, process conditions related to temperature and pressure.	Indoors
Technical conditions and measures at process level (source) to prevent release	
Process design aiming to prevent releases and hence exposure of workers; this in particular includes conditions ensuring rigorous containment; performance of containment to be specified (e.g. by quantification of residual losses or exposure)	Not applicable
Technical conditions and measures to control dispersion from source towards the worker	
Engineering controls, e.g. exhaust ventilation, general ventilation; specify effectiveness of measure	3. Containment as appropriate 4. Good standard of general ventilation
Organisational measures to prevent /limit releases, dispersion and exposure	
Specific organisational measures or measures needed to support the functioning of particular technical measures (e.g. training and supervision). Those measures need to be reported in particular for demonstrating strictly controlled conditions (to justify exposure based waiving).	Not applicable
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection, e.g. wearing of gloves, face protection, full body dermal protection, goggles, respirator; specify effectiveness of measure; specify the suitable material for the PPE (where relevant) and advise how long the protective equipment can be used before replacement (if relevant)	2. PPE
3 Exposure information and reference to its source	
Information for contributing scenario 1	
An environmental assessment has not been performed as the substance does not meet the criteria for being classified as dangerous for the environment.	

Information for contributing scenario 2
A qualitative approach was used to conclude safe use for workers. The leading toxicological effect is eye irritation (local endpoint), for which no DNEL can be derived as no dose-response information is available. Although acute orally harmful, the acute oral route is not considered a relevant exposure route in the exposure scenarios described and no peak exposure is possible via this route. The substance did not show any systemic effects in the repeated dose studies and thus a quantitative assessment for systemic toxicity is not considered relevant for this substance.
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