Iperen Fer Marathon

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

1.1. Product identifier
Trade name: **Iperen Fer Marathon**
Identifier: Sodium [N-(2-{[(hydroxy-kO)acetyl][2-(hydroxy- kO)benzyl]amino-kN}ethyl)-N-[2-(hydroxy-kO)benzyl]glycinato(4-)- k2N,O]ferrate(1-) - [1]
ECHA No: 01-2119434848-27-0000
CAS No: 1061328-86-6
EC No: 700-327-5
IUPAC name: sodium [2,2'-(ethane-1,2-diylbis{[2-(hydroxy-kO)benzyl]imino-kN})diacetato-kO(4-)]ferrat(1-)
Other name: FeHBED, iron chelate of HBED

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: fertilizer.
Uses advised against: not identified.

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 according to EU-GHS/CLP No 1272/2008:
Skin Sens. 1B H317 May cause an allergic skin reaction.

2.2. Label elements
Labelling according to EU-GHS/CLP No 1272/2008:

Warning
H317 May cause an allergic skin reaction.
P280 Wear protective gloves/ protective clothing/eye protection/face protection.
P361 Remove/Take off immediately all contaminated clothing.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P501 Dispose of contents/container according to local regulations.

2.3. Other hazards
The substance 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
Identifier: Sodium [N-(2-{[(hydroxy-kO)acetyl][2-(hydroxy- kO)benzyl]amino-kN}ethyl)-N-[2-(hydroxy-kO)benzyl]glycinato(4-)- k2N,O]ferrate(1-) - [1]
ECHA No: 01-2119434848-27-0000
CAS No: 1061328-86-6
EC No: 700-327-5
Index No.: not available
IUPAC name: sodium [2,2'-(ethane-1,2-diylbis{[2-(hydroxy-kO)benzyl]imino-kN})diacetato-kO(4-)]ferrat(1-)
Other name: FeHBED, iron chelate of HBED, N,N`-di(2-hydroxybenzyl)ethylenediamine-N,N`-diacetic acid iron(III) sodium salt
Molecular formula: C20H20N2O6FeNa

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. Seek medical attention. Induce vomiting. Never give anything by mouth to an unconscious person.
2. Until transporting the patient to the hospital to ensure peace, lying and warm.
In case of eye contact:
1. Rinse thoroughly with plenty of cold water.
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 - a non-dusting microgranules.
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
Depending on the materials stored in the neighbourhood use following extinguishing media: foam, water spray, dry chemical powder, CO2..
Unsuitable extinguishing media: none known.

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition / combustion products: produces oxides of nitrogen on combustion: NyOx and also CO, CO2

5.3. Advice for firefighters
Fire-fighters should wear suitable protective clothing such as boots, overalls, gloves, eye and face protection and breathing apparatus. Do not allow to enter fire-fighting water to surface water or groundwater.

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
Ensure adequate ventilation. Use personal protective equipment – see section 8.

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
Sweep up shovel. Contain spillage and then collect by wet-brushing and place in container for disposal according to local regulations. After removal, wash the contaminated area with water.

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
Avoid formation of dust. Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment according to section 8. Do not disposal to sewage system.

7.2. Conditions for safe storage, including any incompatibilities
Keep in original, tightly closed container in a dry place. Keep away from heat and source of ignition. Recommended storage temperature: -10oC till + 30oC.

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
According to the country-specific regulations.
DNEL:
Workers - Hazard via inhalation route (long term exposure, systemic effect) – 3,5 mg/m3
Workers - Hazard via inhalation route (acute/short term exposure, systemic effect) – No hazard identified
Workers - Hazard via inhalation route (long term exposure, local effect) – No hazard identified
Workers - Hazard via inhalation route (acute/short term exposure, local effect) – No hazard identified
Workers - Hazard via dermal route (long term exposure, systemic effect) - 0,33 mg/kg bw/day
Workers - Hazard via dermal route (acute/short term exposure, systemic effect) – No hazard identified
Workers - Hazard via dermal route (long term exposure, local effect) – No hazard identified
Workers - Hazard via dermal route (acute/short term exposure, local effect) – No hazard identified
Workers – Eyes (local effects) – No hazard identified
General population - Hazard via inhalation route (long term exposure, systemic effect) – 0.87 mg/m3
General population - Hazard via inhalation route (acute/short term exposure, systemic effect) – No hazard identified
General population - Hazard via inhalation route (long term exposure, local effect) – No hazard identified
General population - Hazard via inhalation route (acute/short term exposure, local effect) – No hazard identified
General population - Hazard via dermal route (long term exposure, systemic effect) - 0,17 mg/kg bw/day
General population - Hazard via dermal route (acute/short term exposure, systemic effect) – No hazard identified
General population - Hazard via dermal route (long term exposure, local effect) – No hazard identified
General population - Hazard via dermal route (acute/short term exposure, local effect) – No hazard identified
General population - Hazard via oral route (long term exposure, systemic effect) – 0.05 mg/kg bw/day
General population - Hazard via oral route (acute/short term exposure, systemic effect) – No hazard identified
General population – Eyes (local effects) – No hazard identified
PNEC:
PNEC aqua (freshwater) – 0,071 mg/L
PNEC aqua (marine water) – 0,0071 mg/L
PNEC aqua (intermittent releases) – 0,71 mg/L
PNEC STP - 45 mg/L
Sediment (freshwater) – 0,16 mg/kg sediment dw
Sediment (marine water) - 0,016 mg/kg sediment dw
AIR - No hazard identified
PNEC soil – 0,3 mg/kg soil dw
PNEC (secondary poisoning, oral) – 2,22 mg/kg food

8.2. Exposure controls
Personal protective equipment:
Eye/face protection: Use safety goggles
Skin/hands protection: Handle with protective gloves (recommended nitrile gloves, layer thickness 0,11 mm and breakthrough time > 480 minutes). Use protective clothing.
Industrial hygiene: Handle in accordance with good industrial hygiene and safety practice. Change contaminated clothing. Avoid contact with skin. Avoid breathing dust. Wash hands after working with substance. When using do not eat or drink. Immediately remove spilled substance.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Solid, microgranules
Colour	Brown
Odour	Odourless
pH value 1,0 % (w/v) solution	10 ± 1,0
Melting point/freezing point	Decompose > 250oC
Initial boiling point	No data available
Flash point	212°C
Evaporation rate	No data available
Flammability (solid, gas)	None flammable acc. To Method A.10
Upper/lower flammability or explosive limits;	Not explosive acc. To Method A.14
Vapour pressure	5,75 x10-4 Pa at 20oC
Vapour density	Not applicable
Relative density/bulk density	0,769 g/cm3
Solubility(ies)	water: 55 g/L at 20oC
Partition coefficient: n-octanol/water	-1,96 at 25oC
Auto-ignition temperature	212°C acc. to Method A.16
Decomposition temperature	>250°C
Viscosity	Not applicable
Explosive properties	Not explosive (EU Method A.14)
Oxidizing properties	No oxidizing properties (EU Method A.17)

9.2 Other information

Iron (Fe)	7,0 ± 0,4 % w/w
Conductivity of 0,1% sol.	375 µS/cm ± 20
Conductivity of 1% solution	3.2 mS/cm ± 0.2

SECTION 10: Stability and reactivity

10.1 Reactivity -
the substance has low chemical reactivity.

10.2 Chemical stability –
stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions -
no data available

10.4 Conditions to avoid –
keep away from heat.

10.5 Incompatible materials –
none.

10.6 Hazardous decomposition products –
in the event of fire produces oxides of nitrogen NyOx

SECTION 11: Toxicological information

Acute toxicity:

Substance name	% w/w	Method	Result	Units
Fe(III)HBED	100	LD50 (oral, rat, OECD 420/Method B.1.Bis)	>2000	mg/kg
		LD50 (dermal, rat, OECD 402/Method B.3)	>2000	mg/kg bw

Skin corrosion/irritation - no irritating (OECD 404 / EU Method B.4.),
Serious eye damage/eye irritation - no irritating (OECD 405 / EU Method B.5.),
Respiratory or skin sensitization - no skin or respiratory sensitization (OECD 406 / EU Method B.6.),
Germ cell mutagenicity - no mutagenic (Bacterial Reverse Mutation Assay (Ames Test) according to OECD TG 471 – negative)
Carcinogenicity - no carcinogenic
Reproductive toxicity – not harmful
NOAEL (fertility) 200 mg/kg bw/day (estimated based on one-generation study with read-across substance Fe(Na)EDDHMA)
NOAEL (developmental toxicity) 500 mg/kg bw/day day (estimated based on OECD 414 study with read-across substance Fe(Na)EDDHA)
Specific target organ toxicity (STOT) - single exposure – not harmful
Specific target organ toxicity (STOT)- repeated exposure - not harmful
Aspiration hazard – not applicable (solid substance)
Potential health effects No data available.
Signs and Symptoms of Exposure No data available.

SECTION 12: Ecological information

12.1. Toxicity

Substance name	% w/w.	Method	Result	Units
Fe(III)HBED	100	LC50 (fish, 96h)	>100	mg/l
		EC50 (daphnia, 48h)	>100	mg/l

12.2 Persistence and degradability
Fe(III)HBED was investigated for its inherent biodegradation potential according to OECD 302B. The substance attained 8.2 % degradation after 28 days and is therefore considered as not inherently biodegradable. Furthermore, the substance formed very stable complexes in an iron chelate interaction experiment. Thus it will be hydrolytically stable as well.

12.3 Bioaccumulative potential
The substance specific logPow was determined as -1.96 according to OECD Guideline 107. The the threshold value is ≤ 4,5 so the substance has a low potential for bioaccumulation.

12.4 Mobility in soil
The log Koc value are less than the threshold value of 3, indicating no adsorbing potential for this compound.

12.5 Results of PBT and vPvB assessment
Fe(III)HBED does not fulfil any of the relevant criteria for a PBT or a vPvB-Substance, respectively.

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.

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 73/78 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
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
4. 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.
5. 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.
6. European Agreement Concerning The International Carriage Of Dangerous Goods By Road (ADR), 2017

15.2. Chemical Safety Assessment
For this substance a chemical safety assessment was carried out.

SECTION 16: Other information

Other information:
To develop this MSDS used results obtained in accordance with the requirements of REACH regulation.
Abbreviations:
DNEL: Derived No-Effect Level
PNEC: Predicted No-Effect Concentration
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

Indication of changes:
Section 2: the new classification and labeling of substance, before – not classified, currently – Skin Sens. 1B H317 May cause an allergic skin reaction. Added exposure scenarios.

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 Scenarios

Substance Name:RP02- Fe(III)HBED
EC Number:700-327-5 CAS Number:1061328-86-6
Registration Number:01-2119434848-27-0000 Date of Generation/Revision: 08/06/2017 Author:

2. ES 2: Formulation or re-packing;

2.1. Title section
ES name: Distribution, storage and q control in industrial setting
Environment
CS 1: Distribution, storage and q control in industrial setting ERC 2
Worker
CS 2: Manufacture PROC 1
CS 3: Manufacture PROC 2
CS 4: Transfer non-dedicated PROC 8a
CS 5: Transfer (dedicated)PROC 8b
CS 6: Transfer (dedicated)PROC 8b
CS 7: Transfer (small containers) PROC 9
CS 8: Laboratory Q control PROC 15
2.2. Conditions of use affecting exposure
2.2.1. Control of environmental exposure: Distribution, storage and q control in industrial setting (ERC 2)
Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 2.0 tonnes/day
Annual amount per site <= 600.0 tonnes/year
Conditions and measures related to biological sewage treatment plant
Provide onsite wastewater treatment.
Assumed domestic sewage treatment plant flow >= 20000 m3/day
No application of sewage sludge to soil
Conditions and measures related to external treatment of waste (including article waste)
No waste from process
Other conditions affecting environmental exposure
Receiving surface water flow >= 18000 m3/day
2.2.2. Control of worker exposure: Manufacture (PROC 1)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8.0 h/day
Technical and organisational conditions and measures
Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
2.2.3. Control of worker exposure: Manufacture (PROC 2)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8.0 h/day
Technical and organisational conditions and measures
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
2.2.4. Control of worker exposure: Transfer non-dedicated (PROC 8a)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
2.2.5. Control of worker exposure: Transfer (dedicated) (PROC 8b)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
2.2.6. Control of worker exposure: Transfer (dedicated) (PROC 8b)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).

Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
2.2.7. Control of worker exposure: Transfer (small containers) (PROC 9)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
2.2.8. Control of worker exposure: Laboratory Q control (PROC 15)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
2.3. Exposure estimation and reference to its source
2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES
Guidance: Data included in exposure scenario indicated that the risk is controlled if the risk management measures are taken into account. It is the responsibility of the manager to ensure that activities performed by an employee do not exceed the safe level of exposure.

3. ES 3: Formulation or re-packing;

3.1. Title section
ES name: Formulation of mixtures and solutions of substance
Environment
CS 1: Formulation of mixtures and solutions of substance ERC 2
Worker
CS 2: Formulation closed proc. PROC 3
CS 3: Production PROC 4
CS 4: Mixing PROC 5
CS 5: Formulation (shape) PROC 14
3.2. Conditions of use affecting exposure
3.2.1. Control of environmental exposure: Formulation of mixtures and solutions of substance (ERC 2)
Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 10.0 tonnes/day
Annual amount per site <= 1000 tonnes/year
Conditions and measures related to biological sewage treatment plant
Provide onsite wastewater treatment.
Assumed domestic sewage treatment plant flow >= 20000 m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 18000 m3/day
3.2.2. Control of worker exposure: Formulation closed proc. (PROC 3)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 6.0 h/day
Technical and organisational conditions and measures
Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
3.2.3. Control of worker exposure: Production (PROC 4)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) .
Local exhaust ventilation. Inhalation - minimum efficiency of 90.0 %
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
3.2.4. Control of worker exposure: Mixing (PROC 5)
Product (Article) characteristics

Covers concentrations up to 10.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
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
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
3.2.5. Control of worker exposure: Formulation (shape) (PROC 14)
Product (Article) characteristics
Covers concentrations up to 10.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4.0 h/day
Technical and organisational conditions and measures
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.; Ensure control measures are regularly inspected and maintained.
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Local exhaust ventilation. Inhalation - minimum efficiency of 90.0 %
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
3.3. Exposure estimation and reference to its source
3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES
Guidance: Data included in exposure scenario indicated that the risk is controlled if the risk management measures are taken into account. It is the responsibility of the manager to ensure that activities performed by an employee do not exceed the safe level of exposure.

4. ES 4: Widespread use by professional workers;

4.1. Title section
ES name: Distribution, storage in professional setting
Environment
CS 1: Distribution, storage in professional setting ERC 8b
Worker
CS 2: Production closed proc. PROC 1
CS 3: Production closed contin.proc. PROC 2
CS 4: Production closed contin.proc. PROC 2
CS 5: Transfer (non-dedicated) PROC 8a
CS 6: Transfer (dedicated)PROC 8b
CS 7: Transfer (small containers) PROC 9
CS 8: Transfer (small containers) PROC 9
4.2. Conditions of use affecting exposure
4.2.1. Control of environmental exposure: Distribution, storage in professional setting (ERC 8b)
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed
4.2.2. Control of worker exposure: Production closed proc. (PROC 1)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8.0 h/day
Technical and organisational conditions and measures
Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
4.2.3. Control of worker exposure: Production closed contin.proc. (PROC 2)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 6.0 h/day
Technical and organisational conditions and measures
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
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
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
4.2.4. Control of worker exposure: Production closed contin.proc. (PROC 2)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8.0 h/day
Technical and organisational conditions and measures
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
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
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
4.2.5. Control of worker exposure: Transfer (non-dedicated) (PROC 8a)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 1.0 h/day
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
Local exhaust ventilation. Inhalation - minimum efficiency of 80.0 %
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
4.2.6. Control of worker exposure: Transfer (dedicated) (PROC 8b)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
4.2.7. Control of worker exposure: Transfer (small containers) (PROC 9)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
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
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
4.2.8. Control of worker exposure: Transfer (small containers) (PROC 9)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
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
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
4.3. Exposure estimation and reference to its source
4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES
Guidance: Data included in exposure scenario indicated that the risk is controlled if the risk management measures are taken into account. It is the responsibility of the manager to ensure that activities performed by an employee do not exceed the safe level of exposure.

5. ES 5: Widespread use by professional workers;

5.1. Title section
ES name: Professional use of fertilizers containing
Environment
CS 1: Professional use of fertilizers containing ERC 8b
CS 2: Professional use of fertilizers containing ERC 8e
CS 3: Professional use of fertilizers containing ERC 9b
Worker
CS 4: Production PROC 2
CS 5: Mixing PROC 5
CS 6: Transfer (non-dedicated) PROC 8a
CS 7: Transfer (dedicated)PROC 8b
CS 8: Transfer (small containers) PROC 9
5.2. Conditions of use affecting exposure
5.2.1. Control of environmental exposure: Professional use of fertilizers containing (ERC 8b)
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed
5.2.2. Control of environmental exposure: Professional use of fertilizers containing (ERC 8e)
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed
5.2.3. Control of worker exposure: Production (PROC 2)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 6.0 h/day
Technical and organisational conditions and measures
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
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
Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
5.2.4. Control of environmental exposure: Professional use of fertilizers containing (ERC 9b)
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed
5.2.5. Control of worker exposure: Mixing (PROC 5)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 1.0 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Outdoor use
Assumes process temperature up to 40.0 °C
5.2.6. Control of worker exposure: Transfer (non-dedicated) (PROC 8a)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
5.2.7. Control of worker exposure: Transfer (dedicated) (PROC 8b)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
5.2.8. Control of worker exposure: Transfer (small containers) (PROC 9)
Product (Article) characteristics
Covers concentrations up to 100.0 %
Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt).
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1.0 h/day
Technical and organisational conditions and measures
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
Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40.0 °C
5.3. Exposure estimation and reference to its source
5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES
Guidance: Data included in exposure scenario indicated that the risk is controlled if the risk management measures are taken into account. It is the responsibility of the manager to ensure that activities performed by an employee do not exceed the safe level of exposure.

6. ES 6: Consumer use; Fertilizers;

6.1. Title section
ES name: Professional use of fertilizers containing Product category: Fertilizers (PC 12)
Environment
CS 1: Professional use of fertilizers containing ERC 8b
CS 2: Professional use of fertilizers containing ERC 8e
Consumer
CS 3: Use as fertiliser PC 12
6.2. Conditions of use affecting exposure
6.2.1. Control of environmental exposure: Professional use of fertilizers containing (ERC 8b)
Other conditions affecting environmental exposure
Municipal sewage treatment plant is assumed
6.2.2. Control of environmental exposure: Professional use of fertilizers containing (ERC 8e)
Other conditions affecting environmental exposure
Municipal sewage treatment plant is assumed
6.2.3. Control of consumer exposure: Use as fertiliser (PC 12)
Product (article) characteristics
Covers concentrations up to 1.0 %
Amount used (or contained in articles), frequency and duration of use/exposure
Covers infrequent uses, up to 2 weeks per year
Covers use up to 0.5 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands
6.3. Exposure estimation and reference to its source
6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES