

Safety Data Sheet

According to Regulation (EC) No 2020/878

Oligo Iron-IDHA 9%

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

1.1. Product identifier

Trade name: Oligo Iron-IDHA 9%
Chemical name: iron chelate of sodium salt N-[1,2 dicarboxyethyl] D,L aspartic acid
ECHA No: 01-0000019926-57-0000
CAS No: 666828-40-6
EC No: 476-670-7
Other names: Fe IDHA

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.

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

Hazard statements:

H317 May cause an allergic skin reaction.

Precautionary statements:

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). The substance is not included in the list established in accordance with Article 59(1) for having endocrine disrupting properties or identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3. Composition / information on ingredients

3.1. Substances

Trade name: Oligo Iron-IDHA 9%
Chemical name: iron chelate of sodium salt N-[1,2 dicarboxyethyl] D,L aspartic acid CAS No: 666828-40-6
EC No: 476-670-7
REACH No: 01-0000019926-57-0000
Index No: Not applicable
IUPAC name: Iron nitrate, tetra sodium salt of 1,2 dicarboxyethyl D,L aspartic acid Molecular formula: FeC8H7NO8Na

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. Induce vomiting. Never give anything by mouth to an unconscious person.
2. Seek medical attention.

In case of eye contact:

1. Rinse thoroughly with plenty of cold water.

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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. Fire fighting 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: -5oC till + 30oC.

7.3. Specific end use(s)

No data available.

SECTION 8. Exposure controls / personal protection

8.1. Control parameters DNEL:

Workers - hazard via inhalation route:

Systemic effects, long term exposure – 3.05 mg/m3

Systemic effects acute/short term exposure – no hazard identified Local effects, long term exposure – no hazard identified

Local effects, acute/short term exposure – no hazard identified Workers - hazard via dermal route:

Systemic effects, long term exposure – 2.16 mg/kg bw/day Systemic effects, acute/short term exposure – no hazard identified Local effects, long term exposure – no hazard identified

Local effects, acute/short term exposure – no hazard identified Workers - hazard for the eyes:

Local effects – no hazard identified

General population - hazard via inhalation route:

Systemic effects, long term exposure – 0.75 mg/m3

Systemic effects, acute/short term exposure – no hazard identified Local effects, long term exposure – no hazard identified

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Local effects, acute/short term exposure – no hazard identified

General population - hazard via dermal route:

Systemic effects, long term exposure – 1.08 mg/kg bw/day Acute/short term exposure – no hazard identified

Local effects, long term exposure – medium hazard (no threshold derived), sensitisation Acute/short term exposure – medium hazard (no threshold derived), sensitisation General population - hazard via oral route:

Systemic effects, long term exposure – 0.22 mg/kg bw/day Acute/short term exposure – no hazard identified

General population – hazard for the eyes Local effects - no hazard identified

PNEC:

PNEC aqua (freshwater) – 0.072 mg/L PNEC aqua (marine water) – 0.007 mg/L PNEC STP – 2.0 mg/L

Sediment (freshwater) – 0.33 mg/kg sediment dw Sediment (marine water) – 0.033 mg/kg sediment dw AIR - No hazard identified

PNEC soil – 0.024 mg/kg soil dw

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

Physical state Solid, microgranules

Colour Greenish/brownish

Odour Odourless

Melting point/freezing point No data available

Boiling point or initial boiling point and boiling range 201.1 ± 0.4 0C + 203.8 ± 0.5 0C

Flammability (solid, gas) Not flammable

Upper and lower explosion limit No data available

Flash point 690 0C

Auto-ignition temperature No data available

Decomposition temperature Not applicable (not self-reaction substance)

pH value 1% (w/v) solution 5.5 ± 0.5

Kinematic viscosity Not applicable (solid)

Solubility Water: 750 g/l

Partition coefficient: n-octanol/water (log value) No data available

Vapour pressure No data available

Relative density 0.80 ± 0.1 g/cm³

Relative vapour density No data available

Particle characteristics 0.2 – 1.2 mm

9.2 Other information

Iron (Fe) 9.0 ± 0.4% w/w

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 – not harmful

Substance name	% w/w	Method	Result	Units
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Fe(III)IDHA	100	LD50 (oral, rat, OECD 420/Method B.1. Bis)	>2000	mg/kg
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		LD50 (dermal, rat, OECD 402/EU Method B.3)	>2000	mg/kg b.w.
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Skin corrosion/irritation - no irritating (OECD Guideline No 404 / Method B.4.)

Serious eye damage/eye irritation - no irritating (OECD Guideline No 405 / Method B.5.) Respiratory or skin sensitization - may cause an allergic

skin reaction (OECD 406) Germ cell mutagenicity - no data

Carcinogenicity - no data

Reproductive toxicity – not harmful

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.

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Signs and Symptoms of Exposure
No data available.

SECTION 12. Ecological information

12.1. Toxicity

Substance name	% w/w.	Method	Result	Units
Fe(III)IDHA	100	LC50 (fish, 96h, OECD 203)	>100	mg/L
		EC50 (Daphnia magna, 48h, OECD 202)	>100	mg/L
		ErC50 (algae, 72h, OECD 201)	>100	mg/L
		EyC50 (algae, 72h, OECD 201)	>100	mg/L
		NOEC/72h	>100	mg/L

12.2 Persistence and degradability

Biodegradation acc. OECD 302 B 92% after 28 days.
Biodegradation acc. OECD 301 E 81% after 28 days.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of the REACH Regulation. Chemical safety assessment not required (not conducted).

12.6 Endocrine disrupting properties

The substances is not included in the list established in accordance with Article 59(1) for having endocrine disrupting properties or identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

12.7 Other adverse effects

no data available

SECTION 13. Disposal considerations

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

SECTION 14. Transport information adr/rid/adn/imdg/icao

ADR/RID/ADN/IMDG/ICAO

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 Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15. Regulatory information

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

- REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND 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
- COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- 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
- 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.

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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)

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:

Skin. Sens. 1B – Skin sensitization category 1B

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 Bioaccumulative

Indication of changes:

Update acc. Reg. 2020/878

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.

ANNEX - Exposure scenarios

Substance Name:RP00 - Fe(III)IDHA

EC Number:476-670-7

CAS Number:

Registration Number:01-2120011103-83-0000

Date of Generation/Revision: 19/05/2017

2. ES 2: Formulation or re-packing;

2.1. Title section

ES name: Distribution, storage and q control in individual setting

Environment

CS 1: Distribution, storage and q control in individual setting ERC 2

Worker

CS 2: Formulation PROC 1

CS 3: Formulation PROC 2

CS 4: Transfer PROC 8a

CS 5: Transfer PROC 8b

CS 6: Transfer PROC 9

CS 7: Q control PROC 15

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Distribution, storage and q control in individual setting (ERC 2)

Amount used, frequency and duration of use (or from service life)

Daily amount per site <= 5.0 tonnes/day

Annual amount per site <= 50.0 tonnes/year

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

Assumed effluent discharge flow from site >= 2000 m3/day

2.2.2. Control of worker exposure

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

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) .

Other conditions affecting workers exposure

Indoor use

Assumes process temperature up to 40.0 °C

Contributing scenario Specific measures

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Formulation (PROC 1) Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

Formulation (PROC 2) Chemical production or refinery in closed continuous process with

occasional controlled exposure or processes with equivalent containment conditions

Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 8a) Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 8b) Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 9) Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

Q control (PROC 15) Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Distribution, storage and q control in individual setting (ERC 2)

Release route Release rate Release estimation method

Water 1 kg/day Measured release rate

Air 1 kg/day Measured release rate

Soil 0.5 kg/day ERC based

Protection target Exposure estimate (based on: EUSES 2.1.2) RCR

Fresh water 0.05 mg/L 0.692

Sediment (freshwater) 0.196 mg/kg dw 0.593

Marine water 5E-3 mg/L 0.692

Sediment (marine water) 0.02 mg/kg dw 0.593

Sewage Treatment Plant 0 mg/L < 0.01

Agricultural soil 2.51E-5 mg/kg dw < 0.01

Man via environment - Inhalation 7.62E-6 mg/m³ < 0.01

Man via environment - Oral 3.49E-4 mg/kg bw/day < 0.01

Man via environment - combined routes < 0.01

2.3.2. Worker exposure: Formulation (PROC 1)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.01 mg/m³ (TRA Workers 3.0) < 0.01

Dermal, systemic, long term 6.8E-3 mg/kg bw/day (TRA Workers 3.0) < 0.01

Combined, systemic, long term < 0.01

2.3.3. Worker exposure: Formulation (PROC 2)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.01 mg/m³ (TRA Workers 3.0) < 0.01

Dermal, systemic, long term 0.274 mg/kg bw/day (TRA Workers 3.0) 0.127

Combined, systemic, long term 0.13

2.3.4. Worker exposure: Transfer (PROC 8a)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.5 mg/m³ (TRA Workers 3.0) 0.164

Dermal, systemic, long term 1.371 mg/kg bw/day (TRA Workers 3.0) 0.635

Combined, systemic, long term 0.799

2.3.5. Worker exposure: Transfer (PROC 8b)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.1 mg/m³ (TRA Workers 3.0) 0.033

Dermal, systemic, long term 1.371 mg/kg bw/day (TRA Workers 3.0) 0.635

Combined, systemic, long term 0.667

2.3.6. Worker exposure: Transfer (PROC 9)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.1 mg/m³ (TRA Workers 3.0) 0.033

Dermal, systemic, long term 1.372 mg/kg bw/day (TRA Workers 3.0) 0.635

Combined, systemic, long term 0.668

2.3.7. Worker exposure: Q control (PROC 15)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.1 mg/m³ (TRA Workers 3.0) 0.033

Dermal, systemic, long term 0.068 mg/kg bw/day (TRA Workers 3.0) 0.031

Combined, systemic, long term 0.064

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

Guidance: Dane zawarte w scenariuszu narażenia pokazują, że ryzyko jest odpowiednio kontrolowane, jeśli zalecane środki zarządzania ryzykiem i warunki operacyjne są brane pod uwagę. Do odpowiedzialności kierownika należy zapewnienie, że czynności wykonywane przez pracownika nie przekraczają bezpiecznego poziomu narażenia.

3. ES 3: Formulation or re-packing;

3.1. Title section

ES name: Formulation of mixtures and solutions of substance

Environment

CS 1: Formulation ERC 2

Worker

CS 2: Formulation PROC 3

CS 3: Formulation PROC 4

CS 4: Mixing or blending PROC 5

CS 5: Formulation PROC 14

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Formulation (ERC 2)

Amount used, frequency and duration of use (or from service life)

Daily amount per site <= 5.0 tonnes/day

Annual amount per site <= 50.0 tonnes/year

Conditions and measures related to biological sewage treatment plant

Municipal sewage treatment plant is assumed

Assumed domestic sewage treatment plant flow >= 2000 m³/day

Conditions and measures related to external treatment of waste (including article waste)

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Dispose of waste product or used containers according to local regulations.

Other conditions affecting environmental exposure

Receiving surface water flow \geq 18000 m³/day

3.2.2. Control of worker exposure

Product (Article) characteristics

Covers concentrations up to 100.0 %

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

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) .

Other conditions affecting workers exposure

Indoor use

Assumes process temperature up to 40.0 °C

Contributing scenario Specific measures

Formulation (PROC 3) Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

Formulation (PROC 4) Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt). Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

Mixing or blending (PROC 5) Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt). Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Formulation (PROC 14) Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt). Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Formulation (ERC 2)

Release route	Release rate	Release estimation method
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Water	2 kg/day	Measured release rate
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Air	2 kg/day	Measured release rate
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Soil	0.5 kg/day	ERC based
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Protection target Exposure estimate (based on: EUSES 2.1.2) RCR

Fresh water	0.013 mg/L	0.175
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Sediment (freshwater)	0.05 mg/kg dw	0.15
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Marine water	1.27E-3 mg/L	0.175
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Sediment (marine water)	4.96E-3 mg/kg dw	0.15
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Sewage Treatment Plant	0.127 mg/L	0.063
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Agricultural soil	8.65E-4 mg/kg dw	0.036
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Man via environment - Inhalation	1.52E-5 mg/m ³	< 0.01
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Man via environment - Oral	6.73E-4 mg/kg bw/day	< 0.01
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Man via environment - combined routes		< 0.01
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3.3.2. Worker exposure: Formulation (PROC 3)

Route of exposure and type of effects	Exposure estimate	RCR
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Inhalation, systemic, long term	1 mg/m ³ (TRA Workers 3.0)	0.328
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Dermal, systemic, long term	0.138 mg/kg bw/day (TRA Workers 3.0)	0.064
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Combined, systemic, long term	0.392	
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3.3.3. Worker exposure: Formulation (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
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Inhalation, systemic, long term	0.5 mg/m ³ (TRA Workers 3.0)	0.164
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Dermal, systemic, long term	1.372 mg/kg bw/day (TRA Workers 3.0)	0.635
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Combined, systemic, long term	0.799	
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3.3.4. Worker exposure: Mixing or blending (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
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Inhalation, systemic, long term	0.5 mg/m ³ (TRA Workers 3.0)	0.164
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Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.635
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Combined, systemic, long term	0.799	
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3.3.5. Worker exposure: Formulation (PROC 14)

Route of exposure and type of effects	Exposure estimate	RCR
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Inhalation, systemic, long term	0.1 mg/m ³ (TRA Workers 3.0)	0.033
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Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.318
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Combined, systemic, long term	0.35	
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3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance: Dane zawarte w scenariuszu narażenia pokazują, że ryzyko jest odpowiednio kontrolowane, jeśli zalecane środki zarządzania ryzykiem i warunki operacyjne są brane pod uwagę. Do odpowiedzialności kierownika należy zapewnienie, że czynności wykonywane przez pracownika nie przekraczają bezpiecznego poziomu narażenia.

4. ES 4: Widespread use by professional workers;

4.1. Title section

ES name: Formulation of mixtures and solutions of substance

Environment

CS 1: Formulation of mixtures and solutions of substance ERC 8b

Worker

CS 2: Mixing PROC 1

CS 3: Mixing PROC 2

CS 4: Transfer PROC 8a

CS 5: Transfer PROC 8b

CS 6: Transfer PROC 9

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: Formulation of mixtures and solutions of substance (ERC 8b)

Conditions and measures related to biological sewage treatment plant

Municipal sewage treatment plant is assumed

4.2.2. Control of worker exposure

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Product (Article) characteristics

Covers concentrations up to 100.0 %

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

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

Contributing scenario Specific measures

Mixing (PROC 1) Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

Mixing (PROC 2) Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt). Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 8a) Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt). Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 8b) Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt). Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 9) Covers non or low-dusty materials (e.g. pellets, granules, sugar, salt). Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: Formulation of mixtures and solutions of substance (ERC 8b)

Release route Release rate Release estimation method

Water 5.5E-4 kg/day ERC based

Air - kg/day ERC based

Soil - kg/day ERC based

Protection target Exposure estimate (based on: EUSES 2.1.2) RCR

Fresh water 7.05E-6 mg/L < 0.01

Sediment (freshwater) 2.76E-5 mg/kg dw < 0.01

Marine water 6.83E-7 mg/L < 0.01

Sediment (marine water) 2.68E-6 mg/kg dw < 0.01

Sewage Treatment Plant 3.48E-5 mg/L < 0.01

Agricultural soil 3.44E-6 mg/kg dw < 0.01

Man via environment - Inhalation 3.98E-12 mg/m³ < 0.01

Man via environment - Oral 7.71E-7 mg/kg bw/day < 0.01

Man via environment - combined routes < 0.01

4.3.2. Worker exposure: Mixing (PROC 1)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.1 mg/m³ (TRA Workers 3.0) 0.033

Dermal, systemic, long term 6.8E-3 mg/kg bw/day (TRA Workers 3.0) < 0.01

Combined, systemic, long term 0.036

4.3.3. Worker exposure: Mixing (PROC 2)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.01 mg/m³ (TRA Workers 3.0) < 0.01

Dermal, systemic, long term 0.274 mg/kg bw/day (TRA Workers 3.0) 0.127

Combined, systemic, long term 0.13

4.3.4. Worker exposure: Transfer (PROC 8a)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.5 mg/m³ (TRA Workers 3.0) 0.164

Dermal, systemic, long term 1.371 mg/kg bw/day (TRA Workers 3.0) 0.635

Combined, systemic, long term 0.799

4.3.5. Worker exposure: Transfer (PROC 8b)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.5 mg/m³ (TRA Workers 3.0) 0.164

Dermal, systemic, long term 1.371 mg/kg bw/day (TRA Workers 3.0) 0.635

Route of exposure and type of effects Exposure estimate RCR

Combined, systemic, long term 0.799

4.3.6. Worker exposure: Transfer (PROC 9)

Route of exposure and type of effects Exposure estimate RCR

Inhalation, systemic, long term 0.5 mg/m³ (TRA Workers 3.0) 0.164

Dermal, systemic, long term 1.372 mg/kg bw/day (TRA Workers 3.0) 0.635

Combined, systemic, long term 0.799

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

Guidance: Dane zawarte w scenariuszu narażenia pokazują, że ryzyko jest odpowiednio kontrolowane, jeśli zalecane środki zarządzania ryzykiem i warunki operacyjne są brane pod uwagę. Do odpowiedzialności kierownika należy zapewnienie, że czynności wykonywane przez pracownika nie przekraczają bezpiecznego poziomu narażenia.

5. ES 5: Widespread use by professional workers;

5.1. Title section

ES name: Professional use of fertilizers

Environment

CS 1: Environment ERC 8b

CS 2: Environment ERC 8e

CS 3: Environment ERC 9b

Worker

CS 4: Use as fertilizer PROC 2

CS 5: use as fertilizer PROC 5

CS 6: Transfer PROC 8a

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CS 7: Transfer PROC 8b
CS 8: Transfer PROC 9

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Environment (ERC 8b)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed

5.2.2. Control of environmental exposure: Environment (ERC 8e)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed

5.2.3. Control of environmental exposure: Environment (ERC 9b)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed

5.2.4. Control of worker exposure

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

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

Contributing scenario Specific measures

Use as fertilizer (PROC 2) Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

use as fertilizer (PROC 5) Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 8a) Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 8b) Wear chemically resistant gloves (tested to EN374) in combination with basic employee training.; For further specification, refer to section 8 of the SDS.

Transfer (PROC 9) Wear suitable gloves tested to EN374.; For further specification, refer to section 8 of the SDS.

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Environment (ERC 8b)

Release route	Release rate	Release estimation method
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Water	5.5E-4 kg/day	ERC based
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Air	- kg/day	ERC based
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Soil	- kg/day	ERC based
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Protection target Exposure estimate (based on: EUSES 2.1.2) RCR

Fresh water	7.05E-6 mg/L	< 0.01
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Sediment (freshwater)	2.76E-5 mg/kg dw	< 0.01
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Marine water	6.83E-7 mg/L	< 0.01
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Sediment (marine water)	2.68E-6 mg/kg dw	< 0.01
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Sewage Treatment Plant	3.48E-5 mg/L	< 0.01
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Agricultural soil	3.44E-6 mg/kg dw	< 0.01
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Man via environment - Inhalation	3.98E-12 mg/m ³	< 0.01
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Man via environment - Oral	7.71E-7 mg/kg bw/day	< 0.01
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Man via environment - combined routes		< 0.01
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5.3.2. Environmental release and exposure: Environment (ERC 8e)

Release route	Release rate	Release estimation method
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Water	5.5E-4 kg/day	ERC based
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Air	- kg/day	ERC based
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Soil	- kg/day	ERC based
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Protection target Exposure estimate (based on: EUSES 2.1.2) RCR

Fresh water	7.05E-6 mg/L	< 0.01
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Sediment (freshwater)	2.76E-5 mg/kg dw	< 0.01
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Marine water	6.83E-7 mg/L	< 0.01
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Sediment (marine water)	2.68E-6 mg/kg dw	< 0.01
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Sewage Treatment Plant	3.48E-5 mg/L	< 0.01
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Agricultural soil	3.44E-6 mg/kg dw	< 0.01
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Man via environment - Inhalation	3.98E-12 mg/m ³	< 0.01
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Man via environment - Oral	7.71E-7 mg/kg bw/day	< 0.01
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Man via environment - combined routes		< 0.01
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5.3.3. Environmental release and exposure: Environment (ERC 9b)

Release route	Release rate	Release estimation method
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Water	1.37E-3 kg/day	ERC based
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Air	- kg/day	ERC based
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Soil	- kg/day	ERC based
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Protection target Exposure estimate (based on: EUSES 2.1.2) RCR

Fresh water	1.23E-5 mg/L	< 0.01
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Sediment (freshwater)	4.8E-5 mg/kg dw	< 0.01
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Marine water	1.21E-6 mg/L	< 0.01
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Sediment (marine water)	4.72E-6 mg/kg dw	< 0.01
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Sewage Treatment Plant	8.7E-5 mg/L	< 0.01
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Agricultural soil	3.78E-6 mg/kg dw	< 0.01
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Man via environment - Inhalation	3.98E-12 mg/m ³	< 0.01
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Man via environment - Oral	8.04E-7 mg/kg bw/day	< 0.01
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Man via environment - combined routes		< 0.01
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5.3.4. Worker exposure: Use as fertilizer (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
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Inhalation, systemic, long term	0.01 mg/m ³ (TRA Workers 3.0)	< 0.01	
Dermal, systemic, long term	1.37 mg/kg bw/day (TRA Workers 3.0)		0.634
Combined, systemic, long term	0.638		
5.3.5. Worker exposure: use as fertilizer (PROC 5)			
Route of exposure and type of effects			
	Exposure estimate	RCR	
Inhalation, systemic, long term	1 mg/m ³ (TRA Workers 3.0)	0.328	
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)		0.635
Combined, systemic, long term	0.963		
5.3.6. Worker exposure: Transfer (PROC 8a)			
Route of exposure and type of effects			
	Exposure estimate	RCR	
Inhalation, systemic, long term	0.5 mg/m ³ (TRA Workers 3.0)	0.164	
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)		0.635
Combined, systemic, long term	0.799		
5.3.7. Worker exposure: Transfer (PROC 8b)			
Route of exposure and type of effects			
	Exposure estimate	RCR	
Inhalation, systemic, long term	0.5 mg/m ³ (TRA Workers 3.0)	0.164	
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)		0.635
Combined, systemic, long term	0.799		
5.3.8. Worker exposure: Transfer (PROC 9)			
Route of exposure and type of effects			
	Exposure estimate	RCR	
Inhalation, systemic, long term	0.5 mg/m ³ (TRA Workers 3.0)	0.164	
Dermal, systemic, long term	1.372 mg/kg bw/day (TRA Workers 3.0)		0.635
Combined, systemic, long term	0.799		

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

Guidance: The data in the exposure scenario shows that the risk is adequately controlled when the recommended risk management measures and operational conditions are taken into account. It is the manager's responsibility to ensure that the activities performed by the worker do not exceed the safe level of exposure.

6. ES 6: Consumer use; Fertilizers;

6.1. Title section

ES name: Consumer use of fertilizers Product category: Fertilizers (PC 12)

Environment

CS 1: Environment ERC 8b

CS 2: Consumer use of fertilizers ERC 8e

Consumer

CS 3: Use as fertilizer in gardens PC 12

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Environment (ERC 8b)

Other conditions affecting environmental exposure

Municipal sewage treatment plant is assumed

6.2.2. Control of environmental exposure: Consumer use of fertilizers (ERC 8e)

Other conditions affecting environmental exposure

Municipal sewage treatment plant is assumed

6.2.3. Control of consumer exposure

Product (article) characteristics

Covers concentrations up to 0.1 %

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 0.1 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