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

1.1. Product identifier

Commercial name: **Lower 7**

Chemical name: Uronium hydrogen sulphate

EC No: 244-343-6

CAS No: 21351-39-3

Registration Number: 01-2119782904-26-0000

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

Identified uses: Fertilizer (Agriculture).

Uses advised against: Not identified.

1.3. Details of the supplier of the safety data sheet

TRADE CORPORATION INTERNATIONAL, S.A.U.
c/ Alcalá, 498 - 2nd floor
28027 - Madrid (Spain)
Telephone: +34 91 327 32 00 Fax: +34 91 304 71 72
E-mail: sds@tradecorp.saptec.pt

1.4. Emergency telephone number

Tradecorp telephone (9h-17h CET): +34 91 327 32 00.

International emergency number (24h): +1 703-741-5970.

2. SECTION 2: Hazards identification

2.1. Classification of the substance or mixture


Classification in accordance with European Regulation (EC) No. 1272/2008:

- Corrosive to metals, Category 1 (H290)
- Eye Damage, Category 1 (H318)

2.2. Label elements

Hazard pictogram(s):



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Signal word(s): Danger

Hazard statement(s): H290: May be corrosive to metals
H318: Causes serious eye damage.

Precautionary statement(s): P234: Keep only in original container.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/physician.
P390: Absorb spillage to prevent material damage.
P406: Store in corrosive resistant container with a resistant inner liner.

2.3. Other hazards

This product is not considered to be persistent, bioaccumulating nor toxic (PBT) /vPvB. (See section 12).

3. SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	CAS No.	EINECS No.
Uronium hydrogen sulphate	21351-39-3	244-343-6

3.2. Mixtures

Not applicable.

4. SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:


Keep patient at rest and maintain body temperature. Remove the victim to a ventilated area. Get medical attention. Give symptomatic and supportive treatment, if required.

Skin contact:

After contact with skin, remove contaminated clothing and wash immediately with plenty of water and soap. If irritation develops, seek medical attention.

Eye contact:

Immediately wash affected eyes for at least 15 minutes, taking care to rinse under eyelids. Consult an eye specialist.

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Ingestion:

Rinse mouth with water. Get medical attention and show the label or packaging. Do not induce vomiting. If vomiting occurs, keep victim's head below hips to prevent aspiration.

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

Skin contact: Not irritating.

Eye contact: Risk of serious damage to eyes.

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

All treatments should be based on observed signs and symptoms.

5. SECTION 5: Fire-fighting measures**5.1. Extinguishing media**

Avoid contact with the product. Use safety gloves, goggles, rubber footwear, face mask and anti-acid suit.

Unsuitable extinguishing media: Direct water spurt (water jet).

5.2. Special hazards arising from the substance or mixture

Possibility of exposure to toxic combustion products.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.3. Advice for fire-fighters

Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus and personal protective equipment.

6. SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Isolate and delimit the affected area.


Avoid contact with the product. Use safety gloves, goggles, rubber footwear, face mask and anti-acid suit.

Use personal protective equipment and respiratory protection.

Eliminate all sources of ignition.

Evacuate personnel to safe areas.

Ensure adequate ventilation.

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6.2. Environmental precautions

Prevent the product reaches the sewer.
Prevent soil contamination.

6.3. Methods and material for containment and cleaning up

Prevent further leakage or spillage if safe to do so.
Clean up with absorbent materials (eg. soil, sand, diatomaceous earth or any non-flammable absorbent).
To dilute the remains that stay of the products with three water parts for one of product and later to neutralize it with sodium bicarbonate or carbonate. Do not try to neutralize it before it has not been diluted.
Store collected material in adequate containers for disposal. Label these containers and manage in accordance with local regulations.
Do not mix with other waste materials.
If there are spills or uncontrolled discharges on surface waters (or water for public use), immediately inform the local authorities.

6.4. Reference to other sections

See Sections 8 and 13.

7. SECTION 7: Handling and storage

7.1. Precautions for safe handling


See also Section 8.
Use personal protective equipment (PPE). Avoid contact with skin, eyes and clothing.
Ensure adequate ventilation.
Do not handle the product near a source of ignition or near open flame.
Do not smoke, drink or eat while handling the product.
Wash hands with soap after handling and before eating, drinking, smoking or using the toilet.
Remove clothing immediately if the product is inside. Wash skin thoroughly with mild soap and dress clean clothes.

7.2. Conditions for safe storage, including any incompatibilities

Do not store near or with any of the incompatible materials listed in Section 10.
Do not store with food, beverages, feed and water supplies.
Do not store near flame, heat sources or near strong oxidizing agents.
Avoid extreme temperatures.
Store the product in the original container.
Keep tightly closed containers in a dry, cool and well ventilated sheltered from the sun.
Keep out of reach of unauthorized persons, children and animals.

7.3. Specific end use(s)

See section 1.2.
See also chapter Exposure scenarios.

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8. SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No national occupational exposure limit values have been established.

Derived No Effect Level (DNEL):

DNELs for workers: 3.059 mg/kg bw/day (dermal exposure)
2.697 mg/m³ (inhalation)

DNELs for general population: 1.53 mg/kg bw/day (dermal exposure)
0.665 mg/m³ (inhalation)
1.53 mg/kg bw/day (oral exposure)

Predicted No Effect Concentration (PNEC):

PNEC aqua: Aquatic toxicity unlikely.

PNEC sediment: No exposure of sediment expected.

PNEC soil: No exposure of soil expected.

PNEC sewage treatment plant: 92 mg/L.

PNEC oral (secondary poisoning): No potential for bioaccumulation.

8.2. Exposure controls

8.2.1 Proper technical controls

See also Section 7.
Ensure adequate ventilation and/or exhaust ventilation.

8.2.2 Individual protective measures

Respiratory protection: If the ventilation is not suitable, use a gas mask with the cassettes and chemical appropriate filters or equipment of air supply.

Hand protection: Use anti-acid /chemical resistant impervious gloves.


Eye protection: Wear safety glasses or facial protection screen.

Skin and body protection: Use gloves, boot and anti-acid/ chemical resistant suit.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Have eye wash bottle with distilled water. Remove and wash contaminated clothing before reuse. Wash hands before breaks and immediately after handling.

8.2.3 Environmental exposure controls

Do not flush into surface waters or sanitary drain systems.

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9. SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Liquid
Colour:	Green-Yellow
Odour:	Odourless
Odour threshold:	Not applicable
pH:	0
Freezing point:	< -150°C
Boiling point:	140 °C at 1013 hPa
Evaporation rate:	No data available
Flash point:	> 125 °C
Decomposition temperature:	No data available
Auto-ignition temperature:	> 656 °C
Flammability:	No data available
Explosive properties:	Non explosive
Oxidizing properties:	Non oxidising
Vapour pressure:	900 Pa at 25 °C
Vapour density:	No data available
Viscosity:	No data available
Density:	1.5 g/cm ³ at 20 °C
Solubility:	10 g/L at 20°C (water solubility)
Partition coefficient n-octanol/water (log Pow):	-1.7

9.2. Other information

No data available.

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10. SECTION 10: Stability and reactivity

10.1. Reactivity

The product is not reactive under normal conditions.

10.2. Chemical stability

The product is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3. Possibility of hazardous reactions

No hazard reactions are expected under normal processing.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

- Strong acids
- Strong bases
- Carbonates
- Oxidising agents

10.6. Hazardous decomposition products

No data available.

11. SECTION 11: Toxicological information

11.1. Information on toxicological effects

(a) Acute toxicity:

LD50 (dermal, rat): > 2000 mg/kg bw (OECD Guideline 402).


LD50 (oral, rat): > 2000 mg/kg bw (OECD Guideline 423).

Following these results, the product does not meet the criteria for classification.

(b) Skin corrosion/irritation: Not irritating (rabbit) (OECD Guideline 404).

Following this result, the product does not meet the criteria for classification.

(c) Eye damage/irritation: Irritant (in vitro) (HET-CAM test): Eye damage, Cat. 1: Causes serious eye damage.

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(d) Respiratory or skin sensitization: Not skin sensitising (mice) (LLNA based on OECD Guideline 429).

Following this result, the product does not meet the criteria for classification.

(e) CMR – Carcinogenicity, Mutagenicity and Reproductive toxicity: Based on the data on the product and its degradation products (sulphates and urea), the substance is considered extremely unlikely to be genotoxic. The product does not meet the criteria for classification for carcinogenicity and reproductive toxicity.

(f) STOT – single and repeated exposure: No adverse effects are expected.

(g) Aspiration hazard: No adverse effects are expected.

12. SECTION 12: Ecological information

12.1. Toxicity

(a) Aquatic toxicity: The product readily degrades in the environment. The degradation products have been considered in the aquatic toxicity assessment and these are the conclusions:

- The product is not acutely toxic to fish.
- The product is not acutely toxic to aquatic invertebrates.
- The product is not toxic to aquatic algae.
- The product has not inhibitory effect on sewage sludge microorganisms.

(b) Sediment toxicity: No adverse effects are expected.

(c) Terrestrial toxicity: No adverse effects are expected.

12.2. Persistence and degradability

The product is readily biodegradable.

12.3. Bioaccumulative potential

The criteria for bioaccumulation is not fulfilled (Log Pow = -1.7).

12.4. Mobility in soil


The product and its degradation products in the environment (urea and sulphates) has a low potential for adsorption

12.5. Results of PBT and vPvB assessment

This product is not considered to be persistent, bioaccumulating nor toxic (PBT) /vPvB.

12.6. Other adverse effects

No data available.

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13. SECTION 13: Disposal considerations

13.1. Waste treatment methods

Dispose of waste materials at a licensed site.
Rinse with water the used containers three times and empty the water into the application tank.
Do not burn containers, even after use. Disable the used packaging and dispose of content and/or empty containers in accordance with local, regional, national, and/or international regulations.

14. SECTION 14: Transport information

14.1. UN number


ADR: 1760
RID: 1760
IMDG: 1760
IATA: 1760

14.2. UN proper shipping name

ADR: CORROSIVE LIQUID, N.O.S. (Acid Urea 119 % w / v)
Other Details:
Classification code : C9
Dangerous for the environment : No
Label / s 8
Marks : None
IP number : 80
Tunnel Code : (E)
Transport category (exemption 1.1.3.6) 3
Exemption LQ inner packaging , to a maximum of : 5 L
Exemption LQ package, up to 30 kg

RID : CORROSIVE LIQUID, N.O.S. (Acid Urea 119 % w / v)
Other Details:
Classification code : C9
Dangerous for the environment : No
Label / s 8
Marks : None
IP number : 80
Transport category (exemption 1.1.3.6) 3
Exemption LQ inner packaging , to a maximum of : 5 L
Exemption LQ package, up to 30 kg

IMDG: CORROSIVE LIQUID, N.O.S. (Acid Urea 119% w / v)
Other Details:
Marine Pollutant: No
Label / s 8

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Marks: None

Exemption LQ inner packaging, to a maximum of: 5 L

Exemption LQ package, up to 30 kg

FEm: F-A, S-B

Stowage Category A

IATA: CORROSIVE LIQUID, N.O.S. (Acid Urea 119% w / v)

Other Details:

Tags: Corrosive liquid

Marks: None

Secondary risk: -

Packing instructions on passenger aircraft and cargo: 852

Packing Instructions for cargo aircraft only: 856

Maximum net quantity per package in aircraft passenger and cargo: 5 L

Maximum net quantity per package in aircraft cargo only: 60 L

Limited quantities on passenger aircraft:

Packing Instructions: Y841

Maximum net quantity per package: 1 L

14.3. Transport hazard class(es)

ADR: 8

RID: 8

IMDG:8

IATA: 8

14.4. Packing group

ADR: III

RID: III

IMDG:III

IATA: III

14.5. Environmental hazards

Dangerous for the environment: No


Marine Pollutant: No

14.6. Special precautions for user

Avoid heat sources during transport. The product is stable at room temperature but high temperatures should be avoided. Not store together with oxidizing or strongly alkaline agents. Only to be carried in packaging approved and properly marked, labelled and sealed.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

This product is not transported in bulk in any case.

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15. SECTION 15: Regulatory information

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

- European Regulation (EC) No.1272/2008 on classification, labelling and packaging of substances and mixtures.
- European Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
- Commission Regulation (EU) No. 453/2010, amending Regulation (EC) No. 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this product.

16. SECTION 16: Other information

Revision of this safety data sheet:

Revision number: 5.0
Supersedes: 4.1
Added, deleted or revised information: Toxicological classification update

Legend to abbreviations:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

DL50: Lethal dose 50%

DNEL: Derived No Effect Level

IATA: International Air Transport Association.

ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.2

IMDG: International Maritime Dangerous Goods.


PBT: Persistent, Bioaccumulative and Toxic.

PNEC: Predicted No Effect Concentration

RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

STOT: Specific Target Organ Toxicity.

vPvB: Very Persistent and very Bioaccumulative.

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Key literature references and sources for data:

ESIS: European Chemical Substances Information System.

ECHA: European Chemicals Agency: <http://echa.europa.eu/>

Classification and Labelling Inventory Database: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Institute for Health and Consumer Protection (European Commission): <http://ihcp.jrc.ec.europa.eu/>

Instituto Nacional de Seguridad e Higiene en el Trabajo: <http://www.insht.es>

Chemical Safety Report - TRADE CORPORATION INTERNATIONAL, S.A.U.

List of relevant hazard statements and/or precautionary statements:

Hazard statement:

H290: May be corrosive to metals

H318: Causes serious eye damage.

Precautionary statement:

P234: Keep only in original container.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor/physician.


P390: Absorb spillage to prevent material damage.

P406: Store in corrosive resistant container with a resistant inner liner.

The content and format of this safety data sheet are in accordance with the current applicable legislation.


DISCLAIMER OF LIABILITY:

The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.


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EXPOSURE SCENARIO 1


1. Title of Exposure scenario 1	
Short title: Manufacturing of fertilizers, including maintenance or cleaning	
Environment:	ERC 1
Worker:	
Process during manufacturing (PROC 1)	PROC 1
Process during manufacturing (PROC 4)	PROC 4
2. Operational conditions and risk management measures	
2.1. Control of environmental exposure	
Product characteristics:	
Amounts used:	
Percentage of tonnage used at regional scale	= 100 %
Environment factors not influenced by risk management:	
Receiving surface water flow rate	>= 1.8E4 m3/d
Other given operational conditions affecting environmental exposure: N/A	
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: N/A	
Organizational measures to prevent/limit release from site: N/A	
Conditions and measures related to municipal sewage treatment plant:	
Municipal STP	Yes [Water: 87.3%]
Discharge rate of STP	>= 2E3 m3/d
Application of the STP sludge on agricultural soil	Yes
Conditions and measures related to external treatment of waste for disposal: N/A	
Conditions and measures related to external recovery of waste: N/A	
2.2. Control of workers exposure for "Process during manufacturing (PROC 1)"	
Product characteristics:	
Substance in preparation	No
Frequency and duration of use/exposure:	
Duration of activity	1 - 4 hours
Human factors not influenced by risk management: N/A	
Other given operational conditions affecting workers exposure:	
Place of use	Indoors
Surface of skin exposed	One hand face only (240 cm2)
Technical conditions and measures at process level (source) to prevent release:	
Level of containment	Use in closed process, no likelihood of exposure
Technical conditions and measures to control dispersion from source towards the worker:	
Local Exhaust Ventilation	No
Organisational measures to prevent /limit releases, dispersion and exposure: N/A	

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Conditions and measures related to personal protection, hygiene and health evaluation:	
Respiratory protection	Respiratory protection is not used
Hands protection	Chemically resistant gloves (tested to type EN374) in combination with 'basic' employee training [PPE16]
Eyes protection	Safety glasses
Skin protection	Suitable protective clothing
2.3. Control of workers exposure for "Process during manufacturing (PROC 4)"	
Product characteristics:	
Substance in preparation	Yes
Concentration of substance in product	> 25%
Frequency and duration of use/exposure:	
Duration of activity	15 min – 1 hour
Human factors not influenced by risk management: N/A	
Other given operational conditions affecting workers exposure:	
Place of use	Indoors
Surface of skin exposed	Two hands face (480 cm ²)
Technical conditions and measures at process level (source) to prevent release:	
Level of containment	Use in batch and other process (synthesis) where opportunity for exposure arises
Technical conditions and measures to control dispersion from source towards the worker:	
Local Exhaust Ventilation	Yes
Organisational measures to prevent /limit releases, dispersion and exposure: N/A	
Conditions and measures related to personal protection, hygiene and health evaluation:	
Respiratory protection	Respiratory protection is not used
Hands protection	Chemically resistant gloves (tested to type EN374) in combination with 'basic' employee training [PPE16]
Eyes protection	Safety glasses
Skin protection	Suitable protective clothing
3. Exposure estimation	
3.1. Environmental exposure	
Exposure target	Exposure concentration
Fresh Water (Sediment)	Local PEC: 19.7 mg/kg dw
Marine Water (Sediment)	Local PEC: 1.97 mg/kg dw
Sewage Treatment Plant (Effluent)	Local PEC: 52.6 mg/L
Air:	Local PEC: 0.053 mg/m ³
Agricultural Soil	Local PEC: 0.153 mg/kg dw Local concentration: 0.152 mg/kg dw


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3.2. Indirect exposure of humans via the environment		
Exposure via food consumption	Estimated daily dose through intake from local exposure	Concentration in food from local exposure
Drinking water	0.041 mg/kg bw/day	1.44 mg/L
Fish	0.003 mg/kg bw/day	2.04 mg/kg
Leaf crops	1.61 mg/kg bw/day	94.1 mg/kg
Root crops	0.002 mg/kg bw/day	0.274 mg/kg
Meat	2.2E-5 mg/kg bw/day	0.005 mg/kg
Milk	4.1E-4 mg/kg bw/day	0.051 mg/kg
3.3. Exposure estimation for Worker for “Process during manufacturing (PROC 1)”		
Route of exposure		Exposure concentration
Inhalation: Long term, Systemic		0.039 mg/m³
Dermal: Acute, Local		-
Dermal: Long term, Local		0.01 mg/cm²
Dermal: Long term, Systemic		0.034 mg/kg bw/day
3.4. Exposure estimation for Worker for “Process during manufacturing (PROC 4)”		
Route of exposure		Exposure concentration
Inhalation: Long term, Systemic		0.655 mg/m³
Dermal: Acute, Local		-
Dermal: Long term, Local		0.01 mg/cm²
Dermal: Long term, Systemic		0.069 mg/kg bw/day


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EXPOSURE SCENARIO 2


1. Title of Exposure scenario 2	
Short title: Formulation stage: Formulation of preparations and/or re-packing	
Environment:	ERC 2
Worker:	
Use related to formulation: Handling and packaging of fertilizers (PROC 8b)	PROC 8b
Use related to formulation: Handling and packaging of fertilizers (PROC 9)	PROC 9
2. Operational conditions and risk management measures	
2.1. Control of environmental exposure	
Product characteristics:	
Amounts used:	
Percentage of tonnage used at regional scale	= 100 %
Environment factors not influenced by risk management:	
Receiving surface water flow rate	>= 1.8E4 m3/d
Other given operational conditions affecting environmental exposure: N/A	
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: N/A	
Organizational measures to prevent/limit release from site: N/A	
Conditions and measures related to municipal sewage treatment plant:	
Municipal STP	Yes [Water: 87.3%]
Discharge rate of STP	>= 2E3 m3/d
Application of the STP sludge on agricultural soil	Yes
Conditions and measures related to external treatment of waste for disposal: N/A	
Conditions and measures related to external recovery of waste: N/A	
2.2. Control of workers exposure for "Use related to formulation: Handling and packaging of fertilizers (PROC 8b)"	
Product characteristics:	
Substance in preparation	Yes
Concentration of substance in product	> 25%
Frequency and duration of use/exposure:	
Duration of activity	1 - 4 hours
Human factors not influenced by risk management: N/A	
Other given operational conditions affecting workers exposure:	
Place of use	Indoors
Surface of skin exposed	Two hands face (480 cm2)
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical conditions and measures to control dispersion from source towards the worker:	
Local Exhaust Ventilation	Yes
Organisational measures to prevent /limit releases, dispersion and exposure: N/A	

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Conditions and measures related to personal protection, hygiene and health evaluation:	
Respiratory protection	Respiratory protection is not used
Hands protection	Chemically resistant gloves (tested to type EN374) in combination with 'basic' employee training [PPE16]
Eyes protection	Safety glasses
Skin protection	Suitable protective clothing
2.3. Control of workers exposure for "Use related to formulation: Handling and packaging of fertilizers (PROC 9)"	
Product characteristics:	
Substance in preparation	Yes
Concentration of substance in product	> 25%
Frequency and duration of use/exposure:	
Duration of activity	1 - 4 hours
Human factors not influenced by risk management: N/A	
Other given operational conditions affecting workers exposure:	
Place of use	Indoors
Surface of skin exposed	Two hands face (480 cm ²)
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical conditions and measures to control dispersion from source towards the worker:	
Local Exhaust Ventilation	Yes
Organisational measures to prevent /limit releases, dispersion and exposure: N/A	
Conditions and measures related to personal protection, hygiene and health evaluation:	
Respiratory protection	Respiratory protection is not used
Hands protection	Chemically resistant gloves (tested to type EN374) in combination with 'basic' employee training [PPE16]
Eyes protection	Safety glasses
Skin protection	Suitable protective clothing
3. Exposure estimation	
3.1. Environmental exposure	
Exposure target	Exposure concentration
Fresh Water (Sediment)	Local PEC: 0.627 mg/kg dw
Marine Water (Sediment)	Local PEC: 0.063 mg/kg dw
Sewage Treatment Plant (Effluent)	Local PEC: 1.67 mg/L
Air:	Local PEC: 2.52E-4 mg/m³
Agricultural Soil	Local PEC: 0.005 mg/kg dw
	Local concentration: 0.005 mg/kg dw


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3.2. Indirect exposure of humans via the environment		
Exposure via food consumption	Estimated daily dose through intake from local exposure	Concentration in food from local exposure
Drinking water	0.041 mg/kg bw/day	1.44 mg/L
Fish	0.003 mg/kg bw/day	2.04 mg/kg
Leaf crops	1.61 mg/kg bw/day	94.1 mg/kg
Root crops	0.002 mg/kg bw/day	0.274 mg/kg
Meat	2.2E-5 mg/kg bw/day	0.005 mg/kg
Milk	4.1E-4 mg/kg bw/day	0.051 mg/kg
3.3. Exposure estimation for Worker for “Use related to formulation: Handling and packaging of fertilizers (PROC 8b)”		
Route of exposure		Exposure concentration
Inhalation: Long term, Systemic		0.589 mg/m³
Dermal: Acute, Local		-
Dermal: Long term, Local		0.01 mg/cm²
Dermal: Long term, Systemic		0.069 mg/kg bw/day
3.4. Exposure estimation for Worker for “Use related to formulation: Handling and packaging of fertilizers (PROC 9)”		
Route of exposure		Exposure concentration
Inhalation: Long term, Systemic		1.964 mg/m³
Dermal: Acute, Local		-
Dermal: Long term, Local		0.01 mg/cm²
Dermal: Long term, Systemic		0.069 mg/kg bw/day


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EXPOSURE SCENARIO 3

1. Title of Exposure scenario 3	
Short title: Professional end-use stage: Wide dispersive use (outdoor) SU 1 - Agriculture, forestry, fishery	
Environment:	ERC 8e
Worker:	
Professional use: wide dispersive use outdoor (PROC 8a)	PROC 8a
2. Operational conditions and risk management measures	
2.1. Control of environmental exposure:	
Product characteristics:	
Amounts used:	
Daily wide dispersive use	< 1 tonnes/day
Environment factors not influenced by risk management:	
Receiving surface water flow rate	>= 1.8E4 m3/d
Other given operational conditions affecting environmental exposure: N/A	
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: N/A	
Organizational measures to prevent/limit release from site: N/A	
Conditions and measures related to municipal sewage treatment plant:	
Municipal STP	Yes [Water: 87.3%]
Discharge rate of STP	>= 2E3 m3/d
Application of the STP sludge on agricultural soil	Yes
Conditions and measures related to external treatment of waste for disposal: N/A	
Conditions and measures related to external recovery of waste: N/A	
2.2. Control of workers exposure for "Professional use: wide dispersive use outdoor (PROC 8a)"	
Product characteristics:	
Substance in preparation	Yes
Concentration of substance in product	> 25%
Frequency and duration of use/exposure:	
Duration of activity	15 min - 1 hour
Human factors not influenced by risk management: N/A	
Other given operational conditions affecting workers exposure:	
Place of use	Outdoors
Surface of skin exposed	Two hands (960 cm2)
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical conditions and measures to control dispersion from source towards the worker:	
Local Exhaust Ventilation	No
Organisational measures to prevent /limit releases, dispersion and exposure: N/A	


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Conditions and measures related to personal protection, hygiene and health evaluation:		
Respiratory protection		Respiratory protection is not used
Hands protection		Chemically resistant gloves (tested to type EN374) in combination with ‘basic’ employee training [PPE16]
Eyes protection		Safety glasses
Skin protection		Suitable protective clothing
3. Exposure estimation		
3.1. Environmental exposure		
Exposure target		Exposure concentration
Fresh Water (Sediment)		Local PEC: 0.003 mg/kg dw
Marine Water (Sediment)		Local PEC: 2.99E-4 mg/kg dw
Sewage Treatment Plant (Effluent)		Local PEC: 9.65E-4 mg/L
Air:		Local PEC: 8.88E-7 mg/m³
Agricultural Soil		Local PEC: 5.3E-4 mg/kg dw
		Local concentration: 2.61E-6 mg/kg dw
3.2. Indirect exposure of humans via the environment		
Exposure via food consumption	Estimated daily dose through intake from local exposure	Concentration in food from local exposure
Drinking water	0.041 mg/kg bw/day	1.44 mg/L
Fish	0.003 mg/kg bw/day	2.04 mg/kg
Leaf crops	1.61 mg/kg bw/day	94.1 mg/kg
Root crops	0.002 mg/kg bw/day	0.274 mg/kg
Meat	2.2E-5 mg/kg bw/day	0.005 mg/kg
Milk	4.1E-4 mg/kg bw/day	0.051 mg/kg
3.3. Exposure estimation for Worker for “Professional use: wide dispersive use outdoor (PROC 8a)”		
Route of exposure		Exposure concentration
Inhalation: Long term, Systemic		1.146 mg/m³
Dermal: Acute, Local		-
Dermal: Long term, Local		0.1 mg/cm²
Dermal: Long term, Systemic		1.371 mg/kg bw/day

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EXPOSURE SCENARIO 4

1. Title of Exposure scenario 4	
Short title: Professional end-use stage: Wide dispersive use (indoor) SU 1 - Agriculture, forestry, fishery	
Environment:	ERC 8b
Worker:	
Professional use: non dispersive use (PROC 8b)	PROC 8b
2. Operational conditions and risk management measures	
2.1. Control of environmental exposure	
Product characteristics:	
Amounts used:	
Daily wide dispersive use	< 1 tonnes/day
Environment factors not influenced by risk management:	
Receiving surface water flow rate	>= 1.8E4 m3/d
Other given operational conditions affecting environmental exposure: N/A	
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: N/A	
Organizational measures to prevent/limit release from site: N/A	
Conditions and measures related to municipal sewage treatment plant	
Municipal STP	Yes [Water: 87.3%]
Discharge rate of STP	>= 2E3 m3/d
Application of the STP sludge on agricultural soil	Yes
Conditions and measures related to external treatment of waste for disposal: N/A	
Conditions and measures related to external recovery of waste: N/A	
2.2. Control of workers exposure for "Professional use: non dispersive use (PROC 8b)"	
Product characteristics:	
Substance in preparation	Yes
Concentration of substance in product	> 25%
Frequency and duration of use/exposure:	
Duration of activity	15 min – 1 hour
Human factors not influenced by risk management: N/A	
Other given operational conditions affecting workers exposure:	
Place of use	Indoors
Surface of skin exposed	Two hands face (480 cm2)
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical conditions and measures to control dispersion from source towards the worker:	
Local Exhaust Ventilation	Yes
Organisational measures to prevent /limit releases, dispersion and exposure: N/A	

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

Respiratory protection	Respiratory protection is not used
Hands protection	Chemically resistant gloves (tested to type EN374) in combination with 'basic' employee training [PPE16]
Eyes protection	Safety glasses
Skin protection	Suitable protective clothing

3. Exposure estimation

3.1. Environmental exposure

Exposure target	Exposure concentration
Fresh Water (Sediment)	Local PEC: 0.003 mg/kg dw
Marine Water (Sediment)	Local PEC: 2.99E-4 mg/kg dw
Sewage Treatment Plant (Effluent)	Local PEC: 9.65E-4 mg/L
Air:	Local PEC: 8.88E-7 mg/m ³
Agricultural Soil	Local PEC: 5.3E-4 mg/kg dw Local concentration: 2.61E-6 mg/kg dw


3.2. Indirect exposure of humans via the environment

Exposure via food consumption	Estimated daily dose through intake from local exposure	Concentration in food from local exposure
Drinking water	0.041 mg/kg bw/day	1.44 mg/L
Fish	0.003 mg/kg bw/day	2.04 mg/kg
Leaf crops	1.61 mg/kg bw/day	94.1 mg/kg
Root crops	0.002 mg/kg bw/day	0.274 mg/kg
Meat	2.2E-5 mg/kg bw/day	0.005 mg/kg
Milk	4.1E-4 mg/kg bw/day	0.051 mg/kg


3.3. Exposure estimation for Worker for "Professional use: non dispersive use (PROC 8b)"

Route of exposure	Exposure concentration
Inhalation: Long term, Systemic	0.065 mg/m ³
Dermal: Acute, Local	-
Dermal: Long term, Local	0.01 mg/cm ²
Dermal: Long term, Systemic	0.069 mg/kg bw/day

EXPOSURE SCENARIO 5

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1. Title of Exposure scenario 5	
Short title: Professional end-use stage: non dispersive use (outdoor) SU 1 - Agriculture, forestry, fishery	
Environment:	ERC 9b
Worker:	
Professional use: non dispersive use (PROC 2)	PROC 2
2. Operational conditions and risk management measures	
2.1. Control of environmental exposure	
Product characteristics:	
Amounts used:	
Daily wide dispersive use	<1 tonnes/day
Environment factors not influenced by risk management:	
Receiving surface water flow rate	>= 1.8E4 m3/d
Other given operational conditions affecting environmental exposure: N/A	
Technical conditions and measures at process level (source) to prevent release: N/A	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil: N/A	
Organizational measures to prevent/limit release from site: N/A	
Conditions and measures related to municipal sewage treatment plant:	
Municipal STP	Yes [Water: 87.3%]
Discharge rate of STP	>= 2E3 m3/d
Application of the STP sludge on agricultural soil	Yes
Conditions and measures related to external treatment of waste for disposal: N/A	
Conditions and measures related to external recovery of waste: N/A	
2.2. Control of workers exposure for "Professional use: non dispersive use (PROC 2)"	
Product characteristics:	
Substance in preparation	Yes
Concentration of substance in product	> 25%
Frequency and duration of use/exposure:	
Duration of activity	15 min – 1 hour
Human factors not influenced by risk management: N/A	
Other given operational conditions affecting workers exposure:	
Place of use	Outdoors
Surface of skin exposed	Two hands face (480 cm2)
Technical conditions and measures at process level (source) to prevent release:	
Level of containment	Use in closed process, no likelihood of exposure
Technical conditions and measures to control dispersion from source towards the worker:	
Local Exhaust Ventilation	No
Organisational measures to prevent /limit releases, dispersion and exposure: N/A	

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Conditions and measures related to personal protection, hygiene and health evaluation:		
Respiratory protection		Respiratory protection is not used
Hands protection		Chemically resistant gloves (tested to type EN374) in combination with ‘basic’ employee training [PPE16]
Eyes protection		Safety glasses
Skin protection		Suitable protective clothing
Respiratory protection		Respiratory protection is not used
3. Exposure estimation		
3.1. Environmental exposure		
Exposure target		Exposure concentration
Fresh Water (Sediment)		Local PEC: 0.004 mg/kg dw
Marine Water (Sediment)		Local PEC: 3.53E-4 mg/kg dw
Sewage Treatment Plant (Effluent)		Local PEC: 0.002 mg/L
Air:		Local PEC: 8.88E-7 mg/m³
Agricultural Soil		Local PEC: 5.34E-4 mg/kg dw
		Local concentration: 6.53E-6 mg/kg dw
3.2. Indirect exposure of humans via the environment		
Exposure via food consumption	Estimated daily dose through intake from local exposure	Concentration in food from local exposure
Drinking water	0.041 mg/kg bw/day	1.44 mg/L
Fish	0.003 mg/kg bw/day	2.04 mg/kg
Leaf crops	1.61 mg/kg bw/day	94.1 mg/kg
Root crops	0.002 mg/kg bw/day	0.274 mg/kg
Meat	2.2E-5 mg/kg bw/day	0.005 mg/kg
Milk	4.1E-4 mg/kg bw/day	0.051 mg/kg
3.3. Exposure estimation for Worker for “Professional use: non dispersive use (PROC 2)”		
Route of exposure		Exposure concentration
Inhalation: Long term, Systemic		0.229 mg/m³
Dermal: Acute, Local		-
Dermal: Long term, Local		0.02 mg/cm²
Dermal: Long term, Systemic		0.137 mg/kg bw/day