SAFETY DATA SHEET
◘ **V4** in accordance with Regulation (EC) 1907/2006 (REACH) amended with Commission Regulation(EU) 2015/830 ◘

◘ **V4 –** *amendments in this revision* ◘

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXURE AND OF THE COMPANY/ UNDERTAKING			
1.1 Product identifier			
Trade name	**NEOMULTIFERT® NPK fertilizer**		
Synonyms	Ammonium nitrate based NPK, NPK blend		
◘ **V4** Neochim PLC code	35-01; 35-02; 35-03 ◘		
1.2 Relevant identified uses of the substance or mixture and uses advised against			
Uses:	**Fertilizer** **Note**: see section 16 for the complete list of uses covered by ES in provided annex		
Uses advised against:	No information available		
1.3 Details of the supplier of the safety data sheet			
Manufacturer: Address: Tel./fax: URL website: Email:	NEOCHIM PLC East Industrial Zone, Himkombinatska Str. 6403 Dimitrovgrad, Bulgaria +359 391 65 205; +359 391 60 555 http:/ / www.neochim.bg neochim@neochim.bg		
Company e-mail for SDS	pto@neochim.bg		
1.4 Emergency telephone number			
National Toxicology Center - Pirogov	+ 359 2 915 4409	24/24 h	7/7 d
NEOCHIM PLC* *(the information is available in Bulgarian, English and Turkish languages)	+359 2 809 20 30	24/24 h	7/7 d
SECTION 2: HAZARDS IDENTIFICATION			
2.1 Classification of the substance or mixture			
◘ **V4** Classification of the substance or mixture according to Regulation (EC) 1272/2008 and its amendments at the date of the issue of the document◘			
The product is not classified as hazardous			
2.2 Label elements			
Labelling according to Regulation 1272/2008 (CLP)			
◘ **V4** The product is not classified as hazardous and its amendments at the date of the issue of the document◘			

Precautionary statement(s):	P280 P305+P351 P337+P313 P411 P501	Wear protective goggles and protective gloves IF IN EYES: Rinse cautiously with water for several minutes. If eye irritation persists: get medical advice/attention. Store indoor in a well-ventilated, and dry warehouses at temperatures not exceeding 40 °C. Dispose of packages in accordance with national waste legislation.

Supplemental Hazard information:

EUH210 - 'Safety data sheet available on request'.

2.3 Other hazards

PBT/vPvB criteria:	According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been carried out since components of the mixture are inorganic substances.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances - not relevant

3.2 Mixtures - NEOMULTIFERT

CAS №	EC №	REACH registration №	Content, % (w/w)	Name	Classification according to Regulation (EC) No 1272/2008 (CLP)	Type
6484-52-2	229-347-8	01-2119490981-27	<70	Ammonium Nitrate	Oxid. Solid 3; H272 Eye Irrit. 2; H319	[1]
7447-40-7	231-211-8	exemption from registration obligation	<30	Potassium Chloride	Not classified	[2]

For full text of Hazard statements: see Section 16

Type [1] Substance classified with a physical, health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern

Additional information: specific concentration limits: Mixtures containing less than 80% ammonium nitrate are not classified Irritating to eyes (OECD 405 and OECD 437 studies lead on similar mixtures)

SECTION 4: FIRST- AID MEASURES

4.1 Description of first aid measures

- general notes	Speed is essential. If unconscious, place casualty in a recovery position with head sideways to avoid choking. Provide shower and a place to wash the eyes near the work place.
- following inhalation	Avoid dustiness. Remove the person to the fresh air. If adverse effects occur (e.g. dizziness, drowsiness or respiratory irritation) get medical attention immediately. If the person not breathing apply artificial respiration. Loosen tight clothing.
- following skin contact	Wash the lesion area with plenty of water and soap. Seek medical advice if irritation develops and persists.

- following eye contact	Rinse thoroughly with water for several minutes. Remove contact lenses if present and easy to do. Seek medical advice if irritation develops and persists.
- following Ingestion	Rinse the mouth with plenty of water. Give the casualty plenty of water to drink**. Do not induce vomiting**. Seek medical advice.
- self-protection of the first aider	First aider should protect himself prior

4.2 Most important symptoms and effects, both acute and delayed

Acute effects	Not known
Delayed effects	Not known

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:	**If fertilizer is not directly involved in the fire** - use most suitable means to extinguish the fire. **If fertilizer is involved in the fire** - use plenty of dispersed and finely dispersed water jets to extinguish
Unsuitable extinguishing media:	Combustible materials. Do not use chemical extinguisher, foam and firefighting blanket and**/**or attempt to smother the fire with sand or steam.

5.2 Special hazards arising from the substance or mixture

Immediately evacuate the personnel, not occupied with firefighting. There is the possibility of explosion when the product is at confined spaces or is contaminated with incompatibilities (e.g. organic substances and halogenated compounds. In case of fire, hazardous decomposition products such as nitrogen oxides, ammonia and depends of composition of the product - Hydrogen chloride and other products maybe produced.

5.3 Advice for firefighters

In the event of fire, wear a self-contained breathing apparatus and a chemical protective suit. Make sure that doors and windows of storerooms are opened.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personal

Depending on the route of exposure use: safety goggles according to EN 166, dust masks, EN 149, protective gloves EN 388.

Avoid dust generation. Avoid inhalation of dust. Avoid contact with eyes, skin and clothing. Keep away from sources of ignition.

6.1.2. For emergency responders

Protective clothing, protective masks, protective gloves, safety goggles. See Section 8.

6.2 Environmental precautions

Do not allow spillage of the product. Prevent spillages to enter into the surface water or sanitary sewer system. Do not discharge directly to a water source. If accidental spillage or washings enter drains or watercourses contact local authority.

6.3 Methods and material for containment and cleaning up

Vacuum or sweep up the product and place it into properly labelled containers. If fertilizer is not contaminated with organic materials, metal powder, chlorine contain compounds that may reduce the detonation resistance of ammonium nitrate it may be reused. Otherwise prepare risk assessment as risk depends on nature and quantity of contaminants. Clean up traces with water. Do not collect spilled material in sawdust, fuels and hydrocarbons based lubricants or other combustible material. During cleaning use PPE. Contaminated with incompatibilities to be dispose according to national legislation.

6.4 Reference to other sections

See section 8 for personal protective equipment and section 13 for waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures:	Provide adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid dust generation. Keep in original tightly closed containers, away from heat and ignition sources. Avoid contamination with metals, dust and organic materials. Keep away from moisture.
Advice on general occupation hygiene:	Work under a high standard of personal hygiene. Do not eat, drink or smoke in work areas. Wash hands after handling with the product. Remove clothing and protective equipment before visiting the catering.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:	Storage premises should comply with the requirements of national and regional laws. They should be dry and well ventilated. Provide a high level of security in the warehouse. Do not allow smoking and use of open fire in the warehouse. Store away from sources of fire and heat. Store away from combustible materials and reducing substances. Do not stack fertilizer near hay, straw, grain, fuel and lubricants hydrocarbon base and others on the field. Do not store in direct sunlight. Store at temperature no higher than 40 °C. The maximum size of the stack should be in compliance with national and regional regulations. Provide distance for quick access to stacks. Do not store together with other products of the same stack. Packaging materials: stainless steel, synthetic material. Unsuitable: Zinc, Copper, Paper and Wood
7.2 Specific end use(s)	fertilizer

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values	The product has no Community OEL (occupational exposure limits) but contain potassium chloride that has OEL - 5 mg/m^3 for 8 hours

Recommended professional and customer exposure limits (according to chemical safety assessment of the main component Ammonium nitrate - **Derived No Effect Level (DNEL) for workers**

	DN(M)EL for workers				DN(M)EL for customers			
Route of exposure	Acute effect local	Acute effect systemic	Chronic effects local	Chronic effects systemic	Acute effect local	Acute effect systemic	Chronic effects local	Chronic effects systemic
Oral	Not required					No hazard identified		2.56 mg/kg/bw/day
Inhalation	Hazard unknown	No hazard identified	Hazard unknown	36 mg/m^3	Hazard unknown	No hazard identified	Hazard unknown	8.9 mg/m^3
Dermal	No hazard identified	No hazard identified	Hazard unknown	5.12 mg/kg/bw/ day	No hazard identified	No hazard identified	Hazard unknown	2.56 mg/kg/bw/day

* As an acute toxicity hazard leading to Classification and Labelling of the substance has not been identified, the long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur (in accordance with ECHA Guidance on information requirements and chemical safety assessment: Chapter R.8: Characterisation of dose [concentration]-response for human health, May 2008 and Part B: Hazard Assessment, Draft new chapter B.8 Scope of Exposure Assessmen March 2010.

Predicted No Effect Concentration (PNEC)	PNEC STP: 18 mg/L

8.2 Exposure controls

8.2.1 Appropriate engineering controls:	Provide adequate ventilation. Location of eye flushing system and safety shower near working place is a good industrial practice.

8.2.2. Individual protection measures, such as personal protective equipment

General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke. Do not breath dust, vapour, gas. Avoid contact with skin, eyes, clothes. Wash contaminated clothes before reuse.
Eye/face protection:	Chemical goggles (recommended: EN 166) or face shield
Dermal protection:	Long sleeved overall and chemically resistant gloves conforming to EN374
Respiratory Protection:	If dust concentration is high and /or ventilation is inadequate, use suitable dust mask or respiration with an appropriate filter (recommended: EN 143, 149, filters P2, P3).
Environmental exposure controls:	Dispose of rinse water in accordance with local and national regulations.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	White or colored granules
Odour:	Odourless
Odour threshold:	Not applicable
pH of aq. solution at 20^{0}C: (10 g/ 100 cm^3)	>4.5 (of the main ingredient ammonium nitrate)
Melting point /freezing point:	160 – 170^{o}C depends on moisture content (of the main ingredient ammonium nitrate)
Initial boiling point:	Not relevant, decomposes below the boiling point.

Flash-point:	Not relevant, as the substance is an inorganic solid
Evaporation rate:	No data available
Flammability:	No flammable (based on molecular structure)
Upper/lower flammability or explosive limits	Not relevant, incombustible substance
Vapour pressure:	Not relevant
Relative density (D4 (20)):	1.72 at 20ºC of ammonium nitrate (peer-reviewed handbook)
Solubility in water:	>100 g/l at 20ºC of ammonium nitrate (peer-reviewed handbook)
Partition coefficient n-octanol/water:	(-)3.1 of ammonium nitrate
Auto ignition temperature:	Not on fire (based on molecular structure)
Decomposition temperature:	> 210 ºC (of the main ingredient ammonium nitrate)
Viscosity:	Not applicable to solids
Explosive properties:	Not classified as explosive
Oxidizing properties:	Not classified as oxidizer

9.2 Other information - not available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage and handling conditions (see Section 7, handling and storage).

10.2 Chemical stability

Hazard reaction is not possible to occur when work and store product under recommended conditions.

10.3 Possibility of hazardous reactions

Potentially explosive under fire conditions, confined space and/or contaminated with incompatible materials (for example, organic materials or halogen compounds)

10.4 Conditions to avoid

Heat, fire, sources of ignition and incompatibles

10.5 Incompatible materials

Combustible materials, reducing agents, acids, alkalis, sulfur, chlorates, chlorides, chromates, nitrites, permanganates, metallic powders and substances containing metals such as copper, nickel, cobalt, zinc and their alloys. Do not mix solid urea with solid ammonium nitrate.

10.6 Hazardous decomposition products

When heating product decomposes releasing toxic gases as ammonia, nitrogen oxides and other gases depending on composition of the fertilizer. When in contact with alkaline materials like limestone, ammonia is released.

10.7 NKP fertilizers do not capable of self-sustaining decomposition according to UN regulation for transport of dangerous goods Trough Test (UN Manuel of Tests and Criteria, Part2, Part 3, Section 38.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

ACUTE TOXICITY	The product is not tested. The statement is based on properties of the dangerous substance - **ammonium nitrate**

Acute oral toxicity:	Method: OECD 401 Species: rat Road of exposure: oral Effective dose: LD_{50}: 2950 mg/kg bw Exposure time: no data available Results: The mortality occurs at LD_{50} in range of 1250-5000mg/kg/bw
Acute dermal toxicity:	Method: OECD 402 Species: rat (Sprague-Dawley) Road of exposure: dermal Effective dose: LD_{50}: > 5000 mg/kg bw Exposure time: no data available Results: not toxic
Acute inhalation toxicity:	Method: (no guideline followed) Species: rat Road of exposure: inhalation Effective dose: C_{50}: > 88.8 mg/l Exposure time: 4 hours Results: not toxic
LOCAL EFFECTS	
Skin irritation:	Not irritating (OECD 404)
Eye irritation:	Irritating (OECD 405)
Skin sensitization:	Not sensitizing (OECD 429, with magnesium nitrate, nitric acid ammonium calcium salt, sodium nitrate)
OTHER	
Sub-acute toxicity:	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate) Oral 52-week NOAEL = 256 mg/kg bw/day (OECD 453, with ammonium sulphate) Inhalation 2-weeks NOAEL ≥ 185 mg/m^3 (OECD 412)
Mutagenicity:	Negative (OECD 471, 473, with nitric acid ammonium calcium salt) Negative (OECD 476, with potassium nitrate)
Reproductive toxicity:	Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)
Carcinogenicity:	Not carcinogenic (OECD 453, with ammonium sulphate)
Specific target organ toxicity - single exposure	Not classified
Specific target organ toxicity - repeated exposure	Not classified
	◘ V4 Potassium chloride
Acute toxicity:	Species: rat Road of exposure: intravenously Effective dose: LD_{50}: 39-142 mg/kg bw ◘

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Substance name **- ammonium nitrate**

Fish (short-term):	48-h LC_{50}: 447 mg/l (no guideline followed)
Fish (long-term):	No data

Daphnia magna (short-term):	48-h EC_{50}: 490 mg/l (no guideline followed, with potassium nitrate)
Daphnia magna (long-term):	No data
Daphnia magna	10-d EC_{50}: > 1700 mg/l (seawater, no guideline followed, performed with potassium nitrate)
Inhibition of microbial activity:	3-h EC_{50}: >1000 mg/l, NOEC: 180 mg/l (OECD 209, with sodium nitrate)
◘ Substance name **- Калиев хлорид**	
Fish	48 h, CL_{50}: 2300 mg/l (Leuciscus idus)
Daphnia magna	48 h, EC_{50}: 825 mg/l
Daphnia magna	72 h, EC_{50}: 2500 mg/l (Scenedesmus subspicatus)
Invertebrates:	96 h, EC_{50}: 940 mg/l, (Physella heterostropka) ◘
12.2 Persistence and degradability	
Biodegradation:	Standard test is not applicable as the substance is inorganic. In addition, in the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite into nitrate. The average biodegradation rate in wastewater plant at 20ºC is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N2, N2O and NH3, the biodegradation rate in wastewater plant at 20ºC is 70 g N/kg dissolved solid/day.
Hydrolysis:	No hydrolysable group is present, will completely dissociate into ions.
12.3 Bioaccumulative potential	
Octanol-water partition coefficient (K_{ow}):	Not relevant as the substance is inorganic, but considered to be low (based on high water solubility)
Bioconcentration factor (BCF):	Low potential for bioaccumulation (based on substance properties).
12.4 Mobility in soil	
Adsorption coefficient:	Low potential for adsorption (based on substance properties).
12.5 Results of PBT and vPvB assessment According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since product is inorganic.	
SECTION 13: DISPOSAL CONSIDERATIONS	
Waste treatment methods:	The generation of waste should be avoided or minimized wherever possible. Recycle if possible. Do not mix with other waste. The waste should be in the original packaging. Do not allow significant quantities of the product or residues to enter in the sewage system. Treat them in WWTP. Disposal of this product or it's solutions must always comply with the requirements of environmental protection and local legal requirements in the field of waste management.
Package waste disposal:	The generation of waste should be avoided or minimized wherever possible. Empty packages should be for recycling. Incineration or landfill should be taken into account only when recycling is not possible. The national legal requirements for waste management to be observed.

SECTION 14: TRANSPORT INFORMATION

The product is not classified as hazardous according to International transport regulations (ADR / RID, IMDG or ICAO / IATA). To Be transported with care. Do not to disturb the integrity of the packaging and the conditions of storage. Do not transport together with food and incompatible materials.

If spillage of roadway occur, collect and wash spill area with plenty of water.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture:	Regulation EC 1907/2006 (REACH), Annex XVII, entry 58 concerning the restriction to place on a market of ammonium nitrate as such or in a mixture, see Annex for conditions of restriction, 1. Shall not be placed on the market for the first time after 27 June 2010 as a substance, or in mixtures that contain more than 28 % by weight of nitrogen in relation to ammonium nitrate, for use as a solid fertiliser, straight or compound, unless the fertiliser complies with the technical provisions for ammonium nitrate fertilisers of high nitrogen content set out in Annex III to Regulation (EC) No 2003/2003 of the European Parliament and of the Council (********). 2. Shall not be placed on the market after 27 June 2010 as a substance, or in mixtures that contain 16 % or more by weight of nitrogen in relation to ammonium nitrate except for supply to: (a) downstream users and distributors, including natural or legal persons licensed or authorised in accordance with Council Directive 93/15/EEC ; (b) farmers for use in agricultural activities, either full time or part time and not necessarily related to the size of the land area. Regulation EC 2003/2003, Regulation EC 1272/2008, Regulation EC 98/2013 on the marketing and use of explosives precursors Annex II, * Regulations / legislation and amendments to the date of issue of the document are indicated
15.2 Chemical safety assessment:	In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for this product.

16. OTHER INFORMATION

Indication of changes: Changes of the last version are highlighted with ◘ **V4..**◘ . This version replaces all previous versions.

Uses:

***** Formulation of chemicals and fertilizers

* Use by professional worker - Use by professional worker (outdoor and indoor of reactive substances in open systems)

* Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer

Classification in accordance with Regulation 1272/2008 (CLP)

H statement

May intensify fire; oxidiser (H272)
Causes serious eye irritation (H319)

List of abbreviations

PBT – persistent, bioaccumulative and toxic

vPvB - very persistent and very bioaccumulative

NOAEL - no observed adverse effect level

NOAEC - no observed adverse effect concentration

DNEL - derived no-effect level

PNEC - predicted no-effect concentration

PEC - predicted environmental concentration

LOEC - lowest observed effect concentration

NOEC - no observed effect concentration

OECD - Organisation for Economic Cooperation and Development

LC_X - lethal concentration

EC_X - effective concentration

LD_X - lethal dose

The information above is on the basis of our knowledge about the product and represents the data currently available to us t the moment of safety data sheet issue. This document is intended as guidance for the appropriate precautionary handling with the product by a properly trained person using this product, and does not legally bind in no way manufacturer with guarantee for specific properties, qualities and applications.
Neochim PLC does not grant, guarantee or implies any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers.
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ANNEX

1. Exposure scenario 1: Formulation - Formulation of chemicals and fertilizers	
1.1.Formulation - Formulation of chemicals and fertilizers	
Product category / UCN code**:**	
PC 1, Adhesives, sealants	
PC 9a, Coatings and paints, thinners, paint removers	
PC 11, Explosives	
PC 12, Fertilizers	
PC 14, Metal surface treatment products, including galvanic and electroplating products	
PC 19, Intermediate	
PC 20, Products such as pH-regulators, flocculants, precipitants, neutralization agents	
PC 35, Washing and cleaning products (including solvent based products)	
PC 37, Water treatment chemicals	
P15900, Process regulators	
Environment contributing scenario(s):	
Formulation of chemicals and fertilizers	ERC 2
Worker contributing scenario(s):	
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Use in batch and other process (synthesis) where opportunity for exposure arises	PROC 4
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Treatment of articles by dipping and pouring	PROC 13
Production of preparations or articles by tabletting, compression, extrusion, palletisation	PROC 14
Use as laboratory reagent	PROC 15

1.2. Conditions of use affecting exposure		
1.2.1. Environmental contributing scenario (1): Formulation of chemicals and fertilizers (ERC 2)		
Exposure assessment and risk characterisation are either not needed or not required as the product does not meet the criteria for being classified as dangerous for the environment.		
1.2.2. Worker contributing scenario (1): Use in closed, continuous process with occasional controlled exposure (PROC 2)		
Product (article) characteristics		
• Concentration of substance in mixture:		≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):		Substance as such
• Dustiness of material:		Low
Amount used (or contained in articles), frequency and duration of use/exposure		
• Duration of activity:		< 8 hours
Technical and organisational conditions and measures		
• General ventilation:	Basic general ventilation (1-3 air changes per hour)	
• Containment:	Closed continuous process with occasional controlled exposure	
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]	
• Occupational Health and Safety Management System:	Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation		
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.	
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]	
• Respiratory Protection:	No [Effectiveness Inhal: 0%]	
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)	
Other conditions affecting workers exposure		
• Place of use:	Indoor	
• Skin surface potentially exposed:	Two hands face (480 cm2)	
1.2.3. Worker contributing scenario (2): Use in closed batch process (synthesis or formulation) (PROC 3)		
Product (article) characteristics		
• Concentration of substance in mixture:		≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):		Substance as such
• Dustiness of material:		Low
Amount used (or contained in articles), frequency and duration of use/exposure		
• Duration of activity:		< 8 hours
Technical and organisational conditions and measures		
• General ventilation:	Basic general ventilation (1-3 air changes per hour)	
• Containment:	Closed batch process with occasional controlled exposure	
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]	
• Occupational Health and Safety Management System:	Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation		
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.	
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]	
• Respiratory Protection:	No [Effectiveness Inhal: 0%]	
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)	
Other conditions affecting workers exposure		
• Place of use:	Indoor	
• Skin surface potentially exposed:	One hand face only (240 cm2)	
1.2.4. Worker contributing scenario (3): Use in batch and other process (synthesis) where opportunity for exposure arises		

(PROC 4)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Semi-closed process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm2)

1.2.5. Worker contributing scenario (4): Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC 5)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm^2)

1.2.6. Worker contributing scenario (5): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such

• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands (960 cm^2)

1.2.7. Worker contributing scenario (6): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Semi-closed process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands (960 cm^2)

1.2.8. Worker contributing scenario (7): Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC 9)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	

• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Semi-closed process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm^2)

1.2.9. Worker contributing scenario (8) Treatment of articles by dipping and pouring (PROC 13)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm^2)

1.2.10. Worker contributing scenario (9): Production of preparations or articles by tabletting, compression, extrusion, palletisation (PROC 14)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced
Conditions and measures related to personal protection, hygiene and health evaluation	

• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)

Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm^2)

1.2.11. Worker contributing scenario (10): Use as laboratory reagent (PROC 15)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Advanced

Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)

Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	One hand face only (240 cm^2)

1.3. Exposure estimation and reference to its source

1.3.1. Exposure concentrations and risks for workers: Use in closed, continuous process with occasional controlled exposure (PROC 2)

Exposure concentrations and risks for workers

Route of exposure and type of effects	**Exposure concentration**	**Risk characterisation**
Inhalation, systemic, long-term	**0.01 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.137 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.027
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.027

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.2. Exposure concentrations and risks for workers: Use in closed batch process (synthesis or formulation) (PROC 3)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.069 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.013
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.016

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.3. Exposure concentrations and risks for workers: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC 4)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.5 mg/m³** (TRA Workers 3.0)	RCR = 0.014
Dermal, systemic, long-term	**0.686 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.134
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.148

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.4. Exposure concentrations and risks for workers: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC 5)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.5 mg/m³** (TRA Workers 3.0)	RCR = 0.014
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.282

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.5. Exposure concentrations and risks for workers: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.5 mg/m³** (TRA Workers 3.0)	RCR = 0.014
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.282

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.6. Exposure concentrations and risks for workers: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.271

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.7. Exposure concentrations and risks for workers: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC 9)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.686 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.134
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.137

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.8. Exposure concentrations and risks for workers: Treatment of articles by dipping and pouring (PROC 13)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.271

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.9. Exposure concentrations and risks for workers: Production of preparations or articles by tabletting, compression, extrusion, pelletisation (PROC 14)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.343 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.067
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.07

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.3.10. Exposure concentrations and risks for workers: Use as laboratory reagent (PROC 15)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.034 mg/kg bw/day** (TRA Workers 3.0)	RCR < 0.01
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR < 0.01

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES
No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers

2. Exposure scenario 2: Use by professional worker - Use by professional worker (outdoor and indoor of reactive substances in open systems)

2.1. Use by professional worker - Use by professional worker (outdoor and indoor of reactive substances in open systems)

Sector of use / NACE code:
SU 1, Agriculture, forestry, fishery
SU 2a, Mining (without offshore industries)
SU 10, Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU 19, Building and construction work
SU 23, Electricity, steam, gas water supply and sewage treatment
B8.1, Quarrying of stone, sand and clay

Product category:
PC 11, Explosives
PC 12, Fertilisers
PC 37, Water treatment chemicals

Environment contributing scenario(s):	
Use by professional worker (outdoor and indoor of reactive substances in open systems)	ERC 8e, ERC 8b
Worker contributing scenario(s):	
Use in closed process, no likelihood of exposure	PROC 1
Use in closed, continuous process with occasional controlled exposure	PROC 2
Use in closed batch process (synthesis or formulation)	PROC 3
Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	PROC 5
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	PROC 8a
Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	PROC 8b
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC 9
Non industrial spraying	PROC 11
Use as laboratory reagent	PROC 15
Hand-mixing with intimate contact and only PPE available	PROC 19

2.2. Conditions of use affecting exposure

2.2.1. Environmental contributing scenario (1): Use by professional worker (outdoor and indoor of reactive substances in open systems) (ERC 8e), (ERC 8b)

Exposure assessment and risk characterisation are either not needed or not required as the product does not meet the criteria for being classified as dangerous for the environment.

2.2.2. Worker contributing scenario (1): Use in closed process, no likelihood of exposure (PROC 1)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Closed system (minimal contact during routine operations)
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management	Basic

System:	
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	One hand face only (240 cm2)

2.2.3. Worker contributing scenario (2): Use in closed, continuous process with occasional controlled exposure (PROC 2)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Closed continuous process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm^2)

2.2.4. Worker contributing scenario (3): Use in closed batch process (synthesis or formulation) (PROC 3)

Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Closed batch process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.

• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	One hand face only (240 cm2)
2.2.5. Worker contributing scenario (4): Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC 5)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm^2)
2.2.6. Worker contributing scenario (5): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous)

	mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands (960 cm^2)
2.2.7. Worker contributing scenario (6): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Semi-closed process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands (960 cm^2)
2.2.8. Worker contributing scenario (7): Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC 9)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Semi-closed process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm^2)

2.2.9. Worker contributing scenario (8): Non industrial spraying (PROC 11)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke. Keep dermal exposure to a minimum. Wear protective clothing and make sure that skin is not exposed.
• Dermal Protection (body and hands):	Yes (protective clothing (chemical suit) and chemically resistant gloves conforming to EN374, providing in total a dermal effectiveness of at least 96%). Wearing only gloves is not sufficient.
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands and upper wrists (1500 cm^2)
2.2.10. Worker contributing scenario (9): Use as laboratory reagent (PROC 15)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	One hand face only (240 cm^2)
2.2.11. Worker contributing scenario (10): : Hand-mixing with intimate contact and only PPE available (PROC 19)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low

Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 1 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands and forearms face (1980240 cm^2)

2.3. Exposure estimation and reference to its source

2.3.1. Exposure concentrations and risks for workers: Use in closed process, no likelihood of exposure (PROC 1)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.01 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.003 mg/kg bw/day** (TRA Workers 3.0)	RCR < 0.01
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR < 0.01

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.2. Exposure concentrations and risks for workers: Use in closed, continuous process with occasional controlled exposure (PROC 2)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.01 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.137 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.027
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.027

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is

considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.3. Exposure concentrations and risks for workers: Use in closed batch process (synthesis or formulation) (PROC 3)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.069 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.013
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.016

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.4. Exposure concentrations and risks for workers: Use in closed batch process (synthesis or formulation) (PROC 3)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR = 0.028
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.296

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.5. Exposure concentrations and risks for workers: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC 5)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.5 mg/m³** (TRA Workers 3.0)	RCR = 0.014
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.282

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local
As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.6. Exposure concentrations and risks for workers: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.5 mg/m³** (TRA Workers 3.0)	RCR = 0.014
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.282

***Conclusion on risk characterisation (qualitative)**
Dermal, local, long-term
As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.
Eye, local
As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.7. Exposure concentrations and risks for workers: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**1.371 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.268
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.271

***Conclusion on risk characterisation (qualitative)**
Dermal, local, long-term
As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.
Eye, local
As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.8. Exposure concentrations and risks for workers: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC 9)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR = 0.014
Dermal, systemic, long-term	**0.686 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.134
Dermal, local, long-term		Qualitative (see below)
Eye, local		Qualitative (see below)
Combined routes, systemic, long-term		RCR = 0.148

***Conclusion on risk characterisation (qualitative)**
Dermal, local, long-term
As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is

considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.9. Exposure concentrations and risks for workers: Non industrial spraying (PROC 11)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**1 mg/m³** (TRA Workers 3.0)	RCR = 0.028
Dermal, systemic, long-term	**4.284 mg/kg bw/day** (TRA Workers 3.0)	RCR = 0.837
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR = 0.865

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.10. Exposure concentrations and risks for workers: Use as laboratory reagent (PROC 15)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**0.034 mg/kg bw/day** (TRA Workers 3.0)	RCR < 0.01
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR < 0.01

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local

As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

2.3.11. Exposure concentrations and risks for workers: : Hand-mixing with intimate contact and only PPE available (PROC 19)

Exposure concentrations and risks for workers

Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	**0.1 mg/m³** (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	**2.829 mg/kg bw/day** (TRA Workers 3.0)	RCR =0.552
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR =0.555

***Conclusion on risk characterisation (qualitative)**

Dermal, local, long-term

As a long sleeved overall and chemically resistant gloves are worn, the risk of causing local effects via long-term dermal exposure is considered to be controlled.

Eye, local
As eye protection is worn, the risk of causing ocular effects is considered to be controlled.

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

No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers

Exposure scenario 3: Consumer Use - Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer

3.1 Consumer Use - Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer

Product category / UCN code:
PC 1, Adhesives, sealants
PC 12, Fertilisers
S50200, Pyrotechnical products

Environment contributing scenario(s):	
Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer	ERC 8e, ERC 8b

Consumer contributing scenario(s):	
Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches	PC 1
Consumer Use (outdoor and indoor) as part of fertilizer	PC 12

3.2. Conditions of use affecting exposure

3.2.1. Environmental contributing scenario (1): Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer (ERC 8e), (ERC 8b)

Exposure assessment and risk characterisation are either not needed or not required as the product does not meet the criteria for being classified as dangerous for the environment

3.2.2. Consumer contributing scenario 1: Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches (PC 1)

Product (article) characteristics	
• Concentration of substance in mixture:	= 0.3 g/g (default)
Measures related to information and behavioural advice to consumers including personal protection and hygiene	
• Adult/Child assumed:	Adult
• Use frequency	: Infrequent
Other conditions affecting consumers exposure	
• Body parts potentially exposed:	Inside hands / one hand / palm of hands (428.8 cm^2)
• Dermal transfer factor:	= 1

3.2.3. Consumer contributing scenario 2: Consumer Use (outdoor and indoor) as part of fertilizer (PC 12)

Product (article) characteristics	
• Concentration of substance in mixture:	= 0.5 g/g (default)
Measures related to information and behavioural advice to consumers including personal protection and hygiene	
• Adult/Child assumed:	Adult
• Use frequency	: Infrequent
Other conditions affecting consumers exposure	
• Body parts potentially exposed:	Inside hands / one hand / palm of hands (428.8 cm^2)
• Dermal transfer factor:	= 1

3.3 Exposure estimation and reference to its source

3.3.1 Exposure and risk for consumers: Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches (PC 1)

Exposure and risk for consumers

Route of exposure and type of effects	**Exposure concentration**	**Risk characterisation**

Dermal, systemic, long-term	**0.858 mg/kg bw/day** (TRA Consumer 3.1)	RCR = 0.335
Combined routes, systemic, long-term		RCR = 0.335

3.3.2 Exposure and risk for consumers: Consumer Use (outdoor and indoor) as part of fertilizer (PC 12)

Exposure and risk for consumers

Route of exposure and type of effects	**Exposure concentration**	**Risk characterisation**
Dermal, systemic, long-term	**1.429 mg/kg bw/day** (TRA Consumer 3.1)	RCR = 0.558
Combined routes, systemic, long-term		RCR = 0.558

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

No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers