



## SAFETY DATA SHEET

in accordance with Regulation (EC) 1907/2006 (REACH) amended with  
 Commission Regulation (EU) 2015/830

▣ V11 – amendments in this revision ▣

| SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING   |   |         |       |
|---|---|---------|-------|
| <b>1.1 Product identifier</b>   |   |         |       |
| Trade name  | <b>NEOFERT®</b>   |         |       |
| Synonyms  | Ammonium nitrate 34.4%<br>Ammonium nitrate EC fertilizer<br>Ammonium nitrate straight fertilizer<br>Ammonium Saltpeter  |         |       |
| NEOCHIM PLC code  | 13-01   |         |       |
| <b>1.2 Relevant identified uses of the substance or mixture and uses advised against</b>  |   |         |       |
| Uses:   | Fertilizer<br><b>Note:</b> see section 16 for the complete list of uses covered by ES   |         |       |
| Uses advised against:   | No information available  |         |       |
| <b>1.3 Details of the supplier of the safety data sheet</b>   |   |         |       |
| Manufacturer:<br>Address:<br><br>Tel./fax:<br>URL website:<br>Email:  | NEOCHIM PLC<br>East Industrial Zone, Himkombinatska Str.<br>6403 Dimitrovgrad, Bulgaria<br>+359 391 65 205; +359 391 60 555<br><a href="http://www.neochim.bg">http:// www.neochim.bg</a><br>neochim@neochim.bg |         |       |
| Company e-mail for SDS  | pto@neochim.bg  |         |       |
| <b>1.4 Emergency telephone number</b>   |   |         |       |
| National Toxicology Center - Pirogov  | + 359 2 915 4409  | 24/24 h | 7/7 d |
| NEOCHIM PLC*<br>*(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   |   |         |       |
| <b>The most important adverse effects</b>   |   |         |       |
| <b>Physicochemical effects:</b>   |   |         |       |
| The fertilizer is not itself combustible but it can support combustion, even in the absence of air. On heating it melts and further heating can cause decomposition, releasing toxic fumes containing nitrogen oxides and ammonia. Relatively resistant to detonation, but there is a risk of fire and explosion when heated in confined spaces and at high temperatures. |   |         |       |
| <b>Human health effects:</b>  |   |         |       |
| The fertilizer causes eye irritation; inhalation of dust from ammonium nitrate can cause respiratory irritation and coughing; skin may become red in prolonged contact with the product.  |   |         |       |
| <b>Environmental effects:</b>   |   |         |       |
| Large amounts of fertilizer can cause eutrophication of surface waters.   |   |         |       |
| <b>2.1 Classification of the substance or mixture</b>   |   |         |       |
| 2.1.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008 and its amendments at the date of the issue of the document   |   |         |       |
| Oxidising solid, hazard category 3 (Oxid. Solid 3), H272<br>Serious eye damage/ eye irritation, hazard category 2 (Eye Irrit.2), H319   |   |         |       |

| 2.1.2 Additional information<br>For full text of H statement: see Section 16.  |           |   |                  |                  |  |       |
|--|-----------|---|------------------|------------------|--|-------|
| <b>2.2 Label elements</b>  |           |   |                  |                  |  |       |
| Labelling according to Regulation 1272/2008 (CLP) and its amendments at the date of the issue of the document  |           |   |                  |                  |  |       |
| Hazard pictogram(s):   |           |  <br>GHS03                      GHS07   |                  |                  |  |       |
| Signal word  |           | <b>Warning</b>  |                  |                  |  |       |
| Hazard statement(s):   |           | H272<br>H319<br>May intensify fire; oxidiser.<br>Causes serious eye irritation.   |                  |                  |  |       |
| Precautionary statement(s):  |           | P210<br>P220<br>P370+P378<br>P264<br>P280<br>P305+P351+P338<br>P337+P313<br>P411<br>P501<br>Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.<br>Keep away from clothing, reducing agents and other combustible materials.<br>In case of fire: use plenty of dispersed and finely dispersed water jets to extinguish.<br>Wash hands thoroughly after handling.<br>Wear long sleeved overall, chemically resistant gloves. chemical goggles or full face shield<br>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>If eye irritation persists: get medical advice/attention.<br>Store in a well-ventilated, indoor and dry warehouses at temperatures not exceeding 30°C.<br>Dispose of content/packing/ in accordance with national waste legislation. |                  |                  |  |       |
| Hazardous components listed on the label: ammonium nitrate   |           |   |                  |                  |  |       |
| <b>2.3 Other hazards</b>   |           |   |                  |                  |  |       |
| PBT/vPvB criteria:   |           | According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been carried out since product is inorganic.  |                  |                  |  |       |
| <b>SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS</b>   |           |   |                  |                  |  |       |
| 3.1 Substances - not relevant<br>■ V11 3.2 Mixtures  |           |   |                  |                  |  |       |
| 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  | min 97.1         | ammonium nitrate | Oxid. Solid 3; H272<br>Eye Irrit. 2; H319                      | [1] ■ |
| <b>For full text of Hazard statements: see Section 16</b>  |           |   |                  |                  |  |       |
| 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 |           |   |                  |                  |  |       |
| <b>Additional information:</b>   |           |   |                  |                  |  |       |
| ■ V11 1. Mixture containing ammonium nitrate as main constituent, inorganic additive and organic anti-caking agent   |           |   |                  |                  |  |       |
| 2. The product meets the requirements of Regulation (EC) 2003/2003 on fertilizers ■  |           |   |                  |                  |  |       |
| 3. 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)  |           |   |                  |                  |  |       |

| <b>SECTION 4: FIRST- AID MEASURES</b>  |  |
|--|--|
| <b>4.1 Description of first aid measures</b>   |  |
| - 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   | 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 give artificial respiration.                                |
| - following skin contact   | Wash the lesion area with plenty of water and soap for at least 15 minutes after removal of the clothes and shoes 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  | <b>Do not induce vomiting.</b> Seek medical advice. Never give anything by mouth to an unconscious person.   |
| - self-protection of the first aider   | First aider should protect himself first   |
| <b>4.2 Most important symptoms and effects, both acute and delayed</b>   |  |
| Acute effects  | Eye irritation, coughing and throat dryness, redness of the skin   |
| Delayed effects  | None known   |
| <b>4.3 Indication of any immediate medical attention and special treatment needed</b>  |  |
| Notes for the doctor: Methaemoglobinaemia.   |  |
| <b>SECTION 5: FIREFIGHTING MEASURES</b>  |  |
| <b>5.1 Extinguishing media</b>   |  |
| Suitable extinguishing media:  | <p><b>If fertilizer is not directly involved in the fire</b> - use most suitable means to extinguish the fire.</p> <p><b>If fertilizer is involved in the fire</b> - use plenty of dispersed and finely dispersed water jets to extinguish</p> |
| Unsuitable extinguishing media:  | Combustible materials. Do not use chemical extinguisher or foam and firefighting blanket and/or attempt to smother the fire with sand or steam.  |
| <b>5.2 Special hazards arising from the substance or mixture</b>   |  |
| May be explosive in contact with flammable or organic substances and at confinement during fire. In case of fire, may produce hazardous decomposition products such as nitrogen oxides (NO, NO <sub>2</sub> etc.), ammonia (NH <sub>3</sub> ), amines. |  |
| <b>5.3 Advice for firefighters</b>   |  |
| 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.   |  |
| <b>SECTION 6: ACCIDENTAL RELEASE MEASURES</b>  |  |
| <b>6.1 Personal precautions, protective equipment and emergency procedures</b>   |  |
| <b>6.1.1. For non-emergency personal</b>   |  |
| 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.   |  |
| <b>6.1.2. For emergency responders</b>   |  |
| Protective clothing, protective masks, protective gloves, safety goggles. See Section 8.   |  |
| <b>6.2 Environmental precautions</b>   |  |
| 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 suitable labelled containers for recovery or disposal. Clean up traces with water. Do not collect spilled material in sawdust, fuels and hydrocarbons based lubricants or other combustible material.

### 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: | <p>■ <b>V11</b> Storage premises should be comply with the requirements of national and regional laws.</p> <p>They should be dry and well ventilated. Provide a high level of security in the warehouse.</p> <p>Do not allow smoking and use of open fire in the warehouse.</p> <p>Store away from sources of fire and heat. Store away from combustible materials and reducing substances.</p> <p>Do not stack fertilizer near hay, straw, grain, fuel and lubricants hydrocarbon base and others on the field.</p> <p>Do not store in direct sunlight and under conditions that allowing the occurrence of the thermal phase / high temperature fluctuations / in order to avoid destruction of the granule.</p> <p>Store at temperature no higher than 30 ° C.</p> <p>The maximum size of the stack should be in compliance with national and regional regulations. Provide distance for quick access to stacks.</p> <p>Do not store together with other products of the same stack.</p> <p>According to Directive 2012/18/EU on the control of major accident hazards involving dangerous substances (Seveso III) qualifying quantities (tonnes) are: 1. - min.1250; 2.- min.5000</p> <p>Storage class: 5.1C</p> <p>Packaging materials: stainless steel, synthetic material.</p> <p>Unsuitable: Zinc, Copper, Paper and Wood ■</p> |
| 7.2 Specific end use(s)                    | For information of specific risk management measures: see annex of this safety data sheet (exposure scenarios).   |

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

|                                    |  |
|------------------------------------|--|
| Occupational exposure limit values | The product contains no substances with European Union limit values. |
|------------------------------------|--|

### Ammonium nitrate - Derived No Effect Level (DNEL)

| Route of exposure | Type of effects     | DNEL for workers     | DNEL for customers    |
|-------------------|---------------------|----------------------|-----------------------|
| inhalation        | Systemic, long-term | 36 mg/m <sup>3</sup> | 8.9 mg/m <sup>3</sup> |
| dermal            | Systemic, long-term | 5.12 mg/kg/bw/day    | 2.56 mg/kg/bw/day     |

|  |                     |   |                   |
|--|---------------------|---|-------------------|
| ingestion  | Systemic, long-term | -   | 2.56 mg/kg/bw/day |
| Ammonium nitrate - <b>Predicted No Effect Concentration (PNEC)</b>   |                     |   | STP: 18 mg/L      |
| <b>8.2 Exposure controls</b>   |                     |   |                   |
| <b>8.2.1. Appropriate engineering controls:</b>  |                     | Provide adequate ventilation. Location of eye flushing system and safety shower close to working place is a good industrial practice.   |                   |
| <b>8.2.2. Individual protection measures, such as personal protective equipment</b>  |                     |   |                   |
| 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.  |                   |
| 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.   |                   |
| <b>SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES</b>   |                     |   |                   |
| <b>9.1 Information on basic physical and chemical properties</b>   |                     |   |                   |
| <b>Data for the main component - ammonium nitrate</b>  |                     |   |                   |
| Appearance:  |                     | White prills at 20°C and 101,3 kPa  |                   |
| Odour:   |                     | Odourless   |                   |
| Odour threshold:   |                     | Not applicable  |                   |
| pH of aq. solution at 20°C:<br>(10 g/ 100 cm <sup>3</sup> )  |                     | >4.5  |                   |
| Melting point /freezing point:   |                     | 169.6 – 169.7°C at 101.3 kPa  |                   |
| Initial boiling point:   |                     | Not relevant, decomposes before boiling   |                   |
| Flash-point:   |                     | Not relevant, as the substance is an inorganic solid.   |                   |
| Flammability:  |                     | Non flammable (based on molecular structure).   |                   |
| Upper/lower flammability or explosive limits   |                     | Not relevant, incombustible substance   |                   |
| Vapour pressure:   |                     | Very low at room temperature (based on melting temperature and decomposition temperature)   |                   |
| Relative density (D4 (20)):  |                     | 1.72 at 20°C  |                   |
| Solubility in water:   |                     | >100 g/l at 20°C  |                   |
| Autoflammability/self-ignition temperature:  |                     | Ammonium nitrate is not expected to be self-heating and then followed self-ignition based on structure, use and transport information.  |                   |
| Decomposition temperature:   |                     | > 210 °C  |                   |
| Viscosity:   |                     | Not applicable to solids  |                   |
| Explosive properties:  |                     | Not classified as explosive   |                   |
| Oxidizing properties:  |                     | oxidiser  |                   |
| Partition coefficient n-octanol/water:   |                     | Not relevant (inorganic salt)   |                   |
| Surface tension  |                     | Not relevant (inorganic salt)   |                   |
| <b>9.2 Other information - highly hygroscopic</b>  |                     |   |                   |
| <b>SECTION 10: STABILITY AND REACTIVITY</b>  |                     |   |                   |
| <b>10.1 Reactivity</b>   |                     |   |                   |
| The product is unstable at high temperatures. A strong oxidizing agent and reacts violently with combustible materials, reducing agents (see Section 10.5) |                     |   |                   |
| <b>10.2 Chemical stability</b>   |                     |   |                   |

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

### 10.3 Possibility of hazardous reactions

When heated, it decomposes. Contamination of the product with incompatible materials can cause an explosion (see Section 10.5)

### 10.4 Conditions to avoid

Uncontrolled heat. Contact with incompatibles. Confinement must be avoided. Exposure to air or moisture

### 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

Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire, nitrogen oxides (NO, NO<sub>2</sub>), ammonia (NH<sub>3</sub>), amines.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Main component - ammonium nitrate

#### Acute toxicity

| Method                | Species | Route of exposure | Effective dose                     | Results   |
|-----------------------|---------|-------------------|------------------------------------|-----------|
| No guideline followed |         | inhalation        | LC <sub>50</sub> : > 88.8 mg/l     | Not toxic |
| OECD 402              | rat     | dermal            | LD <sub>50</sub> : > 5000 mg/kg bw | Not toxic |
| OECD 401              | rat     | oral              | LD <sub>50</sub> : 2950 mg/kg bw   | Not toxic |

#### Skin corrosion/irritation

| Method   | Species | Results            |
|----------|---------|--------------------|
| OECD 404 | rabbit  | No skin irritation |

#### Serious eye damage/irritation

| Method   | Species | Results      |
|----------|---------|--------------|
| OECD 405 | rabbit  | Eye irritant |

#### Respiratory or skin sensitisation

| Method   | Species | Results         |
|----------|---------|-----------------|
| OECD 429 | mouse   | Not sensitising |

#### Germ cell mutagenicity

Negative (OECD 471, 473, with nitric acid ammonium calcium salt)  
 Negative (OECD 476, with potassium nitrate)

#### Carcinogenicity

Not carcinogenic (OECD 453, with ammonium sulfate)

#### Reproductive toxicity

Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)

## SECTION 12: ECOLOGICAL INFORMATION

**12.1 Toxicity**
**Main component - ammonium nitrate**

## Short-term (acute) toxicity

| Test material     | Species                  | Result                               |
|-------------------|--------------------------|--------------------------------------|
| Ammonium nitrate  | Freshwater fish          | LC <sub>50</sub> (48 часа): 447 mg/l |
| Potassium nitrate | Freshwater invertebrates | EC <sub>50</sub> (48 часа): 490 mg/l |

## Long-term toxicity

| Test material     | Species          | Result                             |
|-------------------|------------------|------------------------------------|
| No data           | Fish             | No data                            |
| Potassium nitrate | Aq.Invertebrates | EC <sub>50</sub> (7 дни): 555 mg/l |

|        |   |
|--------|---|
| Algae: | 10-d EC <sub>50</sub> : > 1700 mg/l (seawater, no guideline followed, performed with potassium nitrate) |
|--------|---|

|                                   |   |
|-----------------------------------|---|
| Inhibition of microbial activity: | 3-h EC <sub>50</sub> : >1000 mg/l, NOEC: 180 mg/l (OECD 209, with sodium nitrate) |
|-----------------------------------|---|

**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 20°C is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N <sub>2</sub> , N <sub>2</sub> O and NH <sub>3</sub> , the biodegradation rate in wastewater plant at 20°C 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 <sub>ow</sub> ): | 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: | <p>The generation of waste should be avoided or minimized wherever possible. Recycle processing, if possible. Do not mix with other waste. The waste product to remain in the original packaging.</p> <p>Do not allow significant quantities of the product or residues to enter in the sewage system. Treat them in WWTP.</p> <p>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.</p> |
|--------------------------|--|

|                         |  |
|-------------------------|--|
| Package waste disposal: | <p>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.</p> |
|-------------------------|--|

**SECTION 14: TRANSPORT INFORMATION**

|          | UN Number | Proper shipping name              | Class | Packing group | Label   | Other applicable information   |
|----------|-----------|-----------------------------------|-------|---------------|---|--|
| ADR/RID  | UN2067    | Ammonium nitrate based fertilizer | 5,1   | III           |   | Hazard identification number: 50<br>Limited quantity: LQ12   |
| ADN/DNR  | UN2067    | Ammonium nitrate based fertilizer | 5,1   | III           |   |  |
| IMDG     | UN2067    | Ammonium nitrate based fertilizer | 5,1   | III           |   | Emergency schedules (EmS): F-H, S-Q  |
| CAO/IATA | UN2067    | Ammonium nitrate based fertilizer | 5,1   | III           |  | Quantity limitation passenger aircraft:<br>10 Kg : Packaging instructions: Y516<br>25 Kg : Packaging instructions: 516<br><br>Quantity limitation Cargo aircraft: 100Kg<br>Packaging instructions: 518 |

## 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, Directive 2012/18/EU on the control of major accident hazards involving dangerous substances (Seveso III) qualifying quantities (tonnes) are: 1. - min.1250; 2.- min.5000

\* 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 **■ V11...■** . This version replaces all previous versions.

**Uses:**

- \* Formulation of chemicals and fertilizers
- \* Industrial use as intermediate incl. sampling, loading, filling, transfer, bagging, storage, quality control
- \* Use at industrial site - Industrial use as reactive processing aid incl. sampling, loading, filling, transfer, bagging, storage, quality control
- \* 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<sub>x</sub> - lethal concentration

EC<sub>x</sub> - effective concentration

LD<sub>x</sub> - lethal dose

The information above is on the basis of our knowledge about the product and represents the data currently available to us at 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.

Neochim PLC does not carry any liability for damages resulting from the product use or reliance upon this information, data and recommendations for it.

Users are responsible to make their own investigations to determine the suitability of the information and the product for their particular purposes, and to comply with applicable laws.

## ANNEX

| <b>2. Exposure scenario 2: Formulation - Formulation of chemicals and fertilizers</b>  |  |
|--|--|
| <b>2.1. Formulation - Formulation of chemicals and fertilizers</b>   |  |
| 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   |  |
| <b>Environment contributing scenario(s):</b>   |  |
| Formulation of chemicals and fertilizers   | ERC 2  |
| <b>Worker contributing scenario(s):</b>  |  |
| 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 tableting, compression, extrusion, palletisation   | PROC 14  |
| Use as laboratory reagent  | PROC 15  |
| <b>2.2. Conditions of use affecting exposure</b>   |  |
| <b>2.2.1. Environmental contributing scenario (1): Formulation of chemicals and fertilizers (ERC 2)</b>  |  |
| 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. |  |
| <b>2.2.2. Worker contributing scenario (1): Use in closed, continuous process with occasional controlled exposure (PROC 2)</b>   |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)      |

| <b>Other conditions affecting workers exposure</b>  |  |
|---|--|
| • Place of use:   | Indoor   |
| • Skin surface potentially exposed:   | Two hands face (480 cm <sup>2</sup> )  |
| <b>2.2.3. Worker contributing scenario (2): Use in closed batch process (synthesis or formulation) (PROC 3)</b>   |  |
| <b>Product (article) characteristics</b>  |  |
| • Concentration of substance in mixture:  | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):   | Substance as such  |
| • Dustiness of material:  | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |  |
| • Duration of activity:   | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>   |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>  |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>  |  |
| • Place of use:   | Indoor   |
| • Skin surface potentially exposed:   | One hand face only (240 cm <sup>2</sup> )  |
| <b>2.2.4. Worker contributing scenario (3): Use in batch and other process (synthesis) where opportunity for exposure arises (PROC 4)</b>   |  |
| <b>Product (article) characteristics</b>  |  |
| • Concentration of substance in mixture:  | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):   | Substance as such  |
| • Dustiness of material:  | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |  |
| • Duration of activity:   | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>   |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>  |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>  |  |
| • Place of use:   | Indoor   |
| • Skin surface potentially exposed:   | Two hands face (480 cm <sup>2</sup> )  |
| <b>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)</b> |  |
| <b>Product (article) characteristics</b>  |  |
| • Concentration of substance in mixture:  | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):   | Substance as such  |

|  |  |
|--|--|
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands face (480 cm <sup>2</sup> )  |
| <b>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)</b> |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands (960 cm <sup>2</sup> )   |
| <b>2.2.7. Worker contributing scenario (6): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b)</b>     |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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%]   |

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| • Occupational Health and Safety Management System:  | Advanced   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands (960 cm <sup>2</sup> )   |
| <b>2.2.8. Worker contributing scenario (7): Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC 9)</b> |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands face (480 cm <sup>2</sup> )  |
| <b>2.2.9. Worker contributing scenario (8) Treatment of articles by dipping and pouring (PROC 13)</b>  |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)   |
| <b>Other conditions affecting workers exposure</b>  |  |
| • Place of use:   | Indoor   |
| • Skin surface potentially exposed:   | Two hands face (480 cm <sup>2</sup> )  |
| <b>2.2.10. Worker contributing scenario (9): Production of preparations or articles by tableting, compression, extrusion, palletisation (PROC 14)</b> |  |
| <b>Product (article) characteristics</b>  |  |
| • Concentration of substance in mixture:  | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):   | Substance as such  |
| • Dustiness of material:  | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |  |
| • Duration of activity:   | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>   |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>  |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>  |  |
| • Place of use:   | Indoor   |
| • Skin surface potentially exposed:   | Two hands face (480 cm <sup>2</sup> )  |
| <b>2.2.11. Worker contributing scenario (10): Use as laboratory reagent (PROC 15)</b>   |  |
| <b>Product (article) characteristics</b>  |  |
| • Concentration of substance in mixture:  | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):   | Substance as such  |
| • Dustiness of material:  | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |  |
| • Duration of activity:   | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>   |  |
| • 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   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>  |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>  |  |
| • Place of use:   | Indoor   |
| • Skin surface potentially exposed:   | One hand face only (240 cm <sup>2</sup> )  |
| <b>2.3. Exposure estimation and reference to its source</b>   |  |
| <b>2.3.1. Exposure concentrations and risks for workers: Use in closed, continuous process with occasional controlled exposure (PROC 2)</b>           |  |
| Exposure concentrations and risks for workers   |  |

| Route of exposure and type of effects | Exposure concentration                         | Risk characterisation |
|---------------------------------------|--|-----------------------|
| Inhalation, systemic, long-term       | <b>0.01 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>0.137 mg/kg bw/day</b> (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.

**2.3.2. 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>0.069 mg/kg bw/day</b> (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.

**2.3.3. 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       | <b>0.5 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.014           |
| Dermal, systemic, long-term           | <b>0.686 mg/kg bw/day</b> (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.

**2.3.4. 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      | <b>0.5 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.014  |  |
| Dermal, systemic, long-term          | <b>1.371 mg/kg bw/day</b> (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.

**2.3.5. 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       | <b>0.5 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.014           |
| Dermal, systemic, long-term           | <b>1.371 mg/kg bw/day</b> (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 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>1.371 mg/kg bw/day</b> (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.

**2.3.7. 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>0.686 mg/kg bw/day</b> (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.

**2.3.8. 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>1.371 mg/kg bw/day</b> (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.

**2.3.9. Exposure concentrations and risks for workers: Production of preparations or articles by tableting, compression, extrusion, palletisation (PROC 14)**

Exposure concentrations and risks for workers

| Route of exposure and type of effects | Exposure concentration                        | Risk characterisation |
|---------------------------------------|---|-----------------------|
| Inhalation, systemic, long-term       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>0.343 mg/kg bw/day</b> (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.

**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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>0.034 mg/kg bw/day</b> (TRA Workers 3.0)   | RCR < 0.01            |
| Dermal, local, long-term              |   | Qualitative*          |
| Eye, local                            |   | Qualitative*          |

|   |  |                          |  |
|---|--|--------------------------|--|
| Combined routes, systemic, long-term  |  | RCR < 0.01               |  |
| <b>*Conclusion on risk characterisation (qualitative)</b><br><u>Dermal, local, long-term</u><br>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.<br><u>Eye, local</u><br>As eye protection is worn, the risk of causing ocular effects is considered to be controlled.   |  |                          |  |
| <b>2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES</b><br>No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers   |  |                          |  |
| <b>5. Exposure scenario 5: Use by professional worker - Use by professional worker (outdoor and indoor of reactive substances in open systems)</b>  |  |                          |  |
| <b>5.1. Use by professional worker - Use by professional worker (outdoor and indoor of reactive substances in open systems)</b>   |  |                          |  |
| <b>Sector of use / NACE code:</b><br>SU 1, Agriculture, forestry, fishery<br>SU 2a, Mining (without offshore industries)<br>SU 10, Formulation [mixing] of preparations and/or re-packaging (excluding alloys)<br>SU 19, Building and construction work<br>SU 23, Electricity, steam, gas water supply and sewage treatment<br>B8.1, Quarrying of stone, sand and clay<br><br><b>Product category:</b><br>PC 11, Explosives<br>PC 12, Fertilisers<br>PC 37, Water treatment chemicals |  |                          |  |
| <b>Environment contributing scenario(s):</b>  |  |                          |  |
| Use by professional worker (outdoor and indoor of reactive substances in open systems)  |  | ERC 8e, ERC 8b           |  |
| <b>Worker contributing scenario(s):</b>   |  |                          |  |
| 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                  |  |
| <b>5.2. Conditions of use affecting exposure</b>  |  |                          |  |
| <b>5.2.1. Environmental contributing scenario (1): Use by professional worker (outdoor and indoor of reactive substances in open systems) (ERC 8e), (ERC 8b)</b>  |  |                          |  |
| 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.  |  |                          |  |
| <b>5.2.2. Worker contributing scenario (1): Use in closed process, no likelihood of exposure (PROC 1)</b>   |  |                          |  |
| <b>Product (article) characteristics</b>  |  |                          |  |
| • Concentration of substance in mixture:  |  | ≤ 100% (solid or liquid) |  |
| • Concentration of substance (used for exposure estimates):   |  | Substance as such        |  |
| • Dustiness of material:  |  | Low                      |  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |  |                          |  |

|  |  |
|--|--|
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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 System:  | Basic  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>                                   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | One hand face only (240 cm <sup>2</sup> )  |
| <b>5.2.3. Worker contributing scenario (2): Use in closed, continuous process with occasional controlled exposure (PROC 2)</b> |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>                                   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands face (480 cm <sup>2</sup> )  |
| <b>5.2.4. Worker contributing scenario (3): Use in closed batch process (synthesis or formulation) (PROC 3)</b>                |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>                                   |  |

|   |  |  |
|---|--|--|
| • 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)      |  |
| <b>Other conditions affecting workers exposure</b>  |  |  |
| • Place of use:   | Indoor   |  |
| • Skin surface potentially exposed:   | One hand face only (240 cm <sup>2</sup> )  |  |
| <b>5.2.5. Worker contributing scenario (4): Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC 5)</b> |  |  |
| <b>Product (article) characteristics</b>  |  |  |
| • Concentration of substance in mixture:  | ≤ 100% (solid or liquid)   |  |
| • Concentration of substance (used for exposure estimates):   | Substance as such  |  |
| • Dustiness of material:  | Low  |  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |  |  |
| • Duration of activity:   | < 8 hours  |  |
| <b>Technical and organisational conditions and measures</b>   |  |  |
| • 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  |  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>  |  |  |
| • 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)      |  |
| <b>Other conditions affecting workers exposure</b>  |  |  |
| • Place of use:   | Indoor   |  |
| • Skin surface potentially exposed:   | Two hands face (480 cm <sup>2</sup> )  |  |
| <b>5.2.6. Worker contributing scenario (5): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a)</b>  |  |  |
| <b>Product (article) characteristics</b>  |  |  |
| • Concentration of substance in mixture:  | ≤ 100% (solid or liquid)   |  |
| • Concentration of substance (used for exposure estimates):   | Substance as such  |  |
| • Dustiness of material:  | Low  |  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |  |  |
| • Duration of activity:   | < 8 hours  |  |
| <b>Technical and organisational conditions and measures</b>   |  |  |
| • 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  |  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>  |  |  |
| • 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)      |  |
| <b>Other conditions affecting workers exposure</b>  |  |  |

|  |  |
|--|--|
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands (960 cm <sup>2</sup> )   |
| <b>5.2.7. Worker contributing scenario (6): Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b)</b> |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands (960 cm <sup>2</sup> )   |
| <b>5.2.8. Worker contributing scenario (7): Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC 9)</b>               |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>   |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands face (480 cm <sup>2</sup> )  |
| <b>2.2.9. Worker contributing scenario (8): Non industrial spraying (PROC 11)</b>  |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |

| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>                                  |  |
|--|--|
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>                           |  |
| • 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)  |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands and upper wrists (1500 cm <sup>2</sup> )   |
| <b>5.2.10. Worker contributing scenario (9): Use as laboratory reagent (PROC 15)</b>                                   |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>                                  |  |
| • Duration of activity:  | < 8 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>                           |  |
| • 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)  |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | One hand face only (240 cm <sup>2</sup> )  |
| <b>5.2.11. Worker contributing scenario (10): : Hand-mixing with intimate contact and only PPE available (PROC 19)</b> |  |
| <b>Product (article) characteristics</b>   |  |
| • Concentration of substance in mixture:   | ≤ 100% (solid or liquid)   |
| • Concentration of substance (used for exposure estimates):  | Substance as such  |
| • Dustiness of material:   | Low  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>                                  |  |
| • Duration of activity:  | < 1 hours  |
| <b>Technical and organisational conditions and measures</b>  |  |
| • 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  |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b> |  |
| • 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)      |
| <b>Other conditions affecting workers exposure</b>   |  |
| • Place of use:  | Indoor   |
| • Skin surface potentially exposed:  | Two hands and forearms face (1980240 cm <sup>2</sup> )   |

### 5.3. Exposure estimation and reference to its source

#### 5.3.1. 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       | <b>0.01 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>0.003 mg/kg bw/day</b> (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.

#### 5.3.2. 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       | <b>0.01 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>0.137 mg/kg bw/day</b> (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.

#### 5.3.3. 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |

|                                      |   |              |  |
|--------------------------------------|---|--------------|--|
| Dermal, systemic, long-term          | <b>0.069 mg/kg bw/day</b> (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.

**5.3.4. 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.028           |
| Dermal, systemic, long-term           | <b>1.371 mg/kg bw/day</b> (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.

**5.3.5. 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       | <b>0.5 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.014           |
| Dermal, systemic, long-term           | <b>1.371 mg/kg bw/day</b> (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.

**5.3.6. 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       | <b>0.5 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.014           |
| Dermal, systemic, long-term           | <b>1.371 mg/kg bw/day</b> (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.

**5.3.7. 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |
| Dermal, systemic, long-term           | <b>1.371 mg/kg bw/day</b> (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.

**5.3.8. 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       | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.014             |
| Dermal, systemic, long-term           | <b>0.686 mg/kg bw/day</b> (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.

**5.3.9. 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       | <b>1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR = 0.028           |
| Dermal, systemic, long-term           | <b>4.284 mg/kg bw/day</b> (TRA Workers 3.0) | RCR = 0.837           |
| Dermal, local, long-term              |   | Qualitative*          |
| Eye, local                            |   | Qualitative*          |
| Combined routes, systemic, long-term  |   | RCR = 0.865           |

| term  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
|---|---|-----------------------|---------------------------------------|------------------------|-----------------------|---------------------------------|---|------------|-----------------------------|---|------------|--------------------------|--|--------------|------------|--|--------------|--------------------------------------|--|------------|
| <p><b>*Conclusion on risk characterisation (qualitative)</b></p> <p><u>Dermal, local, long-term</u><br/>                 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.</p> <p><u>Eye, local</u><br/>                 As eye protection is worn, the risk of causing ocular effects is considered to be controlled.</p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>5.3.10. Exposure concentrations and risks for workers: Use as laboratory reagent (PROC 15)</b></p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p>Exposure concentrations and risks for workers</p> <table border="1"> <thead> <tr> <th>Route of exposure and type of effects</th> <th>Exposure concentration</th> <th>Risk characterisation</th> </tr> </thead> <tbody> <tr> <td>Inhalation, systemic, long-term</td> <td><b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0)</td> <td>RCR &lt; 0.01</td> </tr> <tr> <td>Dermal, systemic, long-term</td> <td><b>0.034 mg/kg bw/day</b> (TRA Workers 3.0)</td> <td>RCR &lt; 0.01</td> </tr> <tr> <td>Dermal, local, long-term</td> <td></td> <td>Qualitative*</td> </tr> <tr> <td>Eye, local</td> <td></td> <td>Qualitative*</td> </tr> <tr> <td>Combined routes, systemic, long-term</td> <td></td> <td>RCR &lt; 0.01</td> </tr> </tbody> </table> |   |                       | Route of exposure and type of effects | Exposure concentration | Risk characterisation | Inhalation, systemic, long-term | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01 | Dermal, systemic, long-term | <b>0.034 mg/kg bw/day</b> (TRA Workers 3.0) | RCR < 0.01 | Dermal, local, long-term |  | Qualitative* | Eye, local |  | Qualitative* | Combined routes, systemic, long-term |  | RCR < 0.01 |
| Route of exposure and type of effects   | Exposure concentration                        | Risk characterisation |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Inhalation, systemic, long-term   | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Dermal, systemic, long-term   | <b>0.034 mg/kg bw/day</b> (TRA Workers 3.0)   | RCR < 0.01            |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Dermal, local, long-term  |   | Qualitative*          |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Eye, local  |   | Qualitative*          |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Combined routes, systemic, long-term  |   | RCR < 0.01            |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>*Conclusion on risk characterisation (qualitative)</b></p> <p><u>Dermal, local, long-term</u><br/>                 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.</p> <p><u>Eye, local</u><br/>                 As eye protection is worn, the risk of causing ocular effects is considered to be controlled.</p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>5.3.11. Exposure concentrations and risks for workers: : Hand-mixing with intimate contact and only PPE available (PROC 19)</b></p>   |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p>Exposure concentrations and risks for workers</p> <table border="1"> <thead> <tr> <th>Route of exposure and type of effects</th> <th>Exposure concentration</th> <th>Risk characterisation</th> </tr> </thead> <tbody> <tr> <td>Inhalation, systemic, long-term</td> <td><b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0)</td> <td>RCR &lt; 0.01</td> </tr> <tr> <td>Dermal, systemic, long-term</td> <td><b>2.829 mg/kg bw/day</b> (TRA Workers 3.0)</td> <td>RCR =0.552</td> </tr> <tr> <td>Dermal, local, long-term</td> <td></td> <td>Qualitative*</td> </tr> <tr> <td>Eye, local</td> <td></td> <td>Qualitative*</td> </tr> <tr> <td>Combined routes, systemic, long-term</td> <td></td> <td>RCR =0.555</td> </tr> </tbody> </table>       |   |                       | Route of exposure and type of effects | Exposure concentration | Risk characterisation | Inhalation, systemic, long-term | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01 | Dermal, systemic, long-term | <b>2.829 mg/kg bw/day</b> (TRA Workers 3.0) | RCR =0.552 | Dermal, local, long-term |  | Qualitative* | Eye, local |  | Qualitative* | Combined routes, systemic, long-term |  | RCR =0.555 |
| Route of exposure and type of effects   | Exposure concentration                        | Risk characterisation |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Inhalation, systemic, long-term   | <b>0.1 mg/m<sup>3</sup></b> (TRA Workers 3.0) | RCR < 0.01            |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Dermal, systemic, long-term   | <b>2.829 mg/kg bw/day</b> (TRA Workers 3.0)   | RCR =0.552            |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Dermal, local, long-term  |   | Qualitative*          |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Eye, local  |   | Qualitative*          |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| Combined routes, systemic, long-term  |   | RCR =0.555            |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>*Conclusion on risk characterisation (qualitative)</b></p> <p><u>Dermal, local, long-term</u><br/>                 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.</p> <p><u>Eye, local</u><br/>                 As eye protection is worn, the risk of causing ocular effects is considered to be controlled.</p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES</b></p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p>No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers</p>   |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>Exposure scenario 6: Consumer Use - Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer</b></p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>6.1 Consumer Use - Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer</b></p>   |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>Product category / UCN code:</b><br/>                 PC 1, Adhesives, sealants; PC 12, Fertilisers;<br/>                 S50200, Pyrotechnical products</p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>Environment contributing scenario(s):</b></p>   |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| 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        |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |
| <p><b>Consumer contributing scenario(s):</b></p>  |   |                       |                                       |                        |                       |                                 |   |            |                             |   |            |                          |  |              |            |  |              |                                      |  |            |

|  |  |                              |
|--|--|------------------------------|
| 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  |                              |
| <b>6.2. Conditions of use affecting exposure</b>   |  |                              |
| <b>6.2.1. 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)</b> |  |                              |
| 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  |  |                              |
| <b>6.2.2. 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)</b>                                |  |                              |
| <b>Product (article) characteristics</b>   |  |                              |
| • Concentration of substance in mixture:   | = 0.3 g/g (default)  |                              |
| <b>Measures related to information and behavioural advice to consumers including personal protection and hygiene</b>   |  |                              |
| • Adult/Child assumed:   | Adult  |                              |
| • Use frequency  | : Infrequent   |                              |
| <b>Other conditions affecting consumers exposure</b>   |  |                              |
| • Body parts potentially exposed:  | Inside hands / one hand / palm of hands (428.8 cm <sup>2</sup> ) |                              |
| • Dermal transfer factor:  | = 1  |                              |
| <b>6.2.3. Consumer contributing scenario 2: Consumer Use (outdoor and indoor) as part of fertilizer (PC 12)</b>  |  |                              |
| <b>Product (article) characteristics</b>   |  |                              |
| • Concentration of substance in mixture:   | = 0.5 g/g (default)  |                              |
| <b>Measures related to information and behavioural advice to consumers including personal protection and hygiene</b>   |  |                              |
| • Adult/Child assumed:   | Adult  |                              |
| • Use frequency  | : Infrequent   |                              |
| <b>Other conditions affecting consumers exposure</b>   |  |                              |
| • Body parts potentially exposed:  | Inside hands / one hand / palm of hands (428.8 cm <sup>2</sup> ) |                              |
| • Dermal transfer factor:  | = 1  |                              |
| <b>6.3 Exposure estimation and reference to its source</b>   |  |                              |
| <b>6.3.1 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)</b>                                  |  |                              |
| Exposure and risk for consumers  |  |                              |
| <b>Route of exposure and type of effects</b>   | <b>Exposure concentration</b>                                    | <b>Risk characterisation</b> |
| Dermal, systemic, long-term  | <b>0.858 mg/kg bw/day</b> (TRA Consumer 3.1)                     | RCR = 0.335                  |
| Combined routes, systemic, long-term   |  | RCR = 0.335                  |
| <b>6.3.2 Exposure and risk for consumers: Consumer Use (outdoor and indoor) as part of fertilizer (PC 12)</b>  |  |                              |
| Exposure and risk for consumers  |  |                              |
| <b>Route of exposure and type of effects</b>   | <b>Exposure concentration</b>                                    | <b>Risk characterisation</b> |
| Dermal, systemic, long-term  | <b>1.429 mg/kg bw/day</b> (TRA Consumer 3.1)                     | RCR = 0.558                  |
| Combined routes, systemic, long-term   |  | RCR = 0.558                  |
| <b>6.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES</b>   |  |                              |
| No additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers   |  |                              |