



# EXPOSURE SCENARIO FOR COMMUNICATION

**Substance Name:** Liquid ammonia

**EC Number:** 231-635-3

**CAS Number:** 7664-41-7

**Registration Number:**

**Date of Generation/Revision:** 22/02/2024

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# 1. ES 1: Widespread use by professional workers; Fertilizers (PC 12); Agriculture, forestry, fishery (SU 1)

## 1.1. Title section

ES name: *Professional use of liquid fertilizers*

Product category: Fertilizers (PC 12)

Sector of use: Agriculture, forestry, fishery (SU 1)

|   |                |
|---|----------------|
| <b>Environment</b>  |                |
| 1: <i>Outdoor use - direct injection of liquid fertilizers into the soil</i>  | ERC 8e, ERC 8b |
| <b>Worker</b>   |                |
| 2: <i>Unloading and loading of liquid fertilizer in dedicated facilities (e.g. in greenhouses where dedicated engineering controls are in place), including sampling (outdoor, with RPE).</i> | PROC 8b        |

## 1.2. Conditions of use affecting exposure

### 1.2.1. Control of environmental exposure: *Outdoor use - direct injection of liquid fertilizers into the soil* (ERC 8e, ERC 8b)

|   |
|---|
| <b>Amount used, frequency and duration of use (or from service life)</b>  |
| Highest acceptable application rate: 89 kg NH <sub>3</sub> /ha.<br>Frequency of application: maximum once per year.<br>The product should not be applied to soils with pH < 5.  |
| <b>Technical and organisational conditions and measures</b>   |
| Controlled application to agricultural soil.<br><br>Operators to comply with European and national requirements specified under Cross-Compliance of the Common Agricultural Policy of the EU<br>( <a href="https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/income-support/cross-compliance_en">https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/income-support/cross-compliance_en</a> ) |
| <b>Conditions and measures related to biological sewage treatment plant</b>   |
| STP is not relevant for this scenario (i.e. Directly inject ammonia into the agricultural soil as fertilizer)   |
| <b>Conditions and measures related to external treatment of waste (including article waste)</b>   |
| Dispose of waste product or used containers according to local regulations.   |
| <b>Other conditions affecting environmental exposure</b>  |
| Outdoor use   |
| No water contact during use.  |

### 1.2.2. Control of worker exposure: *Unloading and loading of liquid fertilizer in dedicated facilities (e.g. in greenhouses where dedicated engineering controls are in place), including sampling (outdoor, with RPE).* (PROC 8b)

|   |
|---|
| <b>Product (article) characteristics</b>  |
| Covers concentrations up to 100 %<br>Liquefied gas  |
| <b>Amount used (or contained in articles), frequency and duration of use/exposure</b>   |
| Covers use up to 0.25 h/day   |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>  |
| Use suitable eye protection.<br>Wear a respirator which reduces the air impurities by at least a factor of 20 (APF ≥ 20). For further |



|  |
|--|
| specification, refer to section 8 of the SDS   |
| Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. |
| <b>Other conditions affecting workers exposure</b>   |
| Outdoor use  |
| Assumes process temperature up to 40 °C  |

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

#### 1.3.1. Environmental release and exposure: *Outdoor use - direct injection of liquid fertilizers into the soil (ERC 8e)*

| Release route | Release rate | Release estimation method |
|---------------|--------------|---------------------------|
| Water         | 0 kg/day     | Estimated release factor  |
| Air           | 0 kg/day     | Estimated release factor  |
| Soil          | 195.8 kg/day | Estimated release factor  |

| Protection target                                   | Exposure estimate  | RCR    |
|---|--|--------|
| Fresh water   | 3.87E-4 mg/L (FOCUS. Soil persistence models and EU registration.)             | 0.387  |
| Marine water  | 5.36E-5 mg/L (FOCUS. Soil persistence models and EU registration.)             | 0.054  |
| Agricultural soil                                   | 5.113 mg/kg dw (FOCUS. Soil persistence models and EU registration.)           | 0.979  |
| Man via environment - Inhalation (systemic effects) | 7.4E-4 mg/m <sup>3</sup> (FOCUS. Soil persistence models and EU registration.) | < 0.01 |
| Man via environment - Inhalation (local effects)    | 7.4E-4 mg/m <sup>3</sup> (FOCUS. Soil persistence models and EU registration.) | < 0.01 |

#### 1.3.2. Worker exposure: *Unloading and loading of liquid fertilizer in dedicated facilities (e.g. in greenhouses where dedicated engineering controls are in place), including sampling (outdoor, with RPE). (PROC 8b)*

| Route of exposure and type of effects | Exposure estimate                         | RCR   |
|---------------------------------------|---|-------|
| Inhalation, systemic, long term       | 0.621 mg/m <sup>3</sup> (TRA Workers 3.0) | 0.013 |
| Inhalation, systemic, acute           | 24.83 mg/m <sup>3</sup> (TRA Workers 3.0) | 0.522 |
| Inhalation, local, long term          | 0.621 mg/m <sup>3</sup> (TRA Workers 3.0) | 0.044 |
| Dermal, systemic, long term           | 0.137 mg/kg bw/day (TRA Workers 3.0)      | 0.02  |
| Combined, systemic, long term         |   | 0.033 |

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

Guidance: There are no scaling options for the exposure scenario.