# Extended Safety Data Sheet

Conforms to REGULATION (EU) No 453/2010

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| **Version:** | **Revision 1** |
| **Issue date:** | **05/08/2021** |

# GROUP 1 HAZ

# AMMONIUM NITRATE UN2067

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| **1** | **Identification of the substance/mixture and of the company/undertaking** | |
| **1.1** | **Product indentifier** | |
| | **Product/Trade name** | Straight Ammonium Nitrate and inert. As indicated on packaging by PSDS Group 1A marking and nutrient inclusion. |
| | **Common chemical name** | Ammonium Nitrate |
| | **Synonyms** | Ammonium nitrate fertilizer, Nitric acid ammonium salt. |
| | **Chemical formula** | $NH_4NO_3$ |
| | **EU index number** | Not listed. |
| | **EC No** | 229-347-8 |
| | **CAS No.** | 6484-52-2 |
| | **REACH Registration Number** | 01-2119490981-27 |
| | **National Product Registration Number, where appropriate.** | N/A |
| **1.2** | **Relevant identified uses of the substance or mixture and uses advised against** | |
| | **Use of the substance/mixture** | Fertilizer. |
| | **Title** | **Use Descriptors.** |
| | **Manufacturer of substances, ES Ref: 1** | PROC 5, PROC 8a, PROC 8b, PROC 9, ERC 1, ERC 8b, ERC 8e, PC12, SU1, SU10. |
| | **Professional Use, ES Ref: 2** | PROC 5, PROC 8a, PROC 8b, PROC 9, ERC 1, ERC 8b, ERC 8e, PC12, SU1, SU10. |
| | **Full text of use descriptors see Annex to the Extended Safety Data Sheet.** | |
| | **Uses advised against** | All non-agricultural fertilizer use. |
| **1.3** | **Details of the supplier of the safety data sheet** | |
| | **Manufacturer/Importer/Supplier** | Manufacturer |
| | | Company name: Mole Valley Forage Services Ltd |
| | | Full address: 8 shed, South Dock, Alexandra Dock, Newport, NP20 2NP. |
| | | Tel: 01769 576450 |
| | **Email address of the person responsible for SDS** | Email address; reece.woolgar@mvfs.co.uk |
| **1.4** | **Emergency telephone number** | Tel; 01769 576227<br>Out of hours; 07814284067 |

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| **2** | **Hazards identification** | | |
| **2.1** | **Classification of the substance or mixture** | | |
| | **Classification in accordance with Regulation 1272/2008 (CLP)** | Ox. Sol 3, H272<br>Eye Irrit. 2, H319 | |
| | **Hazard statement(s)** | H272<br>H319 | May intensify fire; oxidiser.<br>Causes serious eye irritation. |
| | **Classification in accordance with Directive 67/548 (DSD)** | O; R8, Xi; R36 | |
| | **Risk phrase(s)** | R8<br>R36 | Contact with combustible material may cause fire.<br>Irritating to eyes. |
| **2.2** | **Label elements** | Labelling in accordance with Regulation 1272/2008 (CLP) | |

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| | **Hazard pictogram(s)** |  |
| | **Signal word** | Warning |
| | **Hazard statement(s)** | H272 May intensify fire; oxidiser.<br>H319 Causes serious eye irritation. |
| | **Precautionary statement(s)** | P210 Keep away from heat, sparks, open flames & hot surfaces. — No smoking.<br>P220 Keep/Store away from combustible materials & chemicals.<br>P280 Wear eye protection.<br>P370+P378 In case of fire: Use copious quantities of water.<br>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P337+P313 If eye irritation persists: Get medical attention.<br>P221 Take any precautions to avoid mixing with combustibles/.<br>P264 Wash hands thoroughly after handling. |
| **2.3** | **Other hazards** | |
| | **PBT/vPvB criteria** | According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since ammonium nitrate is inorganic. |
| | **Other hazards which do not result in classification** | |
| | **Physical and chemical hazards** | Fertilizers are basically harmless products when handled correctly.<br>However, the following points should be noted for fire, heating and detonation.<br>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. It has high resistance to detonation. Heating under strong confinement can lead to explosive behaviour. |
| | **Health hazards** | The fertilizers are basically harmless products when handled correctly. However, prolonged or repeated contact with skin may cause discomfort, ingestion of large quantities may give rise to gastro-intestinal disorders and inhalation of dust at high concentrations may cause irritation of the nose and upper respiratory tract with symptoms such as sore throat and coughing. There are no known long term effects. |
| | **Environmental hazards** | Ammonium nitrate is a nitrogen fertilizer. Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters or nitrate contamination. See Section 12. |

## 3 Composition/information on ingredients

**Hazardous ingredients**

| Chemical name | CAS no. | EC no. | Generic REACH Reg No.) | Classification Regulation (EC) No. 1272/2008 | Classification Directive 67/548/EEC | % (w/w) |
|---|---|---|---|---|---|---|
| Ammonium nitrate | 6484-52-2 | 229-347-8 | 01-2119490981-27 | Oxid. Solid 3, H272<br>Eye Irrit. 2, H319 | O; R8<br>Xi; R36 | ≥45 to ≤70% |

**Other ingredients**

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*EC no. means EINECS or ELINCS number.*

## 4 First aid measures

### 4.1 Description of first aid measures

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| **General** | In some cases medical attention necessary (see below). |
| **Inhalation** | Remove from source of exposure to dusts to fresh air.<br>Obtain medical attention if ill effects occur. |
| **Ingestion** | Do not induce vomiting unless directed to do so by medical personnel.<br>Rinse mouth and then give water or milk to drink.<br>Obtain medical attention if more than a small quantity has been swallowed.<br>NOTE; never give an unconscious person anything to drink. |
| **Skin contact** | Wash the affected area with water. |

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| | **Eye contact** | Flush/irrigate eyes, including under the eyelids, with copious amounts of water for at least 15 minutes.<br>Remove contact lenses if present and easy to do so. Continue rinsing.<br>Obtain medical attention if eye irritation persists. |
| **4.2** | **Most important symptoms and effects, both acute and delayed** | |
| | **Acute effects** | Eye irritation |
| | **Delayed effects** | None known |
| **4.3** | **Indication of any immediate medical attention and special treatment needed** | |
| | **Note to physician** | Inhalation of fire and thermal decomposition gases, containing oxides of nitrogen, ammonia, can cause irritation and corrosive effects on the respiratory system. Some lung effects may be delayed. Give oxygen, especially if there is blueness around the mouth. |

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| **5** | **Fire-fighting measures** | |
| **5.1** | **Extinguishing media** | |
| | **Suitable extinguishing media** | **If fertilizer is not directly involved in the fire**<br>Use the best means available to extinguish the fire.<br>**If fertilizer is involved in the fire**<br>Use plenty of water. |
| | **Unsuitable extinguishing media** | Do not use chemical extinguishers or foams or attempt to smother the fire with steam or sand. |
| **5.2** | **Special hazards arising from the substance or mixture** | |
| | **Specific hazards** | Potential explosion hazard under fire conditions when severely confined and/or contaminted with incompatible materials (e.g. organic materials, halogenated compounds - see Section 10)<br>Do not allow molten fertilizers to run into drains. |
| | **Hazardous thermal decomposition and combustion products** | Oxides of nitrogen, ammonia. |
| **5.3** | **Advice for firefighters** | |
| | **Special fire fighting procedures** | Open doors and windows of the store to give maximum ventilation.<br>Avoid breathing the fumes (toxic); stand up-wind of the fire.<br>Prevent any contamination of fertilizer by oils or other combustible materials. |
| | **Special protective equipment for fire-fighters** | Use a self-contained breathing apparatus if fumes are being entered. |

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| **6** | **Accidental release measures** | |
| **6.1** | **Personal precautions, protective equipment and emergency procedures** | Avoid walking through spilled product and exposure to dust. |
| **6.2** | **Environmental precautions** | Take care to avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses. |
| **6.3** | **Methods and material for containment and cleaning up** | Any spillage of fertilizer should be cleaned up promptly, swept up and placed in a clean labelled open container for safe disposal, avoiding dusty conditions.<br>Do not mix with sawdust and other combustible or organic substances.<br>Dilute any contaminated or fine grained fertilizer with inert materials such as limestone/dolomite, mineral phosphate, gypsum, sand or dissolve in water. |
| **6.4** | **Reference to other sections** | |
| | See section 1 for emergency contact information, section 8 for personal protective equipment and section 13 for waste disposal. | |

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| **7** | **Handling and storage** | |
| | The information in this section contains generic advice and guidance. The list of identified uses given in section 1 should be considered for any use-specific information provided in the Exposure Scenario(s). | |
| **7.1** | **Precautions for safe handling** | Avoid excessive generation of dust.<br>Avoid contamination by combustible (e.g. diesel oil, grease, etc.) and/or other incompatible materials.<br>Avoid unnecessary exposure to the atmosphere to prevent moisture pick-up.<br>When handling the product over long periods use appropriate personal protective equipment, e.g. gloves.<br>Carefully clean all equipment prior to maintenance and repair. |

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| **7.2** | **Conditions for safe storage, including any incompatibilities** | Store in compliance with national and local regulations.<br>Locate away from the sources of heat or fire.<br>Keep away from combustible materials and substances mentioned under Section10.<br>On farm, ensure that the fertilizer is not stored near hay, straw, grain, diesel oil, etc.<br>When stored loose, take particular care to avoid mixing with other fertilizers.<br>Ensure high standard of housekeeping in the storage area.<br>Do not permit smoking and use of naked lights in the storage areas.<br>Restrict stack size (according to local regulations) and keep at least 1m distance around the stacks of bagged products.<br>Any building used for the storage should be dry and well ventilated.<br>Where the nature of the bagged product and climatic conditions so require, store under conditions that will avoid product breakdown by thermal cycling (wide variation in temperature).<br>The product should not be stored in direct sunlight to avoid physical breakdown due to thermal cycling.<br><br>Packaging materials:<br>Plastic synthetic materials, steel and aluminum are suitable. Avoid use of copper and zinc. |
| **7.3** | **Specific end use(s)** | As a fertilizer. |

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| **8** | **Exposure controls/personal protection** |
| | The information in this section contains generic advice and guidance. The list of identified uses given in section 1 should be considered for any use-specific information provided in the Exposure Scenario(s). |
| **8.1** | **Control parameters** |

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| | **Regulated Exposure limit values** | No specific EU official limit. | | | | | |
| | **Recommended occupational and consumer exposure limit values (following from the performed CSA):** | Exposure pattern Derived No Effect Level (DNEL)<br>Workers / General population<br>Oral: Not applicable / 12.8 mg/kg bw/day<br>Dermal: 21.3 mg/kg bw/day / 12.8 mg/kg bw/day<br>Inhalation: 37.6 mg/m3 / 11.1 mg/m3<br>The long-term DNEL is considered sufficient to ensure that effects from acute exposure to the substance do not occur. | | | | | |
| | **PNEC** | fresh water; mg/l | marine water; mg/l | Intermittent use/release; mg/l | Sewage treatment plant; mg/l | Freshwater sediment mg/kg/dw | Soil mg/kg/dw |
| | **Ammonium nitrate** | 0.45 | 0.045 | 4.5 | 18 | Not given | Not given |

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| **8.2** | **Exposure controls** | |
| | **Appropriate engineering measures** | Avoid high dust concentration and provide ventilation where necessary. |
| | **Hygienic measures** | When handling the product do not eat, drink or smoke. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the working period. |
| | **Individual protection** | |
| | **Respiratory system** | If dust concentration is high and/or ventilation is inadequate, use suitable dust mask or respirator with an appropriate filter; EN 136, EN 140, EN143, EN149, Filters P2 |
| | **Skin and body** | Working clothes. |
| | **Hands** | Wear suitable gloves (e.g. plastic, rubber or leather) when handling the product over long periods. |
| | **Eyes** | Recommended: safety glasses with side shields (EN 166). Wear safety glasses with side protection or safety goggles, (EN166). |
| | **Environmental exposure controls** | Avoid the contamination of watercourses and drains and inform the appropriate authority in case of accidental contamination of watercourses.<br>Do not flush into surface water or sanitary sewer system. |

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| **9** | **Physical and chemical properties** | |
| **9.1** | **Information on basic physical and chemical properties** | |
| | **Appearance** | White or cream granules or prills unless deliberately coloured during manufacture. |
| | **Odour** | Odourless. |
| | **Odour threshold** | Not applicable. |
| | **pH** | pH water solution (100 g/l at 20°C) > 4.5. |
| | **Melting point/freezing point** | 160-170°C depending on moisture content. |
| | **Initial boiling point and boiling range** | No boiling point, decomposes > 210 ºC |
| | **Flash point** | Not relevant, as the substance is an inorganic solid. |
| | **Evaporation rate** | Not applicable |
| | **Flammability (solid, gas)** | Non flammable. |
| | **Upper/lower flammability or explosive limits** | Not applicable. |
| | **Explosive properties** | The fertilizer has a high resistance to detonation.<br>This resistance is decreased by the presence of contaminants and/or high temperatures.<br>Heating under strong confinement (e.g. in tubes or drains) may lead to a violent reaction or explosion especially if there is contamination by some of the substances mentioned under Section 10. |
| | **Auto-ignition temperature** | Ammonium nitrate fertilizer is not combustible. |
| | **Decomposition temperature** | Starts to decompose above appox. 170°C |
| | **Minimum ignition energy** | Not applicable |
| | **Oxidising properties** | |
| | **Critical temperature** | Not applicable |
| | **Relative density** | Not applicable. |
| | **Density** | Not determined. |
| | **Loose bulk density** | Normally between 1000-1050 kg/$m^3$. |
| | **Vapour pressure at 20°C** | Considered negligible (based on melting and boiling point). |
| | **Vapour density** | Not applicable |
| | **Partition coefficient (n-octanol/water)** | Not applicable |
| | **Viscosity** | Not applicable to solids |
| | **Mean particle size** | 2-4mm |
| | **Water solubility** | >100 g/l at 20ºC.<br>Hygroscopic - readily picks up moisture from the air. |
| | **Surface tension** | Not surface active (based on molecular structure) |
| **9.2** | **Other information** | |
| | **Miscibility** | Not applicable |
| | **Fat solubility** | No available |
| | **Gas group** | Not applicable |
| | **Remarks** | Molecular weight 80 for main ingredient ammonium nitrate. |

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| **10** | **Stability and reactivity** | |
| **10.1** | **Reactivity** | Stable under recommended storage and handling conditions (see section 7, handling and storage). |
| **10.2** | **Chemical stability** | Stable under recommended storage and handling conditions (see section 7, handling and storage). |
| **10.3** | **Possibility of hazardous reactions** | When heated, can decompose. |
| **10.4** | **Conditions to avoid** | Heating above 170°C (decomposes to gases).<br>Contamination by incompatible materials.<br>Unnecessary exposure to the atmosphere.<br>Sources of heat or fire close to the product.<br>Heating under confinement.<br>Welding or hot work on equipment or plant which may have contained fertilizer without first washing thoroughly to remove all fertilizer. |

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| **10.5** | **Incompatible materials** | Combustible materials, reducing agents, acids, alkalis, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, metallic powders and substances containing metals such as copper, nickel, cobalt, zinc and their alloys. | |
| **10.6** | **Hazardous decomposition products** | For fire situation: see section 5.<br>When strongly heated, it melts and decomposes releasing toxic fumes (e.g. $NO_x$, ammonia)<br>When in contact with alkaline material such as lime, may give off ammonia gas.<br>See also Sections 2 and 9. | |

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| **11** | **Toxicological information** | | |
| **11.1** | **Information on toxicological effects** | | |
| | **Toxicokinetics, metabolism and distribution** | Not available | |
| | **Acute toxicity** | Ingredients | |
| | **Acute oral toxicity** | Ammonium nitrate | LD50: 2950 mg/kg bw (OECD 401) |
| | **Acute dermal toxicity** | Ammonium nitrate | LD50: > 5000 mg/kg bw (OECD 402) |
| | **Acute inhalation toxicity** | Ammonium nitrate | LC50: > 88.8 mg/l (no guideline followed) |
| | **Local effects** | | |
| | **Skin irritation** | Product | Not irritating (OECD 404) |
| | **Eye irritation** | Product | Irritating (OECD 405) |
| | **Skin sensitisation** | Not sensitizing (OECD 429, with magnesium nitrate, nitric acid ammonium calcium salt, sodium nitrate). | |
| | **Other** | | |
| | **Sub-acute toxicity** | Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)<br>Inhalation 2-weeks NOAEL ≥ 185 mg/m3 (OECD 412) | |
| | **Mutagenicity** | Negative (OECD 471, 473, with nitric acid ammonium calcium salt)<br>Negative (OECD 476, with potassium nitrate) | |
| | **Reproductive toxicity** | Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate) | |
| | **Carcinogenicity** | Not carcinogenic. | |
| | **Remarks** | Adverse health effects are considered unlikely when the product is handled and used correctly.<br>If large quantities are ingested may give rise to gastro-intestinal disorders. | |

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| **12** | **Ecological information** | | |
| **12.1** | **Toxicity** | | |
| | **Ammonium nitrate** | Fish (short-term) | 48-h LC50: 447 mg/l (no guideline followed) |
| | | Fish (long-term) | No data |
| | | Daphnia magna (short-term) | 48-h EC50: 490 mg/l (no guideline followed, with potassium nitrate) |
| | | Daphnia magna (long-term) | No data |
| | | Algae | 10-d EC50: > 1700 mg/l (seawater, no guideline followed, performed with potassium nitrate) |
| | | Inhibition of microbial activity | 3-h EC50: >1000 mg/l, NOEC: 180 mg/l (OECD 209, with sodium nitrate) |
| **12.2** | **Persistence and degradability** | | |
| | | **Ingredient name:** | **Ammonium Nitrate** |
| | **Biodegradation** | Standard test is not applicable as the substance is inorganic. | |
| | **Hydrolysis** | No hydrolysable group is present, will completely dissociate into ions. | |
| **12.3** | **Bioaccumulative potential** | Octanol-water partition coefficient (Kow) | 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** | Low potential for adsorption (based on mixture properties);<br>Ammonium Nitrate - Very soluble in water. The $NO_3^-$ ion is mobile. The $NH_4^+$ ion is adsorbed by soil. | |

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| 12.5 | **Results of PBT and vPvB assessment** | According to Annex XIII of Regulation (EC) No 1907/2006;<br>Ammonium Nitrate - no PBT and vPvB assessment has been conducted since ammonium nitrate is inorganic. |
| 12.6 | **Other adverse effects** | Heavy spillage may cause adverse environmental impact such as eutrophication in confined surface waters. |

## 13 Disposal considerations

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| 13.1 | **Waste treatment methods** | In accordance with local and national regulations, disposed by landfill or incineration.<br>Controlled biodegradation in waste water treatment is possible. |
| | **Container** | Containers should be cleaned by appropriate method and then re-used or disposed by landfill or incineration as appropriate, in accordance with local and national regulations.<br>Do not remove label until container is thoroughly cleaned. |
| | **Methods of disposal** | Depending on degree and nature of contamination dispose of by use as fertilizer on farm, as raw material for liquid fertilizer, or to an authorised waste facility.<br>Do not empty into drains; dispose of this material and its container in a safe way and in accordance with all applicable local and national regulations.<br>See chapters 06 03 and 06 10 of the list of wastes (Commission decision 2000/532/EC) |
| | **Package waste disposal** | Empty the bag by shaking to remove as much as possible of its contents.<br>If approved by local authorities, empty bags may be disposed of as non-hazardous material or returned for recycling. |
| | *Note: see section 7 for safe handling and storage* | |

## 14 Transport information

| | | ADR/RID | ADN/ADNR | IMDG | ICAO/IATA | |
|---|---|---|---|---|---|---|
| 14.1 | **UN Number** | UN2067 | UN2067 | UN2067 | UN2067 | |
| 14.2 | **UN Proper shipping name** | Ammonium nitrate based fertilizer | Ammonium nitrate based fertilizer | Ammonium nitrate based fertilizer | Ammonium nitrate based fertilizer | |
| 14.3 | **Transport hazard class(es)** | 5.1 | 5.1 | 5.1 | 5.1 | |
| 14.4 | **Packing group** | III | III | III | III | |
| | **Label** |  |  |  |  | |
| 14.5 | **Environmental hazards** | Not applicable. | | | | |
| 14.6 | **Special precautions for user** | None. | | | | |
| 14.7 | **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** | Not applicable | | | | |

## 15 Regulatory information

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| 15.1 | **Safety, health and environmental regulation/legislation specific for the substance or mixture** | |
| | | EC 2003/2003, 96/82 EC; Seveso *Directive,* Control of Major Accident Hazards Regulations 2015, (COMAH) - UK Regulations. |
| | **Other regulations** | Regulation EC 1907/2006 (REACH), EC 2003/2003, 96/82 EC.<br>Decision No 1348/2008/EC of the European Parliament & of the Council and Commission Regulation (EC) No 552/2009. Notification and Marking of Sites Regulations 1990, (NAMOS), (as amended 2013). |
| 15.2 | **Chemical safety assessment** | In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for this substance. |

## 16 Other information

The information provided in this safety data sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any proceed, unless specified in the text.

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| **Classification in accordance with Regulation 1272/2008, as listed in Annex VI:** | None. |
| **Classification in accordance with Regulation 1272/2008, by self-classification based on the performed CSA** | Ox. Sol 3, H272<br>Eye Irrit. 2, H319 |
| **Risk phrases** | R8 Contact with combustible material may cause fire.<br>R36 Irritating to eyes. |
| **Symbols** | O oxidizing<br>Xi irritant |
| **Abbreviations and acronyms** | *Oxidizing solids category 3 (Ox. Sol 3)*<br>*Eye irritation Category 2 (Eye Irrit. 2)*<br>May intensify fire; oxidiser (H272)<br>Causes serious eye irritation (H319)<br>CLP - Classification, Labelling and Packaging Regulation, (Regulation EC No. 1272/2008).<br>CAS Number - Chemical Abstracts Number, substance registration number.<br>EC No. - European Commission substance identification number.<br>% w/w - Percentage weight for weight; percentage by weight of solute in total weight of solution.<br><br>PBT - Persistent, bioaccumulative, toxic.<br>vPvB - Very persistent, very bioaccumulative.<br>DNEL - Derived no effect level.<br>PNEL - Prescribed no effect level.<br>LC50 - Lethal concentration for 50% of subjects.<br>LD50 - Lethal dose for 50% of subjects.<br>OECD - Organisation for Economic Co-operation and Development.<br>LOAEL - Lowest observed adverse effect level.<br>NOAEL - No observed adverse effect level.<br>EC50 - Effective Concentration for 50% of subjects.<br>NOEC - No observed effect concentration.<br>LTEL - Long term exposure limit.<br>STEL - Short term exposure limit<br>TWA - Time weighted average.<br>mg/kg/bw/day - mg/kg of body weight per day.<br>mg/kg/dw - mg/kg of dry weight. |
| **Training advice** | Operators should be provided with information, instruction, training and supervision relative to this Safety Data Sheet and any subsequent COSHH assessment produced by his/her employer. |
| **Date of previous SDS** | 08/07/2010 |
| **Modifications in this version** | |
| **References** | EFMA/Fertilizers Europe Guidance documents, TFI HPV data; NOTOX gap analysis |

**Disclaimer**

The information in this Safety Data Sheet is given in good faith and belief in its accuracy based on our knowledge of the substance/preparation concerned at the date of publication. It does not imply the acceptance of any legal liability or responsibility whatsoever by Origin Fertilisers for the consequences of its use or misuse in any particular circumstances.

# ANNEX TO THE EXTENDED SAFETY DATA SHEET.

**Identification of the substance or mixture:**

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| **Product definition.** | Substance. |
| **Product name.** | Straight Ammonium Nitrate and inert. |

**Applicable text of H and EUH statements.**

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| Eye Irrit. 2 | Serious eye damage/eye irritation, Category 2. |
| Ox. Solid 3 | Oxidising solids, Category 3. |
| H272 | May intensify fire; oxidiser. |
| H319 | Causes serious eye irritation |
| ERC 1 | Manufacturer of substances. |
| ERC 8b | Wide dispersive indoor use of reactive substances in open systems. |
| ERC 8e | Wide dispersive outdoor use of reactive substances in open systems. |
| PC12 | Fertilizers. |
| PROC 5 | Mixing or blending in batch processes for formulation of preparations and articles, (multi-stage and/or significant contact). |
| PROC 8a | Transfer of substance or preparation, (charging/discharging), from/to vessels/large containers at non-dedicated facilities. |
| PROC 8b | Transfer of substance or preparation, (charging/discharging), from/to vessels/large containers at dedicated facilities. |
| PROC 9 | Transfer of substance or preparation into small containers, (dedicated filling line, including weighing). |
| PROC 19 | Hand mixing with intimate contact and only PPE available. |
| PROC 28 | Manual maintemance, (cleaning and repair), of machinery. |
| SU1 | Agriculture, forestry, fishery. |
| SU3 | Industrial uses; e.g. blending operations at factory level. |
| SU10 | Formulation, (mixing) of preparations and/or re-packaging, (excluding alloys). |
| SU22 | Professional uses; e.g. by farmers, green houses, co-operatives, distributors. |

SDS EU (REACH Annex II) - This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

**Product exposure scenario(s).**

| **ES Type** | ES Title |
|---|---|
| **Worker** | ES 1: Manufacture/dry blending of substances. |
| **Worker** | ES 2: Professional use. |

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| **1.1** | **EXPOSURE SCENARIO 1** | | |
| | **MANUFACTURE/DRY BLENDING OF SUBSTANCES** | ES Ref: 1 | |
| | | ES Type: Worker | |
| | **Use Descriptors.** | PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 28, ERC 1, ERC 8b, ERC 8e, PC12, SU1, SU3, SU10. | |
| | **Processes, tasks, activities covered.** | Manufacture/dry blending of substances for use as an agricultural fertilizer. Includes re-cycling, recovery, material transfers, storage, maintenance and loading/unloading, (includes marine vessel/barge, road/rail car and containers). | |
| | **Assessment method.** | ECETOC TRA model. | |
| **2.1** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT METHODS.** | | |
| **2.1.1** | **Contributing scenario controlling worker exposure, PROC. 5.** | | |
| | **PROC.5** | Use in dry blending where opportunity for exposure arises. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |

| | | | |
|---|---|---|---|
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Semi-closed process with occasional controlled exposure. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Building design - physical barriers. Plant design. Selection and suitability of mobile plant. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.1.2** | **Contributing scenario controlling worker exposure, PROC. 8a.** | | |
| | **PROC. 8a** | Transfer of substance, (charging/discharging), from/to vessels/large containers at non dedicated facilities. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor/outdoor. | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | | | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Selection and suitability of mobile plant. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.1.3** | **Contributing scenario controlling worker exposure, PROC. 8b.** | | |
| | **PROC. 8b** | Transfer of substance, (charging/discharging), from/to vessels/large containers at dedicated facilities. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |

| | | | |
|---|---|---|---|
| | **Other given operational conditions affecting worker exposure.** | Indoor/outdoor. | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Semi-closed process with occasional controlled exposure. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Selection and suitability of mobile plant. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Occupational exposure controls. | |
| | **Conditions and measures related topersonal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.1.4** | **Contributing scenario controlling worker exposure, PROC. 9.** | | |
| | **PROC. 9** | Transfer of substance into small containers, (dedicated filling/packing including weighing). | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor. | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Semi-closed process with occasional controlled exposure. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Building design - physical barriers. Plant design. Selection and suitability of mobile plant. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.1.5** | **Contributing scenario controlling worker exposure, PROC. 28.** | | |
| | **PROC. 28** | Manual maintenance, (cleaning and repair), of machinery. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |

| | | | |
|---|---|---|---|
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor. | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Semi-closed process with occasional controlled exposure. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Containment of product. Building design - physical barriers. Plant design. Selection and suitability of mobile plant, tools and equipment. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses with side protection or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |

**3.0 EXPOSURE ESTIMATION AND REFERENCE TO IT'S SOURCE.**

**3.1 Health.**

**Long term - systemic effects.**

| | |
|---|---|
| **DNEL** | Inhalation: 37mg/m³<br>Dermal: 31.3 mg/kg body weight/day. |

| Contributing scenario | Inhalation exposure mg/m³ | RCR | Dermal exposure mg/kg body weight/day | RCR | Sum RCR | Assessment method. |
|---|---|---|---|---|---|---|
| **PROC. 5** | 1 | 0.027 | 1.371 | 0.064 | 0.091 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| **PROC. 8a** | 0.5 | 0.013 | 1.371 | 0.064 | 0.077 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| **PROC. 8b** | 0.1 | 0.003 | 1.371 | 0.064 | 0.067 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| **PROC. 9** | 0.1 | 0.003 | 0.686 | 0.032 | 0.035 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| **PROC. 28** | 1 | 0.027 | 1.371 | 0.064 | 0.091 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |

**3.2 Environment.**

| | | |
|---|---|---|
| **4.0** | **GUIDANCE TO DOWNSTREAM USER TO EVALUATE WHETHER HE/SHE WORKS INSIDE THE BOUNDARIES SET BY THE ES.** | |
| **4.1** | **Health.** | |
| | **Guidance - Health.** | Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management standards and procedures are adopted in full compliance. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. |
| | | |
| **4.2** | **Environment.** | |
| | **Guidance - Environment.** | Not required. |
| | | |
| | **Additional good practise advice beyond the REACH CSA.** | |
| | **Additional good practise advice.** | Good standard of personal hygeine. Containment as appropriate. |

| | | | |
|---|---|---|---|
| **1.2** | **EXPOSURE SCENARIO 2** | | |
| | **PROFESSIONAL USE** | ES Ref: 2 | |
| | | ES Type: Worker | |
| | **Use Descriptors.** | PROC 8a, PROC 8b, PROC 9, PROC 19, PROC 28, ERC 8b, ERC8e, PC12, SU1, SU22. | |
| | **Processes, tasks, activities covered.** | Surface spreading or incorporation of solid fertilizers at open field. Fertilization of amenity, (parks, public lawns, sports fields, golf courses. Forest fertilization. Loading and unloading of solid fertilizer in bulk, IBC's or sacks. Management of empty bags and residual material. Cleaning and maintenance of equipment, minor and major scale. | |
| | **Assessment method.** | ECETOC TRA model. | |
| **2.2** | **OPERATIONAL CONDITIONS AND RISK MANAGEMENT METHODS.** | | |
| **2.2.1** | **Contributing scenario controlling worker exposure, PROC. 8a.** | | |
| | **PROC.8a** | Transfer of substance, (charging/discharging), from/to vessels/large containers at non dedicated facilities. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Not applicable. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Containment of product. Building design - physical barriers. Selection and suitability of mobile plant. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.2.2** | **Contributing scenario controlling worker exposure, PROC. 8b.** | | |
| | **PROC. 8b** | Transfer of substance, (charging/discharging), from/to vessels/large containers at dedicated facilities. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor/outdoor. | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Not applicable. | |

| | | | |
|---|---|---|---|
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Containment of product. Selection and suitability of mobile plant. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.2.3** | **Contributing scenario controlling worker exposure, PROC. 9.** | | |
| | **PROC. 9** | Transfer of substance into small containers, (dedicated filling/packing including weighing). | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor/outdoor. | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Not applicable. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Containment of product. Building design - physical barriers. Selection and suitability of mobile plant. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls. | |
| | **Conditions and measures related topersonal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.2.4** | **Contributing scenario controlling worker exposure, PROC. 19.** | | |
| | **PROC. 19** | Hand mixing with intimate contact and only PPE available. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor. | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |

| | | | |
|---|---|---|---|
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Not applicable. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Containment of product. Building design - physical barriers. Selection and suitability of mobile plant and equipment. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |
| **2.2.5** | **Contributing scenario controlling worker exposure, PROC. 28.** | | |
| | **PROC. 28** | Manual maintenance, (cleaning and repair), of machinery. | |
| | **Product characteristics.** | | |
| | **Concentration of substance in product.** | Straight Ammonium Nitrate and inert.<br>100% | |
| | **Dustiness.** | Solid, low dustiness. | |
| | **Operational conditions.** | | |
| | **Frequency and duration of use.** | Covers daily exposures up to 8 hours, (unless stated differently). | |
| | **Other given operational conditions affecting worker exposure.** | Indoor/outdoor | |
| | | Exposed skin surface assumed. | Two hands and face - 480cm² |
| | **Risk management measures.** | | |
| | **Technical conditions and measures at process level, (source), to prevent release.** | Not applicable. | |
| | **Technical conditions and measures to control dispersion from source towards the worker.** | General ventilation. Containment of product. Building design - physical barriers. Plant design. Selection and suitability of mobile plant, tools and equipment. | |
| | **Organisational measures to prevent/limit releases, dispersion and exposure.** | Management/supervision in place to ensure compliance with risk assessments, safe operating procedures and handling aspects with consideration to occupational exposure controls. | |
| | **Conditions and measures related to personal protection, hygeine and health evaluation.** | Powered full face respirator or dust mask FFP2 Filter. | |
| | | Powered full face respirator or safety glasses with side protection or goggles. | |
| | | Wear suitable gloves tested to EN 374. | Efficacy 90% |
| | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **3.0** | **EXPOSURE ESTIMATION AND REFERENCE TO IT'S SOURCE.** | | | | | | |
| **3.1** | **Health.** | | | | | | |
| | **Long term - systemic effects.** | | | | | | |
| | **DNEL** | | Inhalation: 37mg/m³<br>Dermal: 31.3 mg/kg body weight/day. | | | | |
| | **Contributing scenario** | **Inhalation exposure mg/m³** | **RCR** | **Dermal exposure mg/kg body weight/day** | **RCR** | **Sum RCR** | **Assessment method.** |
| | **PROC. 5** | 1 | 0.027 | 1.371 | 0.064 | 0.091 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| | **PROC. 8a** | 0.5 | 0.013 | 1.371 | 0.064 | 0.077 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| | **PROC. 8b** | 0.5 | 0.013 | 1.371 | 0.064 | 0.077 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| | **PROC. 9** | 0.5 | 0.013 | 0.686 | 0.032 | 0.045 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| | **PROC. 19** | 1 | 0.027 | 1.371 | 0.064 | 0.091 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| | **PROC. 28** | 1 | 0.027 | 1.371 | 0.064 | 0.091 | Inhalation - used ECETOC TRA model. Dermal - used ECETOC TRA model. |
| **3.2** | **Environment.** | | | | | | |
| | | | | | | | |
| **4.0** | **GUIDANCE TO DOWNSTREAM USER TO EVALUATE WHETHER HE/SHE WORKS INSIDE THE BOUNDARIES SET BY THE ES.** | | | | | | |
| **4.1** | **Health.** | | | | | | |
| | **Guidance - Health.** | | Estimated workplace exposures are not expected to exceed DNEL's when the identified risk management standards and procedures are adopted in full compliance. The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. | | | | |
| **4.2** | **Environment.** | | | | | | |
| | **Guidance - Environment.** | | Not required. | | | | |
| | **Additional good practise advice beyond the REACH CSA.** | | | | | | |
| | **Additional good practise advice.** | | Good standard of personal hygeine. Containment as appropriate. | | | | |