


SAFETY DATA SHEET

in accordance with Regulation (EC) 1907/2006 (REACH) and its amendments

 V2 – amendments in this revision

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING			
1.1 Product identifier			
Trade name	NEOMULTIFERT®		
Synonyms	NPK 20-10-10, NPK blend, NPK fertilizer		
NEOCHIM PLC code	35-03		
Unique Formula Identifier (UFI)	UFI: 7254-G0R5-3009-1CXX		
1.2 Relevant identified uses of the substance or mixture and uses advised against			
Uses:	Fertilizer Note: see section 16 for the complete list of uses covered by ES		
Uses advised against:	Use of Ammonium nitrate containing fertilizers if weight of nitrogen in relation to ammonium nitrate is equal or more than 16 %. Consumer products may contain up to 46% ammonium nitrate.		
1.3 Details of the supplier of the safety data sheet			
Manufacturer: Address: <input type="checkbox"/> V2 Tel: URL website: Email:	NEOCHIM PLC East Industrial Zone, Himkombinatska Str., 6403 Dimitrovgrad, Bulgaria +359 391 65 205 <input type="checkbox"/> http:// www.neochim.bg office@neochim.bg		
Company e-mail for SDS	reach-neochim@neochim.bg		
1.4 Emergency telephone number			
<input type="checkbox"/> V2 National Toxicology Center Hospital for Active Medical Treatment and Emergency Medicine “N.I.Pirogov”	+ 359 2 9154 233	24/24 h	7/7 d <input type="checkbox"/>
SECTION 2: HAZARDS IDENTIFICATION			
2.1 Classification of the substance or mixture			
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			
Serious eye damage/ eye irritation, hazard category 2 (Eye Irrit.2), H319			
2.2 Label elements			
Labelling according to Regulation 1272/2008 (CLP) and its amendments at the date of the issue of the document			
Hazard pictogram(s):	 GHS07		
Signal word	Warning		
Hazard statement(s):	H319	Causes serious eye irritation.	

Precautionary statement(s):	P264 P280 P305+P351+P338 P337+P313 P411 P501	Wash hands thoroughly after handling. Wear long sleeved overall, chemically resistant gloves. chemical goggles or full face shield IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical attention. Store in a well-ventilated, indoor and dry warehouses at temperatures not exceeding 40°C. Dispose of content and packing in accordance with national waste legislation.
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2.3 Other hazards

PBT/vPvB criteria:	This mixture does not contain any substances that are assessed to be a PBT or a vPvB
Endocrine disrupting properties	Data lacking
others	Spilled wet product forms slippery surface.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances - not relevant
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	51	Ammonium Nitrate	Oxid. Solid 3; H272 Eye Irrit. 2; H319	[1]
7447-40-7	231-211-8	exemption from registration obligation (Annex V(7))	17	Potassium Chloride	Not classified	
1317-65-3	215-279-6	exemption from registration obligation (Annex V(7))	13	Limestone	Not classified	[2]

For full text of Hazard statements: see Section 16

Type [1] Substance classified with a physical, health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

SECTION 4: FIRST- AID MEASURES
4.1 Description of first aid measures

- general notes	Speed is essential. If unconscious, place casualty in a recovery position with head sideways to avoid choking. Provide shower and a place to wash the eyes near the work place.
- following inhalation	Avoid dusting. Remove the exposed 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. Loosen tight clothing.
- 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	Do not induce vomiting. Seek medical advice. Never give anything by mouth to an unconscious person.
- self-protection of the first aider	First aider should protect himself first
4.2 Most important symptoms and effects, both acute and delayed	
Acute effects	Eye irritation, coughing and throat dryness, redness of the skin, gastrointestinal disorder.
Delayed effects	In case of inhalation of decomposition products in a fire symptoms may be delayed. The casualty may need to be kept under medical surveillance for 48 hours.
4.3 Indication of any immediate medical attention and special treatment needed	
Notes for the doctor: Treat symptomatically. Methaemoglobinaemia	
SECTION 5: FIREFIGHTING MEASURES	
5.1 Extinguishing media	
Suitable extinguishing media:	If fertilizer is not directly involved in the fire - use most suitable means to extinguish the fire. If fertilizer is involved in the fire - use plenty of dispersed and finely dispersed water jets to extinguish
Unsuitable extinguishing media:	Combustible materials. Do not use chemical extinguisher or foam and firefighting blanket and/or attempt to smother the fire with sand or steam.
5.2 Special hazards arising from the substance or mixture	
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, ammonia and depending on the composition hydrogen chloride etc.	
5.3 Advice for firefighters	
In the event of fire, wear a self-contained breathing apparatus and a chemical protective suit. Make sure that doors and windows of storerooms are opened.	
SECTION 6: ACCIDENTAL RELEASE MEASURES	
6.1 Personal precautions, protective equipment and emergency procedures	
6.1.1. For non-emergency personal	
Protective equipment: Wear suitable personal protective equipment (listed in Section 8 on the safety data sheet)	
Emergency procedures: All activities should be carried out by well-trained staff. Do not allow untrained and unprotected personnel in the area or personnel not involved in the elimination of an incident and its consequences. Do not enter the area of spilled or scattered product. Avoid dusting the product. Avoid breathing dust from the product. Avoid contact with eyes, skin and clothing. Do not allow sources of ignition in the area.	
6.1.2. For emergency responders	
Protective clothing, protective masks, protective gloves, safety goggles. See Section 8.	
6.2 Environmental precautions	
Do not scatter the product. Do not allow spilled product to enter into the surface water or sanitary sewer system. Do not discharge directly to a water source. If accidental spillage or washings enter drains or watercourses contact local authority.	
6.3 Methods and material for containment and cleaning up	
Vacuum or sweep up the product and place it into properly labelled containers. If fertilizer is not contaminated with organic materials, metal powder, chlorine contain compounds that may reduce the detonation resistance of ammonium nitrate it may be reused. Otherwise prepare risk assessment as risk depends on nature and quantity of contaminants. Clean up traces with water. Do not collect spilled material in sawdust, fuels and hydrocarbons based	

lubricants or other combustible material. During cleaning use PPE. Contaminated with incompatibilities to be disposed according to national legislation.

6.4 Reference to other sections

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

SECTION 7: HANDLING AND STORAGE

The information in this Section contains general advice and guidance. For the availability of specific information of the use listed in Section 16, refer to the Exposure Scenarios (EC) attached.

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>Storage premises should 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 allow 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 40°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>Packaging materials: stainless steel, synthetic material.</p> <p>Unsuitable: Zinc, Copper, Paper and Wood.</p>
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7.2 Specific end use(s)

Fertilizer

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

For the availability of specific information of the use listed in Section 16, refer to the Exposure Scenarios (ES) attached.

8.1 Control parameters

Occupational exposure limit values	UK - Limit value - Eight hours Limestone - 10 mg/m ³ inhalable aerosol, 4 mg/m ³ respirable aerosol
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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 ³	8.9 mg/m ³
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 - Predicted No Effect Concentration (PNEC)

STP: 18 mg/L

8.2 Exposure controls

8.2.1. Appropriate engineering controls:	Provide adequate ventilation. Location of eye flushing system and safety shower close to working place is a good industrial practice.
8.2.2. Individual protection measures, such as personal protective equipment	
General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
Eye/face protection:	Chemical goggles (EN 166) or face shield
Dermal protection: Hands protection:	long sleeved overall chemically resistant gloves complying with EN 374, including: material - nitrile rubber breakthrough time - ≥ 480 min. Permeation resistance class - 6 Please follow the supplier's instructions about conditions of use and expiration date Depending on the risk and on the work performed, adequate protective equipment such as long-sleeved overall and shoes should be selected and approved by a specialist.
Others:	
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).
Thermal	Not known
8.2.3 Environmental exposure controls: Avoid uncontrolled drainage of flushing water into surface water or urban sewage. Dispose of the flushing water in accordance with local and national regulations	
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
a) Physical state	solid
b) Colour	White or colored granules
c) Odour	Odourless
d) Melting/Freezing point	160 – 170°C depends on moisture content (of the main ingredient ammonium nitrate)
e) Boiling point;	Not relevant, decomposes > 210 °C (of the main ingredient ammonium nitrate)
f) Flammability	Non flammable
g) Lower and upper exposure limit	Not relevant
h) Flash-point	Not relevant
i) Auto-ignition temperature	Not self-ignite (based on molecular structure and melting point)
j) Decomposition temperature	> 210 °C (of the main ingredient ammonium nitrate)
K) pH of aq. solution at 20°C; (10 g/ 100 cm ³)	>4.5 (of the main ingredient ammonium nitrate)
l) Kinematic Viscosity	Not applicable
m) Solubility	>100 g/l at 20°C (of the main ingredient ammonium nitrate)
n) Partition coefficient n-octanol/water:	Not relevant (inorganic salt)
o) Vapour pressure:	Not relevant
p) Bulk density:	850-1100 kg/m ³
q) Relative vapour density	Not relevant
r) Particle characteristics	76-100% of granules have size of 1-5 mm
Oxidizing properties;	Not classified as oxidizer

9.2 Other information - highly hygroscopic					
9.2.1. Information with regards to physical hazard classes					
Explosive properties;			Not classified as explosive		
Oxidizing properties;			Not classified as oxidizer		
SECTION 10: STABILITY AND REACTIVITY					
10.1 Reactivity					
The product is stable under recommended storage and handling conditions (see Section 7, handling and storage).					
10.2 Chemical stability					
Hazard reaction is not possible to occur when work and store product under recommended conditions					
10.3 Possibility of hazardous reactions					
Potentially explosive under fire conditions, confined space and/or contaminated with incompatible materials (for example, organic materials or halogen compounds)					
10.4 Conditions to avoid					
Heat, fire, sources of ignition and incompatibles					
10.5 Incompatible materials					
Combustible materials, reducing agents, acids, alkalis, sulfur, chlorates, chlorides, chromates, nitrites, permanganates, metallic powders and substances containing metals such as copper, nickel, cobalt, zinc and their alloys. Do not mix solid urea with solid ammonium nitrate.					
10.6 Hazardous decomposition products					
When heating product decomposes releasing toxic gases as ammonia, nitrogen oxides and other gases depending on composition of the fertilizer. When in contact with alkaline materials like limestone, ammonia is released.					
10.7 Other information					
NKP fertilizers do not capable of self-sustaining decomposition according to UN regulation for transport of dangerous goods Trough Test (UN Manuel of Tests and Criteria, Part2, Part 3, Section 38.					
SECTION 11: TOXICOLOGICAL INFORMATION					
11.1 Information on hazard classes as defined in Regulation (EC) №1272/2008					
Acute toxicity					
Based on available data, the classification criteria are not met.					
Ingredient	Method	Species	Route of exposure	Effective dose	Results
Ammonium nitrate	OECD Guideline 402	rat	dermal	LD ₅₀ : > 5000 mg/kg bw	No adverse effect observed
Ammonium nitrate	OECD Guideline 401	rat	oral	LD ₅₀ : 2950 mg/kg bw	No adverse effect observed
Potassium chloride		rat	oral intravenously	LD ₅₀ : 2430-2600 mg/kg bw LD ₅₀ : 39-142 mg/kg bw	No adverse effect observed
Limestone		rat	oral	LD ₅₀ : 6450 mg/kg bw	No adverse effect observed

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Ingredient	Method	Species	Results
Ammonium nitrate	OECD Guideline 404	rabbit	No skin irritation

Serious eye damage/irritation

Ingredient	Method	Species	Results
Ammonium nitrate	OECD Guideline 405	rabbit	Eye irritant

Respiratory or skin sensitisation

Based on the available data for skin sensitisation, the classification criteria are not met.

Ingredient	Method	Species	Results
Ammonium nitrate	OECD Guideline 429	mouse	Not sensitising

Sensitisation of respiratory system - No relevant information available

Mutagenicity

Based on available data, the classification criteria are not met.

Genotoxicity in vitro Ingredient - Ammonium nitrate	Method - Ames test OECD Guideline 471 (with nitric acid ammonium calcium salt) Result negative
	Method - OECD Guideline 473 (with nitric acid ammonium calcium salt) Result - negative
	Method - OECD Guideline 476 (with potassium nitrate) Result - negative

Carcinogenicity

Based on available data, the classification criteria are not met.

Ammonium nitrate is not genotoxic and no substance related neoplastic lesions were observed in the chronic toxicity study. There is no positive correlation between nitrate intakes and the incidence of cancer.

Reproductive toxicity

Based on available data, the classification criteria are not met.

Ammonium nitrate
 Method: OECD Guideline 422
 Species: rat
 Route of exposure: inhalation
 Result: NOAEL ≥ 1500 mg/kg bw/day
 Tested substance: potassium nitrate

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Ammonium nitrate
 Route of exposure: **oral**
 Systemic effects
 Species: rat
 Result: NOAEL: 256 mg/kg bw/day
 No adverse effect observed

Route of exposure: inhalation	
Systemic effects	
Species: rat	
Result: NOAEC: 185mg/m ³	
Local effects: no study available	
Route of exposure: dermal	
Systemic and local effects: no study available	
Aspiration hazard	
Based on available data, the classification criteria are not met.	
11.2 Information on other hazards	
11.2.1 Endocrine disrupting properties	Data lacking
▣ V2 11.2.2 Other information	Data lacking▣
SECTION 12: ECOLOGICAL INFORMATION	
12.1 Toxicity	
Ingredient - ammonium nitrate	
Short-term (acute) toxicity:	
Freshwater fish:	LC ₅₀ (48 часа): 447 mg/l (no guideline followed)
Freshwater invertebrates,	EC ₅₀ (48 часа): 490 mg/l (no guideline followed, performed with potassium nitrate)
Long-term toxicity:	
Fish:	Study scientifically not necessary
Aq.Invertebrates:	EC ₅₀ (7 дни): 555 mg/l
Algae: seawater	10-d EC ₅₀ : > 1700 mg/l (, no guideline followed, performed with potassium nitrate)
Inhibition of microbial activity:	3-h EC ₅₀ : >1000 mg/l, NOEC: 180 mg/l (OECD 209, with sodium nitrate)
Ingredient - potassium chloride:	
Fish:	48 часа, CL ₅₀ : 2300 mg/l (Leuciscus idus) 96 часа, LC ₅₀ : 2010 mg/l (Iepomismacrochirus)
(Daphnia magna)	48 часа, EC ₅₀ : 825 mg/l
Algae:	72 часа, EC ₅₀ : 2500 mg/l (Scenedesmus subspicatus)
Aq.Invertebrates:	96 часа EC ₅₀ : 940 mg/l, (Physella heterostropka)
12.2 Persistence and degradability	
Product:	Not applicable (inorganic substances)
12.3 Bioaccumulative potential	
Product:	Bioaccumulation is not expected
Ingredient - ammonium nitrate	Low potential for bioaccumulation
12.4 Mobility in soil	
Product:	
Adsorption coefficient:	Low potential for adsorption (based on substance properties).
12.5 Results of PBT and vPvB assessment	
This mixture does not contain any substances that are assessed to be a PBT or a vPvB	
12.6 Endocrine disrupting properties - Data lacking	
▣ V2 12.7 Other adverse effects – no other information available	

12.8 Additional information - Data lacking	
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	
<p>The product is not classified as hazardous according to International transport regulations (ADR / RID, IMDG or ICAO / IATA). To Be transported with care. Do not to disturb the integrity of the packaging and the conditions of storage. Do not transport together with food and incompatible materials.</p> <p>If spillage of roadway occur, collect and wash spill area with plenty of water.</p>	
SECTION 15: REGULATORY INFORMATION	
15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture:	<p>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.</p> <p>“Making available, introduction, possession or use of this product by the general public is restricted by Regulation (EU) 2019/1148 on the marketing and use of explosive precursors.” All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point. Please see https://home-affairs.ec.europa.eu/system/files/2021-11/list_of_competent_authorities_and_national_contact_points_en.pdf</p> <p>Regulation (EU) 2019/1009 laying down rules on the making available on the market of EU fertilising products</p> <p>Regulation (EC) 1272/2008 (CLP)</p> <p><u>* Regulations / legislation and amendments to the date of issue of the document are indicated</u></p>
15.2 Chemical safety assessment:	<p>In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for ingredients of this product.</p>
16. OTHER INFORMATION	
<p>Indication of changes: Changes since the last version are highlighted with ■ V2...■ . This version replaces all previous versions</p> <p>Uses:</p> <p><u>Use by professional workers</u></p> <p>* Widespread use by professional workers - Use by professional workers (outdoor and indoor of reactive substances in open systems)</p> <p><u>Consumer Use</u></p> <p>* Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer.</p>	

Classification in accordance with Regulation 1272/2008 (CLP)
H statement

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

List of abbreviations

PBT – persistent, bioaccumulative and toxic
 vPvB - very persistent and very bioaccumulative
 NOAEL - no observed adverse effect level
 NOAEC - no observed adverse effect concentration
 DNEL - derived no-effect level
 PNEC - predicted no-effect concentration
 PEC - predicted environmental concentration
 LOEC - lowest observed effect concentration
 NOEC - no observed effect concentration
 OECD - Organisation for Economic Cooperation and Development
 LC_x - lethal concentration
 EC_x - effective concentration
 LD_x - lethal dose

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

5. Exposure scenario 5:

Widespread use by professional workers : Widespread use by professional workers (outdoor and indoor of reactive substances in open systems)

5.1. Widespread use by professional workers (outdoor and indoor of reactive substances in open systems)

Sector of use / NACE code:

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

Product category:

PC 11, Explosives
 PC 12, Fertilisers
 PC 37, Water treatment chemicals

Environment contributing scenario(s):

Widespread use by professional worker (outdoor and indoor of reactive substances in open systems)	ERC 8e, ERC 8b
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Worker contributing scenario(s):

Use in closed process, no likelihood of exposure	PROC 1
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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
5.2. Conditions of use affecting exposure	
5.2.1. Environmental contributing scenario (1):	
Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8b	
Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) ERC8e	
Not required as the product is not classified as hazardous to the environment.	
5.2.2. Worker contributing scenario (1):	
Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1).	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Closed system (minimal contact during routine operations)
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	One hand face only (240 cm ²)
5.2.3. Worker contributing scenario (2): Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)	
Product (article) characteristics	
• Concentration of substance in mixture:	≤ 100% (solid or liquid)
• Concentration of substance (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Closed continuous process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic

Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm ²)
5.2.4. Worker contributing scenario (3): Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3).	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Closed batch process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	One hand face only (240 cm ²)
5.2.5. Worker contributing scenario (4): Mixing or blending in batch processes (PROC5).	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid

(aqueous) mixtures of the substance)	
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm ²)
5.2.6. Worker contributing scenario (5): Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a).	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands (960 cm ²)
5.2.7. Worker contributing scenario (6): Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b).	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Semi-closed process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands (960 cm ²)
5.2.8. Worker contributing scenario (7): Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9) .	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such

• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	Semi-closed process with occasional controlled exposure
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands face (480 cm ²)
5.2.9. Worker contributing scenario (8): Non industrial spraying (PROC11).	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	
• General ventilation:	Basic general ventilation (1-3 air changes per hour)
• Containment:	No
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System:	Basic
Conditions and measures related to personal protection, hygiene and health evaluation	
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke. Keep dermal exposure to a minimum. Wear protective clothing and make sure that skin is not exposed.
• Dermal Protection (body and hands):	Yes (protective clothing (chemical suit) and chemically resistant gloves conforming to EN374, providing in total a dermal effectiveness of at least 96%). Wearing only gloves is not sufficient.
• Respiratory Protection:	No [Effectiveness Inhal: 0%]
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)
Other conditions affecting workers exposure	
• Place of use:	Indoor
• Skin surface potentially exposed:	Two hands and upper wrists (1500 cm ²)
5.2.10. Worker contributing scenario (9): Use as laboratory reagent (PROC15).	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)
• Concentration of ammonium nitrate (used for exposure estimates):	Substance as such
• Dustiness of material:	Low
Amount used (or contained in articles), frequency and duration of use/exposure	
• Duration of activity:	< 8 hours
Technical and organisational conditions and measures	

• General ventilation:	Basic general ventilation (1-3 air changes per hour)	
• Containment:	No	
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]	
• Occupational Health and Safety Management System:	Basic	
Conditions and measures related to personal protection, hygiene and health evaluation		
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.	
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]	
• Respiratory Protection:	No [Effectiveness Inhal: 0%]	
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)	
Other conditions affecting workers exposure		
• Place of use:	Indoor	
• Skin surface potentially exposed:	One hand face only (240 cm ²)	
5.2.11. Worker contributing scenario (10): Manual activities involving hand contact (PROC19) .		
Product (article) characteristics		
• Concentration of ammonium nitrate in mixture:	≤ 100% (solid or liquid)	
• Concentration of substance (used for exposure estimates):	Substance as such	
• Dustiness of material:	Low	
Amount used (or contained in articles), frequency and duration of use/exposure		
• Duration of activity:	< 1 hours	
Technical and organisational conditions and measures		
• General ventilation:	Basic general ventilation (1-3 air changes per hour)	
• Containment:	No	
• Local exhaust ventilation:	no [Effectiveness Inhal: 0%]	
• Occupational Health and Safety Management System:	Basic	
Conditions and measures related to personal protection, hygiene and health evaluation		
• General:	Work under a high standard of personal hygiene. Wash hands and face before breaks. When using the product, do not eat, drink or smoke.	
• Dermal Protection:	Yes (long sleeved overall; chemically resistant gloves conforming to EN374 with basic employee training) [Effectiveness Dermal: 90%]	
• Respiratory Protection:	No [Effectiveness Inhal: 0%]	
• Eye Protection:	Yes (chemical goggles, or full face shield if splashing is possible, in case of using liquid (aqueous) mixtures of the substance)	
Other conditions affecting workers exposure		
• Place of use:	Indoor	
• Skin surface potentially exposed:	Two hands and forearms face (1980240 cm ²)	
5.3. Exposure estimation and reference to its source		
5.3.1 Environmental exposure		
Exposure assessment risk characterization are neither required nor required as the product is not classified as hazardous to the environment.		
5.3.2. Exposure concentrations and risks for workers: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1).		
Exposure concentrations and risks for workers		
Route of exposure and type of effects	Exposure concentration	Risk characterisation
Inhalation, systemic, long-term	0.01 mg/m³ (TRA Workers 3.0)	RCR < 0.01
Dermal, systemic, long-term	0.003 mg/kg bw/day (TRA Workers 3.0)	RCR < 0.01
Dermal, local, long-term		Qualitative*
Eye, local		Qualitative*
Combined routes, systemic, long-term		RCR < 0.01

<p>*Conclusion on risk characterisation (qualitative)</p> <p><u>Dermal, local, long-term</u> 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> As eye protection is worn, the risk of causing ocular effects is considered to be controlled.</p>																				
<p>5.3.3. Exposure concentrations and risks for workers: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) .</p>																				
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<p>5.3.4. Exposure concentrations and risks for workers: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3) .</p>																				
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Route of exposure and type of effects	Exposure concentration	Risk characterisation																		
Inhalation, systemic, long-term	0.1 mg/m³ (TRA Workers 3.0)	RCR < 0.01																		
Dermal, systemic, long-term	0.034 mg/kg bw/day (TRA Workers 3.0)	RCR < 0.01																		
Dermal, local, long-term		Qualitative*																		
Eye, local		Qualitative*																		
Combined routes, systemic, long-term		RCR < 0.01																		
<p>*Conclusion on risk characterisation (qualitative)</p> <p><u>Dermal, local, long-term</u> As a long sleeved overall (or lab coat) 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> As eye protection is worn, the risk of causing ocular effects is considered to be controlled.</p>																				
<p>5.3.11. Exposure concentrations and risks for workers: Manual activities involving hand contact (PROC19).</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>0.1 mg/m³ (TRA Workers 3.0)</td> <td>RCR < 0.01</td> </tr> <tr> <td>Dermal, systemic, long-term</td> <td>2.829 mg/kg bw/day (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	0.1 mg/m³ (TRA Workers 3.0)	RCR < 0.01	Dermal, systemic, long-term	2.829 mg/kg bw/day (TRA Workers 3.0)	RCR =0.552	Dermal, local, long-term		Qualitative*	Eye, local		Qualitative*	Combined routes, systemic, long-term		RCR =0.555
Route of exposure and type of effects	Exposure concentration	Risk characterisation																		
Inhalation, systemic, long-term	0.1 mg/m³ (TRA Workers 3.0)	RCR < 0.01																		
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<p>*Conclusion on risk characterisation (qualitative)</p>																				

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.	
5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Under the described conditions of use no additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers	
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	
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	
Product category / UCN code: PC 1, Adhesives, sealants; PC 12, Fertilisers; S50200, Pyrotechnical products	
Environment contributing scenario(s):	
Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches, fertilizer	ERC 8e, ERC 8b
Consumer contributing scenario(s):	
Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches	PC 1
Consumer Use (outdoor and indoor) as part of fertilizer	PC 12
6.2. Conditions of use affecting exposure	
6.2.1. Environmental contributing scenario (1)	
Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) ERC8e Not required as the product is not classified as hazardous to the environment .	
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)	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	= 0.3 g/g (default)
Measures related to information and behavioural advice to consumers including personal protection and hygiene	
• Adult/Child assumed:	Adult
• Use frequency:	Infrequent
• Eye Protection:	Chemical goggles or safety glasses with side shields (when the concentration of the ammonium nitrate is $\geq 10\%$)
Other conditions affecting consumers exposure	
• Instructions:	Product labelling, showing that the product causes serious eye irritation (when the concentration of the ammonium nitrate is $\geq 10\%$).
• Body parts potentially exposed:	Inside hands / one hand / palm of hands (428.8 cm ²)
• Dermal transfer factor:	= 1
6.2.3. Consumer contributing scenario (2): Consumer Use (outdoor and indoor) as part of fertilizer (PC 12)	
Product (article) characteristics	
• Concentration of ammonium nitrate in mixture:	= 0.46 g/g (default)
Measures related to information and behavioural advice to consumers including personal protection and hygiene	
• Adult/Child assumed:	Adult
• Use frequency:	Infrequent
• Eye Protection:	Chemical goggles or safety glasses with side shields (when the concentration of the ammonium nitrate is $\geq 10\%$)
Other conditions affecting consumers exposure	
• Instructions:	Product labelling, showing that the product causes serious eye irritation (when the concentration of the ammonium nitrate is $\geq 10\%$).
• Body parts potentially exposed:	Inside hands / one hand / palm of hands (428.8 cm ²)
• Dermal transfer factor:	= 1

6.3 Exposure estimation and reference to its source		
6.3.1 Environmental exposure		
Widespread use of reactive processing aid (no inclusion into or onto article, indoor) ERC8b		
Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) ERC8e		
Exposure assessment risk characterization are neither required nor required as the product is not classified as hazardous to the environment .		
6.3.2. Exposure and risk for consumers: Consumer Use (outdoor and indoor of reactive substances in open systems) as part of specialist products, pyrotechnics and/or matches (PC 1)		
Exposure concentration and risk for consumers		
Route of exposure and type of effects	Exposure concentration	Risk characterisation
Dermal, systemic, long-term	0.858 mg/kg bw/day (TRA Consumer 3.1)	RCR = 0.335
Eye, local		Qualitative
Combined routes, systemic, long-term		RCR = 0.335
<u>Eye, local</u>		
As chemical goggles or safety glasses with side shields are worn (when the concentration of the substance is 10% or more), the risk of the substance for causing ocular effects is considered to be controlled .		
6.3.3 Exposure and risk for consumers: Consumer Use (outdoor and indoor) as part of fertilizer (PC 12)		
Exposure concentration and risk for consumers		
Route of exposure and type of effects	Exposure concentration	Risk characterisation
Dermal, systemic, long-term	1.315 mg/kg bw/day (TRA Consumer 3.1)	RCR = 0.514
Eye, local		Qualitative
Combined routes, systemic, long-term		RCR = 0.514
<u>Eye, local</u>		
As chemical goggles or safety glasses with side shields are worn (when the concentration of the ammonium nitrate is 10% or more), the risk of the substance for causing ocular effects is considered to be controlled.		
6.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES		
Under the described conditions of use no additional risk management measures, besides those that are mentioned above, are needed to guarantee safe use for workers		