Safety Data Sheet

According to Commission Regulation (EU) No 2015/830

Issue date	**10/01/2012**
Issue	**3**
Review date	**19/07/2016**
Review	**4**

Ammonium nitrate (technical grade) with a nitrogen content ≥ 34.5% N and less than 0.2% combustible material

SECTION 1	Identification of the substance/mixture and of the company/undertaking	
1.1	**Product identifier**	
	Product commercial name	Technical ammonium nitrate
	Chemical name	Ammonium nitrate
	Other names	Technical ammonium nitrate. porous ammonium nitrate
	Chemical formula	NH_4NO_3
	EU index number (Appendix 1)	Not applicable
	CE No	229-347-8
	CAS No.	6484-52-2
	REACH or National product registration number	01-2119490981-27-0028
1.2	**Relevant identified uses of the substance or mixture and uses advised against**	
	Identified uses	Manufacture of industrial products.
	Uses advised against	Any other use.
1.3	**Details of the supplier of the safety data sheet**	
	Company name	FERTIBERIA. S.A.
	Company address	Paseo de la Castellana. 259 D. Plantas 47 y 48 - 28046 Madrid
	Company telephone number	Central: 91.586.62.00; Puertollano factory: 926.44.93.00
	Company email for SDS	reachfertiberia@fertiberia.es
1.4	**Emergency telephone number**	Puertollano factory: 926.44.93.00

SECTION 2	Hazards identification				
2.1	**Classification of the substance or mixture***	According to Regulation EC 1272/2008 [CLP] Oxidising solid. Cat3; H272 Eye Irritation. Cat2.; H319			
2.2	**Label elements**	Pictograms	Signal word	Hazard statements	Precautionary Statements
			Warning	H272 H319	P210 P220 P280 P305+P351+P338 P337 + P313
2.3	**Other hazards**	In accordance with appendix XIII of the Regulation (EC) no. 1907/2006. it is not PBT or vPvB since it is an inorganic substance.			
*** To understand the full meaning of hazard statements (H): see section 16**					

SECTION 3	Composition/information on ingredients						
3.1	**Name**	**CE No.**	**CAS No.**	**% (w/w)**	**IUPAC name**	**Classification Regulation 1272/2008**	**Specific concentration limits**
	Ammonium nitrate	229-347-8	6484-52-2	≥ 98.5%	ammonium nitrate	Oxid. Solid 3 Eye Irrit. 2	----

SECTION 4	First aid measures	
4.1	**Description of first aid measures**	
	General	Seek medical attention when necessary. Inhalation of gases. from a fire or thermal decomposition. that contain nitrogen and ammonium oxides may cause irritation and have corrosive effects on the respiratory system. Administer oxygen. especially if there is blue colouring around the mouth.
	Inhalation	Remove the person from the point of exposure to the dust. Seek medical attention if there are any harmful effects.
	Ingestion	Do not induce vomiting. Rinse the mouth and give water or milk to drink. Seek medical attention if more than a small quantity has been ingested.
	Contact with skin	Wash the affected area with plenty of water.
	Contact with eyes	Wash or rinse the eyes with plenty of water for at least 15 minutes. including behind the eyelids. Remove contact lenses if present and easy to do. Seek medical attention if eye irritation persists.
4.2	**Most important symptoms and effects. both acute and delayed**	
		Eye irritation. Some effects on the lungs may be delayed.

4.3	**Indication of any immediate medical attention and special treatment needed**	
		Inhalation of gases. from a fire or thermal decomposition. that contain nitrogen and ammonium oxides may cause irritation and have corrosive effects on the respiratory system. Administer oxygen. especially if there is blue colouring (methaemoglobin) around the mouth.

SECTION 5	**Firefighting measures**	
5.1	**Extinguishing media**	
	Suitable extinguishing media	Water.
	Unsuitable extinguishing media	Do not use chemical or foam extinguishers or attempt to suffocate the fire with sand or mist.
5.2	**Special hazards arising from the substance or mixture**	
	Special hazards	Not combustible. If it is involved in a fire it will intensify it as it is an oxidising agent. it can maintain the fire even in the absence of air. There is a potential explosion risk during the fire when the product is strongly confined and/or contaminated with incompatible materials (e.g. organic material. halogen compounds - see section 10) Prilled product must not be put in drains.
	Thermal decomposition or product combustion hazards	Nitrogen and ammonium oxides
5.3	**Advice for firefighters**	
	Specific firefighting methods	Open doors and windows in the area to give maximum ventilation. Avoid breathing the smoke (toxic). Position yourself upwind of the fire. Prevent contamination of the fertiliser by oils or other combustible materials.
	Special protective equipment for firefighting	Use self contained breathing apparatus in case of smoke.

SECTION 6	**Accidental release measures**	
6.1	**Personal precautions. protective equipment and emergency procedures**	
		Avoid walking on the spilt product and exposure to the dust.
6.2	**Environmental precautions**	
		Take care to prevent contamination of water courses and drains and inform the competent authorities in case of accidental contamination of water courses.
6.3	**Methods and material for containment and cleaning up**	
		Any spillage of fertiliser should be quickly cleaned up. swept and placed in a clean. labelled. open receptacle for safe disposal. Do not mix with sawdust or other combustible or organic material. Dilute any contaminated or fine grain product 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 contact data. section 8 for PPE and section 13 for waste disposal.

SECTION 7	**Handling and storage**	
7.1	**Precautions for safe handling**	
		Prevent the excessive generation of dust. Prevent contamination with combustible materials (e.g. gas-oil. greases. etc.) and other incompatible materials. Avoid the unnecessary exposure of the product to the atmosphere to prevent moisture absorption. When the product is handled for long periods. use appropriate personal protective equipment. e.g. gloves. Carefully clean the installations before before carrying out maintenance and repair operations.
7.2	**Conditions for safe storage. including any incompatibilities**	
		Store in accordance with regulations: R. D. 2492/1983; R. D. 230/1998 and their modifications. Place away from sources of heat and flames. Always keep away from combustible materials and substances mentioned in section 10. In the storage area. ensure that strict tidiness and cleanliness standards are complied with. Do not allow smoking or the use of naked portable lamps in the storage area. Any building used for storage should be clean and well ventilated. When required. due to the nature of the product in containers and weather conditions. the product should be stored in such a way as to avoid its destruction due to thermal cycles (extreme temperature conditions). The product should not be stored in direct sunlight to prevent physical break-up due to thermal cycles.
	Recommended and non-recommended packaging materials	Suitable materials for containers are: steel. aluminium and synthetic plastics. Do not use copper and/or zinc.
7.3	**Specific end use(s)**	
		See section 1.2 and appendices for exposure scenarios.
Note: stability and reactivity. see section 10		

Ammonium nitrate (technical grade) with a nitrogen content ≥ 34.5% N and less than 0.2% combustible material

SECTION 8 Exposure controls/personal protection

8.1 Control parameters

Exposure limit values

Component	CAS	
Ammonium nitrate	6484-52-2	Not established.

Derived from the CSR

DNEL

		Worker		consumer
	systemic	industrial	professional	
oral	long term	Not applicable	Not applicable	12.8 mg/kg bw/day
inhalation	long term	37.6 mg/m3	37.6 mg/m3	11.1 mg/m3
dermal	long term	21.3 mg/Kg bw/day	21.3 mg/Kg bw/day	12.8 mg/kg bw/day

PNEC

water	air	soil	microbiological	sediment		oral
fresh water: 0.45 mg/l salt water: 0.045 mg/l in intermittent releases: 4.5 mg/l	Not available	Insufficient data available	18 mg/l	Insufficient data available		Low bioaccumulative potential

8.2 Exposure controls

Engineering measures and hygiene controls	Prevent high concentrations of dust and provide ventilation wherever necessary. Do not smoke or drink when handling. Wash hands after handling the product and before eating. drinking or smoking. Use the wash basin at the end of the work day.
Personal protection measures	
Eyes	Safety glasses with side protection (EN 166) to prevent eye irritation. In dusty conditions use panoramic safety goggles.
Skin and body	Work clothes.
Hands	Use suitable gloves (for example. rubber or leather) when handling the product over long periods of time.
Respiratory	If there is a high concentration of dust and/or the ventilation is inadequate. use an anti-dust mask or respirator with a suitable filter.
Thermal	
Environmental exposure controls	See section 6.

Advice relating to personal protection is valid for high exposure levels.

Choose personal protection equipment suitable to exposure risks.

SECTION 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Aspect	White or coloured granules or prills.
Colour	White or coloured
Odour	Odourless
Molecular weight	80
pH	pH aqueous solution (100 g/l) > 4.5.
Boiling point	It does not have a boiling point. it decomposes above 210°C
Melting point	169 ºC
Flash-point	Non flammable
Flammability	Non flammable
Explosive properties	**Ammonium nitrate with less than 0.2% combustible material (UN 1942) is not classified as an explosive.** **The UN series 1 and 2 tests show that crystalline ammonium nitrate with no impurities is not a class 1 explosive material.** **If it is heated under strongly confined conditions (e.g. in pipes or drains) a violent reaction or explosion may take place. especially if there is contamination by any of the substances mentioned in section 10.**
Auto-ignition temperature	Non flammable
Decomposition temperature	Begins to decompose above 170 ºC
Lower explosive limit	Not applicable
Upper explosive limit	Not applicable
Oxidising properties	**UN1942** : **Classification for transport: Class 5.1; GE III**.
Apparent density at 20°C	650 at 800 kg/m³
Vapour pressure at 20 ºC	Not applicable
Vapour density	Not applicable
Partition coefficient n-octanol/water	Not applicable
Viscosity	Not applicable
Water solubility	> 100 g/l (hygroscopic)

9.2 Additional information

No relevant data

SECTION 10	Stability and reactivity	
10.1	**Reactivity**	Stable under normal conditions of storage. handling and use
10.2	**Chemical stability**	Stable under normal conditions of storage. handling and use
10.3	**Possibility of hazardous reactions**	When it is heated above 170°C it decomposes releasing NOx and ammonia. Contamination with incompatible materials.
10.4	**Conditions to avoid**	Proximity to sources of heat or fire. Contamination by incompatible materials. Unnecessary exposure to the atmosphere. Heating when confined. Welding or heating work of the equipment or plant that may contain product remnants. without preliminary cleaning to remove the product remnants.
10.5	**Incompatible materials**	Inflammable materials. reducing agents. acids. alkalis. sulphur. chlorates. chlorides. chromates. nitrites. permanganate. metal powders and metal-containing substances such as copper. nickel. cobalt. zinc and their alloys.
10.6	**Hazardous decomposition products**	In case of fire: see Section 5 When strongly heated it melts and decomposes releasing toxic gases (e.g. NOx and ammonia). When it is in contact with alkaline materials. such as lime. ammonia gases may be produced.

SECTION 11 Toxological information

11.1 Information on toxological effects

Acute toxicity

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	OECD 401 OECD 402	rat rat rat	oral skin respiratory	LD50: 2950 mg/Kg bw. LD50: > 5000 mg/Kg bw. LC50: >88.8 mg/m3.

Skin corrosion/irritation

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	OECD 404	Rabbit	skin	Non-irritant.

Serious eye damage/irritation

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	OECD 405	Rabbit	eye	Irritant

Respiratory or skin sensitisation

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	OECD 429	mouse	skin	Non-sensitising.

Germ cell mutagenicity

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	OECD 471 OECD 473 OECD 476	bacteria Chromosomal aberrations mutation in mammal cells		Negative. Non-mutagenic. Ames test. Negative. Non-mutagenic. Negative. Non-mutagenic.

Carcinogenicity

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2		rat	All	Non carcinogenic.

Reproductive toxicity

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	OECD 422	rat	oral	-Effects on fertility: NOAEL: ≥1500 mg/kg bw/d. -Toxicity for development: NOAEL: ≥1500 mg/kg bw/d

STOT-single exposure

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	-	-	-	Not available

STOT-repeated exposure

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	OECD 422 OECD 453	rat rat	oral (28 days) oral (52 weeks)	Sub-acute oral route. NOAEL: ≥ 1500 mg/kg body weight/day. Chronic oral route. NOAEL: 256 mg/kg body weight/day.

Aspiration hazards

Component	CAS No.	Method	Species	Via	Result
Ammonium nitrate	6484-52-2	-	-	-	See note below

Inhaling high concentrations of dust may cause nose and upper respiratory tract irritation with sore throat and cough symtoms.

Ammonium nitrate (technical grade) with a nitrogen content ≥ 34.5% N and less than 0.2% combustible material

SECTION 12 Ecological information

12.1 Toxicity

Water toxicity

Component	CAS No.		Fish (Cyprinus carpio)	Crustaceans	Algae (benthic diatoms)
Ammonium nitrate	6484-52-2	Short term	LC50(48h) = 447 mg/l.	EC50/LC50 (48h) = 490 mg/l (of potassium nitrate) (Daphnia magna)	LC50/EC50 (10 days) > 1700 mg/l (of potassium nitrate)
		Long term	Not necessary.	NOEC (168h) = 555 mg/l (Bullia digitalis)	Not available

Land Toxicity

Component	CAS No.	Macroorganisms	Microorganisms	Land plants	Other organisms
Ammonium nitrate	6484-52-2	Not scientifically justified	Not scientifically justified	Not scientifically justified	Not available

Microbiological activity in waste water treatment plants

Component	CAS No.	Toxicity for aquatic microorganisms
Ammonium nitrate	6484-52-2	CE50/CL50 (180 min) >1000 mg/l (of sodium nitrate)

12.2 Persistence and degradability

Component	CAS No.	Degradation	
Ammonium nitrate	6484-52-2	**Hydrolysis**	Non-hydrolysable. Test not necessary.
		Photolysis	No information available
		Biodegradation	Not necessary. inorganic substance.

12.3 Bioaccumulative potential

Component	CAS No.	Octanol-water partition coefficient (Kow)	Bioconcentration factor (BCF)	Comments
Ammonium nitrate	6484-52-2	Not applicable. Inorganic substance.	-	

12.4 Mobility in soil

Component	CAS No.	Result
Ammonium nitrate	6484-52-2	low absorption potential (based on its properties)

12.5 Results of PBT and vPvB assessment

Not required. Inorganic substance. See REACH appendix XIII.

12.6 Other adverse effects

Heavy spillage may cause an adverse environmental impact such as eutrophication in confined surface waters.

SECTION 13 Disposal considerations

13.1 Waste treatment methods

Do not put the waste in the drain. dispose of the product waste and containers in a safe way. Dispose of in accordance with all local and national regulations.

Empty containers by shaking them to remove as much as possible of their content. If approved by the local authorities. empty packaging can be disposed of as a non-hazardous material or returned for recycling.

SECTION 14 Transport Information

14.1 - 14.6 Regulatory Information	UN Number	Proper shipping name	Class	Packing group	Label	Environmental hazards	Special precautions for users
ADR/RID	UN 1942	AMMONIUM NITRATE with a maximum of 0.2% total combustible material. including any organic substance calculated as carbon. to the exclusion of any other added substance.	5.1	III		NO	Hazard identification number: 50 See ADR and RID
ADNR							
IMDG							Emergency procedures (EmS): F-H. S-Q
IATA							See ICAO regulation for quantity limitation

14.7 ***Transport in bulk according to Annex II of Marpol and the IBC Code:*** *Not applicable*

SECTION 15	Regulatory information
15.1	**Safety. health and environmental regulations and legislation specific for the substance or mixture**
	Regulation 1907/2006 (REACH). Entry 58 of appendix XVII. Regulation 1272/2008 (CLP) Directive 18/2012 (Seveso Directive) R.D. 840/2015 (Seveso) RD. 230/1998: Explosives regulations. ORDER PRE. 252/2006: Explosives regulations ITC-10. Prevention of serious accidents (explosives). R.D. 374/2001 (Chemical agents) RD. 2492/1983 of 29 June. State Administrative Intervention on explosive grade Ammonium Nitrates.
15.2	**Chemical Safety Assessment**
	Chemical Safety Assessment for ammonium nitrate

SECTION 16	Other information	
	Hazard statements	H272: May intensify a fire; oxidizer. H319: Causes serious eye irritation.
	Precautionary statements	P102: Keep out of reach of children. P210: Keep away from heat. sparks. open flames and hot surfaces. No smoking. P220: Keep/Store away from clothing/combustible materials. P264: Wash hands thoroughly after handling. P280: Wear eye protection. P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: get medical attention. P370+P378: In case of fire: Use water for extinction.
	Bibliographical references and data sources	Ammonium nitrate chemical safety assessment. Data for TFI HPV; NOTOX
	Abbreviations and acronyms	ELV-DE: Environmental limit value (daily exposure) ELV-ST Environmental limit value (short term) NOAEL: No observable adverse effect level LD50: Lethal dose 50% LC50: Lethal concentration 50% EC50: Effective concentration 50% DNEL: Derived no effect level PNEC: Predicted no effect concentration LOEC: Lowest observed effect concentration NOEC: No observed effect concentration NOAEC: No observed adverse effect concentration
	Adequate training for workers	Obligatory training in occupational risk prevention
	Date of prior SDS	Version 3 dated 10.01.12
	Modifications made to present revision	Adaptation to the Commission Regulation (EU) No 2015/830. Update of current regulations
	Exposure scenarios 1.2.3 and 4 are attached	

The information contained in this Safety Data Sheet is given in good faith. It is accurate to the best of our knowledge and belief and represents the most up to date information about the product at the time of publication. The information given in this data sheet does not constitute or replace the user's own assessment of workplace risks as required by other health and safety legislation.

Ammonium nitrate (technical grade) with a nitrogen content ≥ 34.5% N and less than 0.2% combustible material

Safety Data Sheet Appendices
Exposure Scenario 1

1	**Title of Exposure Scenario (ES)**
	Manufacture of ammonium nitrate
2	**Description of activities or processes covered by the exposure scenario**
	List of all the use descriptors related to ES 1
	SU 8/9 * PROC 1/2/3/8a/8b/9/14/15 ERC 1
	Name/s of contributing scenario/s related to the environment and their corresponding Environmental Release Class (ERC)
	1. Manufacture of substances (ERC 1)
	Name/s of contributing scenario/s for the worker and their corresponding Process Category (PROC)
	1. Use in enclosed processes. no likelihood of exposure (PROC 1) 2. Use in closed. continuous processes with occasional controlled exposure (PROC 2) 3. Use in closed batch processes (synthesis or formulation) (PROC 3) 4. Transfer of substances or preparations (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a) 5. Transfer of substances or preparations (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b) 6. Transfer of substances or preparations into small containers (dedicated filling line. including weighing) (PROC 9) 7. Production of mixtures or articles by tabletting. compression. extrusion. pelletisation (PROC 14) 8. Use as laboratory reagent (PROC 15)
	* Agency Guidance Document. Chapter R.12: Use descriptor system: SU8 (Manufacture of bulk. large scale chemicals)/ SU9 (Manufacture of fine chemicals)
2.1	**Contributing scenario (1) controlling environmental exposure for the manufacture of ammonium nitrate (ES1)**

Environmental exposure due to the manufacture of ammonium nitrate

Section 2.1 describes emissions to the environment that can occur during the manufacture of ammonium nitrate (ERC 1).

As this substance does fulfil criteria for classification as hazardous to the environment. the environmental risk assessment has not been carried out for this substance and therefore the conditions that affect the environment are not included during this use.

2.2 Contributing scenario (2) controlling exposure of workers for manufacture of the substance. including handling. storage and quality controls

Section 2.2 describes potential exposure of workers from manufacture of the substance. including handling. storage and quality controls.

All the relevant processes for the contributing scenarios identified by the PROC codes in point 1 of this scenario (PROC 1/2/3/8a/8b/9/14/15) have the same operating conditions and risk management measures for personnel. Consequently they are all covered by just one contributing scenario (2).

Product characteristics	Solid with low dust formation index
Quantities used	Not relevant
Frequency and duration of use or exposure	> 4 hours a day
Human factors not influenced by risk management	Not relevant
Other operational conditions that have an impact on worker exposure	Ammonium nitrate is manufactured in enclosed environments.
Technical conditions and measures at process level (source) to prevent release	Not relevant
Technical conditions and measures for controlling dispersion of the source to workers	1.- Adequate containment of the substance 2.- Good ventilation conditions
Organisational measures to prevent or limit releases. dispersion and exposure	Not relevant
Conditions and measures for personal protection. hygiene and health evaluation	Use safety glasses

3 Estimation of exposure and reference to its source

Information for contributing scenario 1 (environmental exposure):

No environmental assessment was completed because the substance does not fulfil criteria for classification as hazardous for the environment and therefore there is no additional assessment of environmental exposure.

Information for contributing scenario 2 (exposure for personnel):

A qualitative assessment has been included that concludes that this use is safe for workers.

The toxicological effect of this substance is eye irritation (local parameter). for which a DNEL value cannot be estimated. because there is no dose-response information available. A minimal systemic effect was only observed at doses that were so high that personnel would never be exposed to them (see relevant DNEL: section 8 SDS). so it was not considered necessary to make a quantitative risk assessment.

4 Guidance for intermediate users to assess if they working within the limits set by the ES

Additional risk management measures apart from the ones mentioned above in the contributing scenarios (2.1. 2.2) are not required to guarantee safety during this use and thus work within the limits of the ES 1 exposure scenario.

5 Good practice advice in addition to that included in the Chemical Safety Assessment (CSA) required by REACH.
Measures not subject to art. 37 (4) REACH

- Adequate containment of the substance
- Minimise the number of exposed personnel
- Segregate the releasing processes
- Utilise effective contamination extraction systems
- Good ventilation conditions
- Minimise manual handling
- Avoid contact with contaminated objects and instruments
- Regularly clean the work area and equipment
- Supervise the area to check that risk management measures are being applied
- Train personnel for good practices
- Keep standard personal hygiene conditions

Safety Data Sheet Appendices
Exposure Scenario 2

1	**Title of Exposure Scenario (ES)**
	Industrial use of ammonium nitrate for formulating mixtures/articles. as intermediate substance and for end use by industry
2	**Description of activities or processes covered by the exposure scenario**
	List of all the use descriptors related to ES 1
	SU 3/10 * PC 1/11/12/19/37 * PROC 1/2/3/5/8a/8b/9/13/15 ERC 2/6a
	Name/s of contributing scenario/s related to the environment and their corresponding Environmental Release Class (ERC)
	1. Formulation of preparations (ERC 2) 2. Industrial use resulting in manufacture of another substance (use of intermediates) (ERC 6a)
	Name/s of contributing scenario/s for the worker and their corresponding Process Category (PROC)
	1. Use in enclosed processes. no likelihood of exposure (PROC 1) 2. Use in closed. continuous processes with occasional controlled exposure (PROC 2) 3. Use in closed batch processes (synthesis or formulation) (PROC 3) 4. Mixing or blending in batch processes (multistage and/or significant contact) (PROC 5) 5. Transfer of substances or preparations (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a) 6. Transfer of substances or preparations (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC 8b) 7. Transfer of substances or preparations into small containers (dedicated filling line. including weighing) (PROC 9) 8. Treatment of articles by dipping and pouring (PROC 13) 9. Use as laboratory reagent (PROC 15)
	* Agency Guidance Document. Chapter R.12: Use descriptor systems: SU 3 (Industrial manufacturing: Use of substances as such or in preparations in industrial facilities) / SU10 (Formulation of preparations and/or repackaging (excluding alloys). PC 1(Adhesives. sealants)/ 11 (Explosives) /12 (Fertilisers) /19 (Intermediate substances) /37 (Chemical products for water treatment)
2.1	**Contributing scenario (1) controlling environmental exposure for formulating preparations and industrial use as intermediate substance (ES 2)**
Environmental exposure due to formulation of preparations and industrial use of ammonium nitrate as intermediate substance	
Section 2.1 describes emissions to the environment that can occur during the formulation of preparations (ERC 2) and industrial use as an intermediate substance (ERC 6a). As this substance does fulfil criteria for classification as hazardous to the environment. the environmental risk assessment has not been carried out for this substance and therefore the conditions that affect the environment are not included during this use.	
2.2	**Contributing scenario (2) controlling exposure of workers that corresponds to the industrial use of ammonium nitrate for formulating preparations/articles. as intermediate substance and end use by workers in industrial facilities**
All the relevant processes for this scenario identified by the PROC codes in point 1 of this scenario (PROC 1/2/3/5/8a/8b/9/13/15) have the same operating conditions and risk management measures for personnel. Consequently they are all covered by just one contributing scenario (2).	

Product characteristics	Solid with low dust formation index Liquid
Quantities used	Not relevant
Frequency and duration of use or exposure	> 4 hours a day
Human factors not influenced by risk management	Not relevant
Other operational conditions that have an impact on worker exposure	Used in enclosed spaces
Technical conditions and measures at process level (source) to prevent release	Not relevant
Technical conditions and measures for controlling dispersion of the source to workers	1.- Adequate containment of the substance 2.- Good ventilation conditions
Organisational measures to prevent or limit releases. dispersion and exposure	Not relevant
Conditions and measures for personal protection. hygiene and health evaluation	Use safety glasses

3	**Estimation of exposure and reference to its source**

Information for contributing scenario 1 (environmental exposure):

No environmental assessment was completed because the substance does not fulfil criteria for classification as hazardous for the environment and therefore there is no additional assessment of environmental exposure.

Information for contributing scenario 2 (exposure for personnel):

A qualitative assessment has been included that concludes that this use is safe for workers.

The toxicological effect of this substance is eye irritation (local parameter). for which a DNEL value cannot be estimated. because there is no dose-response information available. A minimal systemic effect was only observed at doses that were so high that personnel would never be exposed to them (see relevant DNEL: section 8 SDS). so it was not considered necessary to make a quantitative risk assessment.

4	**Guidance for intermediate users to assess if they working within the limits set by the ES**

Additional risk management measures apart from the ones mentioned above in the contributing scenarios (2.1. 2.2) are not required to guarantee safety during this use and thus work within the limits of the ES 2 exposure scenario.

5	**Good practice advice in addition to that included in the Chemical Safety Assessment (CSA) required by REACH. Measures not subject to art. 37 (4) REACH**

- Adequate containment of the substance
- Minimise the number of exposed personnel
- Segregate the releasing processes
- Utilise effective contamination extraction systems
- Good ventilation conditions
- Minimise manual handling
- Avoid contact with contaminated objects and instruments
- Regularly clean the work area and equipment
- Supervise the area to check that risk management measures are being applied
- Train personnel for good practices
- Keep standard personal hygiene conditions

Safety Data Sheet Appendices
Exposure Scenario 3

1	**Title of Exposure Scenario (ES)**
	Professional use of ammonium nitrate for formulation of preparations and end use by professionals
2	**Description of activities or processes covered by the exposure scenario**
	List of all the use descriptors related to ES 3
	SU 22 * PC 12 * PROC 1/2/8a/8b/9/11/15/19 ERC 8b/8e
	Name/s of contributing scenario/s related to the environment and their corresponding Environmental Release Class (ERC)
	1. Wide dispersive indoor use of reactive substances in open systems (ERC 8b) 2. Wide dispersive outdoor use of reactive substances in open systems (ERC 8e)
	Name/s of contributing scenario/s for the worker and their corresponding Process Category (PROC)
	1. Use in enclosed processes. no likelihood of exposure (PROC 1) 2. Use in closed. continuous processes with occasional controlled exposure (PROC 2) 3. Transfer of substances or preparations (charging/discharging) from/to vessels/large containers at non-dedicated facilities (PROC 8a) 4. Transfer of substances or preparations from/to vessels/large containers at dedicated facilities (PROC8b) 5. Transfer of substances or preparations into small containers (dedicated filling line. including weighing) (PROC 9) 6. Non industrial spraying (PROC 11) 7. Use as laboratory reagent (PROC 15) 8. Hand mixing with intimate contact (only PPE available) (PROC 19)
	* Agency Guidance Document. Chapter R.12: Use descriptor systems: SU 22 (Professional uses: Public domain (administration. education. entertainment. services. craftsmen) PC 12 (Fertilisers)
2.1	**Contributing scenario (1) controlling environmental exposure for use of ammonium nitrate by professionals (ES3)**

Environmental exposure due to use of ammonium nitrate by professionals

Section 2.1 describes the emissions to the environment that may occur during wide dispersive indoor use of reactive substances in open systems (ERC 8b) and wide dispersive outdoor use of reactive substances in open systems (ERC 8e)

As this substance does fulfil criteria for classification as hazardous to the environment. the environmental risk assessment has not been carried out for this substance and therefore the conditions that affect the environment are not included during this use.

2.2 Contributing scenario (2) controlling worker exposure for professional use of ammonium nitrate for formulating preparations and end use.

All the relevant processes for this scenario identified by the PROC codes in point 1 of this scenario (PROC 1/2/8a/8b/9/11/15/19) have the same operating conditions and risk management measures for personnel. Consequently they are all covered by just one contributing scenario (2).

Product characteristics	Solid with low dust formation index Liquid. ammonium nitrate concentration in the product > 25%
Quantities used	Not relevant
Frequency and duration of use or exposure	> 4 hours a day
Human factors not influenced by risk management	Not relevant
Other operational conditions that have an impact on worker exposure	Used indoors and outdoors
Technical conditions and measures at process level (source) to prevent release	Not relevant
Technical conditions and measures for controlling dispersion of the source to workers	1.- Adequate containment of the substance 2.- Good ventilation conditions 3- Avoid splashing. Use specific dispensers and pumps designed especially to prevent splashes/leaks/exposure
Organisational measures to prevent or limit releases. dispersion and exposure	Not relevant
Conditions and measures for personal protection. hygiene and health evaluation	Use safety glasses

3 Estimation of exposure and reference to its source

Information for contributing scenario 1 (environmental exposure):

No environmental assessment was completed because the substance does not fulfil criteria for classification as hazardous for the environment and therefore there is no additional assessment of environmental exposure.

Information for contributing scenario 2 (exposure for personnel):

A qualitative assessment has been included that concludes that this use is safe for workers.

The toxicological effect of this substance is eye irritation (local parameter). for which a DNEL value cannot be estimated. because there is no dose-response information available. A minimal systemic effect was only observed at doses that were so high that personnel would never be exposed to them (see relevant DNEL: section 8 SDS). so it was not considered necessary to make a quantitative risk assessment.

4 Guidance for intermediate users to assess if they working within the limits set by the ES

Additional risk management measures apart from the ones mentioned above in the contributing scenarios (2.1. 2.2) are not required to guarantee safety during this use and thus work within the limits of the ES 3 exposure scenario.

5 Good practice advice in addition to that included in the Chemical Safety Assessment (CSA) required by REACH. Measures not subject to art. 37 (4) REACH

- Adequate containment of the substance
- Minimise the number of exposed personnel
- Segregate the releasing processes
- Utilise effective contamination extraction systems
- Good ventilation conditions
- Minimise manual handling
- Avoid contact with contaminated objects and instruments
- Regularly clean the work area and equipment
- Supervise the area to check that risk management measures are being applied
- Train personnel for good practices
- Keep standard personal hygiene conditions

Safety Data Sheet Appendices
Exposure Scenario 4

1	**Title of Exposure Scenario (ES)**
	End use for consumers of fertilisers. matches and fireworks
2	**Description of activities or processes covered by the exposure scenario**
	List of all the use descriptors related to ES 3
	SU 21 * PC 11/12 ERC 8b/8e/10a
	Name/s of contributing scenario/s related to the environment and their corresponding Environmental Release Class (ERC)
	1. Wide dispersive indoor use of reactive substances in open systems (ERC 8b) 2. Wide dispersive outdoor use of reactive substances in open systems (ERC 8e) 3. Wide dispersive use of long-life articles and materials with low release (ERC 10a)
	Name(s) of contributing scenarios for the worker and their corresponding Chemical Product Category (PC)
	1. Explosives (PC11) 2. Fertilizers (PC 12)
	* Agency Guidance Document. Chapter R.12: Use descriptor systems: SU 21 (Uses by consumers: Private households (= general public = consumers)
2.1	**Contributing scenario (1) controlling environmental exposure for use of fertilizers. matches and fireworks by consumers (ES4)**

Environmental exposure due to the use by consumers of ammonium nitrate in fertilisers. matches and fireworks

Section 2.1 describes the emissions to the environment that may occur during wide dispersive indoor use of reactive substances in open systems (ERC 8b) and wide dispersive outdoor use of reactive substances in open systems (ERC 8e)

As this substance does fulfil criteria for classification as hazardous to the environment. the environmental risk assessment has not been carried out for this substance and therefore the conditions that affect the environment are not included during this use.

2.2	**Contributing scenario (2) controlling consumer exposure for use of fertilizers. matches and fireworks**

All the relevant chemical product categories for this scenario identified by the PC codes in point 1 of this scenario (PC 11. PC 12) have the same operating conditions and risk management measures for personnel. Consequently they are all covered by just one contributing scenario (2).

Product characteristics	Solid with low dust formation index Liquid Products containing ammonium nitrate in concentrations of ≥ 10% Products containing ammonium nitrate in concentrations of < 10%
Quantities used	Not relevant
Frequency and duration of use or exposure	Not relevant
Human factors not influenced by risk management	Not relevant
Other operational conditions that have an impact on worker exposure	Used indoors and outdoors
Conditions and measures with information and recommendations for consumer conduct	Avoid splashes
Conditions and measures for personal protection and hygiene	1.- If concentration is ≥ 10%. use safety glasses 2.- If concentration is < 10%. no personal protection is necessary 3.- Indicate safe recommendations of use for consumers on the product labels

3	**Estimation of exposure and reference to its source**

Information for contributing scenario 1 (environmental exposure):

No environmental assessment was completed because the substance does not fulfil criteria for classification as hazardous for the environment and therefore there is no additional assessment of environmental exposure.

Information for contributing scenario 2 (exposure for personnel):

A qualitative assessment has been included that concludes that this use is safe for consumers.

The toxicological effect of this substance is eye irritation (local parameter). for which a DNEL value cannot be estimated. because there is no dose-response information available. A minimal systemic effect was only observed at doses that were so high that consumers or people would never be exposed to them (see relevant DNEL: section 8 SDS). so it was not considered necessary to make a quantitative risk assessment.

4	**Guidance for intermediate users to assess if they working within the limits set by the ES**

Additional risk management measures apart from the ones mentioned above in the contributing scenarios (2.1. 2.2) are not required to guarantee safety during this use:

If concentration of ammonium nitrate is ≥ 10%. use safety glasses
If concentration is < 10%. no personal protection is necessary