

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2015/830/EU

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Number and date of revision: 1.0/EN; 25.05.2020

Pétisó+S 24-12 (AN based fertilizer with S)

(Number of repealed version: -)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name **Pétisó+S 24-12** (ammonium nitrate based fertilizer with S)
CAS number Not applicable (mixture)
EINECS number Not applicable (mixture)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses: fertilizer

Uses advised against: no uses advised against

1.3. Details of the supplier of the safety data sheet

Name of supplier
(manufacturer): NITROGÉN MŰVEK Zrt.
Address: Pétfürdő, Hősök tere 14.
8105 Pétfürdő, Pf. 450,
Hungary
Telephone: +36-88-620-100
Fax: +36-88-620-102
E-mail: sds@nitrogen.hu

1.4. Emergency telephone number

The UK National Poisons Emergency number +44 870 600 6266

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Not classified in accordance with Regulation 1272/2008/EC.

Remark: Information supporting the classification are specified in sections 11.1 and 16.

2.2. Label elements

Not required.

2.3. Other hazards

The product does not meet the PBT or vPvB criteria.

No other hazards known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

The product is not a substance; therefore, it is not applicable.

3.2. Mixtures

Hazardous ingredient(s)

Name	CAS number	EC number	w/w%	Registration number
Ammonium nitrate	6484-52-2	229-347-8	66-69	01-2119490981-27-0082

Classification of ammonium nitrate:

Classification: Ox. Sol. 3, Eye Irrit. 2

Signal word: Warning

Pictograms:



H statements: H272 May intensify fire; oxidiser.

H319 Causes serious eye irritation.

Other non-hazardous ingredients:

Name	w/w%
Anhydrite – mineral CaSO ₄	31-33

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SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Skin contact

Wash the affected area with soap and water for at least 15 minutes. Remove contaminated clothing and shoes. In case of persistent irritation, obtain medical help.

Eye contact

Flush/wash eye with plenty of water for at least 15 minutes, with occasional blinking. If necessary and if easy to do so, remove contact lenses. In case of persistent eye irritation, obtain medical help.

Ingestion

Do not induce vomiting. Flush the mouth of the victim with plenty of water and give him plenty of water to drink. In case of persistent sickness, obtain medical help.

Inhalation

Remove the injured person from the exposition. Even in case of no symptoms, keep him warm and calm. If the breathing stops or in case of breathing difficulties, administer artificial respiration if qualified personnel is available. Avoid mouth to mouth resuscitation. In case of sickness, obtain medical help.

4.2. Most important symptoms and effects, both acute and delayed

Eyes, skin: Redness, pain.

Ingestion: In case of small quantities, the poisoning effect is unlikely. In case of ingestion of larger quantities may cause digestive abnormalities (abdominal pain, nausea, diarrhoea) and in extreme cases (especially if the affected person is very young) methaemoglobin formation ("blue baby symptom") or cyanosis (which is indicated by the bluish discoloration of area of the mouth) may occur.

Inhalation: The high airborne dust concentration may irritate the nose and the upper respiratory tract, which has symptoms like burning feeling in the throat and coughing.

4.3. Indication of any immediate medical attention and special treatment needed

In normal cases immediate medical help is not required, but in case of persistent symptoms, obtain medical help. May cause methaemoglobin formation.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

If the fertilizer is not directly involved in the fire, any suitable extinguishing media can be used.

If fertilizer is involved in the fire, water spray is the suitable extinguishing medium. For safety reasons, other extinguishers (foam, sand, dust, halon, carbon dioxide) cannot be used.

5.2. Special hazards arising from the substance or mixture

The fertilizer is not combustible in itself, but it may promote the combustion even in the lack of air. It melts in case of heating and further heating may cause degradation which happens with the liberation of toxic nitrogen oxides and ammonia. It may explode in closed areas and in the presence of strong initiating effects in case of sudden hit, pressure or high temperature. Avoid temperatures above 210 °C especially in closed or insufficiently ventilated areas, because explosion or thermal degradation may occur.

After the inhalation of degradation gases or degradation products, remove the injured person from the gas exposure. Even in case of no symptoms, keep him warm and calm. Give oxygen, especially if bluish discoloration can be observed around the mouth. Administer artificial respiration if the breathing has stopped. After the exposure the victim must be kept under medical surveillance for at least 48 hours, because delayed pulmonary oedema may occur.

5.3. Advice for firefighters

Do not inhale the combustion gases (toxic). Approach the fire from down-wind.

Due to the toxic degradation and combustion products, the use of self-contained breathing apparatus is recommended, and full protective suit has to be worn.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. Use the recommended PPE during the cleaning of the spillage.

6.2. Environmental precautions

Avoid the contamination of drains and sewage. In case of large quantities gets into sewage, surface or subsurface water, inform the respective environmental protection authority, because it may cause eutrophication.

6.3. Methods and material for containment and cleaning up

All spilled fertilizer has to be cleaned up immediately, it has to be collected and has to be placed in clean and properly labelled containers till the safe disposal. Avoid dust formation during sweeping. Do not mix with sawdust or other combustible or organic materials.

6.4. Reference to other sections

Recommendations regarding personal protective equipment can be found in section 8, those regarding the handling of waste can be found in section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid excessive dust formation. The product should be used in well ventilated areas (local exhaust ventilation may be necessary). Avoid unnecessary contact with air because of the hygroscopic nature of the product.

Do not mix with combustible materials, reducing agents, strong acids, metallic powders and do not expose to high temperature.

Avoid contact with eyes and skin. In case of long-term handling of the product, use appropriate PPE (e.g. gloves, protective goggles, see section 8). Do not eat, drink or smoke when using this product. Wash your hands thoroughly after use. Remove the contaminated clothes and PPE before eating.

7.2. Conditions for safe storage, including any incompatibilities

Appropriate containers for storage are plastic sacks, steel and aluminium containers, barrels. Ammonium nitrate causes corrosion on untreated metal surfaces. Avoid using zinc and copper containers.

Keep order in the vicinity of the storage area. All storage area has to be cool, dry, safe from humidity and well ventilated.

Keep away from heat sources and fire. Keep away from combustible material and materials listed in section 10.3. In agricultural plantations ensure that the fertilizer is not stored near hay, straw, grain, diesel oil etc. It is prohibited to mix or store together with urea.

Do not use open flame and do not smoke in the vicinity of the storage area.

Keep in such circumstances which inhibit the crystallization of the product due to the product heat cycles (the fluctuation of temperatures within wide ranges). Recommended storage temperature between 5 and 30 °C. The product cannot be stored in direct sunshine.

Control the height of the strings of sacked product (observe local regulations) and keep at least 1 m distances amongst the strings.

7.3. Specific end use(s)

Manufacturing and industrial use

- production, packaging, loading, sampling

Duration and frequency of use: > 4 hours / day

Risk reducing measures in case of workers:

- Good labour practice: ensure local aspiration and / or ventilation.
- The necessary protective equipment is listed in section 8.2.2. Due to the eye irritating effect of the product the use of eye protection is obligatory, the use of work clothes and gloves is recommended. If necessary - in case of very dusty applications - the use of appropriate dust mask is recommended.

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- The workers who is affected by the exposure should be trained to be aware of the method of the safe handling.

For professional use

- packing, repacking, loading, transport

Duration and frequency of use: > 4 hours / day

- mechanical spreading of solid fertilizers

Duration and frequency of use: maximum 12 hours / day; 7 days / week; 2-3 months / year

Risk reducing measures in case of professional users:

- Recommended: use automated and / or closed systems.
- Avoid the formation and inhalation of inhalable powders and drops or spray.
- The necessary protective equipment is listed in section 8.2.2. If the exposure cannot be avoided, use eye protection.

For consumer use

- manual spreading of solid fertilizers

Duration and frequency of use: < 4 hours / day; 1-3 times / year

Risk reducing measures in case of consumers:

- Avoid the formation and inhalation of powders.
- The necessary protective equipment is listed in section 8.2.2. If the exposure cannot be avoided, use eye protection. The use of protective gloves is recommended. Wash hands thoroughly after handling and remove the work clothes.

(Plant special dosing information is available in the website: www.genezispartner.hu)

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Occupational exposure limit values

There are no officially established limits.

Maximum powder concentration recommended by ACGIH 10 mg/m³.

8.1.2. Recommended exposure controls

It is advisable to frequently control the concentration of dust in the work area depending on the technological stability.

8.1.3. Occupational exposure limits in case of generation of air-polluting material

In case of intended use of the product, no air-polluting materials are generated.

8.1.4. DNEL and PNEC values

DNEL values defined for ammonium nitrate:

DNEL (long term)	worker	general population
dermal	21.3 mg/kg/day	12.8 mg/kg/day
inhalation	37.6 mg/m ³	11.1 mg/m ³
ingestion	-	12.8 mg/kg/day

PNEC values for fresh water: 0.45 mg/l

8.1.5. Information supporting risk management

No other data supporting risk management is available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Avoid high dust concentration and apply ventilation if necessary.

8.2.2. Personal protective equipment

In case of long-term handling, use protective clothes, appropriate gloves (plastic, rubber or leather) and protective glasses (EN 166). In case of high dust concentration, wear respiratory device against dust (EN143, 149, filters P2, P3).

Wash hands after handling the product and take care of personal hygiene.

8.2.3. Environmental exposure controls

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Prevent water contaminated by the product entering the sewer system. The leaked product must be collected.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

State	solid
Appearance	greyish granules
Odour	odourless
Odour threshold	not applicable (odourless)
pH	>4.4 (1% aqueous solution of the main substance (ammonium nitrate))
Melting point	169.6 °C at 1013 hPa for ammonium nitrate 1450°C for calcium sulphate
Boiling point (15 hPa)	>210 °C (degrades)
Flash point	not applicable (not combustible, inorganic)
Evaporation rate	not applicable (solid)
Flammability (solid, gas)	not combustible (based on molecular structure)
Upper/lower flammability	or explosive limits: not applicable (non-combustible, non-explosive inorganic material); In case of strong closure (e.g.: in pipes or drains) the heating leads to violent reactions or explosion, especially in that case if it is contaminated with the materials listed in section 10.3.
Vapour pressure	not applicable (solid)
Vapour density	not applicable (solid)
Density	1720 kg/m ³ at 20 °C (for ammonium nitrate, as a substance) Density of the anhydrite mineral: 2.96 g/cm ³
Solubility(ies)	ammonium nitrate, in water 1920 g/l (20 °C) Contacting with water (humidity) anhydrite transforms to gypsum. The solubility of gypsum is low, 2.4 g/L at 20°C.
Partition coefficient n-octanol/water:	not required (inorganic)
Auto-ignition temperature	not applicable (not combustible, inorganic)
Decomposition temperature:	>170 °C
Viscosity	not applicable (solid)
Explosive properties	not explosive in itself In case of strong closure (e.g.: in pipes or drains) the heating leads to violent reactions or explosion, especially in that case if it is contaminated with the materials listed in section 10.3.
Oxidizing properties	the product is not oxidizing, but ammonium nitrate may support combustion and oxidation

9.2. Other information

Bulk density	900 - 1100 kg/m ³
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SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

The product is stable under normal storage, handling and use conditions.

10.2. Chemical stability

The product is stable under normal storage, handling and use conditions.

10.3. Possibility of hazardous reactions

In case of strong heating it melts and degrades while forming toxic gases (ammonia, nitrogen oxides), the heating of fertilizer in strong closure (e.g.: in pipes or drains) may lead to violent reactions or explosions, especially if it is contaminated with the materials listed in section 10.3. Ammonia gas is formed in case of contact with such alkali materials as lime. See sections 2 and 9.

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10.4. Conditions to avoid

Heating to temperature above 170 °C (degradation during gas formation). Vicinity of heat source or fire. Welding or other heat related tasks on such equipment or site which may be contaminated with fertilizer, without washing for the removal of all fertilizer.

Unnecessary contact with air.

Contamination with incompatible materials (see section 10.3).

10.5. Incompatible materials

Combustible materials, organic materials, reducing agents, agricultural products, seeds, hay, straw, strong acids and bases, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, phosphor, metallic powders and other substances containing metals as copper, nickel, cobalt, zinc, cadmium, lead, bismuth, chromium, magnesium, sodium, potassium, aluminium and their alloys.

Spontaneous reaction with the mixture of acetic acid anhydride and nitric acid, with the mixture of ammonium sulphate and potassium, with iron(II)-sulphide, with copper, with sawdust, with carbamide and with barium nitrate.

With alkali metals it forms explosive reaction products.

10.6. Hazardous decomposition products

Ammonia, oxides of nitrogen.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

We hereby give information about the results of the conducted toxicological studies about the calcium ammonium nitrate fertilizer, about the pure ammonium nitrate, calcium sulphate dihydrate and about other nitrates and ammonium salts.

Acute toxicity

Test substance	CAS number	Exposure route	Species	Result
Ammonium nitrate	6484-52-2	oral	rat	LD50: 2950 mg/kg
		dermal	rat	LD50: > 5000 mg/kg
		inhalation	rat	LC50: > 88.8 mg/l
Calcium sulphate dihydrate	10101-41-4	oral	rat	LD50: > 1000 mg/kg

Skin irritation

Test substance	CAS number	Exposure route	Species	Result
Ammonium nitrate	6484-52-2	dermal	rabbit	non-irritating
Calcium sulphate dihydrate	10101-41-4	dermal	rabbit	non-irritating

Eye irritation

Test substance	CAS number	Species	Result
Calcium ammonium nitrate (CAN), 77.9 % ammonium nitrate content	-	rabbit	non-irritating
Product with similar composition (27% N and 9% SO ₃)	-	rabbit	non-irritating
Ammonium nitrate	6484-52-2	rabbit	irritating

Skin sensitization

Test substance	CAS number	Species	Result
Ammonium calcium nitrate dual salt	15245-12-2	mouse	non-sensitizing

Target organ toxicity after repeated exposure

Test substance	CAS number	Exposure route	Species	Result
Ammonium sulphate	7783-20-2	ingestion	rat	NOAEL: 256 mg/kg/day (52-week test)

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Test substance	CAS number	Exposure route	Species	Result
Potassium nitrate	7757-79-1	ingestion	rat	NOAEL $\geq$ 1500 mg/kg/day (28-day test)
Calcium sulphate dihydrate	10101-41-4	ingestion	rat	NOAEL: 79 mg/kg/day (52-week test)
Ammonium nitrate	6484-52-2	inhalation	rat	NOAEC $\geq$ 185 mg/m ³

Carcinogenicity

No data.

Mutagenicity

Test substance	CAS number	Test type	Cell type	Result
Ammonium calcium nitrate dual salt	15245-12-2	Bacterial reverse mutation assay	S. typhimurium; E. coli	negative
		In vitro chromosome mutation assay conducted in mammals	Human peripheral lymphocyte	negative
Calcium sulphate dihydrate	10101-41-4	Bacterial reverse mutation assay	S. typhimurium;	negative
Potassium nitrate	7757-79-1	Mammal cell gene mutation assay	Mouse lymphoma	negative

Reproductive toxicity

Test substance	CAS number	Exposure route	Species	Result
Potassium nitrate	7757-79-1	ingestion	rat	NOAEL: $\geq$ 1500 mg/kg bw/day
Calcium sulphate dihydrate	10101-41-4	ingestion	rat	NOAEL: $\geq$ 1000 mg/kg bw/day

Information on likely routes of exposure

The most probable route of exposures is skin and eye exposure, which can be reduced to minimal with the use of PPE. The inhalation exposure is only possible if during the use of the product dust is formed and no sufficient ventilation is available. In case of normal circumstances ingestion is not likely, only accidental ingestion is possible. The possible symptoms are listed in section 4.2.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

We hereby give information about the results of the conducted toxicological studies about pure ammonium nitrate, calcium sulphate dihydrate and about other nitrates.

Tested substance	CAS number	Test	Species/group of animals	Result
Ammonium nitrate	6484-52-2	Short term toxicity in fish	carp (<i>Cyprinus carpio</i>)	LC50 (48 h): 447 mg/l
Potassium nitrate	7757-79-1	Toxicity for invertebrates	water flea (<i>Daphnia magna</i>)	EC50 (48 h): 490 mg/l
Potassium nitrate	7757-79-1	Test conducted on algae and aquatic plants	sedimentary diatomaceous algae	EC50 (10 d): $>$ 1700 mg/l
Calcium sulphate dihydrate	10101-41-4	Short term toxicity in fish	<i>Oryzias latipes</i>	LC50 (96 h): $>$ 100 mg/l
Calcium sulphate dihydrate	10101-41-4	Toxicity for invertebrates	water flea (<i>Daphnia magna</i>)	EC50 (48 h): $>$ 100 mg/l

In large quantities it causes eutrophication in natural waters.

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12.2. Persistence and degradability

Not persistent, its components are inorganic materials.

Anhydrite is slightly soluble in water, but in alkaline circumstances the solubility increases, it dissociates into calcium and sulphate ions.

The ammonium nitrate dissociates for its ions in water. It degrades in the natural nitrification/denitrification cycle. The ammonium ion transforms to nitrites and then nitrates with the help of bacteria both in natural and controlled circumstances (sewage treatment technologies). The biological degradation time in sewage treatment plants is 52 g N/kg dissolved solid material/day in 20 °C. The nitrate both degrades within natural and controlled circumstances (sewage treatment technologies). The decomposition products of the anaerobe degradation: dinitrogen oxide, nitrogen, ammonia. The biological degradation time in sewage treatment plants is 70 g N/kg dissolved solid material/day in 20 °C.

12.3. Bioaccumulation potential

Not bioaccumulating, because its components are inorganic materials, and their partition coefficient are low.

12.4. Mobility in soil

Inorganic compound, well water-soluble, with low tendency to absorption.

12.5. Results of PBT and vPvB assessment

Non PBT and vPvB, because its components are inorganic materials.

12.6. Other adverse effects

No other adverse effects known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Depending on the extent and the type of the contamination, it can be used as fertilizer or can be disposed via licensed waste management company. Recommended codes according to the List of Waste:

06 03 14 solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13

15 02 03 absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02

Information regarding the disposal of the packaging

The sacks, containers which are thoroughly cleaned with water - with the permission of the local authorities - can be disposed or recycled as non-hazardous waste (Do not remove the label from the container before cleaning). Recommended code according to the List of Waste:

15 01 02 plastic packaging

SECTION 14: TRANSPORT INFORMATION

14.1. UN number: not dangerous goods

14.2. UN proper shipping name: not dangerous goods

14.3. Transport hazard class(es): not dangerous goods

14.4. Packaging group: not dangerous goods

14.5. Environmental hazards: not environmentally hazardous

14.6. Special precautions for user: not necessary

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/legislation specific for the substance or mixture

Directive 2012/18/EU (SEVESO III) on the control of major-accident hazards involving dangerous substances	Ammonium nitrate (lower tier: 1250 t, upper tier: 5000 t)
Regulation 2003/2003/EC relating to fertilisers	The product is an ammonium nitrate based EC fertilizer (A.1 fertilizer type – nitrogen fertilizer)

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Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), restrictions according to Annex XVII	The N-content of the product is 16% higher and can therefore be marketed only to downstream users, distributors, farmers and professional users (e.g. horticulture, landscaping, forestry).
Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), authorization	The product does not contain any substances of very high concern.
Regulation 1272/2008/EC on classification, labelling and packaging of substances and mixtures (CLP)	Classification of the product according to CLP – see section 2. Classification of the hazardous component – see section 3.

Related regulations:

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2. Chemical safety assessment

Chemical safety assessment has been performed for ammonium nitrate.

SECTION 16: OTHER INFORMATION

Important changes in the safety data sheet:

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Version:

Version number: -

Date of issue: -

Date of repeal: -

Abbreviations:

LD50 – Lethal dose resulting in 50 % mortality

EC50 – Effective concentration, 50 %

DNEL – Derived-No-Effect-Level

LC50 – Lethal concentration resulting in 50 % mortality

NOAEL – No Observed Adverse Effect Level

NOAEC – No Observed Adverse Effect Concentration

PBT – Persistent, bioaccumulative and toxic

vPvB – very persistent and very bioaccumulative

ACGIH – American Conference of Governmental Industrial Hygienists

Most important references:

- Chemical safety assessment of ammonium nitrate, 2016
- International Chemical Safety Cards ICSC 0216, 2001
- Hommel: Hazardous substances, 1989
- Harlan Laboratory: Report for CAN 27 in vivo testing, Report no. D36408, 2011
- Fertilizers Europe: Assessment of ammonium nitrate based fertilizers as eye irritant for classification purposes, 2011

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Method of evaluation of data:

Test results for substances or materials for cross-referencing, as well as the method based on the general concentration limits for mixtures set out in Annex I of CLP.

The product is not subject to ADR / RID (Special Specification 307), not oxidizing.

Based on the relevant eye irritation tests made by Harlan laboratories Ltd. on different fertilizers with ammonium nitrate content (CAN27, NPK fertilizers), the mixtures with < 80% ammonium nitrate content are not irritating to the eyes.
