

SAFETY DATA SHEET

in accordance with Regulations 1907/2006/EC and 2020/878/EU as amended and modified

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Number and date of issue: 1.0/EN 12.05.2023

Pétisó/ Calcium ammonium nitrate

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

1.1. Product identifier

Commercial name **Pétisó/ Calcium ammonium nitrate**
Other names **Pétisó (27% N)**
CAS number: **n.a. (mixture)**
EINECS number: **n.a. (mixture)**
Synonym: **lime-ammonium nitrate (MAS), calcium ammonium nitrate (CAN)**

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

Identified uses: fertilizer for industrial uses.

1.3. Details of the supplier of the safety data sheet

Name of manufacturer: **NITROGÉNműVEK 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

Responsible person: **DR. DUPLINSZKI RENÁTA**

1.4. Emergency telephone number

National Poisons Information Service (NPIS)
NHS 111 (England), NHS 24 (Scotland) or NHS Direct (Wales) – dial 111
In Northern Ireland contact your local GP
Healthcare Professionals: UK NPIS 0344 892 0111

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the mixture

Not classified according to Regulation (EC) No 1272/2008
Note: Data supporting classification are detailed in Sections 11.1 and 16.

2.2. Label elements

Not required.

2.3. Other hazards

The ingredients of the product do not meet the criteria for PBT or vPvB substances and for endocrine disruptors.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Hazardous ingredient(s):

Name	CAS number	EC number	w/w%	Registration number
Ammonium nitrate	6484-52-2	229-347-8	75-78	01-2119490981-27-0082

Classification of ammonium nitrate:

Classification: **Oxidising Solids, Hazard Category 3,
Serious eye damage/eye irritation, Hazard Category 2**

Hazard statements: **H272 May intensify fire; oxidiser.
H319 Causes serious eye irritation.**

Other not hazardous ingredients:

Name	CAS number	EC number	w/w%
Dolomite powder (Ca,Mg)CO ₃	83897-84-1	281-192-5	21-23

Dolomite powder is exempt from registration.

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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 water. 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 (particularly if the victim is very young), methaemoglobin formation (blue baby disease) and cyanosis (bluish discoloration of the area around 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 extinguishing media (foam, sand, powder, halon, CO₂) cannot be used.

5.2. Special hazards arising from the substance or mixture

The fertilizer is not combustible, 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

The leak must be sealed off. The spillage should be pumped up or soaked with dry sand or soil and placed in clean, labelled containers until safe disposal. The contaminated area or objects may be decontaminated by washing them with clean water. 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 hygroscopicity of the product.

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

Avoid contact with skin and eyes.

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

Plastic bags, steel and aluminum containers and barrels are suitable for storage. Ammonium nitrate causes corrosion on untreated metal surfaces. Zinc and copper containers should be avoided.

Maintain a high degree of order in the storage environment. All storage buildings should be cool, dry, protected from moisture 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. Do not mix or store together with carbamide. 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 °C 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

- manufacturing, packaging, loading and sampling. Duration and frequency of use: > 4 hours/day

Risk reducing measures in case of workers:

- Good industrial practice: local exhaust ventilation and/or ventilation.
 - The necessary protective equipments are 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.
 - The workers who is affected by the exposure should be trained to be aware of the method of the safe handling.
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Occupational (professional) use

- packaging, re-packaging, loading, transportation

Frequency and duration of use: > 4 h/day

- machine dispersion of solid fertilizer

Frequency and duration of use: max. 12 h/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 powders.
- The necessary protective equipment is listed in section 8.2.2. If the exposure cannot be excluded in other way, use protective goggles.

For consumer use

- manual dispersion of solid fertilizer

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 excluded in other way, use protective goggles.

The use of protective gloves is recommended. Wash hands thoroughly and remove work clothes after work.

(Recommended plant-specific dosage is available on the following website: ww.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 (EH40/2005 Workplace Exposure 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

For ammonium nitrate:

DNEL (long-term)	workers	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 value 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 contact with eyes, skin and spilling into watercourses and drains.

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, P2, P3 filters)

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

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8.2.3 Environmental exposure controls

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

- a) Physical state solid granules or particles
- b) Colour white or slightly coloured
- c) Odour odourless
- d) Melting point/freezing point Ammonium nitrate: 169.6 °C at 1013 hPa. Dolomite decomposes before melting.
- e) Boiling point or initial boiling point and boiling range ammonium nitrate (15 hPa) >210 °C (decomposes)
- f) Flammability not combustible (based on molecular structure)
- g) Lower and upper explosion limit not applicable (non-combustible, inorganic substance that is not explosive in itself)
- h) Flash point not applicable (not combustible, inorganic) Under tight confinement (e.g. in pipes or ducts), heating may lead to a violent reaction or explosion, especially if contaminated with substances mentioned in point 10.3
- i) Auto-ignition temperature not applicable (not combustible, inorganic)
- j) Decomposition temperature >170 °C
- k) pH A 1% aqueous solution of the main component ammonium nitrate >4.4
- l) Kinematic viscosity cannot be interpreted as a solid material
- m) Solubility Solubility in water: ammonium nitrate 1920 g/l (20 °C). Dolomite is very poorly soluble in water; it dissolves in acids with the formation of carbon dioxide.
- n) Partition coefficient n-octanol/water (log value) -3.1 (for ammonium nitrate as a substance)
- o) Vapour pressure not applicable (solid)
- p) Density and/or relative density: 1720 kg/m³ at 20°C (for ammonium nitrate as material).
Mineral density of dolomite: 2,84-2,86 g/cm³
- q) Relative vapour density not applicable (solid)
- r) Particle characteristics granules or particles

9.2. Other information

Bulk density 900-1100 kg/m³

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 (eg.: 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 Section 9.

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).

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10.5. Hazardous decomposition products

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, nitrogen oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

We hereby give information about the results of the conducted toxicological studies (suitable for cross-reference) about the calcium ammonium nitrate fertilizer as well as about pure ammonium nitrate as main component and 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

Skin irritation

Test substance	CAS number	Species	Result
Ammonium nitrate	6484-52-2	rabbit	non-irritant

Eye irritation

Test substance	CAS number	Species	Result
Ammonium nitrate	6484-52-2	rabbit	irritant, see subsection 15.1

Skin sensitization

Test substance	CAS number	Species	Result
Ammonium calcium nitrate	15245-12-2	mouse	not sensitizing

STOT-repeated exposure

Test substance	CAS number	Exposure route	Species	Result
Ammonium sulphate	7783-20-2	oral	rat	NOAEL: 256 mg/kg/day (52 week test)
Potassium nitrate	7757-79-1	oral	rat	NOAEL ≥ 1500 mg/kg/day (28 day test)
Ammonium nitrate	6484-52-2	inhalation	rat	NOAEC of ≥ 185 mg/m ³

Carcinogenicity:

No data available.

Mutagenicity

Test substance	CAS number	Test type	Species	Result
Ammonium calcium nitrate	15245-12-2	Bacterial reverse mutation test	S. typhimurium; E. coli	negative

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		In vitro mammalian chromosome aberration test	Human peripheric lymphocytes	negative
Potassium nitrate	7757-79-1	Mammalian gene mutation test	Mouse lymphomas	negative

Reproductive toxicity

Test substance	CAS number	Exposure route	Species	Result
Potassium nitrate	7757-79-1	oral	rat	NOAEL: $\geq$ 1500 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.

11.2. Information on other hazards

No further information.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

When released in large quantities into natural waters, it leads to eutrophication. We hereby give information about the results of the conducted toxicological studies (suitable for cross-reference) about pure ammonium nitrate and other nitrates.

No data available for the product.

Test substance	CAS number	Test	Species/group of animals	Result
Ammonium nitrate	6484-52-2	Short-term toxicity to fish	carp (<i>Cyprinus carpio</i>)	LC50 (48 h): 447 mg/l
Potassium nitrate	7757-79-1	Toxicity for invertebrates	daphnia (<i>Daphnia magna</i>)	EC50 (48 h): 490 mg/l
Potassium nitrate	7757-79-1	Test conducted on algae and aquatic plants	bottom diatom algae	EC50 (10 d): $>$ 1700 mg/l

12.2. Persistence and degradability

Consists of non-persistent, inorganic materials.

Dolomite is not soluble in clear water, but within acidic circumstances its solubility increasing, while forming calcium, magnesium and hydrogen carbonate ions.

Ammonium nitrate dissociates for its ions in water. It degrades in the natural nitrification/denitrification cycle. 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 at 20°C. 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 at 20°C.

12.3. Bioaccumulative potential

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

12.4. Mobility in soil

Ions formed during dissolution are mobile; their potential to adsorption is low.

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12.5. Results of PBT and vPvB assessment

Non PBT and vPvB because its components are inorganic materials.

12.6. Endocrine disrupting properties

There is no known effect.

12.6. Other adverse effects

No other adverse effects are 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 or ID number: Not dangerous goods.

14.2. UN proper shipping name: Not dangerous goods.

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

14.4. Packing group: Not dangerous goods.

14.5. Environmental hazards: Not hazardous for the environment.

14.6. Special precautions for user: Not required.

14.7. Maritime transport in bulk according to IMO instruments: Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Directive (EU) No 2012/18 (SEVESO III.) on the control of major-accident hazards involving dangerous substances	The product contains ammonium nitrate, but does not meet the concentration limits prescribed in Note No. 14 related to the named substance (ammonium nitrate 1250/5000) in the table of Annex I, Part 2 of DIRECTIVE 2012/18/EU.
Regulation (EU) 2019/1009 laying down rules on the making available on the market of EU fertilising products	Liquid, inorganic fertilisers containing a single macroelement
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 (EU) 2019/1148 on the marketing and use of explosives precursors	The product is subject to the regulation. The nitrogen content of the mixture from ammonium nitrate is greater than 16 (m/m) %.

15.2. Chemical safety assessment

Chemical safety assessment has been performed for ammonium nitrate and urea.

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SECTION 16: OTHER INFORMATION

Important changes in the safety data sheet:

The safety data sheet has been adapted to Regulation (EU) 2020/878.

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

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 provision 307), it is non-oxidizing.

Based on eye irritation studies conducted by the Harlan laboratories Ltd on different fertilizers containing ammonium nitrate (CAN27, NPT fertilizers), fertilizer mixtures containing less than 80 % ammonium nitrate are not considered to be eye irritant.

Important references:

- Chemical safety report for 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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