CALCIUM AMMONIUM NITRATE

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

1.1 Product identifier

Trade name of mixture – Calcium ammonium nitrate
Composition: a mixture of ammonium nitrate and dolomite powder.
Identification of hazardous ingredients:
Trade name: Ammonium nitrate;
Identification number according to Regulation No. 1272/2008: not applicable.
CAS number. 6484-52-2
EC number: 229-347-8;
REACH registration number: 01-2119490981-27-XXXX.

1.2 Relevant identified uses of the mixture and uses advised against

1.2.1 Uses: as fertilizer.

1.2.2 Uses advised against: None.

1.3 Details of the supplier of the safety data sheet

Manufacturer: AB Achema
Full address: Jonalaukio k., Ruklos sen., LT55550
Country: Lithuania
Tel. Nr.: + 370 349 56465
URL website: www.achema.lt
Person responsible for the Safety Data Sheet (with e-mail address): Žydrūnas Utka, z.utka@achema.com

1.4. Emergency telephone number

Please contact: Poison Information and Control Office in the Republic of Lithuania by phone +370 52362052 or by the Common emergency Center by 112.
Helpdesk services work 24 hours a day, 365 days a year.
Other remarks (language in which assistance is provided): assistance is provided in Lithuanian.

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance

2.1.1. Classification in accordance with Regulation No. 1272/2008: In compliance with Regulation No. 1272/2008 preparation is not classified as hazardous.

2.2. Label elements

Labelling in accordance with Regulation No. 1272/2008:

Hazard Icon (s): none.
Signal word (s): none.
Hazard Statement (s): none.
Precautionary statement(s):
P210: Keep away from heat/ sparks/open flames/hot surfaces. — No smoking. Keep away from heat.
P220: Keep/Store away from clothing/reducing agents/acids/alkali/sulphur/chlorates/chlorides/ nitrates/permanganates/powder of metals and materials containing metals as follows: copper, nickel, cobalt, zinc and their alloys/combustible materials.
P370+P378: In case of fire: Use water for extinction.
P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since calcium ammonium nitrate is inorganic.
Contact with non-protective gloves may cause skin irritation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

According to the Regulation (EC) No 1907/2006 the product is a multi-constituent.

3.2. Mixtures

Identification of hazardous ingredients in the mixture

CAS no.	EC no.	ID No. in accordance with Regulation (EB) No. 1272/2008	REACH registration No.	Content	IUPAC name	Classification in compliance with Regulation (EC) No. 1272/2008 (CLP)
6484-52-2	229-347-8	Not listed	01-2119490981-27-XXXX	≤ 80 % (w/w)	ammonium nitrate	Oxid. Solid 3, H272; Eye Irrit. 2, H319 Specific concentration limits: Eye Irrit. 2, H319: > 80,0 % ≤ 100,0 %

SECTION 4. FIRST-AID MEASURES

4.1 Description of first aid measures

4.1.1 General information: If feeling sick, seek medical advice immediately and provide the safety data sheet for this product.
The material can get through:
4.1.2. Inhalation: Leave the affected area. When feeling bad, see your doctor.
4.1.3. Eye contact: Rinse with plenty of clean water for at least for 10 minutes; immediately see the doctor.
4.1.4. Skin contact: Change affected clothing, wash skin (body) with plenty of water and soap.
4.1.5. Ingestion: Do not cause vomiting, give the affected person some water or milk to drink; if large quantity is swallowed, see the doctor.
4.1.6. Individual protection measures recommended for first-aiders: protective gloves.
Ensure that **medical personnel** are aware of the material(s) involved, and take precautions to protect

themselves. Calcium ammonium nitrate combustion process results in toxic nitrogen oxide and ammonia fumes, which can irritate and destroy the respiratory system. These side effects emerge after a period of time. If the skin around the mouth turns blue, give oxygen to breathe.

4.2 Most important symptoms and effects
None known.

4.3 Indication of any immediate medical attention and special treatment needed
Calcium ammonium nitrate combustion process results in toxic nitrogen oxide and ammonia fumes, which can irritate and destroy the respiratory system. These side effects emerge after a period of time. If the skin around the mouth turns blue, give oxygen to breathe. Seek medical advice immediately.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media
Suitable: If fertilizer is not directly involved in the combustion process, use any best available measures. If fertilizer is directly involved in combustion process, use large quantities of water.
Not suitable: Chemical extinguishers and foam. Don't use water vapor or sand.

5.2 Special hazards arising from the substance or mixture
Specific hazards: In case of fire, there is a potential option of explosion, especially if fertilizers are contaminated by inappropriate (incompatible) chemical substances (e.g. oils, see section 10).
Special exposure hazards arising from the substance/ preparation itself, combustion products, and resulting gases: nitrogen oxides, ammonia.

5.3 Advice for firefighters
Open windows and doors, do not inhale smoke (which is toxic), stand upwind of the fire, ensure that fertilizers are not contaminated with lubricants or flammable materials.
Personal protective equipment: isolating apparel used by fireman, use isolating personal oxygen masks.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For personnel not involved in emergency situations:
Use personal safety measures as specified in section 8. Do not walk through spilled fertilizers, do not raise fertilizer dust.
6.1.2. For the personnel involved in emergency situations: use suitable personal protective equipment, mentioned in section 8. Avoid contact with eyes, skin, and clothing.

6.2 Environmental precautions
Keep away from spreading.

6.3 Methods and material for containment and cleaning up
6.3.1. Containment: spilled substance/ preparation must be picked, the affected site cleaned up, open container with collected remains of the fertilizer must be disposed at an appropriate waste disposal site. Do not let the fertilizer to be mixed up with sawdust and oil lubricants.
6.3.2. Cleaning up: dilute collected small fertilizer particles mixing them with inert materials (limestone,

dolomite, mineral phosphates, gypsum, sand) or dissolve in water.
6.3.3. Other information: none.

6.4 Reference to other sections

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

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures: do not let forming a vast amount of fertilizer dust, prevent the fertilizer from being polluted with combustible (e.g. lubricants) or incompatible substances; ensure product protection against atmosphere and humidity.
Fire prevention measures: fertilizers are not self-igniting, but can support combustion, also without air. During melting or at elevated temperatures, the product may break down into toxic nitrogen oxides and ammonia smoke. Irrespective of limits (above 170 ºC), heating may cause an explosion.
Recommendations concerning good general hygiene practices at the work place: use appropriate personal precaution measures while working with fertilizer for a long time (e.g. gloves). Wear suitable protective clothing. After working with fertilizers – wash your hands.
Requirements to packages: to ensure safe product transportation and keeping, calcium ammonium nitrate is packed to polyethylene or polypropylene bags, big bags or other packages, ensuring safety transportation and storage. Packages containing zinc or copper can not be used.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions: keep separately from heating or flame sources; keep away from combustible substances and/or substances listed in section 10 below; farmers using the fertilizer must ensure they will not be stored with hay, straw, corn, diesel-based lubricants, etc. Safety precautions for the storing grounds: smoking is prohibited, as well as proximity of direct ignition and light sources. While making heaps for storage of fertilizer, local requirements should be followed and at least 1 m distance between two separate heaps should be kept.
Big bags must be kept in vertical position, stored on pallets without nails or sharp wood chips able to damage the big bag. During the cold season (from September 15 to April 15) packed in big bags of 500 kg and stored in stacks, can't be loaded on top of one another in more than 4 rows. When using larger big bags, the number of rows to be loaded on one another should not exceed 3. During the cold period (from September 15 to April 15), when transporting CAN fertilizers packed in 500 kg big bags, by vessels, it is possible to store them briefly (up to 8 days) by loading 6 bags in a row. In this way, the product can be trapped in easily sub-cut pieces.
During the warm season (from April 15 to September 15), CAN fertilizers packed in 500 kg big bags and stored in stacks can't be loaded on top of one another in more than 3 rows. When using larger bags, the number of rows to be loaded on one another should not exceed 3. During the warm season (from April 15 to September 15), transporting CAN fertilizers packed in 500 kg big bags, by vessels, can be stored with one bag on the other in no more than 3 rows.
Farmers using the fertilizer must ensure they will not be stored with hay, straw, corn, diesel-based lubricants, etc.
Avoid storage in hot areas or at the direct sunlight, damaging the packaging, entering moisture, contaminating materials (fertilizers containing elemental sulfur, urea, NPK and NP and NK urea based materials), lubricants, combustible materials. The heights of unpacked product piles or packed product stacks should remain at least 1 m from the hangers, beams and lamp holders. The size of piles depends on the layout of the warehouse, but they must be stacked so that around each of them there is at least 1 m of access to the vehicle if loading is to be organized in the event of an accident. There must be a sufficient distance between the stacks of the bulk product to ensure that the product is not contaminated with other materials.
Product must be kept separately from heat sources and open fire, protected from oxidizing substances,

reducing agents, acids, alkali, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, metal powder (especially zinc), substances containing copper, nickel, cobalt, zinc.
Packing materials. Calcium ammonium nitrate is packaged in polyethylene, polypropylene, paper bags, boxes, bags, big bags, steel, aluminum or other containers. Unpackaged fertilizers can be loaded with rain-fed and moisture-proof means of transport or by the buyer's container to ensure safe transportation of the product. A container that has zinc or copper can't be used.
Requirements for storage. Any premises used for storage must be well ventilated. Fertilizer should not be stored in open air, as due to thermal cycles caused by exposure to direct sunlight and atmospheric humidity, its physical properties may be affected.
The packaged and bulk product may be stored in enclosed, covered, dry, ventilated and clean warehouses.
It is possible to store the packaged product outside during the warm season (from September 15 to April 15) if the product is protected from atmospheric precipitation, moisture (rain, snow, so that the bag does not stand in water and water does not accumulate on the bag) and direct sunlight. The bulk product can't be stored during the warm period (from 15 April to 15 September) outside under any circumstances. During the warm season, the product cannot be stored outside under tents, because the greenhouse effect may be caused. The product can't be stored at above 30 °C. Smoking is prohibited in the storage area. The product must be stored separately from sources of heat or flame, protected from flammable materials, reducing agents, acids, alkalis, sulfur, chlorates, chlorides, chromates, nitrites, permanganates, metal powders (in particular zinc), materials containing copper, nickel, cobalt, zinc or their alloys.
Additional information on storage conditions. Warranty period is 12 months from the date of manufacture when the product is stored in warehouse and the warranty period is 10 months from the date of manufacture when the product is stored outdoors.

7.3 Specific final uses
Used as fertilizers.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Regulated occupational exposure limit values:
Maximum allowable value for long-term exposure (IPRD): not applicable.
Maximum allowable value for short-term exposure (TPRD): not applicable.

Non-limiting value (s) (DNEL). The product does not meet the criteria for classification in accordance with Regulation (EC) No. 1272/2008, therefore, no DNEL and PNEC are identified. DNEL and PNEC values for ammonium nitrate contained in the product are presented.
Ammonium nitrate DNEL is the physico-chemical property of ammonium nitrate, which could have the greatest negative effects.

Workers exposure
Ammonium nitrate DNEL data

Exposure mode	Exposure type	Hazardous	Physicochemical property that could have the greatest negative effect
Inhalation	Systemic effect – long lasting	DNEL: 36 mg/m³	Toxicity ingested
Inhalation	Systemic effect - acute	The hazard is not known	
Inhalation	Local effect – long lasting	The hazard is not known	

Inhalation	Local effect – acute	The hazard is not known	
Dermal	Systemic effect – long lasting	DNEL: 5,12 mg/kg bw/day	Toxicity ingested
Dermal	Systemic effect – acute	No hazard identified	
Dermal	Local effect – long lasting	The hazard is not known	
Dermal	Local effect – acute	No hazard identified	
If in eyes	Local effect	Low hazard	

Predicted inactive concentration(s) PNEC
Ammonium nitrate PNEC data

Section	Hazardous	Comments / Grounds
Fresh water		No effect was observed in all eco-toxicity studies with the highest recommended concentration of ammonium nitrate (nominal 100 mg / l). Therefore, on the basis of the ECHA document "Guidance on information requirements and chemical safety assessment. Part B: Hazard Assessment", assessment of the impact of water bodies is not necessary and PNEC values are not derived.
See water		No effect was observed in all eco-toxicity studies with the highest recommended concentration of ammonium nitrate (nominal 100 mg / l). Therefore, on the basis of the ECHA document "Guidance on information requirements and chemical safety assessment. Part B: Hazard Assessment ", assessment of the impact of water bodies is not necessary and PNEC values are not derived.
Freshwater sediment		No effect was observed in all eco-toxicity studies with the highest recommended concentration of ammonium nitrate (nominal 100 mg / l). No data on ecotoxicity in sediment organisms. In addition, it is considered that such data are not necessary. Therefore, on the basis of the ECHA document "Guidance on information requirements and chemical safety assessment. Part B: Hazard Assessment ", assessment of the impact of water bodies is not necessary and PNEC values are not derived.
See water sediment	There is no probability of sediment exposure	No effect was observed in all eco-toxicity studies with the highest recommended concentration of ammonium nitrate (nominal 100 mg / l). No data on ecotoxicity in sediment organisms. In addition, it is considered that such data are not necessary. Therefore, on the basis of the ECHA document "Guidance on information requirements and chemical safety assessment. Part B: Hazard Assessment ", assessment of the impact of water bodies is not necessary and PNEC values are not derived.
Microorganisms in sewage treatment system	PNEC STP: 18 mg/l	Exposure factor: 10 Extrapolation method: exposure factor Available test data with sodium nitrate, which is similar in structure to ammonium nitrate, EC50> 1000 mg / l and NOx 180 mg / l. An assessment factor of 10 was used in accordance with the ECHA Guideline on Information Requirements and Chemical Safety Assessment. Section R.10.
Soil		No effect was observed in all eco-toxicity studies with the highest recommended concentration of ammonium nitrate (nominal 100 mg / l). No data on ecotoxicity to soil. In addition, it is considered that such data are not necessary. Therefore, on the basis of the ECHA document "Guidance on information requirements and chemical safety assessment. Part B: Hazard Assessment ", assessment of the impact of water bodies is not necessary and PNEC values are not derived.
Air		No data available: It is proposed that the PNEC value should not be set.

Food chain	No bioaccumulation potential	According to Regulation (EC) No. 1272/2008 hazard statements H373, H372, H360, H361 and H362 are excluded from the scope of Regulation (EC) No 1272/2008. The substance is highly water soluble and is therefore believed to have a low bioaccumulation potential. Therefore, on the basis of the ECHA document "Guidance on information requirements and chemical safety assessment Part B.7", exposure assessment for the food chain is not necessary and the values for PNEC in the mouth are not derived.

8.2 Exposure controls

8.2.1. Appropriate engineering controls: Air supply-extraction ventilation; prevent from accumulation of non-allowed concentrations of gases. Avoid concentrating on unauthorized dust concentrations. In addition to the places where the product is stored or recycled, have a shower. Use other good manufacturing practice experience.

8.2.2 Individual protection measures, such as personal protective equipment

The personal protective equipment must be used in accordance with good work-hygiene practices and must be used in conjunction with other control measures, including technical controls, ventilation and isolation. Additional good practice tools that can be carried out in the workplace risk assessment may include: appropriate restrictions; reducing the number of unprotected staff; isolation and efficient extraction of emissions; general ventilation in good level; manual work reduction; avoiding contact with contaminated tools and objects; regular cleaning of equipment and workstation; management / supervision by verifying the correct use of RMMs in compliance with OCs; staff training on good practice; personal hygiene.

8.2.2.1. Eye (face) protection: chemical protective safety goggles according to EN 166 or face shield according to EN 166.

8.2.2.2. Skin protection

Hand protection: adequate protection gloves according to EN 420, EN ISO 374-1 due to chemical protection, EN 388 due to mechanical protection.

Protective gloves must be made of one of the materials listed in the table, at least as specified, for penetration of thickness and resistance.

Glove material	Glove thickness, mm	Penetration time, min
Butyl rubber - butyl	0.50	> 480
Nitrile rubber/ Nitrile latex	0.35	> 480
Fluorocarbon rubber	n.m. 0.40	> 480
Polychloroprene	n.m. 0.50	> 480
Natural rubber/ Natural latex	0.50	> 480
Polyvinyl chloride	0.50	> 480

Skin protection creams do not adequately protect from the product.

Please note that the penetration time of the glove material in this section has been set at 22 ° C and using pure ammonium nitrate. When using calcium ammonium nitrate consisting of a mixture of ammonium nitrate and dolomite, the time of penetration of the glove material should be similar in size. When working at a higher temperature, the resistance of the glove material may be considerably lower, and in such cases, the permitted life of the glove must be shortened. We recommend that when you start using a new type or other manufacturer's gloves, make sure that they are chemically and mechanically resistant to working conditions. If you have any questions about the suitability of the gloves, please contact the manufacturers / suppliers of gloves.

The inside of the gloves should not contain powders which can cause hand skin allergies.

Before using the gloves, please always make sure there are no tears, cracks, or other defects. When the work is finished, the gloves must be cleaned and washed thoroughly before they are dry. After work, care must be taken to the hand skin.

Other protective equipment: Wear working boots according to EN ISO 20345 and wear full body work clothing or suitable chemical resistant work suit according to EN ISO 13688.
8.2.2.3. Respiratory protection: In the event of an accident (for example, accidentally pouring the product), wear mask according to EN 149. Do not use the same mask for longer than allowed by the duration of use. Wear dust protection mask with A2B2E2K2P3 (ABEK2P3) filter according to EN 14387.
8.2.2.4. Thermal protection: not applicable.
Hygiene measures: do not eat, drink or smoke while using the product. Strictly keep the product out of the skin, eyes or clothing. Keep away from food, drink and animal feed. Wash your hands every time you finish working with the product, and at the end of the day. After the work is done, take a shower. Remove contaminated clothing immediately. Do not breathe dust, vapors or aerosols.
8.2.3. Environmental exposure controls: calcium ammonium nitrate washings in Lithuania must be disposed of in accordance with the Lithuanian Republic Law on Waste Management, in other countries – in accordance with national legislation.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

(a) Appearance: gray, white, yellow granules at 20^0C temperature and 1013 hPa pressure. Product granulometry: at least 95 % granules of 2 – 5 mm size.
(b) Odour: odourless;
(c) Odor threshold: not applicable, product odourless.
(d) pH: of water solution (100g/l) > 4,5.
(e) Melting/Freezing temperature: 160 – 170 ^{o}C (depending on humidity). > 210 °C; product decomposition starts.
(f) Primary boiling temperature and interval of boiling temperature: The substance decomposes before boiling. Decomposition at > 210 °C. In accordance with Column 2 of REACH Annex VII, the boiling point does not need to be conducted in case the substance decomposes before boiling.

(g) Flash-point: The substance is inorganic. In accordance with Column 2 of REACH Annex VII, flash point does not need to be conducted in case the substance is inorganic.
(h) Speed of vaporization: Not applicable.
(i) Flammability: In accordance with REACH Annex XI, testing may be omitted if testing does not appear scientifically necessary. Calcium ammonium nitrate with less then 0.2% combustible substances has no explosive properties. However, this alkali nitrate does not contain groups that may react with oxygen, thus is not expected to propagate combustion along a test substance pile, and is therefore considered not flammable.
(j) Limit values of flammability or explosion: undetermined.
(k) Vapor pressure: Due to the relatively high melting point (160-170 °C depending on the moisture of the product), and hence it decomposes before boiling, the vapor pressure at room temperature is negligible. The vapor pressure calculations are usually based on the boiling point of the product, which this material can not be determined because it is inorganic. In accordance with REACH Annex XI, testing may be omitted if testing does not appear scientifically necessary.
(l) Vapor density: Not applicable.
(m) Relative density (D4 (20)): (900-1100) kg/m^3.
(n) Solubility in water: Ammonium nitrate is highly soluble in water (1920 g/l at 20°C); calcium and magnesium carbonates are poorly soluble in water. The fertilizer is hydroscopic.

(o) Partition coefficient n-octanol/water: The substance is inorganic. In accordance with Column 2 of REACH Annex VII, the partition coefficient n-octanol/water does not need to be conducted in case the substance is inorganic.

(p) Auto ignition temperature: In accordance with REACH Annex XI, testing may be omitted if testing does

not appear scientifically necessary. Ammonium nitrate with less then 0.2% combustible substances has no explosive properties. However, Calcium ammonium nitrate does not contain groups that may react with oxygen and therefore will not auto-ignite at temperatures between room temperature and melting point at ca 170°C. Therefore, a study is not considered necessary.

(q) Decomposition temperature:>210 °C decomposition starts.

(r) Viscosity: Test method is not applicable to solids. Viscosity is only relevant to liquids. In accordance with REACH Annex XI, viscosity testing may be omitted if it is technically not possible to conduct the study.

(s) Explosive properties: Non-explosive, in compliance with EEC test A14 (67/548/EEC); calcium ammonium nitrate has a high detonation resistance ratio; this ratio decreases depending on contamination and/or exposure to high temperature.

(t) Oxidizing properties: Non-classified as oxidizing substance in compliance with Regulation No. 1272/2008.

9.2 Other information

none

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

Stable under recommended storage and handling conditions.

10.2 Chemical stability

Stable under recommended storage and handling conditions.

10.3 Possibility of hazardous reactions

Non self-ignitable, but may support combustion, as well as in the absence of air. When heated to melting or higher temperatures product may decompose and emit toxic nitrogen oxides and ammonia fumes. The product is detonation resistant. When heated above the fixed limits (over 170°C) may cause an explosion.

10.4 Conditions to avoid

Avoid storage in hot places or exposed to direct sunlight, pollution with incompatible substances. Atmospheric impact (humidity), contacts with heating sources and/or flame are not recommended; welding works are prohibited nearby calcium ammonium nitrate fertilizer storing sites.

10.5 Incompatible materials

Combustible substances, agents, acids, alkali, sulphur, chlorates, chlorides, chromates, nitrites, permanganates, metal powders and substances containing such materials as copper, nickel, cobalt, zinc and alloys of any of the aforementioned materials.

10.6 Hazardous decomposition products

In contact with alkaline metals, gaseous ammonia may be emitted; intensive heating in closed premises may cause active reactions or explosion, especially when fertilizers are contaminated with impurities or any of the aforementioned materials.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity: According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008.
Acute toxicity on tested animals:
Oral toxicity LD_{50}: 2085 mg/kg bw (rats). May cause methaemoglobinemia (by ammonium nitrate).
Dermal toxicity: LD_{50}: > 5000 mg/kg bw (rats) (by ammonium nitrate).
Inhalation toxicity: LD_{50}: > 88.8 mg/l (rats) (by ammonium nitrate).
Skin irritation or/and sensitization: Not irritating (OECD 404). Not sensitizing (OECD 429, with magnesium nitrate, nitric acid ammonium calcium salt, sodium nitrate). According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008.
Sensitizing of the airways or skin: According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008.
Mutagenicity: According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008 (OECD 471, 473, experiments performed on structure-like compounds with nitric acid ammonium calcium salt; OECD 476, tests performed on a structurally similar compound – potassium nitrate).
Carcinogenicity: According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008. Not carcinogenic (OECD 453, experiments performed on structure-like compound with ammonium sulfate).
Reproductive toxicity: According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008. Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, experiments performed on structure-like compound with potassium nitrate).
Specific toxicity for particular organ (STOT) (one time effect): According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008. Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, experiments performed on structure-like compound with potassium nitrate). Oral 52-week NOAEL = 256 mg/kg bw/day (OECD 453, experiments performed on structure-like compound with ammonium sulfate). Inhalation 2-weeks NOAEL ≥ 185 mg/m^3 (OECD 412).
Specific toxicity for particular organ (STOT) (repeated effect): According to the available data, the product does not meet the criteria for classification according to Regulation (EC) No 1272/2008.
Aspiration hazard: none.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Fish (short-term): 48-h LC_{50}: 447 mg/l (no guideline followed).
Fish (long-term): No data.
Daphnia magna (short-term): 48-h EC_{50}: 490 mg/l (no guideline followed, with potassium nitrate).
Daphnia magna (long-term): No data.
Algae: 10-d EC_{50}: > 1700 mg/l (seawater, 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).

12.2 Persistence and degradability

Biodegradation: Standard test is not applicable as the substance is inorganic. In addition, in the anaerobic transformation of ammonium, one group of bacteria oxidizes ammonium to nitrite while another group oxidizes nitrite into nitrate. The average biodegradation rate in wastewater plant at 20 ºC is 52 g N/kg dissolved solid/day. Nitrate degradation is fastest in anaerobic conditions. In the anaerobic transformation of nitrate into N2, N2O and NH3, the biodegradation rate in wastewater plant at 20 ºC is 70 g N/kg dissolved solid/day.
Hydrolysis: No hydrolysable group is present, will completely dissociate into ions.

12.3 Bioaccumulative potential

Octanol-water partition coefficient (K_{ow}): Not relevant as the substance is inorganic, but considered to be low (based on high water solubility)
Bioconcentration factor (BCF): Low potential for bioaccumulation (based on substance properties).

12.4 Mobility in soil
Adsorption coefficient: Low potential for adsorption (based on substance properties).

12.5 Results of PBT and vPvB assessment
According to Annex XIII of Regulation (EC) No 1907/2006, no PBT and vPvB assessment has been conducted since ammonium nitrate is inorganic.

12.6 Other adverse effects
None.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste from residues:
Calcium ammonium nitrate waste in accordance with Regulation (EU) No. 1357/2014 is not classified as hazardous waste. Calcium ammonium nitrate waste without contamination can be used as bulk fertilizer or must be transferred to waste handling companies. Prevent waste from accessing effluent. Calcium ammonium nitrate wastes in Lithuania must be handled in accordance with Law on Waste Disposal of the Republic of Lithuania, in other countries - in accordance with national legislation.

Package waste disposal: After spreading fertilizer from bags, bags must be completely empty.
Outside polypropylene bags and inside polyethylene bags wastes in accordance with Regulation (EU) No. 1357/2014 is not classified as hazardous waste. Waste from packages must be transferred to waste handling companies. Calcium ammonium nitrate packages wastes in Lithuania must be handled in accordance with Law on Package and Package Waste Handling of the Republic of Lithuania, in other countries - in accordance with national legislation.
As long as the package is not fully emptied, as long as they are not allowed to be cleaned from calcium ammonium nitrate labeling in accordance with Regulation (EC) No. 1272/2008.

SECTION 14. TRANSPORT INFORMATION

14.1 UN Number
Not available because the product is not subject to ADR requirements.

14.2 UN proper shipping name
Not available because the product is not subject to ADR requirements.

14.3 Transport hazard classes
Not available because the product is not subject to ADR requirements.

14.4 Packaging group
Not available because the product is not subject to ADR requirements.

14.5 Hazard to environment
The product is not classified as hazardous substance according to the Orange Book and International Transport Codes RID (Railway), ADR (Road) and IMDG (sea transport).
Product in big bags must be piled in no more than 4 layers.

14.6 Special precautions for users
Product in big bags must be piled in no more than 4 layers.

14.7 Bulk transport, according to Annex II to MARPOL Convention and IBC Code
Not applicable.

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture
EU legislation:
- 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;
- 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);
- Commission Regulation (EC) No 552/2009 of 22 June 2009 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII;
- REGULATION (EC) No 1272/2008 2006 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) No 1357/2014 of 18 December 2014 replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives;
- Regulation (EU) No 98/2013 of the European Parliament and of the Council of 15 January 2013 on the marketing and use of explosives precursors;
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR);
- The International Rule for Transport of Dangerous Substances by Railway (RID);
- The International Maritime Dangerous Goods (IMDG);
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78);
- The International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code) (the IBC Code);
Domestic legislation (Lithuania):
- Applicable Law on Waste Disposal of the Republic of Lithuania;
- Applicable Law on Package and Package Waste Handling of the Republic of Lithuania;
- HN23 Maximum Allowable Concentrations of Hazardous Chemical Substances and Preparations in Working Environment. General Requirements;
- HN36 Banned and Restricted Substances;
- Applicable Regulations for Workers "Protection against the Impact of Chemical Factors" and Regulations for Workers "Protection against Carcinogenous and Mutagenous Impacts";
- Applicable Procedure of Safety Data Sheet Requirements and Supply thereof to Professional Users;
- Applicable Rules on Labeling of Items (Products) to be Sold in Lithuania and Referring Price thereof;
- Applicable Rules on Waste Disposal.
- 17 of August 2004 Governments of the LR resolution No. 966 „On Prevention, Response and Investigation of dangerous objects and substances, mixtures or preparations classified as hazardous materials, and a list of criteria for designation of the Approval, as subsequently amended and supplemented. (Official Gazette, 2004,

No. 130-4649; 2005 No. 131-4731, 2008, No. 109-4159; 2009 No. 90-3855; 2010, No. 59-2894; 2012 No. 61-3078), as amended and supplemented.
- LST EN 149 "Respiratory protective devices. Filtering half masks for protection against particles. Requirements, testing, marking";
- LST EN 166 "Personal eye protection. Technical requirements";
- LST EN 166 "Personal eye protection. Technical requirements";
- LST EN ISO 374-1 "Protective gloves against hazardous chemicals and micro-organisms. Part 1. Protective gloves against hazardous chemicals and micro-organisms. Part 1. Terminology and chemical resistance requirements (ISO 374-1: 2016)";
- LST EN 388 "Protective gloves against mechanical hazards";
- LST EN 397 "Industrial protective helmets";
- LST EN 420 "Protective gloves. General requirements and testing methods";
- LST EN ISO 13688 "Protective clothing. General requirements (ISO 13688: 2013)".
- LST EN 14387 "Respiratory protective devices. Gas filters and composite filters. Requirements, testing, marking";
- LST EN ISO 20345 "Personal protective equipment. Safe footwear (ISO 20345: 2011)".

Additional information about the relevant Community provisions on safety, health and the environment for the product:
The product is not subject to requirements according to the Government Resolution No. 966 of the Government of the Republic of Lithuania of 2004.08.07 „On Approval of the Description of the List and Attribution Criteria for List of Materials, Mixtures or Preparations of Hazardous Substances in the Hazardous Objects" (Official Gazette, 2004, No. 130-4649) with all subsequent amendments and supplements) or according to European Parliament and Council regulation 2012/18/EU.

Restrictions on the product according to Regulation (EU) No. 98/2013: Mixtures containing more than 16% nitrogen in the form of ammonium nitrate are those given in Annex II to Regulation (EC) No 98/2013. On this basis, economic operators who sell, use, and protect calcium ammonium nitrate must comply with Regulation (EU) No. 98/2013 to report suspicious transaction of this substance, material disappearances and theft or theft or loss of theft to a national contact point in the Member State in which the suspicious transaction occurred.

15.2 Chemical safety assessment

As calcium ammonium nitrate in compliance with Regulation No. 1272/2008 is not classified as hazardous no Chemical Safety Assessment has been carried out for this substance.

SECTION 16. OTHER INFORMATION

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(i) A clear evidence of added, deleted or modified information:
According to Commission Regulation (EU) 2015/830 a new document form was altered, changed and supplemented safety, health and environmental regulations:
- subsection 2.3: additional information on other hazards that the product may pose.
- subsection 4.1.6.: additional item on individual protective equipment recommended for first aiders is included.
- subsection 8.1: revised that the HN23 does not apply a long-term exposure limit value (IPRD) for the

product.
- subsection 8.2.2: revised and updated information on personal protective equipment.
- subsection 9.1.: included addittional information about the appearance of the product.
- section 14: revised information that the product is not subject to ADR requirements.
- section 15: updated information on national legislation.

(ii) List of abbreviations and acronyms used throughout the Safety Data Sheet:
ATE - acute toxicity estimate;
ADR – European Agreement on Dangerous Goods by Road;
CLP – Classification, Labeling and Packaging Regulation; Regulation (EC) No 1272/2008;
DNEL – Derived No-Effect value;
EC No. – EINECS ir ELINCS numbers;
EU – European Union;
EINECS – European List of Existing Commercial Chemical Substances;
ELINCS – European Register of Substances;
Eye Irrit. 2 – eye irritating 2 category;
UN – United Nations;
Cow – octanol-water partition coefficient;
LD50 – Lethal dose for 50% of tested population;
LC50 – Lethal concentration of 50% of tested population;
HS – Hygiene Standard;
IMSBC – International Code for the Carriage of Dangerous Goods by Sea;
Oxid. Solid 3 – oxidizing solids, 3 category;
PBT - Persistent, Bioaccumulative, Toxic;
PNEC(s) – Forecast(-s) no effect(-s) concentration(-s);
RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail;
SDS – Safety Data Sheet;
vPvB – very Persistent, very Bioacumulativ.

(iii) Bibliography:
1) European Fertilizer Manufacturers Association (Fertilizers Europe) released Guidance for the storage, handling and transportation of solid mineral fertilizers);
2) European Fertilizer Manufacturers Association (Fertilizers Europe) released Guidance for safe and secure storage of fertilizers on farms" (2012);
3) European Fertilizer Manufacturers Association (Fertilizers Europe) released Guidance for UN transport classification of ammonium nitrate based substances (2011);
4) Containing ammonium nitrate fertilizers evaluation to determine whether it should be classified as an eye irritant report prepared by the European Fertilizer Manufacturers Association (Fertilizers Europe) (2011-07-14);
5) ECHA Guidance on Information Requirements and Chemical Safety Assessment. Part B: Hazard Assessment (2011) (Guidance on Information Requirements and Chemical Safety Assessment);
6) ECHA Guidance on information requirements and chemical safety assessment, Chapter R.10);
7) Registration of Ammonium Nitrate under the REACH dossier, published on the website of the European Chemicals Agency (data downloaded as of January 1, 2018);
8) http://gestis-en.itrust.de/nxt/gateway.dll?f=templates&fn=default.htm&vid=gestiseng:sdbeng
(data taken 2019-01-29).

(iv) Applicable classification and procedures used to determine the classification of mixtures in accordance with Regulation (EC) No. 1272/2008 [CLP Regulation]:

Classification in accordance with Regulation (EC) No. 1272/2008	Classification procedure
The product does not meet the criteria for classification.	The product has been classified for the manufacturer after evaluation of Regulation (EC) No. 1272/2008. The product is not classified as an irritant to eyes on the basis on ammonium nitrate REACH registration dossier contains the specific concentration limits (which indicates that mixtures containing not more than 80% ammonium nitrate should not be classified as an irritant to the eyes). The product is not classified as oxidizer on the basis on European Fertilizer Manufacturers Association (Fertilizers Europe) released "Ammonium nitrate-containing materials classification under the UN transport guidelines numbers" (2011), which indicates that mixtures containing not more than 80% ammonium nitrate should not be classified as hazardous.

(v) Relevant precautionary phrases:
H272 – May intensify fire; oxidizer;
H319 – Causes serious eye irritation;
H360 – May damage fertility or the unborn child;
H361 **–** Suspected of damaging fertility or the unborn child;
H362 – May cause harm to breast-fed children;
H372 – Causes damage to organs through prolonged or repeated exposure cause the hazard;
H373 – May cause damage to organs through prolonged or repeated exposure cause the hazard;
P210 – Keep away from heat/sparks/open flames/hot surfaces. No smoking;
P220 – Keep/Store away from clothing/reducing agents/acids/alkali/sulphur/chlorates/chlorides/ nitrates/permanganates/powder of metals and materials containing metals as follows: copper, nickel, cobalt, zinc and their alloys/combustible materials;
P370+P378 – In case of fire: Use water for extinction;
P264 – Wash hands thoroughly after handling;
P280 – Wear protective gloves/protective clothing/eye protection/face protection;
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

(vi) Training Advice:
To ensure the protection of people and the environment, people who manufacture, handle and use this product must be trained to work with hazardous substances, hazardous materials, calcium ammonium nitrate properties, have adequate hygiene skills, first aid principles and information on emergency procedures. This safety data sheet must be made available to those working with the product. Persons must be instructed before working with the product.

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

Release info: This version replaces all previous documents.