1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Product identifier
Trade name of mixture – Nitrogen fertilizer with calcium
Composition: a mixture of ammonium nitrate, dolomite powder and gypsum anhydrite powder.

Identification of hazardous ingredients:
Trade name: Ammonium nitrate;
INDEX number as listed in Annex VI of CLP: Not listed
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 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 56949
URL website: www.achema.com
Email: m.jancauskas@achema.com

1.4 Emergency telephone number: +370 5 2362052 or 112.

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. According to “Assessment of ammonium nitrate based fertilizers as eye irritant for classification purpose. A report prepared by Fertilizers Europe” (14 July 2011) calcium ammonium nitrate is not classified as eye irritation Cat. 2.

2.1.2. Additional information:
Full text of safety phrases is in chapter 16.
2.2. Label elements

2.2.1. Labelling in accordance with Regulation No. 1272/2008:

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 Nitrogen fertilizer with calcium is inorganic.

3. COMPOSITION/INFORMATION ON INGREDIENTS


Hazardous ingredient.

<table>
<thead>
<tr>
<th>CAS no.</th>
<th>EC no.</th>
<th>REACH registration no.</th>
<th>Content</th>
<th>IUPAC name</th>
<th>Classification in compliance with Regulation (EC) No. 1272/2008 (CLP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6484-52-2</td>
<td>229-347-8</td>
<td>01-2119490981-27-XXXX</td>
<td>≤ 80 % (w/w)</td>
<td>ammonium nitrate</td>
<td>Oxidising solids Cat. 3, H272, Eye irritation Cat. 2 ; H319. Specific conc. limits: eye irritation Cat. 2: &gt; 80,0 % ≤ 100,0 %</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

4.1. Description of first aid measures

Inhalation: Leave the affected area. When feeling bad, see your doctor.
Skin contact: Change affected clothing, wash skin (body) with plenty of water and soap.
Eye contact: Rinse with plenty of clean water for at least for 10 minutes; immediately see the doctor.
Ingestion: Do not cause vomiting, give the affected person some water or milk to drink; if large quantity is swallowed, see the doctor.

4.2. Most important symptoms and effects:
None known.

4.3. Indication of any immediate medical attention and special treatment needed;
Nitrogen fertilizer with calcium 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.
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 vapour 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.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures.

Use personal safety measures as specified in clause 8. Do not walk through spilled fertilizers, do not raise fertilizer dust.

6.2. Environmental precautions

Keep away from spreading.

6.3. Methods and material for containment and cleaning up

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. Wasted fertilizer must be kept away from heating sources. Dilute collected small fertilizer particles mixing them with inert materials (limestone, dolomite, mineral phosphates, gypsum, sand) or dissolve in water.

6.4. Reference to other sections

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

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

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;

Use appropriate personal precaution measures while working with fertilizer for a long time (e.g. gloves).

Storage requirements: keep separately from heating or flame sources; keep away from combustible substances and/or substances listed in clause 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. 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.

Packed and unpacked product must be stored in closed, covered, dry, ventilated and clean storehouses. Outside storage of the products allowed only during the cold season (from September 15 to May 15), providing the product is protected against precipitation, moisture (rain, snow, avoid the bag standing in water or water accumulation on the bag) and direct sunlight. Unpacked product cannot be stored outside under any circumstances. Product storage outside during the warm season (May 15 to September 15) is strictly prohibited. During the warm season (from May 15 to September 15) the product cannot be stored outside under tents, because the greenhouse effect may be caused. The product cannot be exposed to temperature above 30°C.

Smoking is prohibited on product storage sites.

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. Big bags must be kept in vertical position, stored on pallets without nails or sharp wood chips able to damage the big bag. The product in 500 kg big bags must be piled in no more than 4 layers. When bigger bags are used, number of layers must not exceed 3. In transit product in 500 kg big bags can be shortly (up to 8 days) piled in 6 layers. This way of transportation can cause product coherence into easily disintegrating pieces.

Farmers using the fertilizer must ensure they will not be stored with hay, straw, corn, diesel-based lubricants, etc. Avoid storage in hot premises or direct sunshine, package damaging, moisture access, contamination with incompatible materials (fertilizers containing elemental sulphur, urea, NPK, NP and urea-based NK), lubricants, and flammable substances. Bulk and packed product stack height must maintain at least 1-meter distance from storage eaves, balks and lamp holders. Product stack height is subject to storage site layout, however to ensure loading and unloading mechanisms to operate without interference in case of emergency, at least 1 meter space around each stack of product must be left.

Sufficient distance must be left between the stacks of bulk product, to prevent contamination with other substances.

Fertilizer is not 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. When heated above the fixed limits (over 170 °C) may cause an explosion. Warranty period of storage – 10 months from date of manufacture.

General occupation hygiene: Do not eat, drink or smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities.

Incompatible products: Storage with 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 is not recommended.

Requirements to packages: to ensure safe product transportation and keeping, Nitrogen fertilizer with calcium 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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Maximum allowable value for long-term exposure: not specified, however 10 mg/m³ (according to ammonium nitrate) is recommended.
8.2. Exposure controls
8.2.1. Appropriate engineering controls: Air supply-extraction ventilation; prevent from accumulation of non-allowed concentrations of gases.
8.2.2. Individual protection measures:
- Respiratory protection: Wear respiratory mask while working in high concentration.
- Eye protection: Wear protection glasses.
- Skin and body protection: Working clothes, special boots.
- Hygiene measures: Do not eat, drink or smoke while working with the product, take a shower after finishing work.
8.2.3. Environmental exposure controls: Nitrogen fertilizer with calcium 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.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1. Information on basic physical and chemical properties


**Odour:** Odourless;

**pH:** of water solution (100g/l) > 4.5

**Melting/Freezing temperature:** 160-170 °C (depending on humidity). > 210 °C; product decomposition starts.

**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.

**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.

**Flammability:** In accordance with REACH Annex XI, testing may be omitted if testing does not appear scientifically necessary. Nitrogen fertilizer with calcium with less than 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.

The molecular structure of Ammonium nitrate does not contain groups that might lead to ignition in contact with water and/or to the evolution of a flammable gas. In accordance with REACH Annex XI, testing may be omitted if testing does not appear scientifically necessary.

The molecular structure of Ammonium nitrate does not contain groups that might lead to ignition in contact with air. In accordance with REACH Annex XI, testing may be omitted if testing does not appear scientifically necessary.

**Relative density (D4 (20)):** (900-1100) kg/m³.

**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 hygroscopic.

**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.

**Auto ignition temperature:** In accordance with REACH Annex XI, testing may be omitted if testing does not appear scientifically necessary. Ammonium nitrate with less than 0.2% combustible substances has no
explosive properties. However, Nitrogen fertilizer with calcium 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.

**Decomposition temperature:** >210 °C decomposition starts.

**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.

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

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

**Surface tension:** Not surface active (based on molecular structure)

9.2. Other information.
None

10. STABILITY AND REACTIVITY

10.1. Reactivity
Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.2. Chemical stability
Stable under recommended storage and handling conditions (see section 7, handling and storage).

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 Nitrogen fertilizer with calcium 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.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:
11.1.1. Acute toxicity:
Acute oral toxicity: LD50: 2085 mg/kg bw (OECD 401).
Acute dermal toxicity: LD$_{50}$: > 5000 mg/kg bw (OECD 402).
Acute inhalation toxicity: LC50: > 88.8 mg/l (no guideline followed)

11.1.2. Skin irritation or/and sensitization: Not irritating (OECD 404). Not sensitizing (OECD 429, with magnesium nitrate, nitric acid ammonium calcium salt, sodium nitrate)


11.1.5. Carcinogenicity: Not carcinogenic (OECD 453, with ammonium sulfate)

11.1.6. Reproductive toxicity: Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)

11.1.7. Sub-acute toxicity: Oral 28-day NOAEL ≥ 1500 mg/kg bw/day (OECD 422, with potassium nitrate)
Oral 52-week NOAEL = 256 mg/kg bw/day (OECD 453, with ammonium sulfate)
Inhalation 2-weeks NOAEL ≥ 185 mg/m$^3$ (OECD 412)

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.
13. DISPOSAL CONSIDERATIONS

13.1 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.

13.2 Waste from packages:
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.

14. TRANSPORT INFORMATION

14.1. UN Number
None

14.2. Proper shipping name
Nitrogen fertilizer with calcium

14.3. Transport hazard classes
None

14.4. Packaging group
None

14.5. Other information: Product in big bags must be piled in no more than 4 layers.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture:
- Legal acts in regulation to classification, labelling, use restriction of the chemical substance/ preparation, workers’ safety and health requirements, maximum allowable values in working environment, waste disposal, etc.:
  - in compliance with applicable Classification and Labelling Procedure for Hazardous Chemical Substances and Preparations;
2008/98/EC regarding the criteria for evaluating hazardous waste.
− in compliance with applicable Procedure of Safety Data Sheet Requirements and Supply thereof to Professional Users;
− in compliance with HN23 Concentration Limit Values of Chemical Substances in the Air of Working Environment.
General requirements to measuring and exposure assessment;
− in compliance with HN36 Banned and Restricted Substances;
− in compliance with applicable Regulations for Workers’ Protection against the Impact of Chemical Factors and Regulations for Workers’ Protection against Carcinogenous and Mutagenous Impacts;
− in compliance with applicable Fire Safety Regulations for Chemical Industries;
− in compliance with applicable Law on Waste Disposal of the Republic of Lithuania;
− in compliance with applicable local Rules on Waste Disposal;
− in compliance with applicable Rules on Labelling of Items (Products) to be Sold in Lithuania and Referring Price thereof.
− “Assessment of ammonium nitrate based fertilizers as eye irritant for classification purpose. A report prepared by Fertilizers Europe” (14 July 2011).

Additional information provided on the label of the chemical preparation package:
Visual signs No. 4 „Protect from sun“; No. 6 „Protect from rain“ and No. 17 „Temperature limitation (30°C max)” in compliance with LST EN ISO 780.

15.2 Chemical safety assessment
As Nitrogen fertilizer with calcium in compliance with Regulation No. 1272/2008 is not classified as hazardous no Chemical Safety Assessment has been carried out for this substance.

16. OTHER INFORMATION

There is no additional data that may be important to consumers’ safety and health, as well as environment protection.

Used abbreviations:
P210 “Keep away from heat/ sparks/open flames/hot surfaces. — No smoking. Keep away from heat”.
P220 “Keep/Store away from clothing/reducing agents/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”.
H272 May intensify fire; oxidizer.
H319 Causes serious eye irritation.
ADR – European Agreement on Dangerous Goods by Road;
IATA- International Air Transport Organization;
IMO – International Marine Organization;
RID – Regulations Concerning the International Carriage of Dangerous Goods by Rail;
SMGS – International Agreement on Carriage of Loads by Rail.
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.

Version: 1
Creation date: 2010-12-07
Revision date: 2016-01-15
Printing date: 2016-01-15
Release info: This version replaces all previous documents

The end of Safety Data Sheet.