



**PRODUCT INFO  
& DATASHEET**

# SICALNIT™ CALCIUM (AMMONIUM) NITRATES

## 15.5 % N - 19% water soluble Calcium - granules (white)

### FOR EACH SOIL AND CLIMATE

- Made in China -

Revised 28/01/2019

We offer two improved qualities:

**SICALNIT® EXCEL** - superior soluble grade for horticulture, drip, foliar & fertigation  
(Exists in 2 granule sizes: 2-4 mm and 1-2 mm)

**SICALNIT® TROPIC** - agricultural standard strew grade

### MAXIMISES CROP YIELD & QUALITY OPTIMISES FERTILISER EFFICIENCY

#### **MANUFACTURING PROCESS**

Calcium ammonium nitrate is a product which results from the nitrophosphate process during production of NPK fertilisers. When nitric acid and raw phosphate react, Calcium ammonium nitrate  $\text{Ca}(\text{NO}_3)_2$  is being formed. The product is being neutralized by adding Ammonia ( $\text{NH}_3$ ). Next steps are: evaporation, granulating and screening.

#### **CALCULATED ANALYSIS & SPECIFICATIONS**

	<b>DRIP - Superior soluble SICALNIT EXCEL</b>	<b>STREW - Agricultural grade SICALNIT TROPIC</b>
Nitrogen (N) total min.	15.5 %	
Nitrate N (N-NO <sub>3</sub> )	14.4 %	
Ammoniacal N (N-NH <sub>4</sub> )	1.1 %	
CaO min.	26-26.50% (= 18.80-19 % Ca)	
Iron (Fe) max.	0.005%	
Bulk density (loose)	+/- 1.1 kg/l	
Cl max.	0.02 %	
Water insolubles max.	0.1 %	
Solubility H(20dgr. C.)	1200 g/l water	
pH (10 % solution)	5-7 (average 6.2)	
Heavy metals: Hg <1ppm, Cd <1ppm, Pb <1ppm, As <1ppm, Se <1ppm, Mn <1ppm		
<b>Sieve Analysis</b>	- Type 1: large granule: 90 % 2-4 mm 10 % 1-2 mm - Type 2: small granule: 100 % 1-2 mm	96 % 2-4 mm

Color: white

Molecule:  $5\text{Ca}(\text{NO}_3)_2 \cdot \text{NH}_4\text{NO}_3 \cdot 10\text{H}_2\text{O}$

#### **USAGE & APPLICATIONS**

**SICALNIT™** Calcium ammonium nitrate is a typical fertiliser on leaves with a fast action. It affects favorably the more acidic soils, as the calcium from the fertiliser moderates the impact of the soil acidity. It is convenient especially for a regenerative fertilisation of winter crops, for late (qualitative) additional fertilisation of cereals, for additional fertilisation of outspent clover growths, for additional fertilisation of sugar beet, mangel, poppy, maize, green fodder mixtures as well as for an operative elimination of calcium deficit in the nutrition of plants.

1/ Apply to soil (some indications only)

- \* Fruit trees 100 - 220 kg / acre
- \* Leafy vegetables 80 - 170 kg / acre
- \* Flowers 80 - 150 kg / acre

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**SICO FERTILISERS**  
EVERY TIME THE RIGHT SOLUTION



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Orientation fertiliser doses

Spring barley	250 - 400 kg/ha in spring
Spring wheat	150 - 200 kg/ha in spring, 250 - 400 kg/ha during the growing time
Root crops	250 - 400 kg/ha in spring and during the growing time
Meadows and leas, grass	200 - 400 kg/ha in spring, 300 - 600 kg/ha during the growing time.
Also used as winter fertiliser. Can burn the lawn if improperly applied. Visual evaluation of the lawn is often adequate for determining when to apply more fertiliser.	
Root vegetables, cabbages	80 - 360 kg/ha during the growing time
Fruit vegetables	180 - 240 kg/ha during the growing time
Onion and leaf vegetables	max. 180 kg/ha during the growing time
Early potatoes	max. 180 kg/ha during the growing time
Legumesmax.	140 kg/ha during the growing time
Pome, stone fruits, small fruits (according to fertility degree)	180 - 360 kg/ha during the growing time
Strawberries	max. 360 kg/ha during the growing time
Grapevine	50 - 100 kg/ha during the growing time

The mentioned doses represent orientational needs of nutrients. For particular crops, the doses as well as the possible dividing of them with the utilization of valid directions, considering the fertilisation with farm manures and the influence of the previous crop or of the objective diagnostic procedures (eg. analysis of soil and plants), are to be specified more accurate. Please always contact your local agronomist.

Sprinkle **SICALNIT™** per above table evenly on / under the soil, around plants or apply to soil after agitating thoroughly with water. Apply during the full period.

**SICALNIT™** is especially **suitable for top dressing in agriculture and horticulture**. Can be spread by hand or by machine as dry fertiliser, or applied through furrow irrigation as liquid feeding.

2/ Fertirrigation and foliar application

This grade is also used for preparation of nutrient solutions for application in various irrigation systems or dissolved in water for foliar spraying (**clients have first to check suitability of the product for their intended purposes with their own test**).

Especially recommended practice for field application.

- \* After heavy rainfall to replenish leached nitrogen.
- \* In case of nitrogen deficiency to supply fast acting nitrate.
- \* In cold weather or after growth stagnation in order to boost growth.
- \* Split dressings during cultivation.
- \* Base dressing to nursery crops, transplants and seedlings.

In general, 30-50% of the recommended crop nitrogen requirement should be applied as normal preplant fertiliser. Apply the remainder of the nitrogen with **SICALNIT™**, ideally in 2 to 4 split applications, during the growth period as top dressings. Such a fertilization programme provides precise timing of nitrogen supply, based on growth conditions, nitrogen requirement of crop, and weather.

**SICALNIT™ provides nitrate nitrogen and water soluble calcium ,both essential elements for plants.**

**ADVANTAGES**

1. Nitrate nitrogen = major and most preferred nitrogen form for crops grown in soilless culture (e.g. peat, rockwool, recirculating water) and for irrigated soil grown crops.
2. Supplies quick directly available nitrogen for a fast, predictable crop response and a high nitrogen efficiency. (contrary to urea and ammonium nitrogen)
3. Non-acid effect of nitrate (mildly positive or neutral pH effect on most soils).
4. Non-volatile fertiliser: hence highly efficient under dry or alkaline soil conditions.
5. Nitrate nitrogen is not absorbed and remains freely available in the crop root zone for uptake when the crop needs it; contributing to a quick nitrogen response.
6. Allows accurate & precise nitrogen application = optimises fertiliser efficiency:
  - Most crops benefit from small, regular nitrogen applications at various growth stages: minimises risk of overstimulated vegetative growth and salt damage
  - Allows accurate and equal nutrient placement.

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7. Minimises ecological risk:  
The predictable action of calcium ammonium nitrate and its high nitrogen efficiency allows tailor-made nitrogen application through top dressing: (avoids nitrogen leaching). We suggest to apply a part of the nitrogen requirement in the base fertilisation and apply remainder in small quantities with 2 to 4 top dressings for better growth control, lower nitrogen residues after harvesting and reduced risk if nitrogen leaching.

**CALCIUM = essential for plant nutrition and contributes to good soil structure.**

1. Calcium is an essential plant nutrient. It increases firmness and shelf life of fruits, tubers or bulbs, decreases the rate of post-harvest losses and prolongs vase-life of cut flowers.
2. Calcium ammonium nitrate provides better insurance against calcium deficiency than any other fertiliser. Regular application of calcium ammonium nitrate leads to an increased calcium content in soil solutions and in the crop, significantly reduces nutritional disorders related to calcium deficiency.

**Benefits to the soil**

**SICALNIT™** offers benefits for various types of clay or sandy soils ranging from saline-alkaline soils in acid areas as to acid soils in humid regions.

1. Calcium improves water infiltration and aeration of compact soils and improves soil structure. Regular use of calcium ammonium nitrate maintains and creates aggregation of soil particles and a stable open soil structure, thus improving water infiltration and soil aeration, particularly in irrigated soils.
2. **In saline soils** calcium plays a crucial role in the exclusion of sodium by root cell membranes. Calcium ammonium nitrate protects salt sensitive species against the deleterious effects of sodium and chloride in the root medium.
3. **In acid soils** the acidifying influence of most nitrogen fertilisers reduces the available amount of Calcium in acid soils whereas calcium ammonium nitrate supplies water soluble calcium and has a non-acid reaction in soils and will reduce the need for lime applications on acid soils. Calcium ammonium nitrate combats rising soil acidity and reduces the toxic influence of high manganese and aluminium levels, often found in acidic, tropical soils, helps maintain the soil pH and the availability of vital trace elements such as molybdenum and iron.
4. **In alkaline soils** (having a relatively high sodium content exceeding 15% of the total exchangeable cations. Alkaline soils have a high pH (from 8 to 10) because of high presence of sodium carbonate. Calcium ammonium nitrate replaces the dissolved and exchangeable sodium and the sodium salts can thus be leached easily with watering. Therefore after reclamation of sodic soils with gypsum (please consult us for our SICOAL® – MICRO and HYDRO-CAL products!) the use of calcium ammonium nitrate will maintain soil structure and further decreases the sodium content during crop cultivation.
5. **In calcareous soils** (with high calcium and magnesium carbonate levels), often occurring in semi-acid and acid regions having a high content of exchangeable calcium. This calcium is however not always available to the crops (can be absorbed to the clay particles or may form insoluble compounds with other organic or mineral materials = "fixation"). Many years of heavy irrigation, intense use of ammonium and urea fertilisers, high crop yields etc... will lower the calcium availability in all soils.
6. **In sandy soils**  
High nitrogen efficiency with top dressings. Reducing environmental risk of leaching nitrogen with top dressings with calcium ammonium nitrate.
7. **In clay and loam soils**  
No absorption of nitrate to soil particles, thus a predictable response.  
Maintaining and creating an open soil structure, thus improving water and air infiltration.
8. **In warm and dry soils**  
No ammonia volatilization. Quick dissolving of the granules.
9. **In cold and wet soils**  
Directly available nitrogen as no nitrification is needed. Fast growth response.

**STORAGE**

**SICALNIT™** is highly hygroscopic. Keep bags tightly closed and store them dry, dark and cool (below 20°C to avoid the product starts melting), away from direct sunlight. **SICALNIT™** Calcium ammonium nitrate is to be stored in stores with a leakproof surface treated floor. The fertiliser must be protected from weather influences so that a secondary pollution and wetting cannot occur. After filling the fertiliser into the store, it is advisable to cover it with a polyethylene tilt. As **SICALNIT™** is a granular product it behaves well a regards anti-caking and thermal oxidation.

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**COMPATIBILITY**

If dissolved in water, do not mix with chemicals or fertilisers containing phosphate or sulphate, because insoluble compounds may precipitate. Any mix of calcium ammonium nitrate with chemicals or fertilisers is done at the sole responsibility of the grower or user.

**SAFETY PRECAUTIONS**

- \* **SICALNIT™** Calcium ammonium nitrate can endanger the health, especially when ingested, when it comes into contact with eyes or mucosas and at a repeated contact with skin
- \* The fertiliser dust irritates the skin, the airways and the eyes.
- \* It can cause an allergic reaction or even eczemas.
- \* When manipulating the fertiliser, it is necessary to use the protective equipment for protection of skin and eyes and to avoid eating, drinking and smoking.
- \* After work, hands must be carefully washed and treated with regenerative cream.
- \* Keep children and unauthorised persons from contact with the product.

**NO LIABILITY**

Because of the wide variability in soil properties and fertility, climate conditions, irrigation practices and of course the kind of crop, dry broadcasting, liquid feeding or foliar spraying with calcium ammonium nitrate should be made on the basis of local experiences and recommendations for nitrogen supply. Consult the fertilisation extension service or local advisor for recommended practices about nitrogen and calcium application rates that meet crop demand and local conditions. We can not be held responsible for the results obtained.

**PACKING**

25 kg net wpp + pe bags, about 26 MT/20' fcl (loose bags) OR 24 MT/20' fcl (bags on pallets)

See also our liquid SICALNIT Calcium ammonium nitrate solutions:

- SICALNIT-L
- SICALNIT-L PLUS (containing magnesium and micronutrients)