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AMMONIUM NITRATE PRODUCTS SUBSTITUTION GUIDE

INTRODUCTION

Many countries do not allow use of straight ammonium nitrate fertilisers any longer.

Nitrogen is an essential nutrient for plant growth. Most plants take up this nutrient in the nitrate form so where products supply nitrogen in similar forms, the choice as to the best option becomes one of availability, cost and convenience.

Ammonium nitrate has nitrogen available in two forms – ammonium and nitrate. Once applied to the soil, the ammonium component needs to be converted to the nitrate form by soil bacteria before plant can use it. The time taken for this to happen depends on soil conditions (moisture, temperature). The nitrate component on the other hand is immediately available to plants.

Any product supplying nitrogen in these forms, and in the same ratio, will produce a similar response to ammonium nitrate when applied at the equivalent N rate per hectare.

We offer a range of alternate products to meet your customer's requirements.

A) AM-NITRA Granular Ammonium Nitrate 33.5% N

Ammonium Nitrate fertilisers were popular in the following situations:

- a) Where a quick response to nitrogen was required, e.g. side-dressing vegetables and top-dressing pasture during winter.
- b) For top-dressing rain-grown crops and pasture's where ammonia volatilisation losses may be high, e.g. on alkaline soils and surface applications in certain situations.

There are two fertiliser grades of Ammonium Nitrate:

- a) AM-NITRA Granulated Ammonium Nitrate – used where ammonium nitrate was applied as a solid to the soil. This product is still available in our program, subject shipping line acceptance.
- b) Chemically pure ammonium nitrates used where ammonium nitrate was applied in solution, mostly in fertigation programs via the irrigation water. We have withdrawn this product from our sales program.

B) ALTERNATIVES to AM-NITRA Granular Ammonium Nitrate

Products that will substitute are:

1/ UREA 46% N prills or granules

Urea is one of the more economical sources of nitrogen than ammonium nitrate.

Urea (46% N compared to 33.5% N in AM-NITRA) also provides savings in freight, storage and application.

Urea has better storage characteristics than ammonium nitrate including a higher critical relative humidity. Urea is not classified as a Dangerous Good, and is not subject to the same storage and transport regulations as ammonium nitrate.

Urea is usually the product of choice where the fertiliser can be applied into the soil and can be incorporated by cultivation, rain or irrigation.



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2/ CAL-AM-NIT, Calcium Ammonium Nitrate (CAN) 27% N + 12% CaO (= 8.58% Ca) and CAL-AM-NIT + 4 MgO (CAN 27% N + 4% MgO)

CAL-AM-NIT is approximately 80% ammonium nitrate and 20% calcium carbonate (lime). Due to the diluting effect and relatively inert characteristics of the calcium carbonate, CAL-AM-NIT is not classified as a dangerous good.

CAL-AM-NIT has an analysis of 27% nitrogen (N) half as ammonia and half as nitrate.

To supply the same rate of nitrogen, CAL-AM-NIT needs to be applied at a 25% higher rate than AM-NITRA[®].

We supply CAL-AM-NIT already increasingly to a number of countries where ammonium nitrate is not available as fertiliser. Our distributors should really look into introducing this interesting product into their market.

CAL-AM-NIT is suitable for dry application to the soil, as the calcium carbonate it contains is insoluble. CAL-AM-NIT is also available in blends.

3/ a) SICO-ANS, Granular Ammonium Nitrate Sulphate (26% N + 13% S)

SICO-ANS is approximately 60% ammonium sulphate and 40% ammonium nitrate, and has an analysis of 26% nitrogen (N) and 13% sulphur (S). 19% of the nitrogen is in the ammonium form, and 7% as nitrate.

SICO-ANS will substitute for AM-NITRA[®] in all situations particularly where sulphur is required along with the nitrogen (eg. Winter pastures). As with CAL-AM-NIT, SICO-ANS must be used at 25% more per hectare to apply the same rate of nitrogen as AM-NITRA[®].

3/ b) SICO BOR-ANS Granular Ammonium Nitrate Sulphate with Boron (26% N + 13% S + 0.3% B)

4/ UREAN 30N, Ammonium Nitrate-Urea solution 30% N

UREAN 30N is a liquid fertiliser containing approx. half its nitrogen as urea and half as ammonium nitrate.

It contains 30% total N, of which 15% as urea N, 8% as ammonium N and 7% as nitrate N. UREAN 30N is not classified as a dangerous good.

UREAN 30N can be applied in a number of ways. This allows greater flexibility and efficiency in terms of timing, rate and placement of the product.

UREAN 30N can be applied pre-plant, at planting (away from the seed) or be side dressed or top dressed.

UREAN 30N is popular in fertigation, as it avoids the need to pre-mix (dissolve) dry fertilisers in water.

5/ SICALNIT EXCEL (SICO brand of) and CALCINIT (Yara brand of), drip grade Calcium Nitrate 15.5% N + 19% Ca)

SICALNIT EXCEL & CALCINIT are soluble products and have two major uses:

- a soluble calcium fertiliser in fertigation programs and in foliar sprays.
- a non-acidifying nitrogen fertiliser through drip and trickle irrigation systems, and under-tree sprinkler. Nitrogen fertilisers such as urea and ammonium nitrate can acidify the soil around the emitters. Calcium nitrate does not.

6/ SICALNIT-L and SICALNIT-L PLUS, Liquid Calcium Nitrate

Liquid calcium nitrate fertilisers for application through fertigation, directed soil sprays or foliar sprays.

SICALNIT-L contains a readily available source of calcium, which is ideal in situations where calcium is required but where high applications of nitrogen are not desirable eg. prior to flowering and approaching harvest.

Calcium nitrate contains 12.8% nitrogen as nitrate (w/vol) and 18.7% calcium as nitrate (w/vol)

SICALNIT-L PLUS contains also magnesium and micronutrients!

The benefits of SICALNIT EXCEL / CALCINIT Calcium Nitrates

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SICO FERTILISERS
EVERY TIME THE *right* SOLUTION



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a very flexible soluble alternative for nitrogen applications:

1. High water solubility
2. Calcium is water soluble enhancing efficiency of uptake
3. Majority of the nitrogen is in the plant available nitrate form, for a quick response even in cool conditions
4. Non acidifying to the soil
5. Primarily intended and recommended for application in solution but can be applied dry to soil if necessary
6. Comes in easy to handle 25 kg bags
7. SICALNIT-L and SICALNIT-L PLUS are ready to use liquid solution in easy to handle 5 ltr/10ltr/20 ltr cans, very popular in fertigation, as it avoids the need to pre-mix (dissolve) dry fertilisers in water.

7/ Agricultural strew grade Calcium Nitrates

We also market: **SICALNIT TROPIC** (SICO brand of) and **TROPICOTE** (Yara brand of) granular agricultural strew grade calcium nitrate with 15.5% total N, of which 14.40% as nitrate N and 1.10% as ammoniacal N, with 26.30% CaO (= 18.80% Ca) also **NITRABOR** (Yara brand of) strew grade calcium nitrate with 0.20% boron.

8/ POTASNIT, POTASSIUM NITRATE 13.0.46

Potassium nitrate contains 13% nitrogen (N) as nitrate and 46% K₂O (= 38.3% potassium (K) as nitrate.

Sap International Corporation markets 3 potassium nitrate fertilisers:

- **Prilled potassium nitrate** – for dry application to the soil (agricultural/strew grade)
- **Crystalline potassium nitrate** – water-soluble grade, horticultural grade for application in solution.
- **POTASNIT Mg fertiliser** – granular potassium nitrate enriched with magnesium 12.0.42 + 2MgO

Prilled potassium nitrate is also used as a blend ingredient. The maximum concentration of prilled potassium nitrate to be used in blends is 60%

9. SICOFERT Granular Complex NP 26 + 7 (+ 3.8% S)

Contains N and P in optimum ratio for use in arable and grassland fertilisation.

The total 26% N is available as 12% nitrate N and 14% ammoniacal N and a high content of water soluble phosphate (> 90%) (total P₂O₅: 7%, water soluble P₂O₅: 6.3%) and holds also 3.8% water soluble S.

Each granule contains phosphate so the accuracy and even spreading pattern will be 3 till 4 times higher than making use of eg. DAP.

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