



April 2004

AMMONIUM NITRATE PRODUCT SUBSTITUTION GUIDE

1. INTRODUCTION

Incitec Pivot Limited has taken the decision to no longer sell straight ammonium nitrate fertilisers (Nitram and Liquifert Pinnacle).

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 plants 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.

With the removal of Ammonium Nitrate fertilisers (Nitram and Liquifert Pinnacle) from the Incitec Pivot product range, Dealers and Agents will have a range of alternate products to meet customer's requirements.

Ammonium Nitrate (34% N) (withdrawn from sale as a straight product)

Ammonium Nitrate fertilisers were popular in the following situations:

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

In the past, two fertiliser grades of Ammonium Nitrate were marketed by Incitec Pivot Limited:

- **Nitram** - used where Ammonium Nitrate was applied as a solid to the soil.
- **Liquifert Pinnacle** (chemically pure ammonium nitrate) used where ammonium nitrate was applied in solution, mostly in fertigation programs via the irrigation water.

Both these products have been withdrawn from sale.

Alternatives to Nitram and Liquifert Pinnacle

Products that will substitute for Nitram are Urea, Cal-am N-Sure and EASY N.

Products that will substitute for Liquifert Pinnacle are Liquifert N, Liquifert Lo-Bi and Easy N. Other options include Liquifert K-Nitrate, calcium Nitrate and EASY Cal.

Urea Liquifert N, Liquifert Lo-Bi (46% N)

Urea is a more economical source of nitrogen than Ammonium Nitrate. Urea (46% N compared to 34% N in Nitram) 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.

Cal-Am (CAN) (27% N & 8% Ca)

Cal-am 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 is not classified as a Dangerous Good.

Cal-Am has an analysis of 27% Nitrogen (N) half as ammonia and half as nitrate.

To supply the same rate of nitrogen, Cal-Am needs to be applied at a 25% higher rate than Nitram.

Cal-am is already in common use in Australia, including a number of locations where Nitram has not been available in sufficient quantity in the past to meet the local demand.

Overseas, there are a number of countries where Ammonium Nitrate is not available as a fertiliser, and Calcium Ammonium Nitrate is used in its place.

Cal-am is only suitable for dry application to the soil. It can not be used in place of Liquifert Pinnacle, as the calcium carbonate it contains is insoluble.

Cal-am is also available in blends.

N Sure (ASN) (26% N & 14% S)

N-Sure is approximately 60% Ammonium Sulphate and 40% Ammonium Nitrate, and has an analysis of 26% Nitrogen (N) and 14% Sulphur (S). 19% of the Nitrogen is in the ammonium form, and 7% as nitrate.

N-Sure will substitute for Nitram in all situations particularly where Sulphur is required along with the Nitrogen (eg: Winter pastures)

As with Cal-Am, N-Sure must be used at 25% more per hectare to apply the same rate of Nitrogen as Nitram.

Easy N (UAN) (42.5% N w/v)

EASY N is a liquid fertiliser containing approximately half its Nitrogen as Urea and half as Ammonium Nitrate. It contains 42.5% N on a weight/volume basis (21.5% w/vol as Urea, 10.5% w/vol as Ammonium, and 10.5% w/vol as Nitrate). Easy N is not classified as a Dangerous Good.

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

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

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

Yara Calcinit (Calcium Nitrate) (15.5% N & 19% Ca)

Hydro Calcinit is a soluble product and has two major uses in Agriculture.

- 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 sprinklers. Nitrogen fertilisers such as Urea and Ammonium Nitrate can acidify the soil around the emitters. Calcium Nitrate does not.

Easy Cal (Liquid Calcium Nitrate) (12.6% N & 18.1% Ca w/v)

A liquid Calcium Nitrate fertiliser for application through fertigation, directed soil sprays or foliar sprays.

Easy Cal 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.

Easy Cal contains 12.6% Nitrogen as nitrate (w/vol) and 18.1% calcium as nitrate (w/vol)

Potassium Nitrate (13% N & 38.3% K)

Potassium Nitrate contains 13% Nitrogen (N) as nitrate and 38.3% Potassium (K) as nitrate.

Incitec Pivot Limited markets two Potassium Nitrate fertilisers:

- **Prilled Potassium Nitrate** – for dry application to the soil;
- **Liquifert K Nitrate** – for application in solution.

Prilled Potassium Nitrate is also used as a blend ingredient. The maximum concentration of Prilled Potassium Nitrate to be used in blends is 60%.

Nitram Blends

It is Incitec Pivot Ltd's policy not to market any range blend containing Nitram if the blend is classified as a Dangerous Good. All blends containing Nitram are "burns" tested before their addition to the company's product range to determine if they can be declassified as a Dangerous Good.

Nitram Blends will be available from selected Incitec Pivot Ltd supply points. Please refer to the Incitec Pivot Ltd price list for these blends.

These blends will allow farmers and graziers who have a preference to use nitrate nitrogen to apply it as part of their overall fertiliser program.

These Blends have a low Critical Relative Humidity. They should be ordered close to the time of use and not stored, either on retail premises or on farm, for extended periods.

Nitram is not available as a blend ingredient in Custom Blends that are formulated at the request of the customer.

Contacts

For additional information on alternate Nitrogen fertilisers to Nitram and Liquifert Pinnacle, contact your local Incitec Pivot Agent / Dealer or Regional Agronomist.