

EASY N

Urea Ammonium Nitrate (UAN) Fertiliser Solution

EASY N is a light blue coloured solution of urea and ammonium nitrate dissolved in water.

EASY N can be applied to the soil as is, i.e. neat, be diluted in water, e.g. with irrigation water (fertigation programs), or applied as a foliar spray in some crops. It can be applied alone as a nitrogen fertiliser or mixed with other fluid fertilisers such as EASY ATS or EASY KS to produce NS and NKS fertiliser solutions. EASY N and EASY KS are not compatible at all ratios.

EASY N should NOT be used as a “Non Protein Nitrogen” supplement for livestock, as it may cause Nitrate Poisoning.

ANALYSIS (weight/volume)

21.5 % Nitrogen (N) w/v as urea
10.5 % Nitrogen (N) w/v as ammonium
10.5 % Nitrogen (N) w/v as nitrate
42.5 % Nitrogen (N) w/v Total (425 g/L N)

SPECIFIC GRAVITY

EASY N has a specific gravity at 20⁰ C of 1.32.

This gives EASY N an analysis on a weight/weight basis of 32% N w/w (320 g/kg N).

IMPURITIES

Biuret (from Urea component)	1.0 % w/v (max)
Cadmium (Cd)	1 mg/kg Cd (max)
Lead (Pb)	10 mg/kg Pb (max)
Mercury (Hg)	0.2 mg/kg Hg (max)

“SALTING OUT” AT LOW TEMPERATURE

Most liquids have a ‘salt out’ temperature. This is the temperature at which crystal precipitation and growth occurs because the solution is over-saturated and the water can no longer keep the salts in a dissolved state. With EASY N this ‘salt out’ temperature is at or below 0°C. If other soluble salts or solutions containing salts are added to EASY N, the ‘salt out’ temperature will change.

DIRECTIONS FOR USE

EASY N contains a higher concentration of nitrogen (N) than can be obtained by dissolving either urea or ammonium nitrate on their own in water. Together their solubility is enhanced, allowing a concentrated nitrogen solution to be produced. One litre of EASY N (42.5 % N w/v) contains a little less nitrogen than one kilogram of solid urea (46 % N w/w). EASY N has a pH of 6.0 - 7.0.

EASY N can be used as an alternative to solid nitrogen fertilisers where it is more convenient to apply the fertiliser as a liquid.

EASY N is popular where nitrogen is to be applied in solution, e.g. fertigation programs, as it avoids the need for bag handling and dissolving solid nitrogen fertilisers on farm.

It is very difficult to achieve the nitrogen concentration in EASY N if fertiliser solutions are prepared on farm, as both urea and ammonium nitrate cause the temperature of the fertiliser solution to fall as they are dissolved in water. EASY N takes the hassle out of preparing concentrated nitrogen fertiliser solutions on farm.

EASY N can be applied to the soil in the same way and at the same times as solid (dry) nitrogen fertilisers, provided equipment is available to apply it. The product can be applied pre-plant, at planting (away from the seed) or be side or top-dressed. It can be applied into the soil or onto the soil surface.

If surface-applied, incorporation, e.g. by cultivation or irrigation shortly after application, will reduce the risk of volatilisation losses of ammonia. Rain, e.g. 10 – 15 mm or more, depending on the amount of plant material on the soil surface and the texture of the soil, will also carry the fertiliser into the soil.

EASY N can also be applied in irrigation water, and as a foliar spray in selected crops such as cotton.

EASY N is not recommended for use in hydroponic solutions.

The ways in which EASY N might be applied are discussed here in more detail.

Pre-plant application in Annual Crops

Spray onto the soil surface, preferably incorporating afterwards, or inject behind tines into the soil.

If applied into prepared beds in row crops close to planting time, apply deeper into the soil than the intended depth of seeding, or offset to the side of the intended position of the row.

Planting

Apply between the rows or behind non-seeding tines. If applied behind seeding tines, ensure the fertiliser does not come in contact with the seed or planting material, e.g. band 5 cm to the side of and 5 cm below the seed or transplants in row crops.

Top-dressing

When top-dressing crops planted at narrow row spacings or pasture, it is impossible to avoid leaf wetting. As a result, some leaf burn may occur. This can be minimised by using coarse streaming nozzles so that the maximum amount of the fertiliser solution runs off the leaves onto the soil and the minimum amount remains on the leaves. Follow up rain is necessary to carry the fertiliser into the soil and crop root zone. If irrigation is available, it can be applied immediately afterwards.

Side-dressing

In row crops, apply the fertiliser to the side of the rows, either to the soil surface or placed into the soil. Avoid leaf wetting.

If injected into the soil, apply far enough to the side of the rows to avoid root pruning and fertiliser burn to the crop roots.

Avoid application in the centre of the inter-row space where utilisation of fertiliser will tend to be poor given the distance the plants roots have to grow to reach it. In addition, the soil is more likely to be compacted and waterlogging is more likely to occur in this area.

Fertigation

This is one of the most popular ways in which EASY N is applied, particularly in horticulture. EASY N can be injected straight into the lines without further dilution in water. There is no need to weigh out and dissolve the fertiliser, as is there is with solid fertilisers.

EASY N can be used on its own, or mixed with EASY ATS or EASY KS to produce NS or NKS solutions.

EASY N can be applied through all types of fertigation systems, including overhead sprinkler systems, as the fertiliser solution which comes in contact with plant leaves will be very dilute (compared with applying EASY N without further dilution as a foliar spray).

With fixed line overhead sprinkler systems, inject the fertiliser into the fertiliser lines over a reasonable period of time, e.g. mid third of the shift, leaving the last third to flush the lines and wash any fertiliser solution from the leaves.

With travelling irrigators, this will not be possible, but given the dilution that occurs when the EASY N fertiliser solution is being injected continuously, foliar burn is unlikely to occur.

Foliar Fertilisation

There are limits to the amount of nitrogen that can be applied in foliar sprays without burning the leaves. With few exceptions, foliar nitrogen sprays can be used to supplement soil-applied fertilisers, but rarely can they be used to replace soil applications entirely. Crops (and varieties) vary in their susceptibility to leaf burn.

EASY N is normally applied neat, without further dilution in water, in foliar sprays. Its attraction over other nitrogen sources is its high concentration, allowing large areas to be covered quickly with low volume spray equipment, e.g. in grain and cotton. Urea is the preferred nitrogen source where dilute nitrogen sprays are used in high volume sprays, e.g. horticulture.

SOIL APPLICATION RATES

Soil application rates will be dictated by the nitrogen requirements of the crop.

Usually, other nutrients, e.g. sulfur (S) or potassium (K) will need to be applied simultaneously with nitrogen (N).

In many situations, e.g. horticultural crops, it is customary to split the seasonal fertiliser needs into a number of smaller applications, e.g. when fertiliser is being applied in the irrigation water (fertigation programs). Often, the N:K ratio will be varied during the growing season, more nitrogen being applied early, and higher rates of potassium with little or no nitrogen late in the growing season. EASY N and EASY KS are not compatible at all ratios, see notes below.

COMPATIBILITY

With Other Fertilisers

EASY N is compatible with EASY NP, EASY NP + Zn, Topfoliar, EASY NS, EASY ATS and EASY Cal.

If EASY N is mixed with either EASY PK, EASY KS or EASY NPK 27, potassium nitrate crystals may form. These can be dissolved when sufficient water is added to the mixture. To avoid this, dilute the EASY PK, EASY KS or EASY NPK 27 in an equal quantity of water before adding the EASY N.

It is recommended that EASY N not be mixed with more than one other Liquid product at a time.

EASY ATS: EASY N can be mixed with EASY ATS to provide nitrogen (N) and sulfur (S) at whatever N:S ratio is required. As plants take up much greater amounts of nitrogen than they do sulfur, it is customary to apply nitrogen at higher rates, e.g. to achieve a N:S ratio of 10:1, mix 7.6 litres of EASY N to one litre of EASY ATS.

EASY KS: EASY N can be mixed with EASY KS where there is a need to apply nitrogen and potassium. Because EASY KS also contains sulfur, there will be no need to add EASY ATS to the mix as well if sulfur is also required. EASY N should only be mixed with EASY KS at ratios above 4:1 or less than 1:4. At intermediate ratios, e.g. 1:1, compatibility problems occur.

EASY N is not compatible with and should not be mixed with Coppersol, Zincsol or Mangasol.

Compatibility with Crop Protectants

If tank mixes of EASY N and crop protectants are being considered, check the label of the crop protection product and only mix the products if it specifically states that it is safe to do so.

Compatibility is dependent partly on the number of additives and the rates at which they are to be applied, water quality (if diluted), application equipment (degree of agitation) and other factors such as time and method of application. Compatibility checks should be carried out even if the chemical manufacturer has recommended the proposed mix. Checks need to cover -

- Physical compatibility
- Phytotoxicity to the crop at the target growth stage
- Efficacy of the crop protection product(s)
- Efficacy of surfactant and suspending agents (compatibility aides)

If compatibility information does not exist and a joint application is desired, prepare a small amount of the proposed mix and allow to stand in a glass jar over night and observe for signs of incompatibility.

A small quantity of the test mix should then be sprayed on a small area of the target crop and observed for 3 to 4 days for any phytotoxic effects.

In winter cereals, the coarse streaming or flood nozzles used to top-dress EASY N are unsuitable for foliar crop protectants, e.g. post-emergence selective herbicides. Flat fan nozzles are required, so that uniform leaf wetting is achieved with minimal soil run-off. When top-dressing, the objective is to have as little as possible of the fertiliser solution remain on the leaves and the maximum amount run off onto the soil. If flat fan nozzles are used to apply EASY N, the application rate will need to be reduced to avoid excessive fertiliser burn to the foliage.

2,4-D amine is not compatible with EASY N or other fertiliser solutions containing ammonium nitrogen.

Fungicides commonly used in winter cereal crops can aggravate the symptoms of foliar burn if applied with EASY N.

For further information, Agritopics on “Fertigation” and “Foliar Fertilisers” are available if required, and should be read in conjunction with these “Use Directions”.

STORAGE AND CARE OF EQUIPMENT

Store in a cool place, away from direct sunlight. Keep containers closed to minimise evolution of ammonia from the fertiliser solution.

A corrosion inhibitor is added to EASY N during its manufacture, but it is still corrosive to many metals.

Appropriate materials for storing EASY N include High-Density Polyethylene (HDPE), stainless steel and fibreglass.

If an aluminium storage tank is used, all other fittings, piping and pump parts should be aluminium.

If a mild steel storage tank is used, the fittings and couplings will need to be compatible with mild steel to avoid galvanic corrosion.

Do not store EASY N in tanks of brass or copper alloys, concrete or galvanised steel.

Flush application and fertigation equipment after use with water only.

Where applied through fixed irrigation lines, discontinue use towards the end of the shift to flush fertiliser from the lines and off crop foliage. This minimises corrosion and the risk of leaf burn.

Refer to the Handling, Storage and Transport section of the EASY Liquids manual for further details, including appropriate materials for pumps, pipes, plumbing, valves and fittings.

SAFETY DIRECTIONS

Avoid contact with eyes or skin.

Wash hands after use.

Avoid inhaling mist.

Refer to the EASY N MSDS (Material Safety Data Sheet) for more specific instructions.

WARNING

Before using fertiliser seek appropriate agronomic advice. Fertiliser may burn and/or damage crop roots or foliage. Foliar burn to the leaves, fruit or other plant parts is most likely to occur when different products are mixed and sprayed together, the water is of poor quality, or the spray is applied under hot dry conditions, eg. in the heat of the day. Because climatic and soil conditions, application methods, irrigation and agricultural practices are beyond the control of Incitec Pivot Limited and cannot be foreseen, Incitec Pivot Limited accepts no responsibility whatsoever for any commercial damage, loss or other result following the use of this product whether used in accordance with directions or not, subject to any overriding statutory provision and provided that such liability under those provisions shall be limited to the replacement of the goods as supplied or the rendering again of the services that are provided. The buyer accepts and uses this product subject to these conditions.

In providing these guidelines, Incitec Pivot Limited does not assume a duty of care.

Users of EASY N should ensure that storage and use of the product complies with statutory requirements.

To the extent permissible by law, Incitec Pivot makes no representations or warranties (express or implied) that the information contained in these guidelines will be suitable in all situations.

Independent advice may need to be obtained if users are uncertain about the set up and operation of storage tanks for EASY N specific for their conditions.

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**Incitec Pivot Limited
PO Box 1322
Melbourne
Vic 3001
Phone 03 8695 4400
www.incitecpivot.com.au**