TECHNICAL INFORMATION



Water Soluble NPK Fertilizers

With magnesium (Mg) and trace elements (TE)

A broad range of top-quality, fully and rapidly soluble fertilizers for a wide range of crops and uses

Uses

To provide fertilizer dissolved in the irrigation water to any overhead or drip irrigated crop.

Benefits

- Wide range of formulations to suit many cropping situations.
- Manufactured using high grade raw materials.
- Contain *chelated* micronutrients to ensure effectiveness and stability.
- ISO 9001:2008 accreditation manufacturing standard to ensure reliable quality.
- Rapidly and completely soluble even in cold water.
- Contains blue indicator dye.
- Supported by full technical service facilities.



Chemical/physical data

Typical analysis: A wide range of analysis but the choice is essentially:

High N	(e.g. 28:7:14)
High P	(e.g. 10:52:10)
High K	(e.g. 14:7:28)
Balanced	(e.g. 18:18:18)

Premium levels of Mg and TE for container grown crops or,
Regular levels for soil grown crops.

Analytical Method: Available on request.

Appearance: Blended crystalline powder which dissolves to exhibit a blue indicator dye.

Solubility in water: Varies but typically in excess of 200 g/l (at 20°C).

Heavy metal content: Varies but always below 10 ppm.

Directions for use

Application rates: Normally 1 gram of Solufeed soluble NPK fertilizer per litre of irrigation water May vary according to the sensitivity and requirements of the crop and the growing system, typically in the range 0.5 – 2 grams per litre (see below for more information).

Directions: The normal method of use is to make up a 10% (1kg Solufeed NPK fertilizer dissolved in 10 litres of water) stock-tank solution, which is then further diluted with a dosing pump at the rate of 1:100 (or adjust as required) into the irrigation water.

Rate of dilution for Solufeed water soluble fertilizers

Like all soluble fertilizers, the normal rate of dilution in the final irrigation water is 1 gram per litre. Whilst this is the normal rate, this rate can be varied. For sensitive species or very young plants, the rate is reduced – typically to 0.5 gram per litre. For vigorous plants which are fertilizer tolerant, the rate can be increased, typically up to 2 grams per litre.

It is important to monitor the concentration of mineral salts in the final irrigation water and to match these salt concentrations according to the tolerance of the plant. This is measured using a simple meter that measures *electrical conductivity* (EC) as a proxy for the concentration of mineral salts (saltiness) of the water. The EC in the irrigation water is a combination of the background EC of the water + the added EC from the fertilizer. The calculated EC for Solufeed 18-18-18 at 1 gram per litre is 0.9 mS/cm.

This rate of dilution can be achieved in several ways:

1. The usual system is to make up a concentrated *stock tank solution* which is further diluted down to the desired concentration. It is usual to make up a 10% stock tank solution (1 kg of fertilizer dissolved in 10 litres of water) and to further dilute this (using a dosing pump such as a *Dosatron*) at the rate of 1:100. This gives a final dilution of 1:1000 (same as 1 gram per litre). The rates can be adjusted either by making an adjustment to the strength of the stock tank solution, or – more usually – by adjusting the dosing pump so that it pumps at e.g. 1:50 (delivering a higher concentration feed of 2 grams per litre) or e.g. 1:200 doses (delivering a lower concentration feed of 0.5 grams per litre).

2. Another method is to dose a fixed volume of irrigation water with the required amount of feed and then use that water on the plants. So if the tank holds 1000 litres, then add 1 kg of Solufeed 18-18-18 to the reservoir to make a solution of 1:1000 (1 gram per litre). It is usual to dilute the feed in a bucket first and then add the dissolved feed to the tank to ensure the feed is fully dissolved.

Frequency of use

Solufeed is always added to the irrigation water and so the plants are fed at each watering. Whilst the concentration of the fertilizer in the irrigation water can be adjusted to match the growth required, the frequency of application normally remains with feeding at every watering. The concept is to maintain an appropriate and consistent concentration of soluble fertilizer in the growing media solution around the roots, so that the plants can readily take up the nutrients.

In hot weather plants are selective and may take up water and leave the fertilizer salts behind. This can sometimes (rarely) lead to a build-up of fertilizer salts in the growing media. Overhead irrigation tends to wash nutrients through the profile and prevent a build-up of fertilizer salts – "run-off" removes any excess salts away. Systems which irrigate through the bottom of the pot e.g. ebb & flood or capillary matting are more prone to a build-up of salts and if this problem is suspected (this can be confirmed by compost analysis) then reducing the EC of the feed (i.e. reducing the amount of fertilizer used) or flushing with plain water will resolve the problem.

Use of soluble fertilizers with controlled release fertilizers (CRFs)

Many growers like to use CRF's to provide a base level of nutrition and top-up with soluble fertilizers to give control over the speed of growth. In this case, it is usual to use a reduced rate of CRF's – typically at half rate – and then feed with soluble fertilizer as required to bring the crop on.

Full rates of CRF's along with full rates of soluble fertilizer risks excess fertilizer salt levels and will result in crop damage.

Foliar feeding

Plants are designed to take up nutrients through their roots. Although most soluble nutrients can be absorbed through the leaves, major nutrients are required in substantial quantities and the rate of uptake of these major nutrients through the leaves is insufficient to truly sustain the crop. However, foliar feeding can give crops a valuable boost, particularly if the root system is not functioning well due to water-logging or some other stress factor. Micronutrients are required in very small quantities and often the entire quantity needed by a crop can be supplied satisfactorily through the leaves.

It is important to realize that soluble NPK fertilizers applied to the foliage can dry out to leave unsightly residues on the leaves. The problem is particularly acute in areas with hard water. As the pools of liquid feed dry on the leaves, the nutrients become more concentrated. The calcium dissolved in the water reacts with the phosphorus dissolved in the fertilizer to form

insoluble calcium phosphate. This remains bonded to the leaf as a white stain. Since it is insoluble it does not wash off. This problem is reduced (but not eliminated) by the use of acidic **Solufeed *Superior*** fertilizers.

General information

Packaging: 20 kg LDPE valve sack (50 x 20kg per wrapped pallet).

Harmonised Tariff No: 3105-20-000

Technical service: For further information, assistance and access to The Solufeed Advisory Service, please contact Solufeed at the address below.

Precautions

Detailed health and safety information may be found on the relevant Material Safety Data Sheet (MSDS) available on request from the address below.

Most blends are non hazardous and can be mixed with other commonly applied agricultural or horticultural chemicals.

Important

The information in this document has been prepared carefully and is provided in good faith. The application, use and processing of any material together with regulatory compliance is the absolute responsibility of the Buyer. All technical information or other advice provided by the Seller in any form is given without warranty to the full extent provided by law.

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Solufeed Ltd
Highground Orchards Office
Highground Lane, Barnham
Nr Bognor Regis, West Sussex, PO22 0BT UK
Tel: +44(0)1243 554090 Fax: +44(0)1243 554568
enquiries@solufeed.com www.solufeed.com