

Advantages - Benefits

Increased utilization of the nutrients in the fertilizer

When fertilizing crops with common fertilizers, the Phosphorus contained in them is soon immobilized, Potassium is strongly bound in heavy soils and easily leached in sandy soils, while Trace Elements form non-assimilable compounds, depending on the physico-chemical properties of the soil. These conversions prevent the crops from utilizing the largest part of the nutrients and reduce fertilizer efficiency.

Omega® fert fertilizers form a "shield" protecting nutrients and preventing the process of immobilization of the fertilizer in the soil, thus increasing its utilization by the crops and maximizing the efficiency of fertilizing.

The nutrients in the soil are protected by unwanted interactions, remain active and assimilable for a longer period of time, and are taken up by the plants with greater ease and in larger quantities.

The increased uptake of the nutrients in the fertilizer and prolonged nutrition of the crops boost vegetative growth and fruiting and significantly increase crop yields.



Utilization of the nutrients bound in the soil

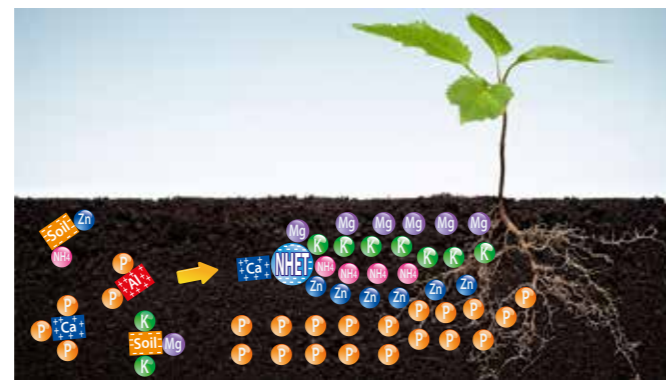
The high cation-exchange capacity (CEC = 650 meq/100gr) of the **NHET** nanopolymer allows it to function as a cation collector and to absorb in its surface all the nutrients in the soil with a positive electrical charge.

The absorption of surplus Calcium and Magnesium in alkaline soils and of free Aluminum and Iron in acidic soils frees Phosphorus quantities which were already in the soil but had been bound by the aforementioned elements. These quantities are made available to the plants once again, thus supplying the crops with more Phosphorus from the soil in addition to that provided through fertilizing.

At the same time, the amount of cations absorbed in the surface of the **NHET** polymer from the soil are gradually supplied to the crops, thus creating a surplus of nutrients in the rizosphere of the plants which is larger than the quantity supplied through fertilizing.

Finally, the capacity of **NHET** technology to develop chelating properties activates the immobilized Trace Elements in the soil (Fe, Zn, Mn, Cu) and restores them to an assimilable form, allowing them to be taken up by the plants.

The mode of action of the **Omega® fert** fertilizers allows the plants to utilize the nutrients immobilized in the soil in addition to those in the fertilizer, as well as any residual elements from previous fertilizing, thus improving the nutrition of crops and increasing their yields.



Easier water and nutrient uptake

The presence of moisture/water in the soil is crucial to crop nutrition. The nutrients move towards the roots of the plants through the water, while the roots themselves also grow towards those parts in the soils where there is greater moisture.

Due to its absorbent properties, **NHET** technology absorbs in its surface molecules of soil water along with the nutrients, thus increasing their concentration in the environment of the root system.

The presence of both water and nutrients in the same part of the soil boosts root growth towards the nutrients and increases the uptake of the latter by the crops.

At the same time, increased Phosphorus absorption promotes the growth of a robust root system. The plants utilize a larger volume of soil, absorb larger quantities of nutrients and water, and achieve higher yields of better quality.



Unique Quality
High Solubility
Excellent Granulometry

- Guaranteed supply of nutrients
- uniform dispersion, without gaps in the field
- absence of dust



Omega® fert 18-23-0 (+23) Omega® fert 15-25-0 (+29) Omega® fert 14-18-14 (+27) Omega® fert 14-8-18 (+30) +2MgO+TE Omega® fert 14-22-7 (+20) +0,18+0,1Zn Omega® fert 18-8-14 (+14) +2MgO+0,38 Omega® fert 20-10-5 (+21) Omega® fert 24-8-8 (+7) +0,3Zn

Advantages

- ▶ Protection of the nutrients in the fertilizer from unwanted interactions and increased nutrient availability to the crops.
- ▶ Increased uptake and more efficient utilization of Phosphorus and Trace Elements by the plants for a long period of time.
- ▶ Mobilization of the bound nutrients in the soil and utilization of residual elements from previous fertilizing.
- ▶ Robust root system growth and increased uptake of nutrients and water.
- ▶ Maximized efficiency of fertilizing and improved nutrition to the plants throughout all stages of development.
- ▶ Higher yields, due to the integral nutrition and increased supply to the crops, with all the necessary nutrients.
- ▶ Safe to use and friendly to the environment.

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General information

Integral plant nutrition and the development of fertilizers form the core of modern agriculture and are inextricably linked with increased crop yields and a better food quality.

However, the degree to which fertilizers are utilized is not entirely up to plants. The properties of the soil have a determining effect on fertilizer utilization, and high losses of nutrients reduce the efficiency of fertilizing.

Over 40-50% of **Nitrogen (N)** is vaporized into the atmosphere and leached into the deeper layers of the soil, thus significantly reducing its utilization by the crops.

In just a short amount of time, **Phosphorus (P)** forms poorly soluble compounds, is stabilized in the soil, and only 15-25% of the quantity applied remains available to the plants.

Potassium (K) is leached into the deeper layers in sand soils, while in heavy clay soils it is bound by phyllosilicate minerals and rendered unavailable to plants during periods when the crops have high requirements in it.

The development of new technologies - such as nitrification inhibitors, chelates, various polymers, osmotic and polyanionic resins, and nanotechnology - are at the heart of modern research for the purpose of increasing the utilization of fertilizers by plants and achieving an integral nutrition of the crops and higher yields.

The new generation fertilizers **Omega® fert** have integrated all the most recent data of agricultural research in crop nutrition and have been developed to crucially alter the behavior of nutrients in the soil-plant system.

Through the **NHET** nanotechnology that is integrated in each granule, these fertilizers prevent the immobilization of the nutrients in the soil and minimize losses to the environment, thus increasing the availability of nutrients to the plants, maximize the efficiency of fertilizing, and secure nutrient sufficiency to the crops for a long period of time.

The unique capacity of **Omega® fert** fertilizers to supply the plants with assimilable forms of nutrients improves crop nutrition and plays a determining part in increasing the yields and improving the quality of agricultural products.



Reduced utilization of fertilizers by plants

Κατά τη λίπανση των καλλιεργειών, το μεγαλύτερο μέρος των θρεπτικών στοιχείων που παρέχονται στην καλλιέργεια, αντιδρά με τα σωματίδια του εδάφους ή παρασύρεται από το νερό της άρδευσης και καθίσταται μη αφομοιώσιμο από τα φυτά.

- In alkaline soils, **Phosphorus** forms poorly soluble bonds with Calcium and Magnesium, while in acidic soils, it reacts with Iron and Aluminum and is precipitated.
- In sandy soils, **Potassium** is leached outside the root zone, while in heavy soils, it is highly bound by the minerals in the clay.
- Depending on the conditions of the soil, **Trace Elements** are sometimes oxidized into non-assimilable forms and other times they react with the rest of the nutrients and are immobilized.
- In cases of extended drought, especially in sandy and alkaline soils, **Nitrogen** is converted into gaseous Ammonia and vaporized into the atmosphere, while it is leached into the deeper layers of the soil with irrigation and rainfall.

The aforementioned conversions significantly reduce the availability of the nutrients in the fertilizer to the crops and significantly reduce the efficiency of fertilizing.



Omega® fert Fertilizers - Maximal utilization of nutrients

Omega® fert fertilizers are advanced technology chemical fertilizers which make good use of all the most recent data of agricultural research in the field of crop nutrition.

During their production process, **NHET** nanotechnology is integrated in each granule, which protects the nutrients from unwanted interactions, preserves their mobility for a long period of time, and facilitates their uptake by the crops.

Having the capacity to prevent the process of immobilization of the nutrients in the soil, **Omega® fert** fertilizers supply the plants with easily assimilable nutrition, multiply the nutritional value of the fertilizer, maximize its utilization by the crops, and achieve high yields.

Designed to provide integral and efficient nutrition, they are produced and made available in the form of Nitrogen Phosphate (NP) and multinutrient (NPK) fertilizers, suitable for the basic fertilizing of all crops.

Their excellent granulometry, high solubility, and unique capacity to increase the efficiency of fertilizing make **Omega® fert** the top fertilizers for an integral nutrition of the crops and increased yields, especially in poorly fertile and depleted from constant cultivation soils.



Products	Total Nitrogen (N)	Ammoniac Nitrogen (NH ₄)	Nitrate Nitrogen (NO ₃)	Phosphorus (P ₂ O ₅)	Potassium (K ₂ O)	Magnesium (MgO)	Sulphur (SO ₃)	Zinc (Zn)	Bor (B)
Omega® fert 18-23-0 (+23)	18%	16,6%	1,4%	23%	-	-	23%	-	-
Omega® fert 15-25-0 (+29)	15%	15%	-	25%	-	-	29%	-	-
Omega® fert 14-18-14 (+27)	14%	12,6%	1,4%	18%	14%	-	27%	-	-
Omega® fert 14-8-18 (+30) +2MgO +TE	14%	10,8%	3,2%	8%	18%	2%	30%	0,01%	0,02%
Omega® fert 14-22-7 (+20) +0,1B +0,1Zn	14%	14%	-	22%	7%	-	20%	0,1%	0,1%
Omega® fert 18-8-14 (+14) +2MgO +0,3B	18%	12,5%	5,5%	8%	14%	2%	14%	-	0,3%
Omega® fert 20-10-5 (+21)	20%	14,8%	5,2%	10%	5%	-	21%	-	-
Omega® fert 24-8-8 (+7) +0,3Zn	24%	14%	10%	8%	8%	-	7%	0,3%	-

Mode of action

The healthy development and high productivity of the crops depends on the capacity of the plants to utilize water, and mainly on their capacity to take up the nutrients supplied to them through fertilizing with ease and without losses.

Omega® fert fertilizers prevent the nutrients in them from reacting with the soil components, protect them from immobilization, and minimize losses that are due to leaching and vaporization, thus increasing their availability to the plants.

Their mode of action is due to the powerful cation-exchange capacity (CEC = 650 meq/100gr) and chelating properties of the **NHET** nanotechnology, which is integrated in each granule of the fertilizer.

Due to its powerful negative electrical charge, the **NHET** nanopolymer absorbs in its surface all the cations in the soil (Ca, Mg, Fe, Al) which react with Phosphorus. It thus prevents poorly soluble Phosphates from forming and maintains Phosphorus free and easily assimilable by the crops for a long period of time.

In addition to absorbing the cations in the soil, **NHET** technology also functions as a "collector" of all nutrients with a positive charge that are added to the crops through fertilizer (K, MgO, NH₄, Ca, Fe, Zn, B, Mn, Cu).

It collects the Potassium and Magnesium in the fertilizer, preventing them from leaching in sandy soils and from strong bonds in clay soils. At the same time, it forms bonds with Ammoniac Nitrogen (NH₄), thus preventing it from turning into free Ammonia which leads to Nitrogen losses in periods of drought.

Trace Elements (Fe, Zn, B, Mn, Cu) are protected both through ionic absorption at the surface of the nanopolymer and through the latter's powerful chelating properties.

By forming stable complexes with Trace Elements, **NHET** technology prevents their oxidation, reduction, and precipitation in the soil and maintains them active, thus ensuring that the crops have sufficient nutrition throughout their biological cycle.

Omega® fert fertilizers have triple protective action. They prevent the immobilization of Phosphorus by increasing its uptake by the plants, they minimize the losses of the rest of the nutrients by scaling their supply to the crops, and they form chelating bonds with Trace Elements, thus maintaining them active and available for a long period of time.

Crops fertilized with **Omega® fert** show an increased uptake of nutrients and water, develop robust root systems and healthy foliage, and achieve rich flowering and higher yields.

