



Tropica AquaCare products
developed to benefit your waterplants



AquaCare products - properties, usage and test results

Dealer Guide

tropica®
AQUACARE



PLANT SUBSTRATE



Properties

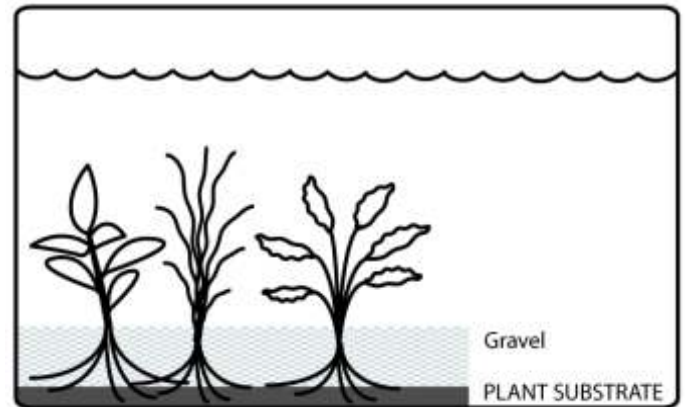
PLANT SUBSTRATE acts as a long term nutrition store for waterplants, so ensuring magnificent and healthy waterplant growth. PLANT SUBSTRATE is a natural concentrate of clay and sphagnum, laid at the bottom of the gravel layer when you build your aquarium. Clay and sphagnum slowly release nutrients to waterplant roots and binds nutrition in the water in the bottom layer. Removing nutrition from water reduces the risk of undesirable algae growth.

Use

PLANT SUBSTRATE is laid in a 1 cm thick layer on the bottom of the aquarium, when the aquarium is built. The table below provides recommended PLANT SUBSTRATE amounts for a number of standard aquarium sizes.

Litres aquarium	Depth x width (cm)	Recommended substrate (L)
63	30 x 60	1,80
85	35 x 70	2,45
128	40 x 80	3,20
180	40 x 100	4,00
250	50 x 100	5,00
325	50 x 130	6,50
530	55 x 160	8,80
720	60 x 200	12,00
900	75 x 200	15,00

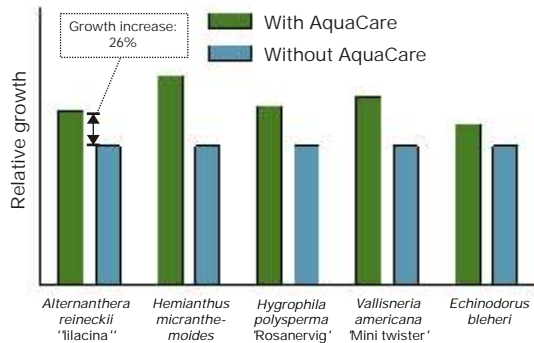
A layer of gravel of minimum 3-4 cm thick is then laid over the substrate. The gravel acts as a barrier between the concentrated PLANT SUBSTRATE and the water. Plants are planted in the gravel in the normal way and new roots quickly form in the substrate. When planting, disturb the substrate as little as possible, to avoid clay and sphagnum particles being mixed into the water.



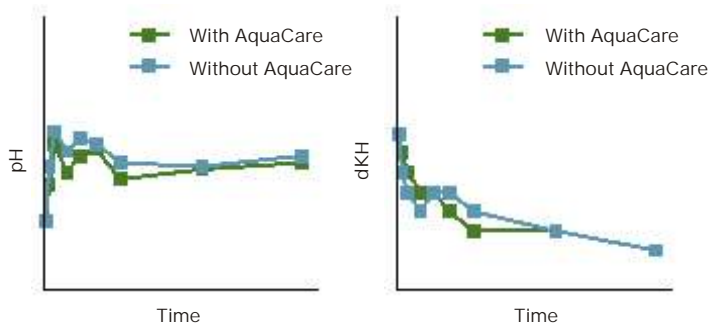
If plants are to be removed from the aquarium, cut the plants at the plant/root transition to avoid the plant substrate mixing with the water. Plant roots are left in the bottom layer. They are quickly broken down, so providing nutrition to other plants in the aquarium.

Test results

The effect of PLANT SUBSTRATE has been tested on a number of waterplants with very different growth patterns and colours. The results are excellent. When compared with plants in aquariums with just gravel, all plant species in aquariums where PLANT SUBSTRATE has been used show a positive growth response.



We have also measured PLANT SUBSTRATE's effect on water pH and carbonate hardness (dKH). The measurements show that pH and dKH development in aquariums in which PLANT SUBSTRATE is used is identical to that in the aquariums in which it is not used. PLANT SUBSTRATE therefore does not affect water chemistry.



Product benefits

PLANT SUBSTRATE promotes healthy and luxuriant plant growth. Test results show that all waterplants have higher rates of growth than plants in aquariums where PLANT SUBSTRATE is not used.

Roots and leaves both thrive where PLANT SUBSTRATE is used. PLANT SUBSTRATE not only promotes root network growth - the visible parts of the plants above the bottom layer also show better growth. A larger root network allows greater absorption of nutrition from the bottom layer and benefits bottom layer micro-environments.

Faster plant growth minimises algae problems. Increased growth rates also means waterplant nutrition absorption rates also increase. Nutrition is absorbed both from the bottom layer and the water, which reduces the amount of nutrition available for algae growth.

PLANT SUBSTRATE has no negative effect on water chemistry. Continuous measurements in aquariums with PLANT SUBSTRATE and aquariums without PLANT SUBSTRATE show no differences in water pH or carbonate hardness (dKH).

PLANT SUBSTRATE creates a healthy nutrition dynamic in the aquarium.

The ability of clay and sphagnum to bind and release nutrients means that PLANT SUBSTRATE retains nutrients. These are subsequently released to plants and not into the water. Higher plant growth rates also mean nutrient levels in the water are reduced, so increasing the rate of waterplant nutrition absorption from the water.



PLANT NUTRITION+ capsules



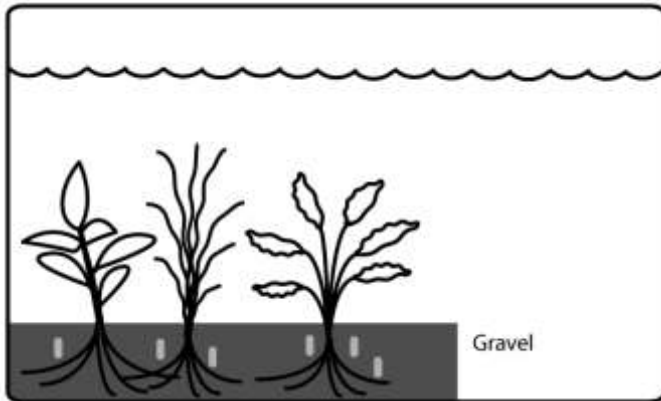
Properties

PLANT NUTRITION+ capsules supply your aquatic plants with all the nutrients they need for healthy and sustained growth over a long period of time. Nutrition release rates do not exceed plant absorption rates, so ensuring nutrition remains within a closed cycle between capsules and plant roots. PLANT NUTRITION+ capsules, besides ensuring fertile growth, also promote plant growth and the absorption of nutrients from water. This reduces the risk of undesirable algae growth.

Usage

1-3 capsules depending on plant size and expected nutrition requirements, placed by plant roots, minimum 4 cm below the gravel surface. Carefully cover any holes made with sand and gravel.

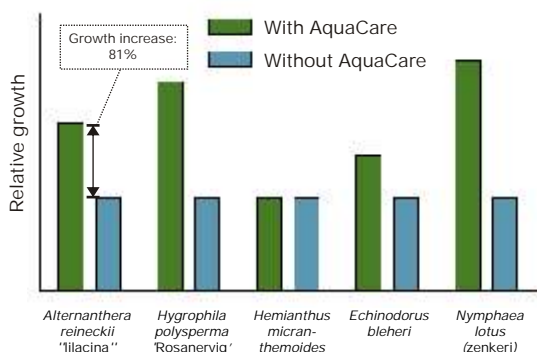
The capsules are particularly suitable for stem plants and for larger rosette plants (such as the *Echinodorus* species). Large and rapid growth plants can require up to 3 capsules. 1-2 capsules are recommended for smaller plants (see table). Where planting density is high, each capsule supplies an area of 5 x 5 cm. New capsules are added after 6-12 months. Note the capsules contain nitrogen and phosphorus. It is therefore important that plants are thriving and are in growth when the capsules are added. If you are uncertain about dosage, try first with one capsule and adjust dosage to plant reaction.



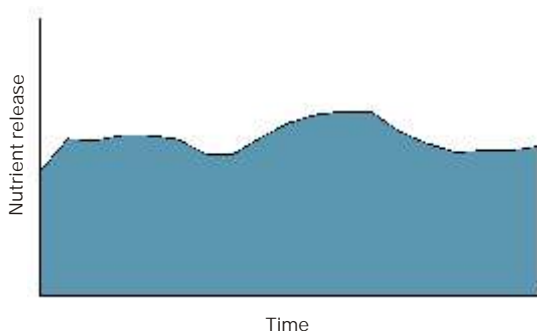
Species name	Recommended number of capsules
<i>Echinodorus bleheri</i>	2-3
<i>Echinodorus 'Rubin'</i>	3
<i>Echinodorus tenellus</i>	1
<i>Cryptocoryne sp.</i>	1
<i>Hygrophila corymbosa "Siamensis"</i>	1-2
<i>Hygrophila corymbosa "Stricta"</i>	1-2
<i>Hygrophila polysperma 'Rosanervig'</i>	1
<i>Alternanthera reineckii "lilacina"</i>	1
<i>Aponogeton ulvaceus</i>	1-2
<i>Anubias barteri var. nana</i>	1
<i>Nymphaea lotus (zenkeri)</i>	1
<i>Vallisneria gigantea</i>	2
<i>Vallisneria sp.</i>	1
<i>Pogostemon sp.</i>	1

Test results

PLANT NUTRITION+ capsules effect has been tested on a number of different aquatic plants with different growth patterns. In one series of tests (with AquaCare), the substrate of one set of aquaria was enriched with PLANT NUTRITION+ capsules, while the other set had a substrate of only gravel. All plant species in the test displayed a positive growth response to PLANT NUTRITION+ capsules when compared with plants with substrates of just gravel.



The nutrition release from capsules was recorded week by week. The results showed a constant release. Parallel plant growth observations showed fertilizer capsules to have a positive effect on plant growth and that the fertilizer concentrate has no harmful effect around the roots. The capsules had neither a positive nor a negative effect on the foreground plant *Hemianthus micranthemoides*. This is due to the plant only absorbing nutrition from water and not through the roots.



Product benefits

PLANT NUTRITION+ capsules promote healthy and luxuriant plant growth. Test results show that both stem plants and rosette plants display increased growth rates in relation to equivalent plants in aquariums with substrates of only gravel.

More energy for the development of above ground parts. There are no signs that the concentrated fertilizer, in capsules, harms the root network. The supply of nutrition means that plants invest less in the development of a root network. More nutrition is therefore available and higher levels of energy can be used on the development of stems and leaves.

Faster plant growth minimises algae problems. The fertilizer capsules promote faster and more stable growth. Increased growth rates also increases aquatic plant nutrition absorption rates. Nutrition is absorbed both from the capsules and the water, which in turn reduces the amount of nutrition available for algae growth.

PLANT NUTRITION+ capsules provides a constant nutrition supply. Continuous measurements in aquariums show that the fertilizer capsules release a constant level of nutrition. Fertilizer capsules therefore are a simple and safe way to dose nutrition supply to plants without risking the growth of algae in the water.

Nutrition to plants and healthy aquarium nutrition dynamic. The concentrated nutrition is released gradually but constantly and in a closed cycle with the plants. Nutrition is therefore only released to plants. There is no release to the water. So plants are fertilized with only a minimal risk of the algae being fertilized. Increased plant growth rates also reduce nutrition levels in the water, so increasing plant nutrition absorption rates.



PLANT NUTRITION *liquid*



Properties

PLANT NUTRITION *liquid* contains the most important nutrients for healthy and sustained aquarium plant growth. PLANT NUTRITION *liquid* does not however contain nitrogen (N) or phosphorus (P).

PLANT NUTRITION *liquid* therefore supplies the nutrients plants easily run out of and which plants ideally absorb via the leaves. These are the nutrients which are supplied via fish excrement and food remnants. We therefore recommend PLANT NUTRITION *liquid* for aquariums with few plants and a relatively large number of fish.

PLANT NUTRITION *liquid* was previously marketed under the 'Tropica Mastergrow' brand.

Usage

PLANT NUTRITION *liquid* is added each week when changing the water. A flask is used to ensure an accurate dosage. The fertilizer is forced up into the fertilizer chamber by a single press on the flask. We recommend 5 mL per 50 L water per week, but recommend that this is set in accordance with plant requirements.

For example, light leaves often indicate lack of nutrition, but can also be due to poor growth. The illustration shows a typical example of lack of micro-nutrients. Regular dosing with PLANT NUTRITION *liquid* can restore green and luxuriant leaves. Note, however, that PLANT NUTRITION *liquid* is a fertilizer and not a medicine for dying plants.



An example of an aquarium where the plants suffer for micronutrients. This can be seen on the light leaves in the top of the plants.

It is recommended that minimum 25% of the aquarium water is changed every second week. If undesirable algae growth does occur, then we recommend increasing water change frequency (up to 50%) and planting additional rapid growth waterplants such as *Hygrophila*, *Vallisneria* and *Egeria*. If you have any questions relating to the use and dosage of the fertiliser, search for more information on the web site (www.tropica.com).

Product benefits

PLANT NUTRITION *liquid* is well suited to all aquaria. PLANT NUTRITION *liquid* benefits all aquaria with both fish and plants, as PLANT NUTRITION *liquid* provides the nutrients plants easily run out of and which plants ideally absorb via the leaves.

PLANT NUTRITION *liquid* promotes waterplant wellbeing. The waterplant helps healthy plants thrive and maintain luxuriant growth. Plants in growth increase the absorption of nutrients from fish excrement and food remnants, and therefore contribute to the maintenance of a balance between plants and algae.



PLANT NUTRITION+ *liquid*



Properties

PLANT NUTRITION+ *liquid* contains all essential nutrients needed including nitrogen (N) and phosphorus (P). PLANT NUTRITION+ *liquid* is suitable for aquariums with many plants in relation to the number of fish, where plants can lack N and P which otherwise would be supplied by fish excrement and food remnants.

PLANT NUTRITION+ *liquid* is composed so that N and P in particular are supplied to the plants in the amounts and chemical forms the plants require for optimal absorption and growth. The waterplant fertilizer has been developed for plants which easily absorb nutrients from the water via the leaves, which typically are the low, compact foreground plants. The fertilizer also contributes to the supply of the nutrition large stem and rosette plants require.

Use

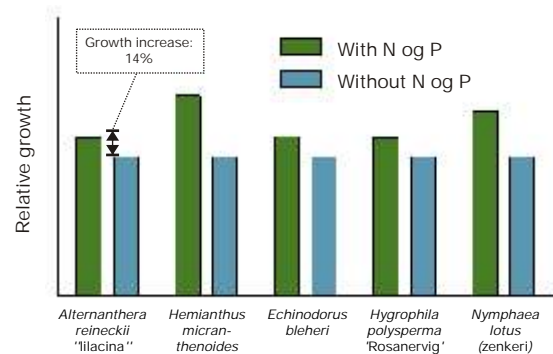
PLANT NUTRITION+ *liquid* is added each week when the water is changed. We recommend 5 mL per 50 L water. However, we recommended that this is set in accordance with plant requirements.

PLANT NUTRITION+ *liquid* contains, in addition to micro-nutrients, all essential macro-nutrients. The fertilizer is particularly suitable where plants display a lack of nutrition. However note that if algae growth starts, PLANT NUTRITION+ *liquid* will promote this growth.

PLANT NUTRITION+ *liquid* contains N and P. Dosage must therefore be adapted to plant absorption rates, to avoid undesirable algae growth. Where signs of algae growth develop, reduce the dosage by 50% and increase water changing frequency by 50%. Changing the water not only reduces the concentration of nutrients in the water, but also removes algae spores, remnants and other accumulated elements from the aquarium water.

Test results

The effect of adding nitrogen and phosphorus to PLANT NUTRITION+ *liquid* (with N and P) has been tested against PLANT NUTRITION *liquid* (without N and P) on plant species with very different growth forms. All plant species which received aquatic plant fertilization with N and P showed a positive growth response compared with plants which did not have access to N and P.



Product benefits

PLANT NUTRITION+ *liquid* is an aquatic plant fertilizer for the plant specialist

The fertilizer is developed to be able to provide the aquarist who has many plants and few fish with the opportunity to promote the growth of healthy and luxuriant plants. PLANT NUTRITION+ *liquid* contains all nutrients plants require, particularly those required by plants that prefer to absorb nutrients through leaves.

Correct use of PLANT NUTRITION+ *liquid* generates a good nutrition dynamic

If the fertilizer is dosed correctly, healthy and luxuriant plant growth will be generated. This will increase plant nutrient requirements, meaning plants will absorb even more nutrients from the water which helps keep algae growth to a minimum.



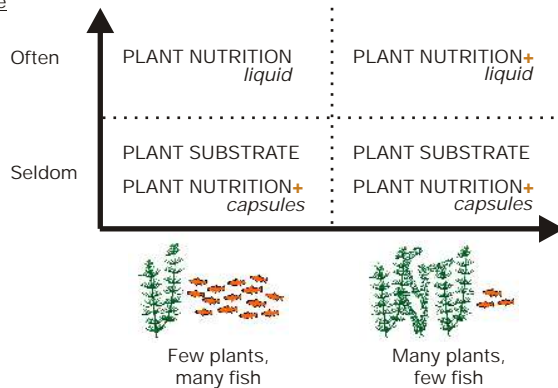
From a desert to an oasis!

A simple aquarium with gravel, light and water from the tap is, from the plants point of view, equivalent to growing in a desert. Better light promotes growth. However light alone is not enough. In the aquarium, plants are supplied with vital nutrients via fish excrement and food remnants. This does not, however, provide all the nutrients plants require to maintain a healthy and fertile growth. Tropica AquaCare products are developed to supply nutrition to aquatic plants without promoting algae growth in aquariums.

When should I use AquaCare products?

Both PLANT SUBSTRATE and PLANT NUTRITION+ capsules are products which supply aquatic plants with nutrition via their roots. The risk of the release of nutrients to the water and algae growth is therefore minimal. Liquid fertilizers should be used with great care. We therefore recommend that PLANT NUTRITION+ liquid is only used in aquariums where there are many plants and relatively few fish. PLANT NUTRITION+ liquid is suitable for aquariums with many fish.

Use



AquaCare product properties

Tropica AquaCare is a series of fertilizer products which are developed based on 35 years experience within the production and development of plants, and from the experience of the most skilled aquarists. The products are scientifically developed to produce healthy and fertile waterplants, throughout the plant's lifetime.



Experimental set-up

The products are designed to supply nutrition to aquatic plants without promoting algae growth in aquariums. Tropica AquaCare fertilizer products promote nutrition absorption through increased growth. The AquaCare series therefore prevents algae growth and creates a unique aquarium experience.

Further information on the AquaCare series and properties, usage and test results are available at www.tropica.com.

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