



aqua design amano

NEW **DESIGN** OF ADA



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The “ADA NATURE AQUARIUM” brand was created in the process of establishing Nature Aquarium by the founder of ADA, Takashi Amano. It offers highly specialized products designed to accommodate Amano’s own desires for high performance and exquisite design and has created new standards of aquarium goods in the world since the 1980s. And it still continues to evolve and improve along with Nature Aquarium aquascapes. The “ADA NATURE AQUARIUM” will continue to lead the aquarium hobby and spur self-innovation as a brand for people who would like to seriously enjoy Nature Aquarium.

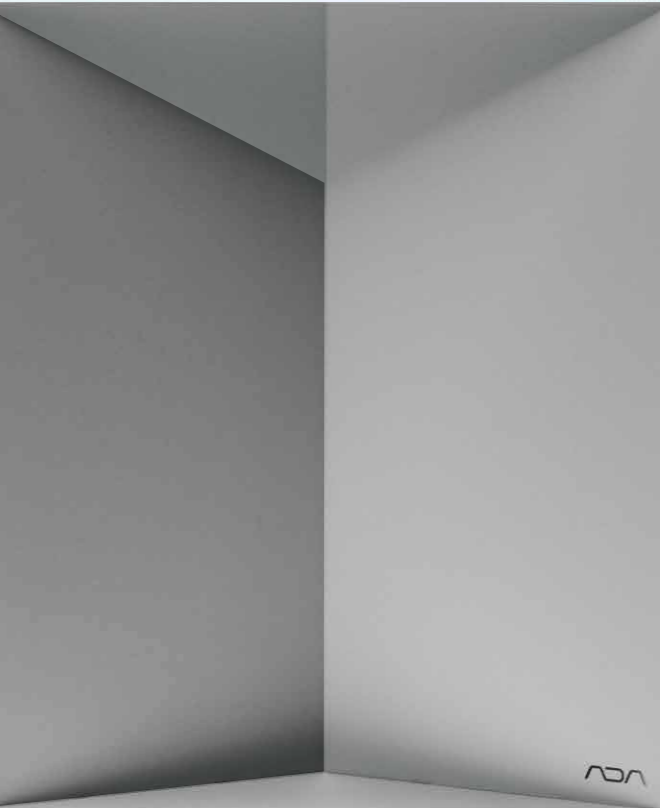


AQUASKY RGB 60

# NEW STANDARDS

Destination and Starting Point

Light that grows healthy aquatic plants and beautifully illuminates aquascapes. Aquasky RGB is the standard, and it will continue to evolve from there.



METAL CABINET 60

# ELEGANCE AND SOLIDITY

Aesthetic of Plane Architecture

The beauty of form constructed with planes that change its expression with light and shadow.

The polished design emphasizes aquascapes even more.



ADA  
NEW DESIGN OF ADA

SUPER JET FILTER ES-150 · 300/VER.2

# MIGHTY

## Quiet Reliability

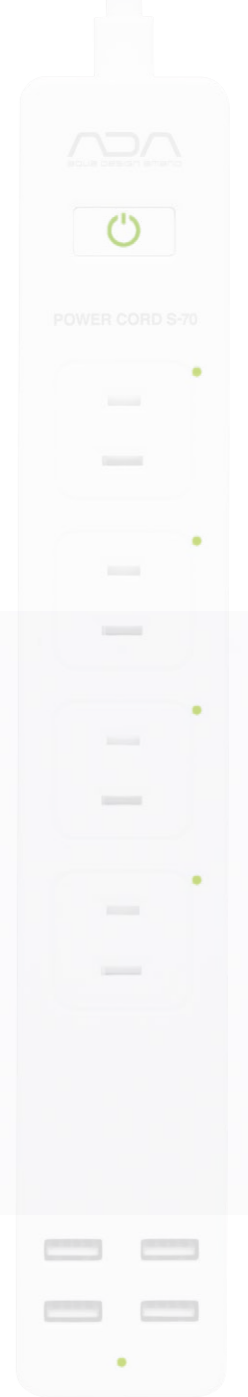
New filter having its body made of traditional stainless steel with high durability and a quiet design pump.

It is a small giant that supports the beautiful world of aquascapes.



ADA  
aqua design amano

ADA  
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POWER CORD S-70

## SLEEK AND SMART

Accuracy for the Future

Power supplies around an aquarium tank can be safely organized.

And it accurately controls devices. That is the new form of a timer in the future.



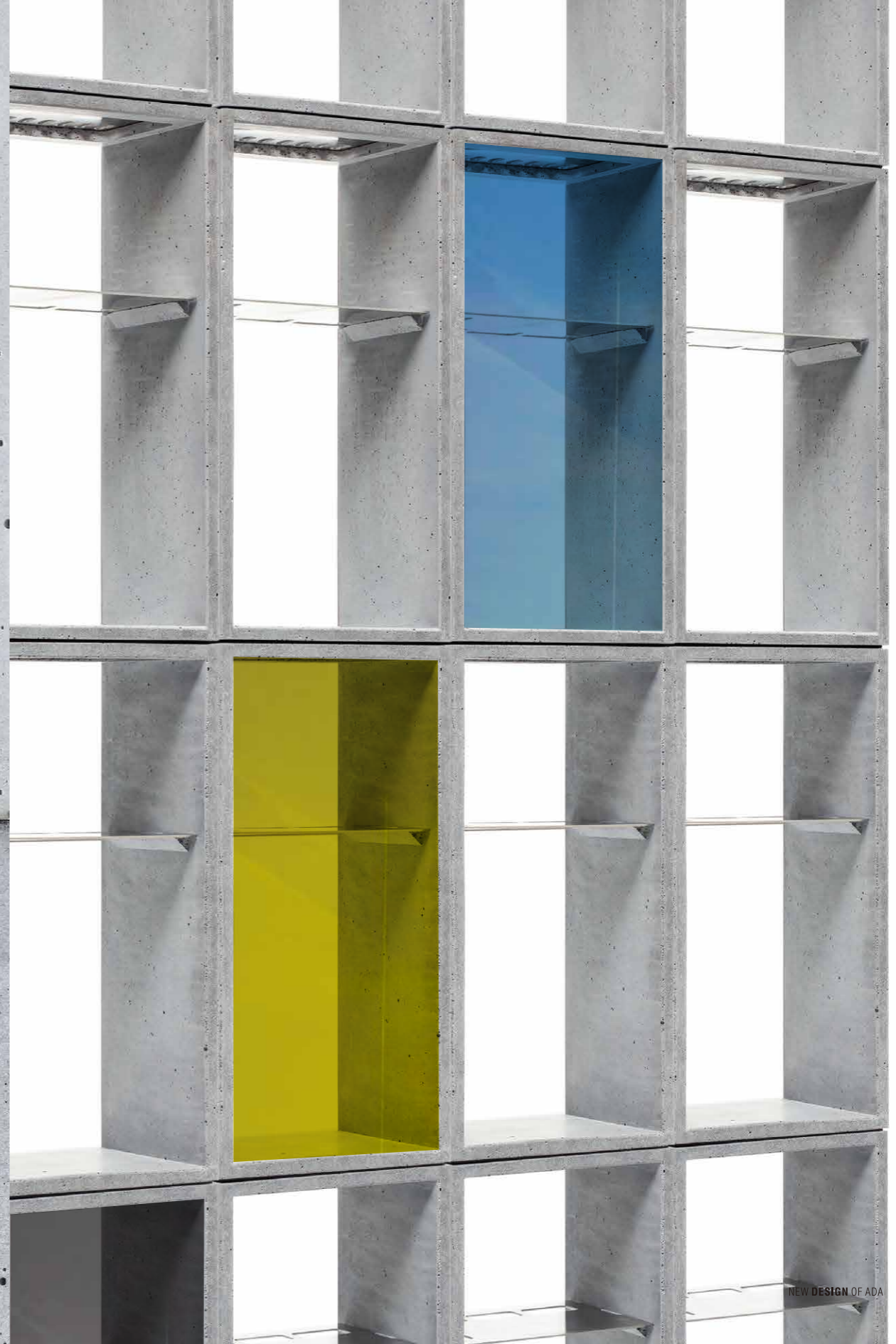
FC TOOL STAND

# URBAN

Exhilarating Texture

Modern molding and texture, inspired by the ADA headquarters office.

It is purposely designed to leave the rugged feeling and stimulates new sensitivity.







ADA NEW PRODUCTS



**AQUASKY RGB 60**

Size	W60×D13×H13 (cm)
Input Voltage	AC100~240V 50/60Hz
Rated Power	72W
Power Consumption	40W±10% (LED 70 bulbs)
Illuminance	Central Illuminance at 10cm distance / About 23,000Lux
Color Temperature	About 9,000~12,000K (Due to the nature of LED lighting, there are variations in color temperature.)
LED Lifetime	More than 30,000 hours (subject to operating environment)
Operating temperature range	0~35°C

108-184	Silver (A plug)
108-188	Silver (C plug)

- ※With soft start function
- ※Compatible with aquarium tank glass thickness 6mm

Aquasky, which has been a standard model for ADA's LED lighting equipment, is newly released with RGB LED bulbs. Its body design is remodeled, and the ADA logo is engraved on the metal stand part. And in order to secure the large amount of light, the RGB model light ideal for aquatic plant layouts similar to Solar RGB, is implemented by 70 RGB LED light bulbs that are efficiently placed. Consequently, not only green and red colors of aquatic plants look vividly, but it helps aquatic plants grow healthily, and it also helps the water look even clearer. Those are the greatest features of the Aquasky RGB 60. And to avoid scaring living creatures when turning it on, the soft start function allows the light to slowly turn on.



Light emitting surface

**METAL CABINET 60**

Size	W60×D30×H70 (cm)
Weight	About 24kg
Material	Steel

108-515	Black
108-516	Silver

- ※Made to order
- ※Compatible with W60×D30×H36 (cm) aquarium tank

108-192	Solar RGB Stand for Metal Cabinet 60 (Compatible with Metal Cabinet 60)
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Steel cabinet newly designed to suit the image of Aquasky RGB 60. The front and back panels are diagonally folded inward. The unique structure gives sufficient strength to support a W60cm aquarium tank. Because both sides are open, an external filter and CO<sub>2</sub> system can be neatly stored, and by setting it up with Aquasky RGB 60, a comprehensively designed Nature Aquarium system is completed. When looking at the system from slightly above the front, an aquascape will stand out even more, and it gives an interesting visual effect as if the aquarium tank were floating in the air. There is a hole (Ø50mm) on the back for wiring.



With ADA pierced logo

**POWER CORD S-70**

Size	W28×D4.5×H3 (cm) (body only without the cord)
Input	100-125V 50/60Hz 15A
AC outlet side	Maximum load of single AC 10A Maximum load of 4AC 15AC 125V
USB side output	5V=4.0A (Total) 5V=2.4A (Single)
Length of the cord	1.8m
Wi-Fi Standard	IEEE802.11b/g, 2.4GHz
Operating Environment	·IOS9 and above or Android4.1 and above ·2.4GHz Wi-Fi network
Metal Cover Case Size	W29×D6×H11 (cm)

108-302	Power Cord S-70 (with metal cover case)
108-303	Power Cord S-70 (power strip only)

- ※Maximum capacity less than 1,500W, 4 outlets and 4 USB Ports (Type-A), and the 4 outlets can be separately controlled with the timer function (the USB ports must be controlled together).
- ※It is a product with ADA's original specification supported by Meross.

Smart power strip with timer control function enabling to control power ON-OFF of electronic devices with smartphones and Wi-Fi environments using a dedicated App (with Meross). The timer can handle 70 routines (constant operation) that are more than regular smart power strips. As a result, the maintenance of aquarium tanks can be precisely implemented. For example, the time to turn on lighting equipment or to add CO<sub>2</sub> can be precisely controlled in Nature Aquarium, and mist can be generated for a few minutes every hour in Aqua Terrarium or Paludarium. And, by setting it to a special metal cover case, the outlets face down. Consequently, it prevents dust and water from getting into the outlets, and a safer power environment can be stylishly ensured.



Outlets in use

### SUPER JET FILTER



ES-150 Ver.2

■ES-150 Ver.2  
 Size Ø118×H277 (mm)  
 (except inlet hose connection)  
 Silent design pump specifications  
 Power Consumption 3W  
 Operating Frequency 50/60Hz  
 Flow rate 3.5L/min  
 Maximum head 1.5m  
 Operating noise Less than 35dB (1m)  
 Capacity 1.5L  
 Accessory Spring Washer SS

※With soft start function

105-722 ES-150 Ver.2 (A plug)  
 105-725 ES-150 Ver.2 (C plug)



ES-300 Ver.2

■ES-300 Ver.2  
 Size Ø144×H359 (mm)  
 (except inlet hose connection)  
 Silent design pump specifications  
 Power Consumption 6W  
 Operating Frequency 50/60Hz  
 Flow rate 6L/min  
 Maximum head 2m  
 Operating noise Less than 35dB (1m)  
 Capacity 3L  
 Accessory Spring Washer SS

※With soft start function

105-723 ES-300 Ver.2 Lily Type (A plug)  
 105-724 ES-300 Ver.2 Spin Type (A plug)  
 105-726 ES-300 Ver.2 Lily Type (C plug)  
 105-727 ES-300 Ver.2 Spin Type (C plug)

The Super Jet Filter series was developed in pursuit of ideal filters for Nature Aquarium. Among those filters, ES-150 and ES-300 suitable for small aquarium tanks were upgraded as Ver.2 with better noise reduction. And it is easier to disassemble and maintain the pump (It comes with Spring Washer SS). Lily Pipe Spin comes with the Spin Type, and because the outlet with the loop structure appropriately mitigates the water flow, the water flow ideal for small aquarium tanks can be implemented. The soft start function to make the pump gradually reach the maximum flow from the start of motor operation, is newly adopted.

### BIO RIO G

105-003 1L



Biological filter media made of sintered glass that is unlikely to impact the water condition. It can be used for similar purposes as "Bio Rio" which has been familiar as a Nature Aquarium Goods for a long time. Because it is made of sintered glass, its shapes are steady, and it demonstrates stable filtration capability for a long time. Although it is made of sintered glass, it is hard to break, and unlikely to create abrasive powder. And it can also be used as a substrate material for Paludarium.

### GRADATION SHEET

108-147 60 Blue  
 108-148 90 Blue  
 108-149 90 Green



Blue



Green

It is an electrostatic absorption sheet to naturally decorate the back of Nature Aquarium, and by using it with separately sold Light Screen, it enhances the stage effect of the background. And when a Gradation Sheet 90 Green is used for a W60cm aquarium tank, the Gradation Sheet must be cut according to the size of aquarium tanks. Because it is an electrostatic absorption sheet, it can be used repeatedly.

Light Screen



### FC TOOL STAND

Product storage example  
 Pro Scissors series  
 Pro Brush  
 Pro Pinettes series  
 AP Glass  
 Small Bottle  
 Spring Washer  
 Brighty series

101-221 W176×D128×H344 (mm)

※Products such as maintenance tools do NOT come with FC Tool Stand.



The new material that caught ADA's attention is fine concrete (FC) which is a mixture of concrete and fibers. Although the fine concrete is thin, it has sufficient strength. Air bubbles on the inorganic surface and the color are unique, and the uniqueness is a personality for each one of FC Tool Stand. They become charming over time, and it can be said that the finished product is perfect for storing maintenance tools that develop great sentimental value when used for a long time. The storability has been improved better than the former maintenance stands, and it is compatible with new tools such as Pro Brush. The parts made of stainless steel can be removed and cleaned.

### PRO-BRUSH HARD

106-084 Length: 150mm



Maintenance tool for professionals in order to scrape off algae on driftwood and stones in aquatic plant layouts. By having a metal brush, it demonstrates power to remove especially stubborn black beard algae and coral like algae. The grip part of the body is mirror finished.

### AQUA SOIL-AMAZONIA

104-031 Normal Type 3L  
 104-051 Powder Type 3L  
 104-021 Normal Type 9L  
 104-041 Powder Type 9L



Normal Type

Powder Type

The secret of Amazonia that exerts great effects for growing aquatic plants, is in the precious natural black soil raw material itself. In general, there are 2 types of black soil such as volcanic ash and humic soil. However, the black soil with a lot of humic soil can be found only in the surface layer where withered plants are accumulated, and places where the black soil can be found are very limited. Because the Amazonia uses the black soil with a lot of humic soil as a raw material, organic nutrients derived from natural ingredients are sufficiently supplied to aquatic plants, and the growth will be promoted. Nowadays, many soil products with black soil are distributed. Many of those are similar but different because they are derived from volcanic ash. Because there will be limited production from now on, the packaging has been re-designed.

### AQUA SOIL-AMAZONIA Ver.2

Accessory Amazonia Supplement  
 The big difference from Bottom Plus is that the nutrients in the original Amazonia are contained in addition to nitrogen

104-061 Normal Type 3L  
 104-060 Normal Type 9L



Normal Type



Amazonia Supplement

ADA's new classic substrate soil is the Amazonia Ver.2. The organic nutrients contained abundantly in the original Amazonia are compounded in the accessory Amazonia Supplement, and because the nitrogen content is enhanced, it effectively promotes the growth of healthy aquatic plants. By adjusting the dosages of Amazonia Supplement, it enables to adjust concentrations of the nutrients in substrates, and a method to locally add more nutrient dosages can be possible in large aquarium tanks. The feature of the Amazonia Ver.2 is that it can be widely used according to users' levels or purposes, and the benefits of all the existing Amazonia series are included.



# LIQUID FERTILIZERS & ADDITIVES

In Nature Aquarium, beautiful aquascapes are created by growing healthy aquatic plants. Although the liquid fertilizers and additives are to be used to grow healthy aquatic plants, aquatic plants will not grow in healthy conditions if the liquid fertilizers and additives are added to aquarium tanks without consideration. In order to grow healthy aquatic plants, it is necessary to add adequate types and amounts of liquid fertilizers to aquarium tanks while properly using aquarium tank systems such as substrate, filter, lighting equipment and CO<sub>2</sub> system etc. The basic idea for nutrient additions in Nature Aquarium is that "Adding nutrients that are deficient makes aquatic plants absorb excessive nutrients". For the substrates for planting aquatic plants, Power Sand series and Aqua Soil series are used, and they contain basic nutrients such as nitrogen (N) and phosphorus (P). And because nitrogen and phosphorus are supplied from food and excrement of fish and invertebrates in aquarium tanks, nitrogen and phosphorus tend to be excessive in the aquarium tanks. And it is one of the causes of algae outbreaks. Especially phosphorus can increase algae even with a small amount. So the key point to avoid algae from increasing is to add Aqua Conditioner, Clear Water to an aquarium tank and DOOA Aqua Clean AC to a filter for removing phosphorus from the water as much as possible. For that reason, phosphorus is not contained in the current ADA liquid fertilizers (phosphorus required for the growth of aquatic plants is supplied from substrates). In contrast to nitrogen and phosphorus which have a tendency to be excessive in aquarium tanks, nutrients to be easily deficient are potassium (K), sulfur (S) and iron (Fe) as well as trace elements such as magnesium (Mg) and boron (B). In Nature Aquarium, by diligently adding these nutrients that have a tendency to be deficient to aquarium tanks, it promotes nutrient absorption of aquatic plants and makes aquatic plants quickly absorb nitrogen and phosphorus that tend to be excessive in aquarium tanks. And because the current ADA liquid fertilizers are categorized depending on ingredients contained in the fertilizers, the fundamental principal is to add a combination of appropriate types depending on the conditions of aquarium tanks.

## Idea for nutrient additions in Nature Aquarium



### Brightly K / Green Brightly Neutral K

In Nature Aquarium, the first nutrient noticed to be added to the water was potassium (K). Although potassium is a nutrient that many plants need as well as nitrogen (N) and phosphorus (P), unlike nitrogen and phosphorus that are supplied greatly from fish food and excrement, it had been a cause for limiting the growth of aquatic plants because there is not an efficient source of supply. Brightly K is a liquid fertilizer developed by getting hints from wood ash which contains a lot of potassium. And by adding it to an aquarium tank, aquatic plants immediately absorb potassium from the leaf surfaces. The potassium absorbed by aquatic plants functions as coenzyme to help various reactions of enzymes in the cells. Therefore, if potassium is deficient, aquatic plants cannot grow in healthy conditions. And Brightly K which has its origin in an aqueous solution of wood ash is strong alkaline liquid. For that reason, when it is added to an aquarium tank, it temporarily increases pH, and some aquatic plants don't grow well depending on types. Especially with stemmed plants from South America that prefer acidic water such as *Syngonanthus* sp., the impact can be seen noticeably. After improving the issue, a neutral liquid fertilizer developed in order to control pH is Green Brightly Neutral K. The effect for supplying potassium is the same for both. And because some aquatic plants such as *Hemianthus micranthemoides* prefer neutral to slightly alkaline water, Brightly K and Green Brightly Neutral K are appropriately used depending on types of aquatic plants to be grown in the current Nature Aquarium.

### GREEN BACTER PLUS

103-105 50mL  
103-106 500mL



It is a liquid additive that contains plant-based organic acid as a main component which is food for bacteria that effectively work in aquarium tanks and filtration systems in addition to minerals that promote the bacterial growth. By adding Green Bacter Plus to an aquarium tank and a filtration system in the initial stage where less bacteria exist, or by adding the product when the water condition worsens because the effect of biological filtration decreases, it will promote proliferation of the bacteria and activate its function.

### GREEN GAIN PLUS

103-107 50mL  
103-108 500mL



It is a liquid additive that contains seaweed-based plant hormones, trace elements and amino acid as main components in addition to boron that promotes the growth of sprouts. By adding Green Gain Plus when aquatic plants get stressed due to trimmings or environmental degradation, it relieves the stress of aquatic plants, increases resistance and promotes the growth of sprouts.

### PHYTON-GIT PLUS

103-109 50mL  
103-110 500mL



It is a liquid additive with a plant extract that contains sterilizing ingredients as a main component in addition to active ingredients to improve sterilization, antibacterial and disease prevention effects. It promotes secretion of sterilizing ingredients from aquatic plants self, and increases resistance against diseases with the antibacterial actions. And the effects to prevent aquatic fern disease and to reduce the growth of blue-green algae can be expected.

### ECA PLUS

103-111 50mL  
103-112 500mL



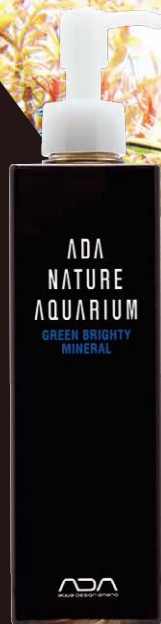
It is a liquid additive that contains plant-based organic acid and ferrous iron which is easily absorbed by aquatic plants as main components in addition to magnesium essential for synthesis of photosynthesis pigments. The organic acid promotes the absorption of ferrous iron and magnesium, and green and red colors of aquatic plants become brighter. And it demonstrates the effects to prevent and improve chlorosis seen with sprouts of aquatic plants.

### PHYTON-GIT SOL

103-113 100mL  
103-114 500mL



By giving viscosity to Phyton Git Plus that contains plant extract with sterilizing ingredients as a main component, the effect for removing blue-green algae is improved. Because the sterilizing ingredients stay where added for a long time, it effectively reduces the growth of blue-green algae, and it is less likely to recur after removing them. It comes with a special dropper.



### Green Brightly Mineral

Terrestrial plants simultaneously absorb nutrients and water from the roots. However, aquatic plants that grow underwater are able to absorb nutrients not only from the roots but also the surfaces of leaves and stems. This is the biggest ecological characteristic of aquatic plants, and a valid reason for adding liquid fertilizers to aquarium tanks. Although the common key nutrients for all plants are nitrogen (N), phosphorus (P) and potassium (K), there are various trace elements as nutrients essential for the growth of plants besides them. In Nature Aquarium, the trace elements are dissolved from substrates such as Power Sand and Aqua Soil, and minerals such as calcium (Ca) and magnesium (Mg) contained in tap water are replenished by changing the water. Types and amounts of the trace elements are unbalanced with just them, and there is a chance that aquatic plants don't grow in healthy conditions. The trace elements absorbed by aquatic plants are essential for the function of compounding amino acids and proteins in cells, the function of activating various enzymes and the function of creating structures such as cell walls of aquatic plants themselves. For that reason, if it's deficient, poor growth, chlorosis and xanthosis of leaves, and dysplasia of new buds and leaves would be seen. Green Brightly Mineral is a liquid fertilizer to supply trace elements such as sulfur (S), iron (Fe), boron (B), manganese (Mn), zinc (Zn), copper (Cu) and molybdenum (Mo) which all tend to lack in aquarium tanks. By adding appropriate amounts to an aquarium tank daily where all the conditions such as substrates, lightings and CO<sub>2</sub> systems are met, colors of aquatic plants improve, and they can grow in healthy conditions.

### Green Brightly Iron

Among trace elements indispensable for the growth of healthy aquatic plants, iron (Fe) is especially important. The iron dissolved in water exists in two forms such as ferrous iron (Fe<sup>2+</sup>) and ferric iron (Fe<sup>3+</sup>). But a form of iron that plants can absorb and use is only ferrous iron. Consequently, many plants except Poaceae plants absorb iron after changing ferric iron to ferrous iron in the roots. If it is an aquatic plant that can absorb nutrients in the water directly from the leaf surfaces, the absorbent becomes faster by supplying iron in ferrous iron form because this process can be omitted. But the ferrous iron immediately becomes ferric iron or iron hydroxide in aquarium tanks, and it would be unable for aquatic plants to absorb iron directly from the leaf surfaces. With Green Brightly Iron, in order to stably supply ferrous iron to aquatic plants, the absorption efficiency is enhanced by combining chelated iron and acid. The chelated iron is iron that chemically altered (chelated) to avoid ferrous iron from combining with other substances, and when the chelated iron comes in contact with leaf surfaces of aquatic plants, the ferrous iron is immediately absorbed. Because the chelated iron stably function in the acidic water condition, it becomes readily available for the plants to use when adding it with acid to aquarium tanks. Because the iron absorbed by aquatic plants is used for synthesis of chlorophyll essential for photosynthesis and electron transport chains in chloroplasts, colors of leaves become faded, and photosynthesis cannot be performed sufficiently if there is a lack of iron. And iron is used together with sulfur (S) in chloroplasts. Because Green Brightly Iron contains sulfur, it can be simultaneously supplied with iron. Iron and sulfur are contained also in Green Brightly Mineral because the demand volume increases as aquatic plants grow. Please add it combining with Green Brightly Iron when the aquatic plants start thriving after 1~2 months from the initial planting (\*Green Brightly Iron does not contain any trace elements except iron and sulfur).



### Green Brightly Nitrogen

Among all the nutrients that aquatic plants absorb, nitrogen (N) is most demanded. And it is important not only because it is necessary for the healthy growth of leaves and stems but also it has an effect for activating photosynthesis. But in Nature Aquarium, because substrates such as Power Sand series and Aqua Soil series contain plenty of nitrogen, and it is always supplied from food and excrement of fish and invertebrates too, there aren't many shortages. Although nitrogen can be supplied with Green Brightly Nitrogen, algae such as Spirogyra tends to increase if nitrogen is added excessively more than the absorption amount of aquatic plants. Therefore, it can be said that it is a nutrient that needs a special attention when it is added. The situations for Green Brightly Nitrogen to be added are a few months after an initial aquarium tank setup, when the growth speed of aquatic plants slows down due to a decrease of nitrogen supplied from substrates, the poor growth of aquatic plants caused by extremely low amount of fish and invertebrates in an aquarium tank. Forms of nitrogen that aquatic plants can absorb from its leaf surfaces are urea (CH<sub>4</sub>N<sub>2</sub>O), ammonium (NH<sub>4</sub><sup>+</sup>) and nitrate ion (NO<sub>3</sub><sup>-</sup>). And because particularly urea can be easily absorbed from the leaf surfaces of plants, it is the main component of Green Brightly Nitrogen. Urea that doesn't get absorbed by aquatic plants immediately transforms to ammonium or nitrate ion by the functions of bacteria attached on filter media in a filtration system. Even these forms can be absorbed by aquatic plants as well. For supplying nitrogen, Green Brightly Nitrogen is suitable for stemmed plants and tape shaped aquatic plants that actively absorb nutrients from the leaf surfaces. But for supplying nitrogen to aquatic plants such as Glosostigma and Cryptocoryne that perform well absorbent from the roots, use of Bottom Plus, stick type solid nutrient to be put in substrates is effective.



### ECA Plus / Green Gain Plus

In Nature Aquarium, besides Green Brightly series, liquid fertilizers to be added daily, there are liquid additives for use depending on the conditions of aquatic plants and aquarium tanks. ECA Plus is a liquid additive to improve chlorosis of aquatic plants by rapidly enhancing the concentration of ferrous iron (Fe<sup>2+</sup>) and sulfur (S) in the water. Basically, it is a high concentration version of Green Brightly Iron. The ferrous iron is easier to be absorbed by aquatic plants because organic acid is strengthened. And because magnesium (Mg) which is the main component of chlorophyll is also strengthened, the chlorosis of aquatic plants can be effectively improved. However, because ECA Plus has very high iron concentration, residual iron in the water after not being absorbed becomes iron hydroxide when used and maintained for a long time. As a result, brown colored stains will be left on surfaces of Bio Rio and diffusing surfaces of Pollen Glass. In order to avoid such a situation from occurring, when the chlorosis of aquatic plants improves after adding ECA Plus, please switch it to Green Brightly Iron that has concentration suitable for daily use (use Green Brightly Mineral simultaneously). Green Gain Plus is a liquid additive that contains cytokinin (a kind of plant hormones) derived from seaweed and betaine (a kind of amino acid). It has an effect for promoting new buds and nutrient absorbent. Accordingly, it should be added to aquarium tanks for the purpose of improving conditions of aquatic plants when they are severely stressed, for example stemmed plants immediately after being trimmed. Because boron (B) that is a trace element essential when forming new buds is strengthened, stemmed plants can be flourished faster after trimming. Because a lot of organic matters derived from seaweed are contained in Green Gain Plus, it may cause dirty water if used continuously for a long time. When new buds are formed to some extent, only regular nutrients should be added.

## Idea for substrates in Nature Aquarium

In Nature Aquarium, substrates are spread in aquarium tanks as places for planting aquatic plants. The substrates have roles such as a role as a place for aquatic plants to take roots and firmly anchor their bodies, a role for supplying nutrients to aquatic plants, and a role for decomposing excrement and leftover food of fish and invertebrates, and purifying the water. Although many of aquatic plants that develop leaves and stems underwater are able to absorb nutrients also from the leaf surfaces, the formation of roots is essential for the healthy growth. And for a part of aquatic plants such as Cryptocoryne family and Glossostigma, the nutrient absorption from the roots is especially important. Consequently, substrates that can make aquatic plants take strong roots and supply nutrients for a long time, are highly demanded in Nature Aquarium. Power Sand series and Aqua Soil series were developed to fulfill such ideal substrates, and using the combination of Power Sand series and Aqua Soil series is the fundamental in Nature Aquarium. And in the substrates of Nature Aquarium, the symbiotic relationship between roots of aquatic plants and microorganisms is considered particularly important. It is also important to prevent compaction of substrates and to keep good breathability for a long time. In order to decompose organic matters such as excrement and leftover food of fish and invertebrates in the substrates and to promote proliferation of microorganisms that supply nutrients to aquatic plant roots, by using substrate additives such as Bacter 100, Clear Super and Tourmaline BC, the ideal substrates of Nature Aquarium can be created.

# SUBSTRATE SYSTEM



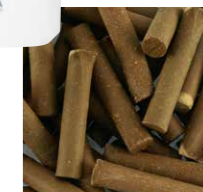
### Power Sand Basic / Power Sand Advance

Power Sand that has the longest history as a substrate material for Nature Aquarium, was developed to fulfill 3 purposes such as a purpose to supply nutrients to the roots of aquatic plants, a purpose to promote proliferation of microorganisms in the substrates and a purpose to prevent compacted substrates. Mineral nutrients including nitrogen (N), phosphorus (P), potassium (K) and trace elements, and organic nutrients are used as nutrients for Power Sand, and these nutrients are absorbed directly and indirectly from the roots of aquatic plants. In contrast to mineral nutrients that can be quickly absorbed by the roots of aquatic plants, organic nutrients eventually turn into forms that can be absorbed by aquatic plants (inorganic matters) when microorganisms in the substrates decompose them. However, because organic nutrients play a role as food to propagate microorganisms, both mineral nutrients and organic nutrients are essential. And for Power Sand, by using porous pumice with uneven surfaces as the base, it can avoid the very bottom part of the substrates from being hardened and being compacted when being compressed by water pressure. Because organic nutrients get into the uneven surfaces of the pumice, microorganisms can be easily propagated. For the current Power Sand series, there are Power Sand Basic and Power Sand Advance. In addition to the mineral and organic nutrients, Bacter 100 which can be a source of microorganisms working in the substrates and Clear Super containing organic acid that promotes the proliferation of microorganisms are blended in the Power Sand Basic. And in the Power Sand Advance, the formulation amount of the nutrients is increased, and in addition to Bacter 100 and Clear Super, BC Powder (bamboo charcoal powder) containing plenty of phosphoric acid ( $PO_4$ ) is blended. And the nutrients contained in the Power Sand sometimes cause dirty water when they dissolve in the water during the early stage of aquarium tank setup, and outbreaks of algae. Consequently, it can be said that Power Sand Basic which contains less formulation amount of the nutrients is easier to handle when creating Nature Aquarium for the first time. On the other hand, when being familiar with creating Nature Aquarium and when there is a filter with functioning biological filtrations, the Power Sand Advance is recommended because the well growth of aquatic plants and longer lasting nutrients are expected.

### Aqua Soil -Amazonia / Aqua Soil -Amazonia Ver.2

Aqua Soil series is a principal substrate material to compose the substrates of Nature Aquarium, and is used by being spread on Power Sand. As for a common feature of Aqua Soil, natural soil is heat-sterilized and formed into grains. However, unlike general hard ceramic materials, the grains are soft. Therefore, there is an advantage of not interrupting the growth of aquatic plant roots. And Aqua Soil is basically acidic with the function of organic acid contained in the natural soil of the raw material. Therefore, there is also an advantage of making the environment in the substrates in a way that aquatic plants can easily absorb the nutrients from the roots. In the Aqua Soil series, because Aqua Soil Amazonia using natural black soil as the raw material is especially rich in nutrients such as nitrogen (N), phosphorus (P), potassium (K), Iron (Fe), sulfur (S), magnesium (Mg) as well as humic acid derived from plants, the growth of aquatic plants is particularly well, and it has been extensively used the most in Nature Aquarium. However, the raw material of Amazonia, the black soil is special and different from general volcanic ash black soil (andosol). Because it is rare soil with limited amount only available in limited locations for collecting the soil, there have been situations that we could not supply stably in recent years. Also, humic acid and nutrients tend to dissolve into the water from Amazonia in the early stage of aquarium tank setup, and could cause discoloration and turbidity of water. Consequently, if creating Nature Aquarium for the first time, it might be hard to handle. The product created to improve such situations, is Aqua Soil Amazonia Ver.2. For Amazonia Ver.2, by using black soil different from the existing Amazonia with less dissolving humic acid and nutrients, discoloration and turbidity of water are unlikely to occur in the early stage of aquarium tank setup. But the benefit of the existing Amazonia for the well aquatic plant growth would be lost with that alone. Amazonia Supplement developed to strengthen the nutrients comes with the Amazonia Ver.2. Amazonia Supplement is a pellet typed supplement with humic acid and nutrients that are plentifully contained in the existing Amazonia. By spreading Amazonia Supplement on Power Sand and then spreading Amazonia Ver.2 on top of them, healthy aquatic plants grow as well as with the existing Amazonia. Although Amazonia Ver.2 can be used by itself as a substrate material, in order to maintain the nutrients in the substrate for a long time, it is recommended to use it with Power Sand series.

## SUBSTRATE SYSTEM



### Bottom Plus

Among nutrients essential for aquatic plants, nitrogen (N) is quantitatively the most demanded and has significant impact on the growth of aquatic plants and photosynthesis. If there is a shortage of nitrogen especially in the early stage of aquarium tank setup, aquatic plants don't grow well, and some of them could decline and disappear depending on species. Consequently, by combining Power Sand series with Aqua Soil series for the substrates of Nature Aquarium, a lot of nitrogen can be supplied from the early stage of aquarium tank setup. Because a raw material of Aqua Soil, the natural soil has an ability to hold nitrogen, by spraying Green Brightly Nitrogen on Aqua Soil and permeating the soil grains when setting the substrate, a method to strengthen nitrogen is performed. The nutrients such as nitrogen in the substrates decrease as time advances by being absorbed from the roots of aquatic plants or being removed during change of water after being dissolved in the aquarium water. As a result, the growth of the aquatic plants becomes remarkably slow in the aquarium tank after about a few months to a year passed. And leaves of aquatic plants such as Glossostigma that require particularly a lot of nitrogen turn into dwarf forms. Bottom Plus was developed in order to improve such a situation. Bottom Plus is a solid nutrient that can be added to the substrates with decreased nutrients. It is used by injecting into the substrates with Bottom Release. The base of Bottom Plus is the natural soil same as the raw material of Aqua Soil, and plenty of nitrogen is kneaded. Because iron (Fe) and sulfur (S) that Cryptocoryne family actively absorbs from the roots are also kneaded, it is suitable for long term maintenance of aquascapes. The effect of Bottom Plus can be clearly seen especially with Glossostigma that actively absorbs nitrogen. If the growth becomes worsen, using more of Bottom Plus is the key point for maintaining the plant beautifully.

