

AQUA SOFT II

ULTRASONIC TECHNOLOGY – THE DEVELOPMENT OF AQUA SOFT

The “100% ecological” electronic water processor

COMPLETE INFORMATION BOOKLET

A GUIDE FOR YOUR FULL BENEFIT

PLEASE READ WITH CARE THE INFORMATION ON THE DEVICE, AND IN PARTICULAR THE INSTALLATION INSTRUCTIONS

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AQUA SOFT II

(THE DEVELOPMENT OF AQUA SOFT)

The “100% ecological” electronic water processor

USUAL QUESTIONS

-What is AQUA SOFT II and which benefit will I have?

It is an electronic device (last 15 years technology) which after its installation on a hydraulic network and on any apparatus encompassing a water flow, **it rids it fast and permanently of the already existing scale, rust deposits and algae. Consequently it protects the network from electrolysis, corrosion and further damage** increasing its life span to the highest degree. **Thus, you have an immediate and significant benefit, as you are relieved of this problem once and for all. Moreover, you can forget about the cost of any “expendables” as the device does not need any maintenance.**

Every **AQUA SOFT II** can be placed on plastic, steel or copper water supply pipeline, achieving the same end results. Its efficiency is not affected by pressure, neither by the volume of the water flow, not even by temperature.

[Pressure from 0,1 ATM (atmospheres) up to 100ATM. Water temperature from +1° C up to 90° C]. The efficiency of the device is not affected on special cooling applications (i.e. condensers) during which the water comes into contact with metal surfaces, which can reach temperatures up to 180° C.

The device assists the water to retain the salts which induce hardness, in soluble form, up to 100° C.

The only matter which defines the size as to the device's power is how many inches diameter is the water pipe that we are going to install it on. If at a later stage you are going to install it at a larger diameter pipe please contact us for information otherwise we cannot guarantee for the result.

-How will see and feel the results?

First thing which you have to do, is to decrease the quantity of the detergents, cleaning agents, shampoo etc. For example, in your washing machine you will need to decrease the detergent approximately 30-50%. You no longer need water-softening agent and softener (unless you want the smell of it). On glasses, faucets, tiles, the hard lime marks, if not disappeared, a much smaller quantity will remain which however are very soft and can be wiped off with a soft cloth. Water will have a kind of velvet feel on the body and hands. It is more pleasant and soap becomes more efficient. The taste of the water improves and it is noticeable in food and coffee.

-What is the principle of its function?

There are three ways in which AQUA SOFT intervenes in water salts:

- It changes the way crystallization occurs resulting in no further build-up on the network's inner walls.
- It removes the scale from previous build-ups.
- Henceforth the water acquires soft water properties and the calcium – magnesium no longer encapsulates laundry detergents so that we need approximately 50% less chemicals or cleansing materials, which **means a “vertical” reduction of your expenses, i.e. with thickness of lime build-up 1mm we have an output reduction of roughly 10%. With 2 mm roughly 15%. With 4 mm roughly 30%, etc.**

-How do we encounter carbonates in nature?

1. Calcium soda: This form does not stick and is used for its soda properties.

2. Aragonite: It is a calcium carbonate, which is crystallized in a rhomboid structure and provides crystals with many facets, small surfaces and it is water-soluble with minimum adhesive properties.
3. Calcite: It is a calcium carbonate, which is crystallized in a triangular structure and provides very hard crystals, with few facets, large surfaces, almost insoluble and 100% adhesive.

-How are the alteration of the salts crystallization and the removal of preexisting salts achieved?

The presence of salts in water occurs when rainwater is absorbed through the ground, part of which is washed along with it, dissolving it into ions with positive or negative charge.

AQUA SOFT II is a radio wave transmitter, in the ultrasound spectrum frequencies, which **are completely harmless**. These radio waves penetrate the inner walls of the pipeline and create an electric field of convertible polarity in the water, which forces the salt / metal ions to oscillate like a pendulum.

With this movement, the calcium becomes inactive for it acquires electrons thus altering its electrical charge. At the same time, the carbonic acid is aborted and vanishes as a vapor from the hydrogen carbonates, while other particles, which are dissolved in the water, connect to each other due to the kinetic energy they get from the electric field and the alteration of their electrical charge. Furthermore, compounds which can be found in water like the insoluble calcium carbonate, because of the kinetic energy it obtains from the field the device creates, are forced to come in contact with the free water electrons in order to achieve separation or removal of the ions from which these compounds derive. As mentioned above, these compounds of calcium carbonate are split into carbon and calcium.

-What happens with the water pH?

PH balancing is effected as a significant quantity of hydrogen ions and hydroxyl ions are neutralized owing to the fact that they are forced to come into contact with other ions of opposite charge that actually accept them within their structure.

In addition, hydrogen easily offers electrons wherever it is the main source of electrons into water therefore its charge is neutralized. This process results in water reaching the desirable pH level.

The neutralization of calcium and magnesium charges allows non-build-ups on the inner walls, keeping them in 100% soluble form and floating in water.

What needs to be emphasized is the fact that the calcium and magnesium salts are beneficial and essential to all living organisms (people – animals – plants) therefore this particular method excels over others, which retain these elements.

-What happens with water solubility?

Because the surface tension of the water is radically reduced, water becomes thinner flowing. Also, the calcium and magnesium ions cease to entrap detergents - soaps, chemicals e.t.c., and due to the mass of electrons, water shows a drastic increase in its solubility of at least 200%. This can be seen by the way it reacts to chemicals – cleansers – foam baths – shampoos – soaps thus resulting in their reduction by at least 30%. Additionally, there is no need for water softeners. It therefore constitutes an “absolutely ecological solution” which produces a vertical reduction of your monthly expenses. Moreover, in cases where the water is brackish and contains quantities of sodium chloride, separation of sodium from chlorine is obtained with the aid of the device. Then, the chlorine is activated by being converted into chloric acid and Cl₂ acting henceforth 100% as a cleansing component of the water in its most mild form and that is why it does not have a chlorine scent. That is to say, in cases of brackish water, it appears to have more extensive cleansing properties than soft water.

-Why does water become more sanitary?

By increasing the oxygen's solubility in water, the water acquires beneficial properties for all living organisms.

In many areas, water contains quite a significant number of bacteria (e.g. coli form organisms). These microbes create health problems and are the main reason for the bad smell and taste of water.

This phenomenon is intensified when there is a concentration of lime scale for they find rich ground to develop colonies. This is obvious from the weed (mould) appearing on the walls of pipelines and appliances, electrical or not, which use water. It is also observed in the inner basin of swimming pools (joints – tiles).

AQUA SOFT II helps drastically to reduce this phenomenon thanks to the complete removal of the plaque, as the microbes no longer have a rich ground on which to develop, while at the same time the electric field that is created instantly kills 40% of these microbes in a single pass. Tests have proved zero pathogen microorganisms (coli form organisms) after three recirculation turns of water.

-How fast does the detachment of the preexisting scale occur?

It's important to emphasize that the corrosion and destruction of water supply networks is due to the presence of plaque onto the pipeline, which corrodes and deteriorates them by way of electrolysis.

The detachment rate of the salts from a water pipeline network or an appliance is defined by the thickness of the existing layer of salts, its quality and the water flow passing through the area of retained salts.

For instance, in a hydraulic network of a house where a family of four lives and the layer of salts within the pipelines is 4 millimeters (mm), the detachment rate is 0,8 millimeters (mm) per week. The pipeline network will clear out completely approximately in 6 weeks time depending also on the quantity of blocking (so-called glutinous) elements in the water.

In a professional dishwasher machine where ten washes are performed daily and with the layer of salts at 3 millimeters (mm), the inner walls of the dishwasher will clear out approximately within a two week period depending also on the quantity of blocking elements in the water.

The quality of the layer of scale that has been created also affects the time needed for its detachment. Besides, its color might be milky, yellow, brown-greenish, blue, e.t.c. This indicates that the layer of salts is composed apart from calcium carbonate also of iron, manganese, aluminum, silicon oxide e.t.c. The presence of these metals within the formed tartar (layer of salts) requires almost 50% more time for its detachment. The detachment speed also depends on the waters' electric conductivity: The greater the conductivity, the greater the speed of detachment as well as quicker the results.

ATTENTION:

A)

Quite often in networks of water supply, stones, dirt and other materials circulate which could give an impression of salts.

Therefore the results could be reduced if:

- 1) Inside the network there is dirt or other floating particles from repairs in the water supply network or rust which could be coming from the network itself. These can reduce the result up to 90%.
- 2) If we see that the tartar which creates the water shows any colorings other than the creamy white of salts (yellow – brown – black – green) this indicates that the water contains an increased quantity of other metals as well, as undesirable as salts are e.g.
 - Iron – produces brown color
 - Manganese – produces beige brown color
 - Copper oxide – produces green color
 - Silicon oxides – produce black and dark brown colorEspecially for the combination of iron – manganese, when the quantities are small they are not visible as a colouring. But when the water boils, it becomes a lightly yellow colour.

The solution to this particular problem is (recommended) to place a water filter with pores of at least 20 – 30 µm (micros) – the smaller the cross-section the better (ideally 3 µm) – which will hold 95% of these floating particles.

B)

When the water produces a bad smell and at the same time is bitter when we drink it, this shows that the water bacteriostatically is not good (meaning it is polluted) that is why it's advisable to have a water analysis done in an authorized laboratory to check its quality.

C)

Furthermore, when along with the water, air also circulates (something which is not easily perceivable and happens mainly in cases where there is low pressure); under those conditions the calcium carbonate which will be formed as tartar will be crystallized into calcite where its solubility is 60 times smaller than aragonite. Also, the processing that you will be expecting from AQUA SOFT II is not feasible because the water cannot create a "complete water column" under its processing point. The results from this water will be to form tartar very quickly which is very difficult to clean with chemicals and presents significantly reduced solubility.

-What effect is there to the phenomenon of electrolysis?

Not only is electrolysis not created by the electronic processor because firstly it doesn't come into contact with water, secondly does not create DC voltage electric field in order to produce electrolysis and thirdly due to there is a tendency to bring pH close to 7 range (mostly with acidic water). Due to the mentioned reasons the pipelines in every hydraulic network are maintained clean internally, while at the same time the phenomenon of electrolysis is significantly reduced up to 97 - 100%.

This protection is obtained due to the alteration of charge on the inner surface of the metal pipe by virtue of its "bombardment" by the profusion of electrons. Thus, e.g. the iron is converted from anode to cathode permanently whereas for this to happen earlier it would have to be covered with zinc (cathodic protection). Where there is tartar formed on the inner walls of a pipe and it comes into contact with the treated water, the abundance of electrons in the water splits the formed calcium carbonate (calcite), turning it to aragonite into small flakes and removes it with the strong water flow. Indeed, you will notice that the surface will have a complete absence of salts and will have been covered by a blackish coat, which is «ferrite - saturated iron epitartoxide». This coating is rich with beneficial properties as well as results for it is inert material, which protects the network from further deterioration and electrolysis. In corresponding cupreous or brass piping the color is dark brown and the covering is the "peroxide of copper" or the "peroxide of bronze" with the same result.

-Is AQUA SOFT II a filter?

It is not a filter in the sense that it does not retain (neither adds, nor removes) any water component, as it does not come into contact with the water.

It does not change (transforms) nor does it alter the water's chemical constitution and therefore it fully maintains the beneficial components for the living organisms.

Its potability is not at all influenced. If the water wasn't potable before, the use of the device it does not make it potable. If there were doubts from the client regarding the portability of the water before use of the device, it would be wise if the client gave a sample of water to an authorised chemical laboratory.

-What are the results from the use of the electronic water processor?

After a few minutes' use and letting the water run, if we place the water in a glass we will most probably observe salt flakes from the plaque which is formed in the inside of the network. If there is a chemical analysis of the water sample that we take, we will see that its hardness can be even triple that prior to the use of the device. This aptly proves the efficiency of the device because the detachment of the salts from the network has already started and shouldn't cause you any concern. If we had the ability to inspect the interior of the pipe lines we would see that after a short period of usage of the device, there would be no salts nor rust in the walls. The water hardness returns to the initial levels when the layer

of salts in the network is completely detached. In fact, if the network is made of copper you will observe a dark brown covering. This is very good because the copper hyperoxide has been formed which is an inert material and protects the network from deterioration and electrolysis. In corresponding steel piping the color is blackish and the covering is ferrite - saturated iron epitetartoxide which protects the pipe from further corrosion and electrolysis.

Important note

If within the hydraulic network the pipe lines have suffered corrosion and their impermeability is caused by and exists with the help of salts and tartar, then with the removal of these remnants and the cleaning of the walls either partially or wholly, there will be water leaks. In this case if you change the piping in these sections there will be no further damage.

- For how long does the water maintain its new attributes?

The treated water maintains the properties deriving from the usage of the device for a period of time up until six months, when this remains within a closed tank. Moreover, the treated water maintains its properties for minimum 15.000 meters (15 kilometers) from the spot where the device is located (according experience from application on 2010). When there is a system of water recirculation (recirculator) in closed circuits, like for instance the central heating system of a house, a building, pools e.t.c., we need to place an electronic processor that would cover especially this part because with the recirculation, more specifically of the electrosmok (electric noise) that the circulation motors create, some of the properties of activated water are gradually lost and we need to keep it constantly fully activated. Especially, in certain freezing towers where during their function the water evaporates more than 10% of its quantity, besides the basic device which is placed after the circulation pump, a 2nd (second) device has to be used in the water supply which completes that which is evaporated.

- Why should I choose AQUA SOFT II ?

The special technology of AQUA SOFT has been developed during the last 10 years and is far advanced in comparison with that available in the past (as you well know electronic technology has made spectacular developments in the last few years.)

Its efficiency in extreme water forms "has been proved", something which no other similar device throughout the world has achieved so far. That is:

- Electric conductivity of 13.000 - 14.000 (thirteen - fourteen thousand) $\mu\text{S}/\text{cm}$ of brackish water (Watering of hydroponic NFT type cultivation at the Athens Geoponic University that came mainly from sodium chloride. That is to say that from 400 $\mu\text{S}/\text{cm}$ with the addition of sodium chloride –salt– it reached 12.000 $\mu\text{S}/\text{cm}$ + 2.000 $\mu\text{S}/\text{cm}$ in fertilizers = 14.000 $\mu\text{S}/\text{cm}$).
- Electric conductivity of 60.000 (sixty thousand) $\mu\text{S}/\text{cm}$ of seawater in evaporator and condenser (the particular machines constitutes the most difficult water applications on vessels) where only 10% traces were visible which were rinsed out just flushing them with water without pressure.
- where it was 100% successful with no trace of scale built-up.
- Hardness of 325 (three hundred twenty five) French degrees (180 German degrees).

- AQUA SOFT II has additionally following technical developments: It is functioning stable on a currency fluctuation of 90 – 275 V without problem. It has long life due to it is made of very high quality material. It has very minimal current consumption in relation to the result we get, and contains modern microprocessor technology in order succeed accuracy in operating and its characteristics.

If more extensive information is required regarding function and applications we are always at your service.

APPLICATIONS

IN INDUSTRIES – ARTISANSHIP – WATER UTILIZING BUSINESSES

(ARTISANSHIP SUCH AS PROFESSIONAL CLEANERS, PROFESSIONAL LAUNDRIES, CAR WASHES, OLIVE OIL PRESSES, TANNERIES, WINERIES, MILK PROCESSORS, ICE-PRODUCERS, BAKERIES, CONFECTIONERS, PHOTOGRAPHY PRODUCERS, CEMENT INSTALLATIONS E.T.C.)

In Steam Generators – Steam Boilers / Heat Exchangers / Air Compressors / Spraying Systems / Cooling Towers / Industrial Washing Machines / Sterilization Systems / Water-cooling Machines / Ice-producing machines. Generally wherever water is applied and consequently where there is a problem with scale build-up.

MARINE - VESSELS

It protects the most difficult system application in existence, the evaporator and the condenser. Also the cooling system of the main engine or electric generator with soft or saline water, the turbo-charges, the ballast banks, the pipe lines e.t.c.

Generally, wherever there is a water application, soft or saline, and therefore a problem with scale build-up while even more specifically when it is heated to a high temperature. It protects the whole hydraulic network from scale, corrosion, rust, electrolysis which means a vertical reduction of chemicals, of broken and corroded pipes with huge replacement costs, also of the labor costs and the concern of maintenance and repairs as well.

HOTELS – RESTAURANTS – COFFEE SHOPS – BUILDINGS – HOMES

It protects from scale built-up, electrolysis and bacteria – microbe sites, pipes, faucets, water outlets, showers, boilers, solar water heaters, clothes and dish washing machines, coffee machines, ice producing machines, swimming pools, cooling towers. Additionally, lime does not adhere to walls and bathrooms. This means that we can use fewer detergents and less time on cleaning.

CULTIVATIONS

FLOWER GARDENS-GREENHOUSES-OPEN CULTIVATIONS-FOG PRODUCING SYSTEMS

It turns high electric conductivity and unsuitable water - owing to increased quantity of metal elements – into useable water with impressive results (certified by an official research of the Athens Geoponic University).

SUBSIDIARY APPLICATIONS (MORE SPECIFICALLY) AND USAGE RESULTS

BOILERS

They are not destroyed by salts and corrosion thus greatly increasing their life span. It prevents costly damage (holes, burned impedances). It allows them to perform at their maximum. Energy is saved since studies have shown that tartar of 1mm thickness increases the energy transfer time speed between two areas of surface at 6-10% and the required energy at 7-15%. Therefore the use of AQUA SOFT II is profitable both in time and energy (oil or electric power). The use of chemicals which are harmful both to man and the environment is abolished too.

The device installation takes place at the cold water supply. After a few hours of using the boiler, we turn on the tap (strazziona valve) at the lower part and by letting the water run, we will also collect salt flakes from the plaque which is formed inside the boiler. If we take a sample of this water and perform chemical analysis, we will see that its hardness is maybe three times more than what it was before the use of the device. This is actual evidence of the detachment of salts. If we have the ability to inspect the inside of the boiler (from the manhole) after three months of using the device, we will see that there are no more scale or rust on the walls of the boiler, while at the bottom there will be a deposit in the form of mud, which consists of salts, rust and several other metal elements. This deposit may be removed by turning on the strazziona valve (emptying valve) at the lower part of the boiler and letting water run with a natural flow. By keeping the boiler walls clean, its efficiency is increased, and the required fuel or electric power is decreased.

STEAM BOILERS

Exactly the same points which apply to boilers are met here. Furthermore, for steam boilers in particular, besides the fact that they will not have lime scale again and that they will be protected from electrolysis and corrosion, their efficiency in producing steam will increase approximately 10% and the required time for the system to start producing steam will decrease at approximately 10%. This occurs because water in its normal state starts simmering (releasing gasses – for informative purposes; in order for water to start splitting it needs to release gasses first) at around 85 to 90 degrees, while the treated water due to the reduction of its surface tension starts simmering at a lower temperature. Cases have been mentioned where simmering starts at 55 degrees). The result is a more efficient function of the steam boiler and the reduction of the used energy required for the production of steam.

CENTRAL HEATING

There is complete removal of the salts from the interior of the boiler's pipe lines, oil burners, radiators and circulation pumps leading approximately to about a 10% reduction of consumption. In areas with high water hardness the reduction may reach up to 35%. It stops the electrolysis 100%. Less environmental pollution follows the reduction of used fuel.

The device is placed after the circulation pump and the results are as follow:

- 1) Complete removal of lime scale from the interior of the pipe lines, of the radiators and of the circulation pumps resulting in a 10% consumption reduction. In areas with highly increased water hardness the reduction may reach up to 35%. Hence we have a significant or even great profit from oil reduction.
- 2) It stops electrolysis 100% and creates in the inner surfaces of metals copper hyperoxide at the copper parts, ferrite - saturated iron epitetatroxide at the steel parts and saturated brazen epitetartoxide at the cast iron parts which are 100% inert as far as electrolysis is concerned and protect from further deterioration the inside of the hydraulic network. The phenomenon of stopping the electrolysis through the device holds as proof the extension of the anodes life span, if there are any in the network, by about 10 times.

- 3) In areas with soft water we encounter mostly problems of electrolysis and less of salts while in areas with very hard water the problems of salts are more frequently met and less those of electrolysis.
- 4) It helps the cast iron of the radiator to achieve heating 100% in the water. Moreover it helps to prevent any possible cracking of the metal from the scale build-up since salts no longer adhere to create a rigid plaque.
- 5) Water's thermal capacity is increased because henceforth it can maintain the salts in its mass and various other metal elements 100% soluble instead of accumulating them on the walls. In this way water conductivity is greatly increased and heating is more easily and quickly transferred. This increase in the heat transfer speed brings about an additional 5% reduction in oil.
- 6) The whole system's life is greatly prolonged because a) there is no longer any corrosion due to salts, and b) there is no electrolysis. In addition, the oil burner operates fewer times and for shorter periods which diminishes its deterioration.
- 7) Owing to the decrease in oil consumption we also obtain less environmental pollution plus we are less endangered by the relative checks performed by the responsible authorities.

AIR-CONDITION UNITS (CENTRAL UNITS – COOLING TOWERS / CHILLERS)

Complete scale detachment. The compressor is cooled and is steadily operating at the maximum of its performance. No problems are created in the cooling tower and the piping.

After the use of electronic processor you will see the following phenomena:

In recirculation:

1. Scale is completely removed from the interior of the piping of the closed circuit and mechanical equipment (pumps, recirculators) so that costly damage is avoided.
2. Due to chemicals that have been used up to now, it is probable that small surface probes have been created on the surface of the circuit because of the corrosion caused by chemicals and when you re-open it you see that there are probably white stains on the spots (pitting). This is calcium that in the flow of water stuck to these pores and filled them. It is calcium now deactivated and can be removed very easily. This phenomenon should not worry you because no scale layers are formed and these small stains do not cause electrolysis – corrosion. Also, this does not need to be cleaned because it is neither additive which creates a layer nor does it influence the cooling attribution of the system.
3. Where there are copper tubes that come into contact with the water that has passed from the electronic processor, you will probably see the surface has a brown aspect which means that the copper hyperoxide has been created which is inactive material and very good when it happens. The same applies when the surface is from iron. There, ferrite-saturated iron epitetartoxide is created.

In the water reservoir of the system

In the beginning you will notice mud on the bottom of the tank which you can remove with when you open the emptying valve. Afterwards the phenomenon will be decreased. This mud does not influence the cooling faculty of system.

ATTENTION

In the case that the water in a particular area is quite hard due to increased quantity of silica sand (earth-sand-etc), sulphates and other materials except salts that can be found in large quantities, they may create scale but not of a white color. In order to solve the problem of these materials, good filtration is needed with the small pores filters on the feed water tube which is a relatively cheap solution.

SWIMMING POOLS

Tartar is completely removed from the inside of the piping and the mechanical equipment (pumps, recirculators) resulting in the avoidance of costly damage. Also due to the removal of calcium from the walls of the basin of the pool, the weed (algae) is also removed.

It helps the preservation of good acidity in the water (pH) resulting in the drastic reduction, up to 80%, of chemical additives (Chloride, Hydrogen Bromide). Also, Redox is increased approximately 20% (sometimes much more) which is very positive in the way the water behaves. Water acquires a silky feel and a crystal appearance for it radically reduces the opacity that Calcium and Magnesium create, plus the fact that sun oils and creams instead of staying on the surface giving the appearance of a streak, they integrate into the water mass and shrink. Furthermore, due to an increase in the volume of calcium and magnesium salts in the water, their detainment from the pool filters is 100% improved as well as owing to the reduction of the sun products within the water mass, their filtering is also 100% improved.

ADDITIONAL QUESTIONS-INFORMATION ON THE SWIMMING POOL

1. Why is a reduction in chlorine necessary?
Due to the calcium deactivation, the hemming of chloride from calcium stops. Also due to the increased solubility of water, the chloride is dissolved more rapidly thus acts faster instead of remaining un-dissolved in the water in the pipes and the filters. Thus roughly 50% less chloride is needed in order to achieve a better result.
2. Why we need less pH- or pH+ adjusting?
Due to the drastic reduction of chloride, pH is already found at acceptable levels. For this reason usually very easily and only with 10% of pH-/pH+ corrective, we can achieve the ideal pH.
3. Why is the use of algae-removal chemicals not necessary?
Because of the complete removal of scale and bio-film from the interior of swimming pool (the sub-layer that with calcium constitute the soil and the food of algae) the algae removed are filtered quite easily. Also in the course of water passage through the pipe on which AQUA SOFT is installed, at least 40% of bacteria are killed due to the increased redox. For these reasons the use of algae removal chemicals is only necessary when the swimming pool water is found exceeding the normal parameters, which is due to the following external factors:
 - a) From the earth dust that enters in of swimming pool water due to strong winds (Because the earth dust which sticks on the swimming pool walls constitutes a sub-layer and offers nutritious components that with the help of sunlight and high temperature algae develop fast. Such an extreme combination greatly increases the algae formation compared with normal conditions and because the recirculation cycle is slower than the time of algae growth the electronic device can not kill all of them.
An example: If before the use of the electronic device we needed algae chemical removal once a week, now we may need it only 2-3 times in the summer period
 - b) High temperature in the summer months
 - c) Large number of swimmers.

SOLAR WATER HEATERS

Plaques and boilers are not destroyed. Heating performance is improved. Maintenance necessities are diminished. The magnesium bar is not damaged and this can be very easily seen. In fact the bar's lifespan is five times multiplied and it acts as an indicator of the change in both quality and comportment of the water from hard to soft.

COFFEE MACHINES

The hot water valves and facilities do not clog. Scale does not build-up on the interior. Maintenance necessities are minimized. Water is heated faster. The improvement in the aroma and taste of coffee is also noticeable.

ICE-BOXES (Mainly for those with a spraying system)

Water facilities do not clog. Water freezes quicker. Better quality ice cubes. Production increase up to 50% in weight, and in such volume in ice as is specified by the appliance's manufacturer.

After **AQUA SOFT II** is installed onto the water supply and when the production in ice cubes begins we will see them coming out less transparent, milkier and as if half-eaten. This is the result of the salts detaching from the walls and then settling inside the ice cubes as dust.

After 2-3 days you may notice a decrease in production, up to 50% and half formed ice cubes that melt faster, in 1/3 of the time. This is justified by the presence of the surplus Calcium up to 200% as dust or flakes.

The brink nozzles will show a decrease of their supply up to 80%. This happens for they receive major quantity of salts which are detached. If they clog it would be practical to take them out and clean them.

The basin which collects the remaining spraying water will become white on its lower surface from the salts dust which collects at this point. You can very easily gather this dust with a damp cloth (Wetex type). This may have to be repeated 3 – 4 times until the ice-box is completely clean.

As soon as the cleaning process is finished, you will find that the nozzles no longer clog. Water freezes quicker. The ice cubes are of better quality. There is an increase up to 50% in weight and in volume as is specified by the appliance's manufacturer.

After about 3 three weeks time (depending on the water quality) cleansing of the appliance will have been completed and ice cubes will appear from now on at the right size, completely transparent and machine's production will be at its maximum according to the manufacturer's specifications.

If we notice a delay in the procedure and at the same time see that the color of the salts is other than white (that is beige – ash grey – brown – black) a filament filter of a 5 micros class must definitely be used at the ice-box water supply because these elements that pass through the network (meaning dirt and floating particles) create far more serious problems than salts (clogging, production setback e.t.c.). If the ice cubes present opacity formed by many small bubbles, this is caused by "gas" within the water which is trapped during freezing. This phenomenon is eliminated when an activated carbon filter is used at the ice-box water supply (activated carbon filters hold water gas at a satisfactory level of about 90%).

PROFESSIONAL GLASS AND DISH WASHING MACHINES

On installation of the device you will see the following results:

- 1) A reduction approximately 30% to 50% in detergent or in the least recommended dose for very soft water set by the manufacturer (depending also on the quality of the detergent used). An informative reference; glass and dish detergents contain a) cleanser, b) water softener. Water softeners usually contain phosphate. Now that they are redundant due to the electronic treatment of the water you can aim at detergents containing more detergent factors proportionally to water softeners thus you will cut down even more on the dose of detergents and consequently the washing cost.
- 2) Reduction of siccative up to 80%.
- 3) Reduction of the time needed for heating the water up to 30%.
- 4) No additional water softeners are required in the water.
- 5) All stainless surfaces will have been cleaned in about a month.
- 6) The washing machine's drainages will not clog as the waste does not contain adhesive components as is the case with undiluted detergents and calcium and magnesium salts in their usual form.

RESULTS

"Paying off" of the device is very quick for you have an immediate reduction in:

- 1) The detergent.
- 2) The siccative.
- 3) The total abolition of the water softener.
- 4) Saving the maintenance cost of the washing machine because of salt deterioration.
- 5) And finally, most important of all the forming of a better, cleaner and friendlier environment since we are greatly reducing the wastes which are harmful and pollute the environment.

INSTRUCTIONS

After **AQUA SOFT II** is installed and after 2 – 3 washings are performed **without detergent**, we will see that the water inside the drum is very foamy, meanwhile we will detect increased opacity on the glasses.

Why does this happen? Simply because the water henceforth behaves like “soft” water and **we have to** reduce approximately 30% to 50% of the detergent that we use immediately after installation. Depending on the quality of the water and that of the detergent, this reduction can be even greater (up to 80%). In any case it is practical to gradually reduce the detergent until we achieve the ideal dose (until we see that the water in the basin doesn't create foam anymore). We also abolish the use of water softener.

Prior to the use of **AQUA SOFT II** the inside appearance of our washing machine is one of dull walls from the salts and of the resistor unclean, covered by the typical layer of salts.

Up to 30 days after the installation of **AQUA SOFT II** we will observe the following: the inner walls of the washing machine begin to clear and to regain their initial shine, while the nozzles unclog and the water pressure increases. The resistors of the boiler and the tank are indeed clean from salts, something which can be seen also by the fact that the time needed for the water to be heated is reduced.

After continual use of the washing machine for at least 2 – 3 days, you will notice that the washing machine itself draws more siccative. This happens because the siccative valve is cleansed from the salts and allows its unhindered flow. The marks from the detergents that may possibly remain on the surfaces should now be disappearing. Even if some spots remain, we can increase the quantity of siccative by adjusting the valve accordingly.

How can we tell the right dose of siccative?

When the quantity is inadequate dull spots appear on the glasses while they take too long to dry.

When the quantity is more than required, marks appear, giving a metal color look which sparkles in light while the glasses are slippery.

NOTE: The detergents available on the market usually contain Phosphates, compounds which can deal with salts, up to a point, by reacting with them. But when **AQUA SOFT II** treated water is used in the washing, the Calcium compounds are inert so as a result they do not react to the Phosphates, which by remaining in their original form in the water appear as marks on glasses. Thus, the solution provided is the reduction of the quantity of detergent and therefore of Phosphates, or the substitution of detergent with another not containing Phosphates or the increase of the siccative dose.

ATTENTION: In order for a washing machine to operate effectively it must be supplied by the right water pressure which is between 3 – 5 atmospheres. It needs the right temperature (an average of 45 degrees in the washing tank and an average of 65 – 70 degrees in the boiler for the rinsing – drying). Moreover, there would have to be the right quality and quantity of detergent and siccative (not foam creating, especially for automated “professional” washing machines for a 2 minute washing cycle). For further detailed information regarding the operational manner of professional glass – dish washing machines ask the representative – salesperson.

PROFESSIONAL WASHING MACHINES

Upon installation of the device you will see the following results:

- 1) Reduction approximately 30 – 50% of the detergent or the smallest recommended quality of the detergent used. An informative reference; detergents contain a) cleanser, b) water softener, c) clothes softener. Water softeners usually contain phosphates. Now that they are no longer necessary due to the electronic treatment of the water you can aim for detergents containing more cleansing elements in proportion to water softeners thus reducing still further the dose of detergents and therefore the washing cost.
- 2) Reduction of 50% up to 100% of the clothes softener (can be used at will even if only for the scent left on the clothes – we have still softer clothes even with 100% reduction of the softener).
- 3) Reduction of the time needed for the water to heat up to 30%.
- 4) No additional water softeners are needed in the water.
- 5) All stainless surfaces will be cleaned in about a month.

- 6) In the starching cylinders of sheets they will no longer stick. Their life-span will be significantly greater as they do not harden (which means significant replacement cost). Iron presses do not clog, and (ironing) sheets last much longer because they no longer come into contact with undiluted detergents and salts through the iron clothes containing them.
- 7) The steam boilers are maintained in a very good condition. The only thing that needs to be done is once a month to open the small strazziona valve (emptying tank valve) at the lower part in order to let out the ballast.
- 8) Washing machine's drainages do not clog as the waste matter does not contain adhesive elements such as undiluted detergents, calcium and magnesium salts which are in their typical form.
- 9) The required ironing time is radically reduced (approximately 30%), and the result is impeccable because the clothes are soft.

RESULTS

"Paying off" of the device is very quick as you have an immediate reduction of:

- 1) The detergent.
- 2) The clothes softener.
- 3) The complete abolition of water softener.
- 4) Saving the maintenance cost of the washing machine.
- 5) And finally, most important of all the forming of a better, cleaner and friendlier environment since we are greatly reducing the wastes which are harmful and pollute the environment.

INSTRUCTIONS

After **AQUA SOFT II** is installed and after 2 – 3 washings are performed **without detergent**, we will see that the water inside the drum will be very foamy. Why does this happen? Simply because the water behaves henceforth like "soft water" and **it is imperative** that we reduce the detergent by 30%-50% immediately after installation. Depending on the quality of both water and detergent the reduction may be greater (up to 80%). In any case it would be practical to gradually reduce the detergent until we get the ideal dose.

Prior to the use of **AQUA SOFT II** the appearance of the inside the washing machine is white walls from the salts and almost always with a layer of salts of 1-3 mm.

After the installation of **AQUA SOFT II** and almost immediately up to 2 – 3 weeks we will observe that the inner walls of the washing machine begin to clean and to regain their initial shine while the grinding and the metal noises which are created by the presence of salts on the moving parts of the machine (antifriction bearings – spindles – gaskets) may cease.

PROFESSIONAL CAR WASH

After the installation of the device you will see the following results:

- 1) Reduction of at least 30% - 50% of the detergent.
- 2) Reduction of wax and polish.
- 3) Increased cleanness.
- 4) Absence of spots (from zero up to 10% of the prior condition).
- 5) The mechanism stays clear of salts.

RESULTS

"Paying off" of the device is very quick as you have an immediate reduction of:

- 1) The detergent.
- 2) The wax and polish.
- 3) The maintenance cost of the car wash.
- 4) A more effective operation of the car wash system of at least 50% which means a better presentation of the car to the client.
- 5) And finally, most important of all the forming of a better, cleaner and friendlier environment since we are greatly reducing the wastes which are harmful and pollute the environment.

INSTRUCTIONS

After the installation of **AQUA SOFT II** and about 10 washes the results start becoming visible. Soaps will produce twice the foam, while we observe that spots which were not removable before are now beginning to dissolve. At the drying procedure there are no salt spots on the steel sheets and the windows.

EDIFICE MAIN WATER SUPPLY

After **AQUA SOFT** is installed on a part of the main water pipe line which supplies the house, you will appreciate its performance from the following:

Because **AQUA SOFT** cleans the preexisting build-ups, it is possible that during the first days the sieves in the showers and the faucets may clog from the bigger chunks of salts. The smaller parts of salts which will go through the sieves may be in such quantities in the first days so that the water may turn white.

The feel of water in the washing of the hands with soap or of hair with shampoo will be gentler and with more foam.

Water will taste better.

Gradually, the salt spots will cease to appear in utensils, surfaces and walls and also cleaning of the house will be performed more easily and with less and not so drastic detergents.

The toilet flushing appliances are totally cleared of salts within a month approximately and leaks stop if there are any. The mechanisms in bath and kitchen faucets are completely cleared from salts and this is visible because less strength is required to use them and also they are cleaned from salts which are concentrated at the end of the spout (education) and form rings, they soften and finally they drop by themselves.

DOMESTIC CLOTHING WASHING MACHINES

In domestic washing machines we meet comparable results as with the professional washing machines.

Appliances are not destroyed (they are cleaned and regain their initial shine).

Reduction of at least 30% of detergent or to the lowest permitted dosage that the manufacturer specifies for extra soft water.

50 – 70% reduction of the clothes softener.

There is no further need to use water softener.

It saves up to 20% of electric power because the salt layers – which absorb a lot of energy – are removed from the resistors so achieving a reduction of the time which is needed to heat the water.

DOMESTIC GLASS OR DISH WASHING MACHINES

Essentially the same applies as for professional glass or dish washing machines.

EVAPORATORS – CONDENSERS (OF SHIPS)

Complete detachment of salts – scale built up. Evaporator works regularly with the highest output something it is obvious from the not reduction of water quantity that it produces.

Machinery and pipings are not destroyed by salts – scale, electrolysis – corrosion, thus their life is expanded. It anticipates costly damage. It is also minimizing the chemicals use which anyway are harmful for humans and the environment. Where there is copper piping which is filled with water that has been treated by **AQUA SOFT**, you will see the surface having brown appearance which means that «copper hyperoxide» has been created that is neutral material and is very good when it happens. The same happens where the circuit is from iron. At this case «ferrite - saturated iron epitartoxide» has been created which has blackish appearance. Consequently the use of anodes is not needed anymore. It does not affect coatings but it acts protectively even if in certain spots there are coating detachments.

Note

The only systems on which is not functioning properly, are at very few evaporators (mainly Nitchitsu Industries – Model SEVS 16) and this is due to the way they work. At these systems, seawater entering to the evaporator strikes at a vertical plate which forces water to become spray that falls in pipes “which are not covered from water” and evaporates immediately. This means that if the pipes are not covered from water we have not

detachment of scale built up. The detachment is sure in all systems that they have continuous cover from water. eg Atlas evaporators.

IN BALLAST TANKS – UPPER WING TANKS (OF SHIPS)

Installing it to the supply pipe of ballast water tank - upper tank (it can also be placed after the main pump therefore covers all the ballast tank system simultaneously), we have detachment of loose rust and what remains is changed in «ferrite - saturated iron epitartoxide» that it has blackish appearance and is neutral material. The water - pipings network are not destroyed internally by salts – scale, electrolysis –corrosion, rust therefore their life duration is expanded. This is obvious from the intense reduction of deterioration of anode protection increasing simultaneously their life considerably. Also, it does not influence coatings but it acts protective even if at certain spots or places there were coating detachments. At these spots «ferrite - saturated iron epitartoxide» will be created which will protect from further corrosion. The effectiveness is proportional on how long the water remains in the network of ballast water tank–upper tank. A small recirculation helps the speed of result.

APPLICATIONS AND RESULTS IN CULTIVATIONS

The following findings are the result of many applications, practical experience and have also derived after scientific study / research realized at the Athens Geoponic University during the period October 2001 – March 2002. That which up until recently was considered impossible, improbable, unimaginable, has simply been achieved now due to technological progress.

(The “official report” is at the disposal of any interested party).

RESULTS FROM WATERING WITH AQUA SOFT II TREATED WATER

1. Outstanding and very quick improvement of soil penetration.
2. Stronger plants due to the significant improvement of the immune system of the plant.
3. Increase of plant life-span.
4. Possibility of premature planting.
5. Increase of production up to 100% with clearly larger and better quality fruits which means a better income.
6. Essential improvement of fertilizer absorption.
7. Increase of the root system up to 50%.
8. Significant reduction in the necessary water for irrigation. A 30% reduction is due in watering which translates into, apart from reduced cost, the protection of the already burdened aquifer.
9. Unclogging of the nozzles for watering and mist propagation resulting in the impeccable function of the whole irrigation system.
10. The more burdened the water is by salts, the more obvious the results.

HOW AND WHY ARE THESE RESULTS ACHIEVED AND HOW CAN THEY BE VISIBLE WITHOUT HELP FROM AN EXPERT

1. **SOIL ENRICHMENT** (penetration improvement and conductivity lessening of the soil quality).

The use of water from the drills - bores for the irrigation of cultivations, owing to its high concentration in carbonates and sodium chloride (hard water) and to their consequential concentration on the surface of the soil and around the plant's root, creates an intense

problem of water absorption as well as all other necessary elements for its nutrition. In their natural condition the salts have the property to accumulate on the soil's surface and to create a tough crust. It is this very tough crust that prevents water and fertilizers from pervading the deeper soil substrata.

However the **AQUA SOFT II** treated water dissolves the superficial crust of salts and allows the irrigation water to infiltrate deeper substrata and to convey with it all those elements that the plant needs in 100% soluble form. The humidity remains for a longer period around the root so that the plant has the required time needed to take in the nutritional components. Meanwhile the clogging around the root system (rhizosphere) is dissolved and so the soil softens. This helps the plant spread its roots faster.

It becomes apparent:

- a) By the disappearing of the "whiteness" on the surface of the soil after some waterings.
- b) By the reduction to half of the water's infiltration (pervasion) time in the soil (the surface dries faster which means that the water descends into the deeper substrata).
- c) When there is increased conductance of the soil's quality, after 3 – 5 waterings is reduced to $\frac{1}{4}$ of the original and after an average of 15, it reaches the ideal condition of 1000 – 1500 $\mu\text{S/cm}$.
For Example: an initial 6.000 $\mu\text{S/cm}$ conductance quality reached 1.200 $\mu\text{S/cm}$ after 15 waterings.
- d) After the first 3 waterings the green increases visibly in plants. Also, the root system begins to develop visibly (with clear white roots) that can reach up to 50% in growth, while after 20 waterings the plants present must faster growth of germination.

Attention to cultivations in pots. Because a pot is low in absorbency and the soil is washed slower the result is slower. In order to achieve the initial wash-up it takes up to 3 times longer and thus the results come about 3 times later.

2. ACCELERATION OF NUTRITIONAL ELEMENTS ABSORBANCE

- A) With the unclogging of the root system - rhizosphere the soil softens and so the plant can spread its roots faster and especially so when young. This is visible by the increase in the root system of at least 30% in relation to plants which are not watered with treated water. In fact it is important to note that phosphorus is by nature ponderous. But after the water is treated it becomes more mobile, soluble and absorbable. This results in improving the plant's immune system, in it growing more and developing a bigger root system. In addition, the positive charge which the water has by now charges the root positively so as to accelerate the ion trade in the root system.
- B) It is proved by the Geoponic University Athens research, that with the help of AQUA SOFT II (AQUA WIZARD II), we have better absorption in fertilizers. Anionic (nitrogen/phosphorus etc), have roughly 200% better absorption in comparison of the preexisting situation. Cationic fertilizers (potassium, magnesium, calcium, manganese etc) have roughly 100% better absorption.

In a lot of cases it has been observed that soil which is cultivated for many years has a high concentration of fertilizers with other metallic salts. With the aid of AQUA SOFT II they are unblocked by the earth and become available for the plant. This can temporarily upset the fertilizer balance. If the cultivator observes such phenomena, e.g. hypertrophy of nitrogen and always with the plant's witness, he stops adding nitrogen and has to add e.g. potassium, phosphorus, calcium etc. until the existing reserves are consumed.

For example, if he has observed high increase of leaves and rapid growth of plant, it means that he should stop additional nitrogen (e.g. Sodium nitrate) and he has to increase the quantity of potassium in order that it flowers and bears fruit. That is to say in order to bring back the fertilizer balance, in the first 10 watering he has to stop feeding with fertilizers (if he has high electrical conductivity of earth composition). Afterwards, if he gets a lower electric conductivity in the earth, he feeds fertilizers with increased quantity of potassium.

RECOMMENDATION

For more details-information, you are advised to contact your agriculturist.

3. IMPROVEMENT OF THE PLANTS IMMUNE SYSTEM

The water's ability to dissolve salts, fertilizers e.t.c. is increased at least by a 200% average, depending also on its original condition, with the result that it behaves like "soft water". Moreover, the water has hence acquired the property to dissolve more oxygen whenever there is a prominent augmentation of the solvency rate of oxygen in it. The treated water has the property to recompensate oxygen 3 times faster. Based on this parameter the plant's immune system is drastically improved so it can separate sodium from potash, to absorb the potash and not to absorb the sodium (research result of the Athens Geoponic University where a 55-56% drop of sodium was noticed in the leaves of the plants that were watered with treated water).

4. GREATER FRUIT PRODUCTION AND POSSIBILITY OF PRECOCITY. INCREASING THE PLANTS LIFE CYCLE.

Seeing that the negative factors are reversed in the procedure of plant development, a greater production is obtained with clearly better quality products (increase of the fruit volume with a simultaneous increase of the sugar levels – Brix) and much more healthy plants, vigorous and tolerant to bad weather during winter. For instance (from the official results of the Athens Geoponic University) in water with 400 $\mu\text{S}/\text{cm}$ conductance (Athenian drinking water, which is very good in quality) treated by **AQUA SOFT II**, produced 8% greater production and a better quality of fruits in relation to the witness (plants in potable Athenian water without treatment). Furthermore, in the 12.000 $\mu\text{S}/\text{cm}$ conductance water (plus 2.100 $\mu\text{S}/\text{cm}$ approximately for fertilizers, so we are talking about an average of 14.000 $\mu\text{S}/\text{cm}$) caused to salinity, had an average of 150% better production and of much higher quality of fruit according to the witness (plants in water of an average 14.000 $\mu\text{S}/\text{cm}$ conductance, without treatment). The "phenologic" elements of the plants that were developed in saline water of an average 14.000 $\mu\text{S}/\text{cm}$ conductance, are "statistically identical" with those of the plants that were developed in the 2.500 $\mu\text{S}/\text{cm}$ (400 $\mu\text{S}/\text{cm}$ of Athens potable water plus 2.100 $\mu\text{S}/\text{cm}$ for fertilizers) without salt. In adding, as an informative reference, the more burdened the water is, the more obvious the sugar accrual percentage is both in taste and in appearance of the fruit.

As a matter of fact it is crucial that the treated water facilitates premature production (15 – 30 days earlier plantation wherever that is possible).

You will also notice that the life span of the plant is prolonged. This is due to the improvement of the plant's immune system and to the faster transfer of nutritional elements; it can actually continue germinating even beyond the end of its normal era. A point induced by the fact that the electronic processor keeps the sodium chloride, which is the main factor of aging, inert (Reduction of a minimum 66% of salinity – sodium chloride) as in the research conducted by the Geoponic University.

The so-called plant's "cycle of life" is a known and given fact in agricultural science. When the plant perceives that the environment (soil, water) isn't appropriate for it to grow, it produces fruit very quickly because it's trying to propagate and perpetuate itself before it closes its biological cycle. This means that the plant becomes small in size and the fruit is of low quality. Whereas the plants growing in a good environment (soil and water), prolong their biological cycle, they have better leaf and blastus growth, a bigger total size, they give premature, "just right" and late-maturing fruits which are of better quality in appearance and in weight. Such phenomena are absolutely normal precisely because the conditions in water and soil are enhanced. As mentioned before it is possible for someone to start planting earlier in the season, plants which will develop normally aided by the treated water so as to achieve production "precocity". At the same

time, owing to the improvement of the immune system and the fastest transfer of nutritional components a plant may continue to vegetate even after the end of its normal season.

5. THE NEED FOR LESS WATERING AND WHY DOES THIS NECESSITY EXIST?

In view of the fact that water is “thinner flowing” because of the decrease of its surface tension, as well as that there is also augmented permeability in the soil, water infiltrates (“descends”) and is stored in the roots zone (rhizosphere) and thus humidity remains for a much longer period available around the roots instead of staying on the surface and evaporating. Additionally, the plant has the required time to collect the solvent nutritional elements that are essential to its nutrition. It is for these reasons that we “must” cut down the frequency of waterings. We “must” also reduce the quantity of water at about 20 – 40%.

Indeed, it’s worth mentioning that in sand soils the results are faster and that is why even less water is needed. In more hard soil e.g. argillaceous and in very hard e.g. calcareous, in order for the already accumulated salts and fertilizers that exist around the root to dissolve, the results are visible up to 20% later. It must be understood by the user that he/she “has” to change attitude as far as the plants watering is concerned. That is, to experiment a little so that when he/she waters to regulate the quantity of water and thus for water not to descend too deeply and therefore going to waste as well as taking the fertilizers along with it. The ideal is “A little watering and in right doses.” Owing to the above mentioned data, the soil in every planting season appears even more permeable and the conductance of the soil quality is even more reduced. Already, after the second cultivation, the soil has reached its ideal conditions. In addition, another eminent fact is that because of the smaller quantity of water that we use, the environmental temperature is also reduced having as a consequence the smaller chance of affection by diseases favored by humidity.

6. EXCELLENT WATERING WITH DROPLETS AND FOG-MIST PROPAGATION

The use of irrigation system with drops is problematic as the dripping system and the fog-mist propagation nozzles completely clog or malfunction from the salts, resulting in irregular water supply to the plant especially at the end of the network where there is always less water pressure and the plants are more atrophied.

By the use of **AQUA SOFT II** treated water the dripping system or the mist propagation nozzles remain clean thus the use of acids and the time it takes someone to unclog them, are uncalled for. At the same time, water is circulating within the whole network without the salts problem and the plants are taking the pre-selected amount of water, achieving their maximum growth.

Also, wherever a lubricator trough is used for the mixing of fertilizer, we can use **AQUA SOFT II** before the trough, in order to obtain 100% solution of the fertilizer and simultaneously to keep the trough clean from salts while gathering the mud (inertia, soil e.t.c.) with a spatula. In the case of biological cultivations, we place the compost bearing vessel after the **AQUA SOFT II** so that the beneficial bacteria are not killed.

ATTENTION IN ORDER TO AVOID MISUNDERSTANDINGS

By improving the water, one of the most important parameters of plant growth is improved. That is why wherever there are problems with the weather conditions, there is a reduction of brightness, white frost, snow, hail, very high temperature – heat, diseases, undesired supply to the plant of nutritional components, all these may affect negatively the development of the plant without **AQUA SOFT II** being responsible.

ANSWERS TO POSSIBLE QUESTIONS

- 1) ***Crystallization. What does the change in the way crystallization occurs mean and why is the new crystallization that AQUA SOFT II creates permanent and irreversible?***

Crystallization is the union of two or more ions. This can be done either in a natural or artificial manner. There is a way of crystallization that happens by nature e.g. calcium is united with carbon and forms carbonate. Likewise magnesium forms magnesium carbonate. There is also the artificial way of crystallization e.g. electrolysis e.t.c.

With the energy that we are providing to these metal elements through AQUA SOFT II, we are helping them to crystallize with other metal elements due to the alteration of the electric charge so that their negative properties can be altered, that is calcium, magnesium, agglomerates, tartar, plaque, insolventy of water, sodium chloride (salt), burning the roots and the leaves, non satisfactory absorption of potash and in general a soil disruption as to the transfer of the nutritional serum (water and metal elements) towards the plant.

The process of this new crystallization is permanent because firstly the electric charge of the particular elements has been altered and secondly they have been united with some others with a much stronger bond due to the powers of the electric field that are forced upon them (Lorenz type powers). That is to say they are very powerfully locked in their new form. The phenomenon remains permanent and irreversible because the hydraulic network and the earth cannot create these extremely strong energy conditions that are necessary for the water to return to its original state.

- 2) ***What happens to the already existing crystallized soils?***

They are dissolved because water has greatly increased solvency due to its drastic reduction of surface tension and due to the rise in water capacity it can keep them in a soluble form so as to attract them to deeper levels of earth.

- 3) ***How can we tell the difference and what is the particular benefit from the particular (treated) water?***

Due to the water's increased solvency (of at least 200%) and the reduction of its surface tension, it has the property to dissolve the superficial crust of salts and to unclog the soil around the root cavity. All these elements go to the deeper substrata of the earth. So, we observe a reduction of the quality conductance to $\frac{1}{4}$ of the original after some waterings (e.g. a quality conductance of 6.000 $\mu\text{S}/\text{cm}$ after 3 – 5 waterings reaches 1.500 $\mu\text{S}/\text{cm}$ and after 15 waterings it reaches 1.000 – 1.500 $\mu\text{S}/\text{cm}$ since we have achieved also a reduction of the irrigation water in order to avoid pushing the limit too low. The whole process happens as soon as the water comes into contact with the soil.

RESULT OF THE OFFICIAL REPORT BY THE GEOPONIC UNIVERSITY

“CONCLUSION”

“The comparative application of the system took place in our laboratory on tomato plants which were developing in a closed hydroponic system showed that the exposure of the nutritional solution, which contained a high quantity of NaCl (13 ds m⁻¹), in a convertible high frequency field before reaching the roots of the plants resulted in the much greater tolerability of the plants to salinity. As a result the phenologic elements of the developing plants tend very much towards those of the plants which were cultivated in a non-saline nutritional solution. And their production to be much superior to the one of the plants that were developing in saline nutritional solution where the convertible field was not applied”.

PACKAGE CONTENT

The package kit contains the following:

- 1) The electronic processor with dimensions of 24cm length X 16cm width X 10cm height or 36cm length X 20cm width X 17cm height (grey colored box out of which protrudes a thick black wire which is the power socket receiving power of 220-230 Volt, and a thin blacked one of approximately 3m until a small black box. This black box on the other side has a yellow cable of about 20-30cm length till the electrode – antenna which you will connect according to the instructions). Large models are of different color and size (package contents are also different)
- 2) A piece of special plastic isolation
- 3) Foamed plastic – Insulant (black).
- 4) Tube for the yellow wire (in the extreme case it will be needed).
- 5) One adhesive insulating tape (black color).
- 6) A complete manual describing what it is, its applications and what the electronic water processor achieves. Also, in the same manual the installation instructions are included with an installation diagram. We consider it very important that the user reads the complete booklet carefully in order to have a comprehensive picture.
- 7) A guaranty letter/form.
- 8) A leaflet for your observations and comments.
- 9) A declaration that: “The guaranty is the most important document”. After it is completed and signed, you keep one and mail the other to the address:

IFB INTEREXPERTS – Pefkon 6 – Metamorfosi 144 51 - Greece

Alternatively you can deliver the guaranty to the salesperson who delivered the device to you.

TERMS OF GUARANTY

- 1) AQUA SOFT II devices are covered by the manufacturer with a 5 year guaranty and a life time service, provided that the device will not be opened by any party other than the manufacturer, that no parts of the device are destroyed from non regular us, that the security tape of the device has not been forced or when the humidity, temperature and the tension alterations by the Electricity Power Company network do not exceed the specified: Operation Temperature: 0 – 60 Calcium degrees, Humidity: up to 60%, Voltage: Volt A/C 265 max./90 min. AQUA SOFT II has a life-span between 10 – 30 years. The device is supplementary to the machine or/and network that will be installed and does not intervene with their primary function. If for any reason the device is put out of order, the network’s function or/and that of the appliances will remain at its earlier condition because the device cannot have negative results from the ones specified by the network or/and the appliances. The company is not liable for any network leaks after the installation of the electronic water processor, from the removal of salts, which were keeping the network sealed while it was already corroded by electrolysis. The client is aware that this could happen and fully assumes the responsibility. It is vital to understand that the device does not repair the damages but improves the conditions. In no case can the client hold the company responsible and claim any loss of earnings or any other kind of compensation, in the event where the electronic water processor is put out of order. Especially concerning cultivations (and moreover the ones that are arrogated with waters which by chemical analysis have been found improper for watering), it is advised that the user of the device should check the function of the device preferably before arrogating (if the client arrogates frequently), through the indicator lamps or once a week (if the client arrogates infrequently) so that: A) in the case of electric power supply disruption to arrange its immediate replacement, B) in case of a device failure, for this to be noticed immediately and to contact the salesperson and the manufacturing company for the fastest possible restoration of the device’s function in order to avoid any problems to the cultivations being irrigated.
- 2) The manufacturer provides along with every electronic water processor a 90 day purchase satisfaction guaranty starting from the day of purchase. The satisfaction guaranty is not valid for models more than 5” inches
Attention: If the guaranty is not received by the company within 10 days after the installation, then it is not valid, nor is the 90 day satisfaction guaranty. For this reason you should not neglect to return it.

INSTALLATION STAGES OF ELECTRONIC DEVICE

AQUA SOFT II

The pipe needed for the application is approximately 2cm (the shorter) till 10 cm (for more comfortable application).

This electronic device consists of 3 parts:

- The grey electronic box,
- The black small box
- The electrode – antenna (in a special black protecting cover) of 1,5 cm wide and length corresponding to cover the full diameter of the pipe to be installed which will be wrapped up **around** the pipe on which will be installed.



Electrode – Antenna can be installed either:

on metallic pipe



or on copper pipe



or on plastic pipe



achieving the same results. Its efficiency is not affected by pressure, neither by the volume of the water flow, not even by temperature.

[Pressure from 0,1 ATM (atmospheres) up to 100ATM. Water temperature from +1° C up to boiling point (about 90° C). (If temperature of the tube is more than 60° C the electrode – antenna is replaced by silicone cable or we are supplying a special undercover net depending on the particular case)]. The efficiency of the device is not affected on special cooling applications (i.e. condensers) during which the water comes into contact with metal surfaces, which can reach temperatures up to 180° C. The device assists the water to retain the salts which induce hardness, in soluble form, up to the boiling point - 100° C.

The only matter which defines the size as to the device's power is how many inches or cm diameter is the water pipe that we are going to install it on. If at a later stage you are going to install it at a larger diameter pipe please contact us for information otherwise we cannot guarantee for the result.

The installation of the electrode – antenna of the device must be done **before** the point where a problem with scale appears.

If you wish the life-span of the device to be prolonged as much as possible, we advise you to protect it from direct sun or/and rain even by a simple shade. If the point where the device is placed is in sunlight for many hours during the day inside of the device a temperature of up to 80°C is developed. This does not affect the device's efficiency, but it dramatically restricts its life-span (maybe even by half – because the electronic parts age faster).

The installation of AQUA SOFT II is relatively easy and can be done by anybody as long as he will follow the instructions (consult the installation diagram). If you have any doubt about the installation please call us at the given telephone numbers.

We refresh cases we should look out for:

❖ **Note: If in the hydraulic network the pipes have suffered corrosion and their impermeability is caused to and exists by the aid of salts and tartar, then by removing those remnants and cleaning the walls either partially or wholly, there will be water leaks. In this case if you change the piping at these points there will never be any damage.**

❖ If the water before the installment of AQUA SOFT II is not potable, the device is not convert it to potable. If the customer has doubts about the potability of the water, he has to send sample for test to recognized laboratory.

❖ **Attention:** Electric noise (electrosnake).

We suggest that installation is done after the pumps and/or pressure machines and/or recirculators because their motors with the electric noise (electrosnake) they create (the older technologically, the more noise they produce) affect the efficiency of the phenomenon the device creates. It can be also installed before pumps if it is not possible to be installed after them.

Information

We have installed AQUA SOFT II on several applications before the pumps and the result was excellent. Simply the proposal for installation after the pumps is to be absolutely sure for 100% effect and not slightly lower.

❖ **Attention** also should be given

When the water supply tube where we are going to place the electrode – antenna is metal (any metal) and you suspect that is painted with “lead paint” or any mixture of it, then you must clean it with a sandpaper so as there is no colour left before you initiate the installation. The lead which is contained in red or black lead paint affects the results because as an element of nature it is known for its impenetrability from energy. For any other kind of paint there is absolutely no problem.



For the above mentioned reasons it is recommended in all cases to clear the paint in order be absolutely sure for the result.

❖ **As a precaution only,** do not install on flexible pipes that have outer wire protection gauzes because most of them are made from an amalgam of steel and lead. Lead functions as a shield.

- ❖ We check if the pipe has any sharp edges caused by deep cuts on the pipe or by metal remnants like e.g. the soldering of copper pipes. We need to smooth these so that they will not puncture the insulating tape which we are going to place as a first layer. If you are in doubt, reinforce this sharp point with a double layer of insulating tape.
- ❖ Please make sure that the pipe is not humid and that water is not running on it specially after the electrode – antenna application, otherwise we do not guarantee the results, because most likely after the wetting of electrode – antenna, the electronic device signal will be scattered and earthed with nearby metal elements or the ground/walls etc. Water usually drips out of plastic pipes so it is wise to place in such a way that water does not run onto them or onto the application of electrode – antenna. If we suspect that humidity will enter under the protection tape, leave a larger margin (3-5 cm) from the endings in the placing of electrode - antenna (you will notice later why).
- ❖ Please avoid that the short (about 20 – 30cm) yellow or blue cable of the black box to electrode – antenna AQUA SOFT to touch walls or metal areas (neither on the small part of the tube between the black box and the electrode – antenna) because thus a part of energy is lost. It is better to prepare it the way you will see in the next pages. If for some reason has to touch walls or metallic places it should be passed through a plastic tube (if you encounter such a very seldom case please call us to inform you how to handle it).

STEP 1^o : AQUA SOFT II electronic box installation

Fix AQUA SOFT II electronic grey box on a wall or a stable place closest possible to the application. Distance of the grey box till the black smaller box where electrode – antenna is connected, can be from 10cm to 10 meters away (it is usually supplied with a black – black/white or black – black/red coloured 3 meters cable of 2 X 1,5mm type). **If for some special reason a longer distance is needed to be created, then you cut the cable between the grey and the black box and add a cable of similar or larger cable diameter. Just make sure that the black will be connected to black and black/white to black/white or black will be connected to black and black/red to black/red.** This is very important otherwise the special transmitter will be damaged. The distance of the black box and electrode – antenna yellow cable is fixed to about 20-30cm which please try not to change adding more cable.

STEP 2^o : Installation of the electrode – antenna on the tube

We chose the part of the tube will install the electrode - antenna of the device.

Make sure that this part of the pipe is clean and not painted (we remind that many paints, especially for the ships contain "lead" which is turning the device un-effective). Do that for a length of 10 – 15 cm (as per pictures in the previous page).

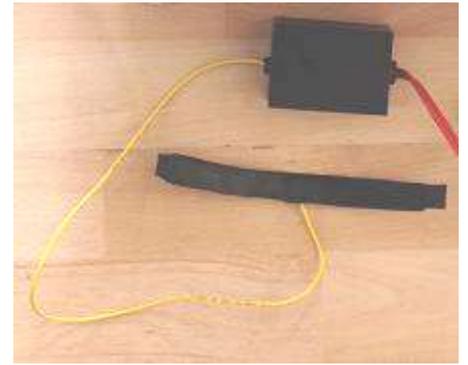
You will have to turn round the pipe the supplied wide insulating tape of **3,5cm** (black or white) as the first layer – covering, arranging 3 layers 7 – 10cm width (if available) without any uncovered space. If there is not available, then do it for 2cm. We need 3 layers cover



because AQUA SOFT II is very strong and we have to create a very good isolation on metallic pipes.

This also helps us to have a substrate in order the next insulation layers to create a sandwich and do not allow moisture to reach the antenna.

As we mentioned the part of electrode – antenna is the black insulated tape 1,5cm wide connected with about 20-30cm yellow special wire with the black box.



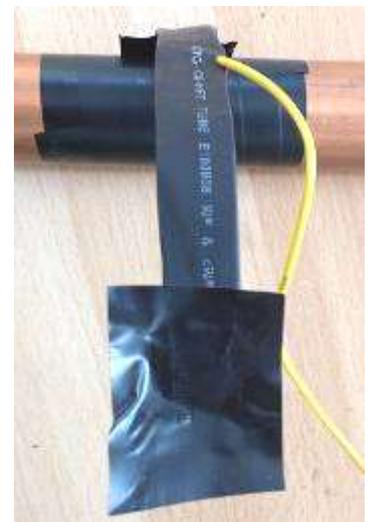
Fasten a piece of isolating tape to one end of the black electrode – antenna in order to be able to turn it easily round the pipe avoiding slipping.



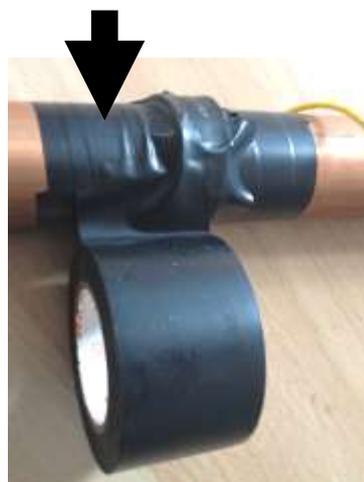
Start to stick it on the tube.



Fasten another piece of tape to the other end of electrode – antenna. This will assist to keep it in place when you will turn the electrode – antenna round the pipe.



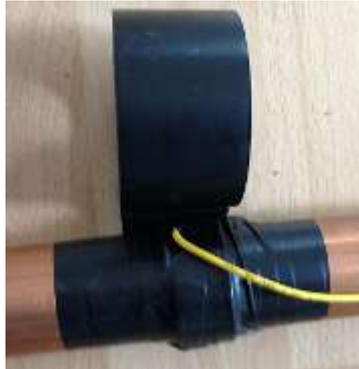
Continue insulating covering with the way you see in the pictures. Start from the opposite side of the cable at an intermediate point (not the end side of the sub-layer of the isolating tape). This will assist you to succeed better isolation following the steps below.



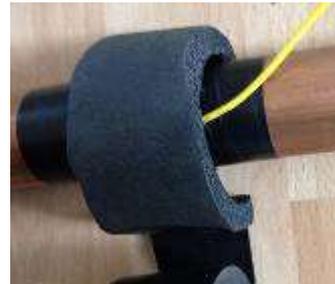
After you arrange the first round, turn the cable to the opposite side and continue isolating with the tape.



Turn again the cable to the opposite side and re-isolate till the end of the black tape. This way you succeed good quality isolation from possible humidity - moisture.



Tear the black spongy isolation and cover the installation.



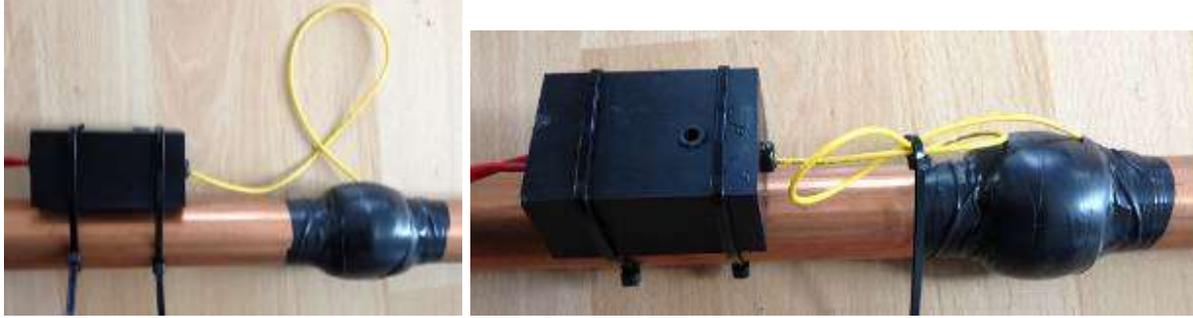
Start covering tightly the isolating tape over the spongy black isolation to fully cover it.



It will be good enough to direct cable to the end of the spongy black isolation and to arrange the similar procedure when you started the isolation of the electrode – antenna. This way you succeed good quality isolation from possible humidity - moisture.



Now it is the time for securing the black box on the tube (or a close suitable place).



ATTENTION

You are requested to make sure that the cable between the black box and the electrode-antenna application **will not touch** anywhere (even at the intermediate pipe) due to will loose part of its energy.

Another example

ATTENTION
(In cases of vertical installations)

In cases where the installation is on a vertical position, it is strongly recommended that the cable which comes out of the insulation to have a downward direction in order avoid possible entry of water (either if water is dripping, or sprayed or from condensation due to difference in the particular space).



Finally,
Secure the cable between the grey box and the black box in the best way. If it is needed to cover a long distance and have to be fasten, then cut the cable (in this picture is black – red) at a suitable point and insert it in an electric suitable tube for protection. Fix it or tire up with the most proper way.



Do not forget, as mentioned before, that if for some special reason a longer distance is needed to be created and you have to cut the cable between the grey and the black box and add a cable of similar or larger cable diameter, just make sure that the black will be connected to black and black/white to black/white or black and black/red to black/red.

STEP 3⁰ : Connection to the power

Insert the power plug of AQUA SOFT II to an earthed socket (prefer souko – same as per supplied power cord)

Red light on the gray box is lighting (it shows the operation of the electronic board).

The orange light on the black box will have to light, which indicates that the signal emitted normally from the yellow wire to the electrode – antenna.

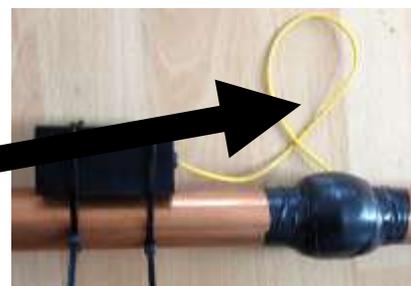
If something of these two lights is not lighting please contact us immediately.

Periodical checking of proper operation

If one of the lights or two of the lights is not on, check whether the plug is in the socket, which please make sure that is under electric current. In case there is current and one or two of the lights is off, at first stage please call us in order give you directions. If we will tell you to send the device to us for testing then you cut the cable between the small black box and the electrode – antenna at this point.

Also disconnect (unscrew) the grey box and the small black box and send it via the distributing channel.

When you will receive it back we will accompany it with a white terminal to connect the cable between the small black box and the electrode – antenna. Look the below pictures.



We recommend the electronic device to be always in the current socket (unless there are special reasons on which please inform us).

If somebody needs more specialised information on the way of operation and applications, we will be in your disposal.

SALES CONSULTANT

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