

EMERALD[®]

PASSPORT AND OPERATION MANUAL

EMERALD HOME 3

FOR PURIFICATION AND ELECTRIAL TREATMENT OF FRESH WATER



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ATTENTION! Prior to start using the EMERALD HOME 4 DEVICE (hereinafter referred to as "EMERALD" or "device"), please carefully read this specification and operating manual. If the device is carefully used and all the requirements specified in this specification and the operating manual are followed then the EMERALD will serve you for many years.

1. FOREWORD

We would offer congratulations on your purchase of the EMERALD for purification and electrical treatment of fresh water. You have wisely invested in the well-being of your family and also made a very important step towards improving your health!

The EMERALD is designed to produce the drinkable water with the antioxidant properties at home from the ordinary tap water, purified from the microbes and microbial toxins, heavy metal ions and harmful organic compounds. Antioxidant water from the EMERALD has a beneficial effect on the entire body, normalizes the metabolism and the functioning of internals, cleanses from the residues and toxins and also strengthens the immune system, improves the memory and increases the body's energy tone.

The EMERALD was developed jointly with Vitold Bakhir Institute which is the main scientific center in the field of electrochemical activation of the water. Many years of experience and modern discoveries by experts from Vitold Bakhir Institute as well as the direct participation of Professor V.M. Bakhir, Doctor of Technical Sciences and made it possible to combine in the EMERALD the most advanced technologies of purification and electrical treatment of water.

All the processes of purification and electrical treatment of water in the device are as close as possible to what happens to water in the animate nature. Reproducing the most complex natural processes of water purification and treatment has become possible due to the creation of highly reliable electrochemical modules which are the main elements of the device. The modules consist of two flow through chambers: anode and cathode ones. Namely the processes of electrical treatment of water are repeated under the influence of positive and negative current on the anode and cathode in these chambers which occur in nature.

2. INFORMATION ON ANTIOXIDANT WATER

The human body contains the water more than 70%. The water plays the most important role in the life activity of the human body. An adult needs to consume about 2-3 liters of water per day to maintain the normal functioning of the body.

The antioxidant water from the EMERALD has a positive effect on the body when it is used as a part of the usual ration. The antioxidant water from the EMERALD protects the body from the action of strong toxic oxidizing agents. The mechanism of action of the antioxidant water is based on the transfer of protective antioxidant properties to the internal media of the body which contributes to the protection against the toxic oxidants that are present not only in the water but also in the air and in the food. The tissue respiration is stimulated which enhances the action of vitamins and chemical antioxidants in the body. The antioxidant water also reduces the effects of ionizing radiation, i.e. it exhibits the antiradiation properties specific to the antioxidants. The antioxidant water improves the passive immunity and the general condition of the body, improves the functioning of the gastrointestinal tract, urinary tract and normalizes the blood values.

Water purified by the EMERALD retains its antioxidant properties no more than 24 hours from the moment of treatment. After this period the oxidation-reduction potential (ORP) of the treated water

returns to its original ORP of tap water $+150 \div + 500$ mV. When boiling the ORP value of antioxidant water decreases in absolute value but the water continues to exhibit the properties of the deoxidizer. The water obtained from the EMERALD should be stored for no more than 24 hours in the glass containers with the cap closed away from the direct sunlight and the heat sources. Water treated by the EMERALD meets the requirements of hygienic standards (see Appendix 1 "Certificates").

Cooking – the food on antioxidant water is cooked faster and retains more useful properties. The antioxidant water is great for the water steeping of fruits, vegetables, fish and meat since due to its properties this water more actively removes the harmful chemicals from the products such as the growth hormones and the antibiotics.

Preparation of beverage – together with drinking the antioxidant water purified by the EMERALD the antioxidant effect can be enhanced due to the phenomena of synergism and the antioxidant beverage can be prepared using the natural antioxidants using the freshly squeezed carrot, apples juices and various berries by adding the antioxidant water treated by the EMERALD. The herbal teas made with this water acquire the special taste and aroma. The ice cubes of frozen antioxidant water will give the drink an added advantage.

Air humidification – the antioxidant water is useful to apply in the form of fog when it is used in the humidifiers. The humidified air, with micro droplets of the antioxidant water with the properties of deoxidizer has the beneficial effect on the respiratory and cardiovascular devices and prevents the asthma attacks and allergic diseases.

Cosmetic purposes - for cosmetic purposes the antioxidant water is adventitious to use for washing in the form of ice cubes to wipe the face or spray the water in the form of aerosol to moisturize the skin. Moisturizing masks with the use of antioxidant water will have the special effect.

Pets and Plants – the pets will prefer the antioxidant water to usual tap or bottled water. The use of water from the EMERALD for watering the indoor plants will be conducive to their rapid growth and development.

3. METHODS OF WATER PURIFICATION AND ELECTRICAL TREATMENT

The EMERALD is highly productive and runs on cold tap water allowing you to get from 50 to 60 liters of drinking antioxidant water per hour.

Electrochemical activation technologies in the EMERALD allowed combining the high-performance purification and the water treatment in order to restore its antioxidant properties.

The EMERALD provides the highest quality of drinking water by sequential combining the electrical treatment of water in the electrochemical module and the use of auxiliary filter elements. The main element of the EMERALD is the electrochemical module (Bakhir's special flow-through electrochemical modular element) in which the oxidative reactions take place on the anode and reducing reactions on the cathode. The auxiliary elements in the device are the catalytic filter and the electrokinetic filter. The absence of replaceable and short-life elements are identifying feature of the EMERALD.

The oxidative reactions take place in the anode chamber of module where the destruction of the microbes and microbial toxins as well as harmful organic compounds is occurred. In nature the similar processes of antimicrobial protection namely phagocytosis have been occurring in all living forms for millions of years without any failure occurrences.

In the cathode chamber the reducing reactions take place during which the water regains the useful antioxidant properties (oxidation-reduction potential close to the internal media of the body). The

similar processes in nature occur during the contact of spring water with rocks as well as during the phase transitions in the process of deglaciation.

The auxiliary catalytic filter consisting of the highest quality natural processed coal (grade A hydroanthracite) serves for advanced water treatment from the oxidized organic and the chloroorganic compounds (including the herbicides, pesticides, surfactants, phenols, antibiotics, antidepressants, hormones).

The auxiliary electrokinetic filter consisting of the purest natural mountain quartz serves for the advanced treatment of water from the mechanical impurities, heavy metals, iron, manganese and hydrogen sulfide.

Useful information

The purification and electrical treatment of water in the anode and cathode chambers are highly efficient and safe. The water treatment processes are identical to natural ones but they are accelerated tens of thousands of times due to the use of the latest technologies and electrochemical modules.

The catalytic and electrokinetic filters work in "purity". They are located after the anodic destruction of microbes, microbial toxins and biofilms which significantly increases their efficiency and service life. Therefore the filter elements in the EMERALD are protected from the reproduction of microbes, fouling with the harmful biofilms and water contamination by the microbial toxins!

The latest technologies used in the EMERALD allow you to get the clean and useful antioxidant water while maintaining a neutral level of acid-base balance (pH level). The antioxidant water with the neutral pH level is suitable for regular use in the composition of the usual dietary. Due to the similarity with the internal media of a human body such water is instantly absorbed by the body and holistically restores it.

Main stages of water treatment in EMERALD device.



Fig. 1 Anode chamber of module

Stage 1. Anode chamber of the electrochemical module

- ◆ The microorganisms, microbial toxins and biofilms are destroyed in the water flowing through the anode chamber of the electrochemical module;
- ◆ Oxidative destruction of the organic compounds such as herbicides, pesticides, surfactants, phenols, petroleum products and etc.;
- ◆ Deferrization of water is carried out with the transformation of iron ions into a 3-valent form that is easy for mechanical purification;
- ◆ Water obtains the properties of the active oxygen carrier.

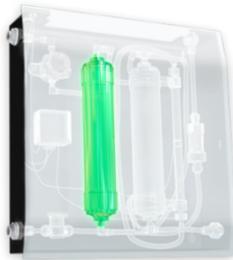


Fig. 2 Catalytic filter

Stage 2. Catalytic filter

- ◆ At this stage the water is purified from a wide range of organic and inorganic dissolved impurities that have undergone the oxidative destruction in the anode chamber of the module;
- ◆ Water is being purified from free chlorine and chlororganic compounds ;
- ◆ Improves the taste of water and eliminates the unpleasant odors, due to the anodic removal of phenols and hydrogen sulfide.

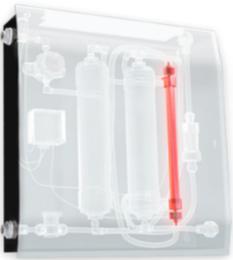


Fig. 3 Cathodic chamber of module

Stage 3. The cathode chamber of the electrochemical module

- ◆ Water treatment in the cathode chamber of the electrochemical module imparts the antioxidant properties to the water reducing the oxidation-reduction potential of water;
- ◆ Ions of heavy metal are converted to the insoluble hydroxides and subsequently they are removed on the electrokinetic filter;
- ◆ At the same time all trace elements are preserved in water: calcium, magnesium, sodium, potassium, lithium, fluorine, iodine that are useful and necessary for a man;
- ◆ The properties is given to water as the active carrier of hydrogen;



Fig. 4 Electrokinetic filter .

Stage 4. Electrokinetic filter

- ◆ Water undergoes final cleaning from mechanical impurities, hydroxides of heavy metals, iron, manganese, hydrogen sulfide;
- ◆ Provides guaranteed transparency of water, removal of turbidity and impurities.

4. PRECAUTIONARY MEASURE

- ◆ Important! For normal operation of the EMERALD it is necessary to comply with all requirements for its operation and service maintenance specified in this specification and operating manual.
- ◆ Prior to start using the device you are requested to read carefully all instructions. If you have any questions about the connection or operation of the EMERALD you are requested to consult with our authorized dealers or call our customer service.
- ◆ When using the electrical device you shall always follow the basic safety guidelines to reduce the risk of fire, electric shock, and / or personal injury.
- ◆ To prevent the electric shock, do not lay the electrical wires of the sensor disc and power source, body or other electronic components of the device near the water or other liquid substances. The outlet shall not be located directly above the sink or in any other place where the water can get into it. Avoid hanging of electrical wires from the edge of the tabletop and avoid their contact with hot surfaces. Prior to connect to the electrical network, make sure that the device and all its elements are dry. During the operation all elements of the EMERALD shall be dry and not leak.
- ◆ Water purification device is not intended for use by children, people with physical and mental disabilities, with the lack of necessary experience and knowledge except in cases of direct instruction by a person responsible for their safety.
- ◆ Use only the spare parts that are authorized by the manufacturer. Do not use the device with damaged electrical wires of the sensor disc and the power source after breaking their integrity.
- ◆ Do not use this device for other purposes. Do not use the device outdoors. The device is intended for home use only. Do not use the device for the desalination of water .
- ◆ Do not disassemble or repair the device by yourself. Contact the authorized service center. In order to reduce the risk of fire or electric shock it is strongly recommended not to disassemble the electronic components of the device.
- ◆ Avoid the rough handling with the device; do not drop or hit it. Do not store or transport the device with residual water at ambient temperature below 0 °C. Use the device only in an upright position;
- ◆ Before starting the operation make sure that all hydraulic and electrical connections are secured. Do not leave the running device unattended;
- ◆ In case of absence for a long time at home then tap supplying the water to the device shall be closed - see (Fig. 8), (Fig. 9).
- ◆ Do not use the device for purification of microbiologically unsafe water or the water of unknown origin without the proper prior disinfection. If you have the weakened immune system or if for medical reasons you need absolutely pure water, then consult with medical professional prior to start using the device.
- ◆ Additional mechanical filters shall be installed down to water inlet into the device if there are visible suspended matters, turbidity, rust flakes in tap water.
- ◆ Make sure the device is disconnected from the power supply during long interruptions. Do not use any other power-supply units and adapters instead of the included power adaptor. Check the power cord, power plug and the device itself for damages. If any damage is found, then contact your nearest service center for the inspection or repair.
- ◆ The device should not contain the materials with which the plumber seals the joints. Avoid to entry into the device the vegetable oil, technical petroleum jelly or other lubricants, solvents, ammonia, alcohols or powerful cleaning solutions. They can seriously damage the device.
- ◆ Avoid the contact of the electrical components of the device with water and any other liquids (including the contact of water with the sensor tap of clean water supply and its LED part).

- ◆ The electrical outlet shall be grounded to connect the power cord. If you need to install a new outlet it should be done by the electrician with the appropriate permit or certificate issued in accordance with the current legislation of your host country.
- ◆ For proper function the EMERALD outlet shall run faultlessly and it shall have the GROUNDING.
- ◆ Incorrect connection to the power supply network may result in the risk of electric shock. Do not replace the plug by yourself.
- ◆ Regular maintenance of the EMERALD with flushing of the filter elements and the electro-chemical module is required (see the section “MAINTENANCE OF THE DEVICE”).
- ◆ Do not use the first 30 liters of purified water immediately after connecting the device or after washing the device with the citric acid. In case of long downtime of the device (more than 1 day) the first 30 liters of purified water should also be discharged.
- ◆ The device is designed for purification and treatment of COLD WATER ONLY! Never use the warm or hot water in the device as this may damage the device (see the section “OPERATION OF THE DEVICE”)

5. CONNECTION OF THE DEVICE

ATTENTION! This section describes the main method of connecting the EMERALD under the sink recommended by the manufacturer. In the case of using an alternative method of connecting the EMERALD it is necessary to make sure that the method chosen is not in conflict with the other conditions of this Specification and the operating manual. In case of violation of the terms of installation and operation of the EMERALD the warranty claims may be rejected.

EMERALD device location under sink.



Fig. 5 Location of EMERALD device on the bottom shelf of the sink's cabinet.

The installation of EMERALD is carried out without the fastening fixture on the bottom shelf of the sink cabinet (Fig. 5) or is attached to one of its walls by the screws for which the special hangers are located on the rear wall of the device. To connect the EMERALD under the sink it is necessary to use the connecting tubes (white $\frac{1}{4}$ tube made of food grade plastic) and the parts included in the kit. Make the connection in accordance with the diagram in (Fig. 7).

ATTENTION! Prior to start the installation of the device you are requested to be sure to familiarize yourself with the basic principles of connecting the white tube with fittings described in the section “General rules for handling quick-detachable joints such as John Guest®”

The fixed connection of the EMERALD requires the certain skills in working with plumbing equipment. We recommend using the services of authorized specialists of EMERALD LLC, the representative of the dealer network or the services of qualified plumber of the housing and public utilities organization at your place of residence. Do

not install the device in the place where its maintenance will be difficult.

Prior to start the connections shut off the cold water tap and then open the cold water tap on the kitchen faucet to relieve the pressure in the pipe. Avoid direct sunlight on the surface of the device housing.

Having completed the connection of the device you should be sure that all connections were secured and tightened. If you notice the water leakage in the connection joints of the tee (5), plastic tubes with fittings (3), (4) or the water tap of drinking water (8) then disconnect and reconnect them. During the installation it is necessary to pay the attention that the inlet and outlet tubes run freely radially which exclude the fractures.

General rules for handling quick fittings like John Guest®.

The connection of the white ¼ tube to the fittings can be done manually or using the special key included in the package. Quick-release joints of the John Guest® type allow, if it is necessary, to carry out procedures for connecting / disconnecting the tubes and the fittings multiple times.

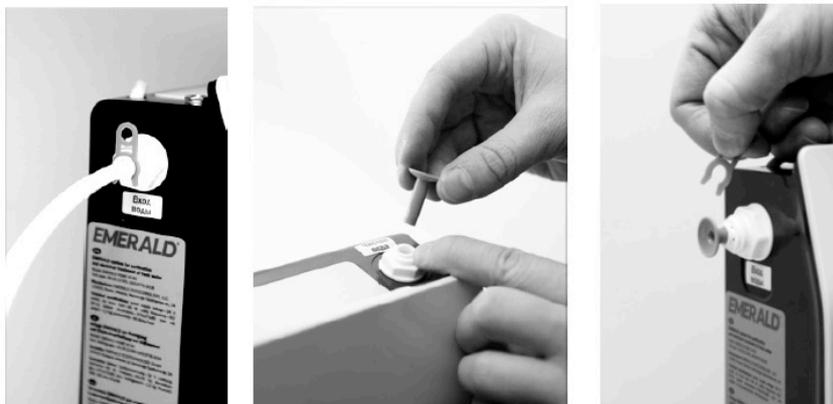


Fig. 6 General Principles of Connecting the tubes to Quick Release John Guest® Fittings

Important! Do not apply the force when performing these procedures! The correct connections / disconnections of tubes and fittings like John Guest® do not require excessive force!

To connect the tube to the fitting the following actions should be done:

- ◆ Insert the white tube until it stops in the hole of the fitting; If the connection is right then the tube enters the fitting hole by 15-18 mm;
- ◆ Check the reliability of tube connection by countermotion of the tube. At the countermotion of the tube the end ring (collet sleeve) of the fitting extends from the base;
- ◆ A retaining lock (blue / red clip) is inserted into the gap between the end ring (collet sleeve) and the base of the fitting.

To disconnect the tube from the fitting:

- ◆ Temporarily remove the retaining lock (blue / red clip) from the fitting;
- ◆ Press the end ring (collet sleeve) of the fitting to the base of the fitting by the hand or with special key and hold it in this position while pulling out the white tube;
- ◆ Pull the tube out of the fitting hole.

EMERALD device connection under the sink.

The procedure for connecting the EMERALD device (Fig. 7) consists of the following steps:

- ◆ Connection to the cold water supply line (5) and (3);
- ◆ Mounting a clean water tap (4) and (8);
- ◆ Connection of the device to the mains (7)

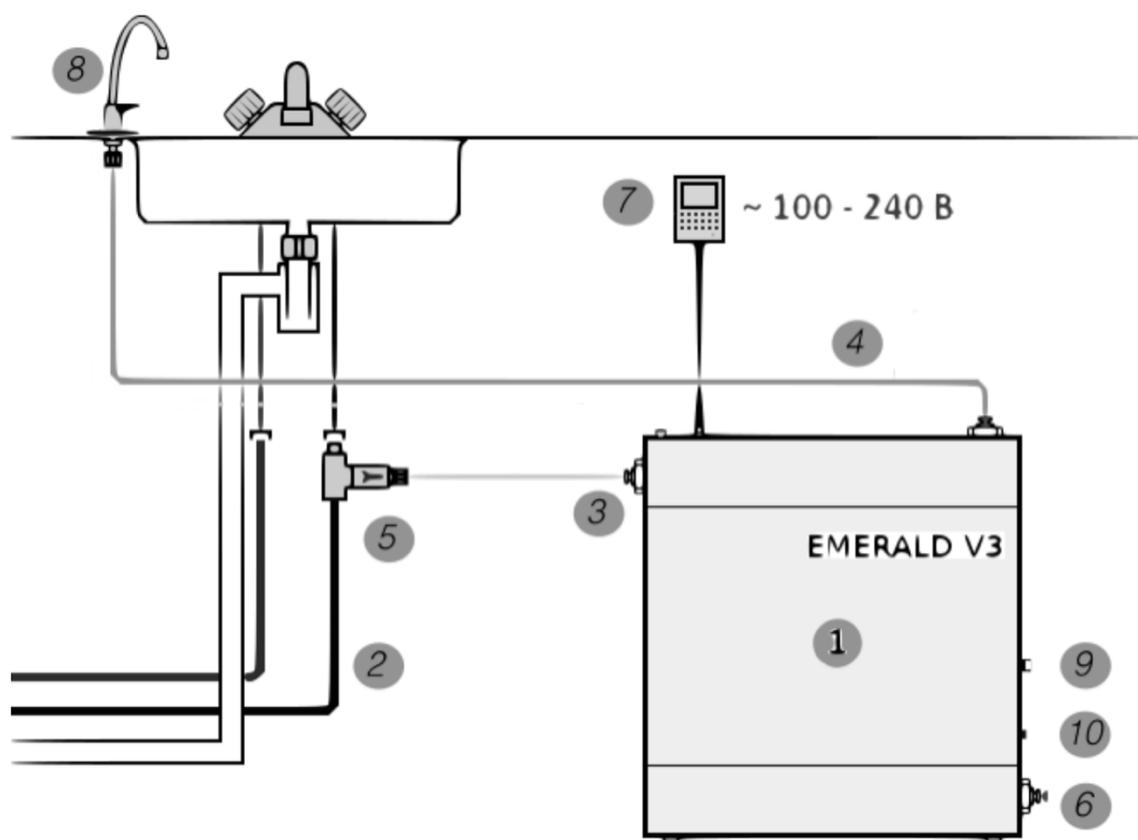


Fig. 7 Connection diagram of EMERALD device under the sink

1 - EMERALD device; 2 - line of cold water; 3 - a tube of an entrance of cold tap water; 4 - outlet tube of purified drinking water; 5 - tee with ball valve, for supplying water to the device; 6 - hydraulic inlet for flushing the device with citric acid; 7 - power source (adapter); 8 - clean water tap; 9- electric plug for connecting a flushing device; 10- power button for flushing device;

During installation, the food-grade plastic tube $\frac{1}{4}$ supplied in the connection kit is cut into 2 parts (the length of the parts is selected on the spot). In accordance with the scheme (Fig. 7): the tee (5) is connected with the first tube segment to the "Tap water" fitting (3) on the side of the device housing; the second segment of the tube connects the fitting "Clean water" (4) in the upper part of the device with a tap of clean water (8).

Connection to cold water supply line.

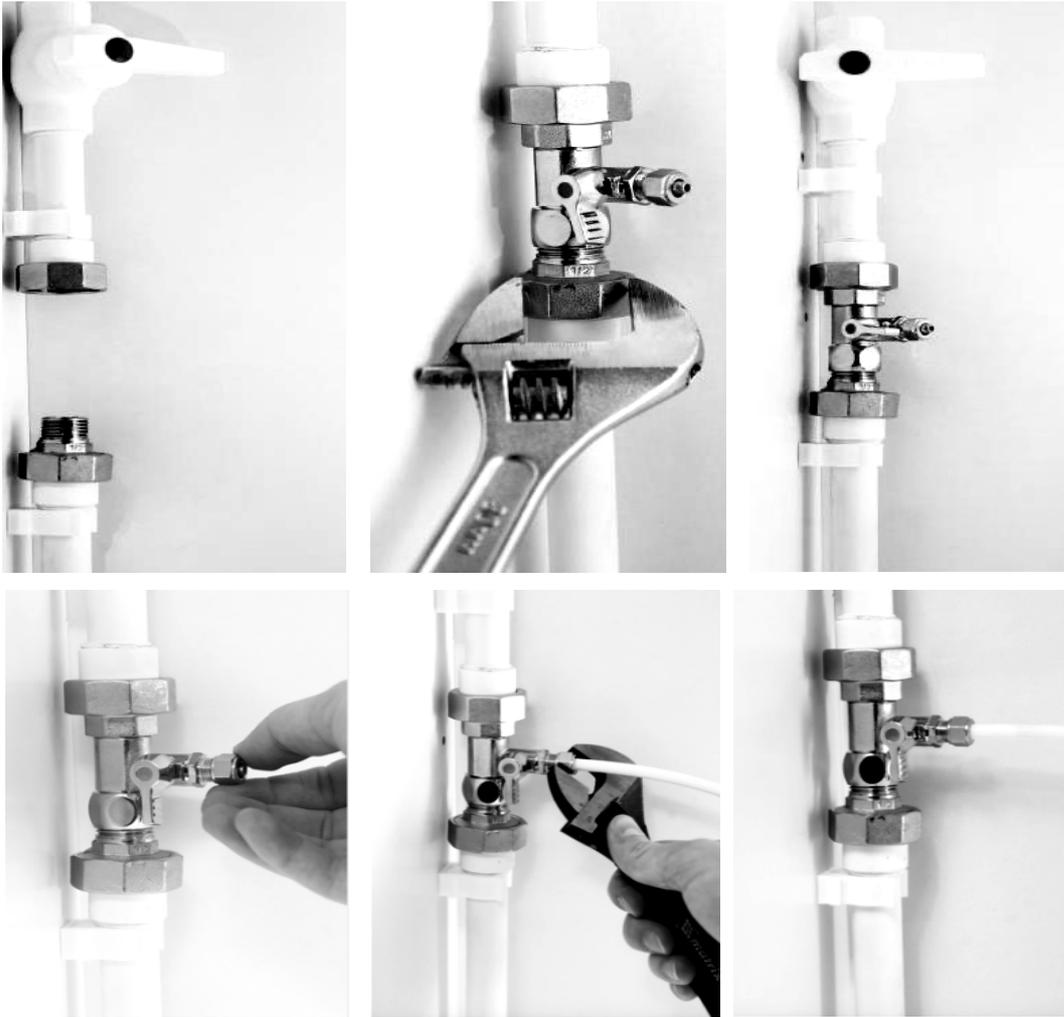


Fig. 8 Connection to cold water supply line

- ◆ Shut off the flow of cold water to the sink and then open the cold water tap on the mixer tap to drop the pressure in the tube;
- ◆ Insert / screw the tee with the ball valve into the gap between the cold water supply and the flexible piping of the mixer tap, see (Fig. 9). Seal the threaded joints if necessary.
- ◆ Unscrew the nut on the tee and put it on the connecting tube;
- ◆ Put the tube tightly on the tee fitting and tighten the nut;
- ◆ Check the reliability of all connections.

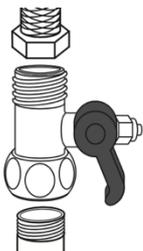


Fig. 9 Ball valve tee with tap regulating the water supply

Attention! During the connection of these elements do not overtighten the connections! It can lead to the fracture of the tee or tap, including – hidden fracture (with long-term consequences). The amount of used waterproofing material (fluoroplastic tape and etc.) should not be excessive! Contact a professional plumber to install these items in the cold water pipeline. In the case of any mechanical damage of the junction point providing that it has been improperly installed and used then the warranty claims might be rejected.

Clean water tap installation

Drill a hole with a diameter of 12 mm for the tap in the sink and install it (see. Fig. 10). Drilling a hole in the sink should only be done if it is certain that the sink will not be destroyed in this procedure. Particular care should be taken when drilling holes in ceramic, porcelain, granite, marble, Teflon sinks, as well as in sinks made of artificial stone and so on. If it is not possible to make a hole in the sink, the faucet can also be installed in the countertop or hung on the wall using the bracket that comes with the kit.

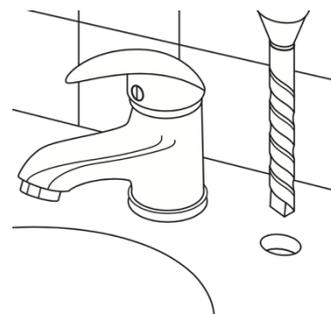


Fig. 10. A sample of drilling holes for installation of clean water tap

Var. 1. Classic method

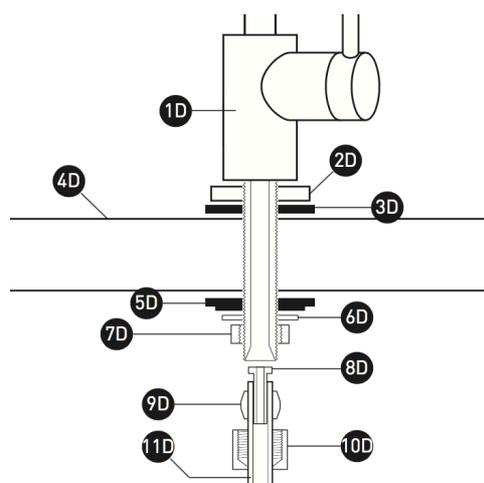


Fig. 11. Assembly diagram of the hydraulic elements of a clean water tap

1D – clean water tap; 2D - disk-stand; 3D- rubber mount; 4D - sink / countertop; 5D - clamp mount; 6D - washer; 7D - a nut; 8D - insert; 9D - crimp ring; 10D - a nut; 11D – white tube

Connect the clean water tap according to the diagram in Fig. 11. For this it is necessary:

- ◆ Put on the threaded shank of the crane a decorative stand with a rubber gasket;
- ◆ Insert the tap into the drilled hole;
- ◆ Put plastic and metal lock washers on the threaded shank from below and screw on the fixing nut.
- ◆ To connect the plastic tube $\frac{1}{4}$ pass it through the clamping nut; put a plastic sleeve on the connecting end of the tube and insert a plastic piston into the tube; then insert the tube into the shank of the tap and tighten the clamping nut as far as it will go.
- ◆ Check that all connections are secure.

Var. 2. Express method

- ◆ Connect the clean water tap according to the diagram in Fig. 11 up to paragraph 7D;
- ◆ To connect a plastic tube in this embodiment, use the quick-connect fitting (see Fig. 12). To do this, screw the fitting onto the valve after the 7D nut, and on the other side of the fitting, insert the plastic tube into the quick-connect fitting; Do not forget to insert the fixing clip into the sliding ring of the fitting;
- ◆ Check that all connections are secure.



Fig. 12. Fitting for clean water tap connection with tube

Connection of the device to the electric network.

The EMERALD device is connected to the electric network in several stages - see Fig. 13. First you need to connect the power supply (adapter) to the network cable. Then you need to connect the power cable to an electrical outlet and insert the plug of the power supply into the power socket of the EMERALD device in the upper left corner of the side of the case.



Fig. 13 General view of connecting the EMERALD device to electrical network

Important !

It is forbidden to disconnect a working device (in OPERATION or FLUSHING mode) from the network by pulling the plug of the power source from the device. This can lead to malfunctioning of the device. Disconnecting devices from the power supply should only be done by disconnecting the power plug from the outlet.

6. OPERATION OF THE DEVICE

Important! After connecting the EMERALD device it is necessary to familiarize yourself with the operating rules.



Fig. 14. Internal elements of the EMERALD device

1 — inlet of unpurified cold tap water; 2 - output of purified antioxidant water; 3 - water flow regulator; 4 - catalytic filter; 5 - electrokinetic filter; 6 - electrochemical module (the main component of the EMERALD device); 7- monitoring and control unit; 8- hydraulic input for citric acid washing solution; 9 – flushing mode on / off button; 10 - plug for flushing device connection; 11- flushing device..

Important! Do not use for food or drinking purposes the first 30 liters of the purified water immediately after connecting the device. In the case of prolonged downtime of the device (more than 1 day) then the first 30 liters of purified water shall also be discharged.

When you turn on the EMERALD for the first time it is necessary to adjust the speed of the purified water flow (see the “Setting the Flow of Water” section).

The device is intended for the purification and electrical treatment ONLY OF COLD WATER FROM CENTRALIZED WATER SUPPLY SYSTEMS! When the OPERATION mode of drinking water is activated then it is not allowed using warm or hot water through the device as this may damage it.

Do not use the device for purification of microbiologically unsafe water or water of unknown origin without the proper preliminary filtration and disinfection.

Supply of tap water.

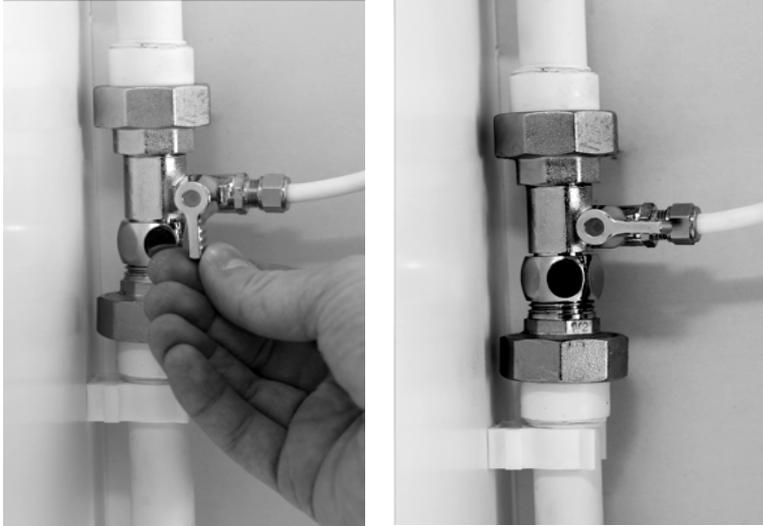


Fig. 15. Water supply with the use of ball valve tee

To supply the tap water to the device it is necessary to smoothly open the ball valve on the tee - see. (Fig. 15) in order to provide running the cold tap water into the device.

The vertical position of the valve means there is no water supply. Horizontal position of the tap means that the water is supplied to the device

Important! If there is high water pressure in the water supply system, it is not necessary to open the valve completely. The partial opening of the valve on the tee will reduce the overall flow rate of water and reduce the stress level on the hydraulic components of the device.

Water flow rate adjustment.



Fig. 16. Water flow regulator

Adjust the speed of the water flow through the EMERALD using the water flow regulator (see. Fig. 14 – “3” and Fig. 16) which is located inside the device housing. This regulator allows you to set the same water flow rate in the EMERALD regardless of the water pressure in the water supply system. For high-quality purification and electrical treatment the water flow through the device should be no more than 1 liter / min. (60 liters / hour). If the flow rate of water is slower in the device then the purification and electrical treatment are better.

To regulate the flow rate of water it is necessary to do as follows:

- ◆ Unscrew the control valve retainer (flat metal nut) by turning it counterclockwise to the required level.
- ◆ Rotating the control valve clockwise (reduction of the flow) or counterclockwise (increase of the flow) it is necessary to set the required flow rate of water in the device in the range of 50-60 liters / hour.
- ◆ After setting the required flow rate the retainer of the control valve (flat metal nut) shall be tightened by turning it clockwise.

Attention! During the operation of the device the flow rate of the water can gradually decrease. To restore the normal flow rate it is necessary to flush the device (see Section “MAINTENANCE OF THE DEVICE”).

Operation of the device with the connection under the sink.

To start the operation of the device to the ball valve on the tee should be smoothly opened -see (Fig. 15).

- ◆ To turn on the device, turn the handle on the purified water supply tap to the “open” position so that cold water starts to flow into the device
- ◆ To turn off the device, the reverse action must be taken

Indication of the device.

The main indicator of the correct functioning of the EMERALD device is the multifunctional LED integrated in the body of the device (see Fig. 17). Due to the presence of intelligent color indication of the LED, the user can track all the most important parameters of the EMERALD device .

The multifunctional indicator allows one to evaluate:

- ◆ The resource of the device, after which it is necessary to flush the device (see Section “MAINTENANCE OF THE DEVICE”);
- ◆ The flushing process of the device, allowing the user to verify that all stages of the device flushing are completed correctly;
- ◆ Correct connection of the hydraulic and electrical connections of the device.



Fig. 17. Multifunctional LED indicator of the device

Turning the handle on the tap for supplying purified water to the “open” position will turn on the device and turn on the light indication in one of the color modes corresponding to the state of the device. A detailed description of the various modes of light indication is presented in the section "Monitoring of operating parameters".

Main operating modes

The EMERALD works in the semi-automatic mode. The built-in monitoring and control device of the EMERALD allows the user to monitor the most important aspects of the device status.

STANDBY mode.

In STANDBY mode, the device is connected to the mains and to the water supply device, but is in the off state. The LED indication is off.

OPERATION mode.

Turn the regulator on the clean water tap to the “open” position. The LED on the device will turn green to indicate that the device has entered into OPERATION mode.

If the idle time of the device in the STANDBY mode is more than 8 hours, then when it is turned on, a green flashing LED lights up for 60 seconds, indicating that stagnant water must be drained from the device during this time. After the stagnant water discharge time has elapsed, the green LED turns on, indicating that the device has entered the full-fledged OPERATION mode, and the drinking water quality has returned to optimal .

Some features of the OPERATION mode.

- ◆ If the STANDBY mode (idle) of the device is less than 8 hours then when it is turned on the green LED will not be flashing which will indicate that water is not required to be discharged from the device.
- ◆ **After 8 hours** of working in the OPERATION mode the LED will light in orange indicating that the device is DESIRED to be washed with the acid solution.
- ◆ **After 10 hours** of working in the OPERATION mode the LED will light in red indicating that the device SHALL be washed with the acid solution.
- ◆ Using the device in OPERATION mode for more than 10 hours without washing with the acid solution is not limited by the device’s software but it is the violation of the device’s operating conditions.
- ◆ The total active time of the working hours is the energy-independent characteristic and that is when the power network is disconnected the active time of the working hours is stored in energy-independent memory.

The visual method of monitoring the device’s operation is the availability of microbubbles of hydrogen in the purified antioxidant drinking water.

The instrumental method of monitoring the parameters of purified antioxidant water is to measure the parameters of pH and the reductive-oxidative potential (ORP) of purified water with the use of appropriate instruments.

7. MAINTENANCE OF THE DEVICE.

To achieve the highest quality of purified water in the EMERALD as well as to ensure the regulatory compliance of water quality the user shall regularly flush the device with the solution of citric acid. With timely and uncomplicated maintenance your device will produce the highest quality drinking water with excellent taste characteristics for many years.

Important! The EMERALD does not require the consumables materials and high-wear parts. The electrochemical module and the auxiliary filtering elements (catalytic filter and electrokinetic filter) do not require the periodic replacement while observing the operating rules described above.

Maintenance of the EMERALD including the regular flushing of the entire device (including the electrochemical module and filter elements) with the solution of citric acid to remove the accumulated impurities and deposits. The regularity of maintenance of the EMERALD depends on the quality of the primary water, the usage rate and it is also based on user's experience. At the average when using the drinking water from the municipal water supply devices the maintenance of the device shall be carried out at least once every 4 months or after 1,200 liters of the purified water (whichever comes earlier).

The EMERALD automatically monitors the volume of purified water and it notifies you about the need for flushing:

- ◆ **After 8 hours** of working in the OPERATION mode the LED will light in orange (≈ 480 liters of the purified water) indicating that the device is DESIRABLE to flush with the citric acid solution.
- ◆ **After 10 hours** of working in the OPERATION mode (≈ 600 liters of the purified water) the LED will light in red indicating that the device MUST be flushed out with the citric acid solution.

Important! The flushing frequency is calculated for the tap water with average salinity of 200 ppm. For regions with the excessive water hardness (mineralization of more than 350 ppm) it is necessary to use the water softener filter (purchased separately) or to perform more frequent flushing of the device with the citric acid. The regularity of the flushing in this case is determined in situ depending on the hardness of the supplied tap water, the operating mode of the device and the organoleptic qualities of the purified water.

* If during the operation of the device after a series of flushes it seems to you that the taste of purified water does not suit you it is possible to purchase and replace the filter elements of the device. The order can be placed with your nearest dealer or at the official website of the manufacturer.

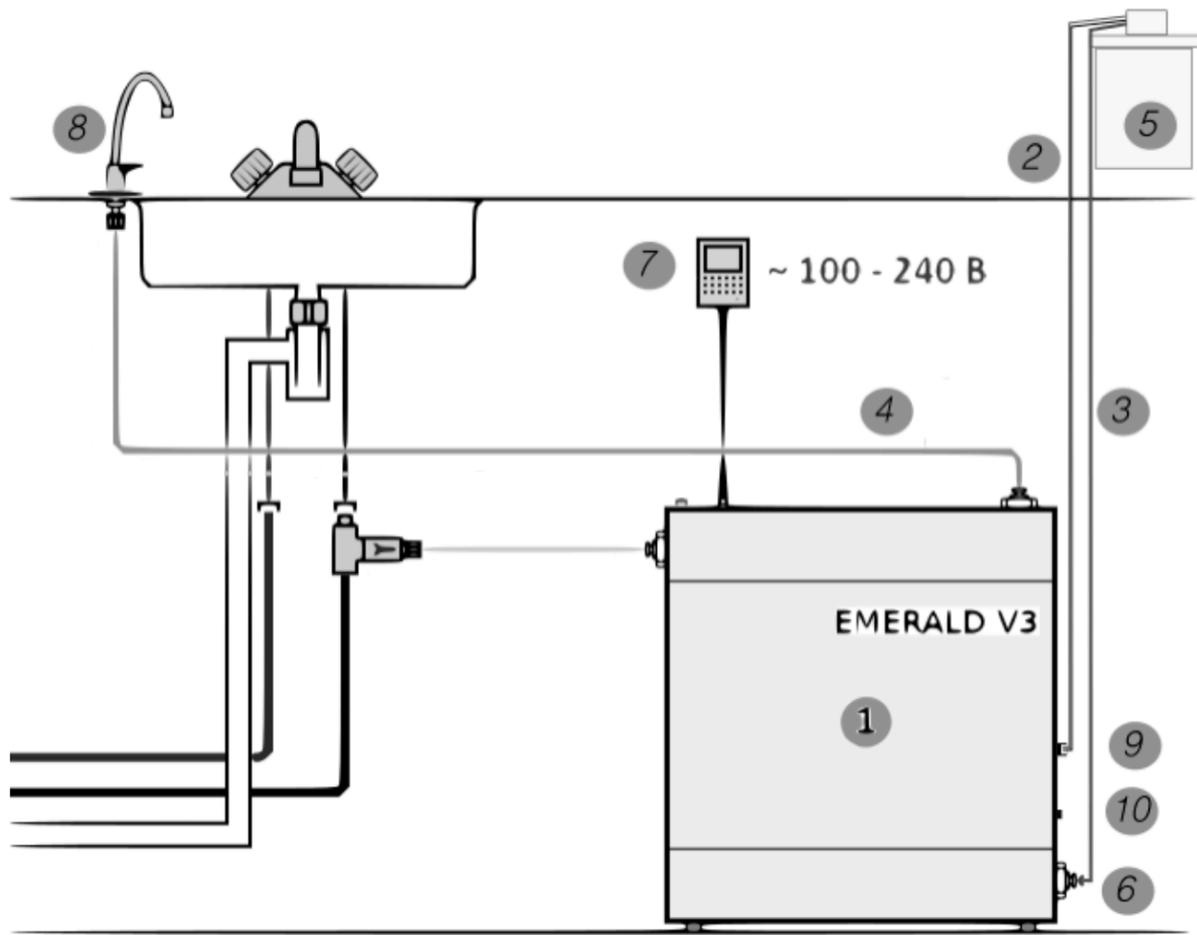


Fig. 18. EMERALD device connection in FLUSHING mode

1 - EMERALD device; 2 - electrical cable connecting the flushing device; 3 - hydraulic hose supply of citric acid solution from the flushing device; 4 – purified drinking water outlet tube (outlet of flushing solution); 5 - flushing device; 6 - fitting for connecting the hydraulic hose for supplying the citric acid solution; 7 - power supply (adapter); 8 – clean water tap (the place where the flushing solution discharges from the device); 9- plug for connecting the electric cable of the flushing device; 10- button for switching on/off the flushing device and FLUSHING mode

Maintenance of the EMERALD is carried out in accordance with (Fig. 18) in the following order:

Preparation of citric acid washing solution

To carry out the flushing procedure for the EMERALD it is necessary to prepare 1 (one) liter of citric acid washing solution in the tank of the flushing device (Fig. 18 – “5”). The flushing solution of citric acid is prepared on the basis of 200 grams of the citric acid and a half liter of water. Citric acid crystals are recommended to be diluted in hot water but the flushing is carried out by the solution with temperature of 60-70 °C (not hotter!).

Important! It is not allowed flushing the EMERALD by the citric acid solution over 70°C. This may damage the device! Claims in this case will not be accepted. For accurate determination of the temperature of the flushing solution you are requested to use the temperature control instrument.

Attention! All works related to the preparation of the washing solution as well as the entire flushing process of the device shall be carried out using the personal protective equipment for the skin and eyes!



FLUSHING mode.

To start FLUSHING mode EMERALD device must be in STANDBY mode (the device is connected to the electrical network, but is turned off. The LED indicator is off). Then user should do the following:

- ◆ Shut off the tap water supply to the device (see Fig. 16). Turn the clean water tap (see Fig. 18 – “8”) to the open position to remove residual water from the device and relieve pressure in the system.

- ◆ In accordance with (Fig. 18) the hydraulic hose of citric acid solution (3) shall be connected to the right-side end of the device and then the electrical cable of the flushing device shall also be connected (2). The flushing device itself (5) shall be installed on the flat stable surface (near the sink on the tabletop or on the floor).



Fig. 19. Sequence of connection of the flushing device in FLUSHING mode

Press the FLUSH button (10) to activate the flushing device. When the FLUSH button is pressed:

- ◆ The blue LED lights on indicating that the flushing device has turned on (5) and the FLUSHING mode is activated;

- ◆ After some time (15-20 sec.) the flushing solution begins to flow out of the purified water tap (8). Do not use the liquids from the purified water tap during the flushing process since the flushing solution is flowing from it at different stages and since there is no potable water at these stages. Ensure free discharge of these liquids into the sewer!

- ◆ The flushing device (5) shall be switched off after the main flushing solution is pumped into the device by repeated pressing the FLUSHING button (10). The flushing device shall be switched off before the level of the flushing solution in the tank drops below the pump intake (100-150 ml of flushing solution remains in the tank of flushing device on average).

After pressing the FLUSHING button again, the LED continues to light up in blue, indicating that the device FLUSHING mode is still going on. The next steps shall be carried out:

- ◆ Disconnect the flushing device from the EMERALD device by unplugging the electric cable of the flushing device (2) from the socket (9) and disconnecting the hydraulic supply hose for citric acid solution (3) from the fitting (6).
- ◆ Install the plug with the clip-lock (Fig. 20) into the fitting (6). Be sure to install the plug with the clip-lock into the fitting (6) since this guarantees the tightness of this connection when the device will be operating in normal OPERATION mode.



Fig. 20. Installation of plug after completion of flushing process

Further, the FLUSHING mode continues in semi- automatic mode and consists of the following steps:

- ◆ RETENTION stage. Retention of the washing solution of citric acid in the device for **30 minutes**;
- ◆ After 30 minutes have elapsed, the LED will blink blue, indicating that the RETENTION stage is completed.

After this, the washing solution and dissolved deposits should be washed out from the device. To do this, you must:

- ◆ Open the tap water supply to the device (see Fig. 16). Make sure that the clean water tap regulator (see Fig. 18 – “8”) is in the open position;
- ◆ WASH OUT stage. Here the user should wash out the washing solution and dissolved deposits with tap water for **10 minutes**. In this stage, throughout the entire WASH OUT stage, the LED will blink green. You must first make sure that the tap of the purified water tap (8) is located above the sink in order to ensure unhindered discharge of the flushing solution into the sewer!

- ◆ After 10 minutes of WASH OUT stage, the LED will light up in standard green color, indicating that the FLUSHING mode has been successfully finished and the device has entered the full OPERATION mode (is ready for normal usage).

Некоторые особенности режима ПРОМЫВКА.

В процессе заполнения Установки раствором кислоты, до ее ВЫДЕРЖКИ, допускается многократное включение/отключение промывного насоса.

В режиме ПОЛОСКАНИЕ употреблять воду из-под крана категорически запрещено.

Some features of the FLUSHING mode.

- ◆ User can always pause the automatic FLUSHING mode and start it again by repeated pressing of the button (Fig. 18- “ 10 ”). This function allows the user to suspend the FLUSHING mode if there are problems with pumping the washing solution into the device and resume this mode again. During the RETENTION stage user can turn on/off the flushing device for several times so as to pump the additional flushing solution into the device (if necessary);.
- ◆ FLUSHING mode is non-volatile and has priority. That is, when the network disappears and when it reappears, the device will automatically enter the stage of the FLUSHING mode from which it was removed by disconnecting the network. It protects the user from the risk of accidental ingestion of a citric acid solution in the body if the FLUSHING mode is violated.
- ◆-Important! If during the FLUSHING of the device there were any malfunctions that could interrupt the course of the FLUSHING mode, please repeat the FLUSHING procedure before using the device. If faults are detected during the FLUSHING mode, it is necessary to additionally make sure that the washing solution was successfully flushed with tap water from the device for 10 minutes before starting to use the device in normal mode.

Important! To increase the useful life of the flushing device, it is suggested that after carrying out maintenance procedures user should rinse thoroughly the intake part of pump, the holding tank for flushing solution and connecting hoses of the flushing device with warm tap water so as to wash out residues of the citric acid crystals. After flushing, all elements of the flushing device must be dried and removed to dry and clean place while waiting for the next flush. The FLUSHING procedure of the main elements of the flushing device must also be repeated at the beginning of future flushing procedures to ensure the smooth operation of the device.

Important ! It is forbidden to disconnect a working device (in OPERATION or FLUSHING mode) from the network by pulling the plug of the power source from the device. This can lead to malfunctioning of the device. Disconnecting devices from the power supply should only be done by disconnecting the power plug from the outlet.

8. TROUBLESHOOTING GUIDE.

Table 1 Troubleshooting Guide

Concern	Probable reason	Elimination
The device does not turn on. The LED of the sensor disc does not light up. The touch disk works intermittently.	<ol style="list-style-type: none"> 1. Hydraulic and electrical connections of the device are connected incorrectly. 2. There is no electrical contact / mains power 3. There is no grounding in the electrical outlet. 	<ol style="list-style-type: none"> 1. Connect the hydraulic and electrical connections in accordance with section 5 “Connection of the device”. 2. Check the presence of electrical contact / power in the power supply network. 3. Make sure there is grounding in the electrical outlet.
Increasing the rate of flow of water does not work. The rate of flow of water in the device is below normal.	<ol style="list-style-type: none"> 1. Insufficient pressure in the water supply line. 2. The water flow rate has been adjusted incorrectly 3. Excess deposits have formed on the electrochemical module and filter elements. 	<ol style="list-style-type: none"> 1. Provide the necessary pressure in the water supply line (see Table 5). 2. Adjust the water flow rate correctly (see the “Water flow rate” section and Fig. 16). 3. Flush the device with citric acid solution (see the device Maintenance Section).
The citric acid washing solution is not pumped into the device. It is necessary to pause the FLUSHING mode to eliminate the troubleshooting.	<ol style="list-style-type: none"> 1. Air voids or citric acid residues crystallized in the citric acid supply tube (Fig. 18 – “3”) or in the intake part of the pump of the flushing device (Fig. 18 – “5”) 2. The citric acid supply hose (Fig. 18 – “3”) is squeezed 3. It is necessary to suspend the FLUSHING mode if the washing solution is not pumped into the device, but the FLUSHING program is already running. 	<ol style="list-style-type: none"> 1. Flush and purge the citric acid supply tube. Flush the lower intake part of the flushing pump separately by warm water for 5 minutes. Then repeat the FLUSHING procedure. 2. Check if the citric acid supply hose is not squeezed; 3. It is possible to suspend FLUSHING mode by pressing the on/off button on the body of the device (Fig. 18 – “10”). After troubleshooting, press the button again and continue the FLUSHING mode.

9. WARRANTY RESPONSIBILITIES

The manufacturer guarantees that the device complies with the requirements of the technical terms and conditions subject to the operation conditions, transportation, storage and installation set forth in this Specification and Operating Manual. The term of warranty service of the EMERALD is 1 year from the date of its sale but not more than 24 months from the date of its production. In case of absence of the date of sale and the stamp of the trading organization the period of warranty service starts from the date of production.

The manufacturer guarantees that the EMERALD (with the exception of auxiliary and replacement filters / cartridges) subject to use correctly will not be defective (as it defined below) for 1 year from the date of purchase. A product is considered to be defective if it is associated with the poor-quality material or improper manufacture or if such defect interferes with the use or deteriorates the result of using the EMERALD by the end customer.

Warranty obligations would be valid only if the payment documents have been filled in correctly and the availability of the identification document and operating manual.

The warranty does not apply to:

- ◆ The EMERALD which was used inappropriately or in a manner that contradicts the instructions of this specification and operating manual;
- ◆ Any EMERALD that was not used to its intended purpose, met into the emergency situation, suffered the physical damage, was incorrectly installed or improperly operated, reworked, neglected and exposed to the adverse external factors (including but not limited to the effects of lightning, flooding or fire);
- ◆ Any of EMERALD that was damaged due to the improper repair, modification, corrective actions or maintenance performed by any person other than the authorized representative of the warranty service and maintenance service of the manufacturer or official trading partner;
- ◆ Any EMERALD device in which a defect was found or which became worse to work due to the use of any non-original spare or auxiliary parts (including non-original filters for pre-treatment of water) that were not intended for use with the EMERALD
- ◆ Any EMERALD that was installed without using the set of original components for installation of the EMERALD supplied with the device.

The manufacturer is also exempted from the liability in the following cases: the product or its parts have external mechanical damages; filter elements (if available in the package and specific configuration) have outlived usefulness but they were not promptly replaced or serviced; the EMERALD was not serviced in a timely manner (in accordance with the instructions of this specification and operating manual); the given identification document and the operating manual with filled in dates of production and/or sale have been lost and there are no other ways to establish the service life of the product; when the consumer uses the spare parts from other manufacturers other than the original components supplied with the device; when installing and operating the device in excess of the limits established by the technical requirements for the operating conditions of the product; under the action of force majeure; in other cases stipulated by the law.

Legal reservations.

The manufacturer reserves the right to make the changes and improvements into the device design that does not impair the operational properties of the device and the quality of the purified water;

Although all necessary steps were taken to verify the text of this operating manual the manufacturer does not guarantee its completeness or the absence of errors.

Submission of claims.

EMERALD LLC is the authorized company to receive all complaints and requests including warranty claims for the EMERALD device.

To make claims under this guarantee you can send the request on our official website www.emerald.eco as well as make the call to the customer service of the company using the single number: +7 (495) 928-77-71 or write to service@emerald.eco. Please contact us at the above contacts prior to decide to send any product for troubleshooting.

In order to make a claim under this warranty the buyer shall, preliminary call EMERALD LLC, notify the company in writing about the defect found within two (2) months after the defect was found but no later than two (2) months after the end of the relevant warranty period.

Attention! The manufacturer and the official trading partners does not bear the responsibility if the problems arise due to the condition of the water pipes and plumbing fittings of the buyer. The unsatisfactory condition of the supply water pipes, plumbing fittings and not comply with requirement due to the buyer's failure outlined in this specification and the operating manual for connecting the device are grounds for refusing by the representative of the manufacturer to connect the device as well as provide with the service and warranty service.

In the case of self-installation and service of the device the manufacturer and official trading partners does not bear the responsibility and they do not accept any claims in the case of problems caused by the violation of rules for connection and service of the device established in the specification and in operating manual.

The manufacturer and the official trading partners are not liable and do not accept the claims if the EMERALD was used not for its intended purpose or in a way that contradicts the instructions of this specification and operating manual.

10. HANDLING AND STORAGE.

The EMERALD for receiving the drinking water with antioxidant properties does not contain the harmful, toxic, combustible and explosive substances. The device can be transported by any type of land or air transport (except for unheated compartments during the cold season). The product shall be stored in the packaged to prevent the drying, freezing, direct sunlight at the distance of at least 1 meter from the heating devices at an ambient temperature not less than 5°C above zero and not higher than 40°C above zero and far from the substances with the strong odor. The warranty period for product storage is 2 years from the date of production.

11. TECHNICAL CHARACTERISTICS.

Table 2. Specification

Recommended capacity of purified water, liters per hour	50 - 60
Power consumption, not more, W	60
Specific power consumption, W * h / l	1,0
Supply voltage - standard socket with grounding (for the adapter), V.	110 ÷ 220
Frequency of the power supply network, Hz	50 ÷ 60
Overall dimensions (excluding the liner and protruding parts), mm	342*85*376
Gross weight, kg	4,7
Net weight, kg	2,9

Table 3. Purification characteristics

Efficiency of anodic oxidation of bivalent iron ions with their concentration in water equal to 3 mg/l,%	92 – 95
Efficiency of flotational water purification after anodic treatment,%	55 – 80
Efficiency of catalytic transformation of chlorine oxygen oxidants to hydroperoxide in a catalytic module,%	60 – 70
The efficiency of transformation of calcium ions to hydroxide when they are concentrated in water is 5 mg/l,%	40 – 45
The efficiency of transformation of ferric ions to hydroxide when they are concentrated in water, equal to 0.1 mg/l,%	80 – 90
Reduction of permanganate water oxidation from the initial level in the supplied water of 10 mg/l,%	70 – 85
Efficiency of removal of hydroxides of heavy metals and iron on the electrokinetic filter at their concentration in water 0.5 mg/l,%	80 – 90
The effectiveness of water disinfection with total microbial count (TBC) equal to 200,%	98 – 99

Table 4. Parameter of antioxidant water

The decrease of the oxidation-reduction potential (ORP) of treated water relative to the ORP of the original tap water, mV	150...450
The change in pH of the water relative to the pH of the original tap water, pH units	± 1

Table 5. Operation conditions

Ambient temperature, °C	+5 ÷ +40
Relative air humidity (at 25°C),%, no more than	80
Tap water temperature, °C	+1 ÷ +30
Water supply line pressure, MPa	0,1 ÷ 0,4
Total mineralization of supplied tap water, ppm	100 ÷ 350
pH of supplied tap water	6 ÷ 9

12. DELIVERY PACKAGE.

Table 6 Delivery package

No	Designation	Q-ty ea
1.	EMERALD device	1
2.	Power supply (adapter)	1
3.	Power cable for power supply	1
4.	The clean water tap for the purified water with a set for connectors and fittings.	1
5.	Ball valve tee for connection to the water supply system (complete with fluoro-plastic tape for sealing the plumbing connections)	1
6.	Flushing device	1
7.	Set of connecting tubes (3 meters of white tube made of food grade plastic)	1
8.	Specification and operating manual	1
Add. 1	Additional diverter for the tap with a set of nozzles for alternative connection of the EMERALD above the sink to the tap	Opt.
Add. 2	Additional housing with softener cartridge (for regions with the excessively hard water, salinity more than 350 ppm) or with mineralizer cartridge (for regions with soft water, salinity less than 100 ppm) for pretreatment of water entering the EMERALD	Opt.
Add.3	Thermometer for fluid.	Opt.



1



2



3



4



5



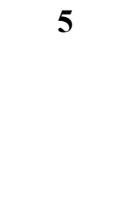
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7



8



9



Option 1



Option 2



Option 3



The availability of "Option" positions are determined by the conditions of goods purchase

13. CERTIFICATE OF ACCEPTANCE AND SALE.

The EMERALD HOME 4 DEVICE (abbreviated name "EMERALD") corresponds to technical requirements № 28.29.12-001-19313776-2018 and is recognized as serviceable.

Serial number _____
Date of manufacture _____
Representative of Quality Control System _____

MANUFACTURER:

“EMERALD ECOTECHNOLOGIES” Limited Liability Company (short name EMERALD, LLC
Bld. 34, Narodnogo Opolcheniya str., Moscow, Russia, P.O. 123423



The EMERALD HOME 4 DEVICE (abbreviated name "EMERALD") is manufactured by EMERALD ECOTECHNOLOGIES LLC. EMERALD ECOTECHNOLOGIES LLC has the exclusive rights to manufacture the EMERALD as well as to provide them with service and warranty service. EMERALD ECOTECHNOLOGIES LLC has the exclusive right to transfer to its official trading partners all the necessary powers for the sale of EMERALD devices as well as for the implementation of the service and warranty service.

For contract and warranty service contact:
“EMERALD ECOTECHNOLOGIES” Limited Liability Company
Bld. 34, Narodnogo Opolcheniya str., Moscow, Russia, P.O. 123423

Tel.: 8 (495) 928-77-71; E-mail: service@emerald.eco;
Website: www.emerald.eco

WARRANTY CERTIFICATE

Sale Date _____

Shop stamp _____

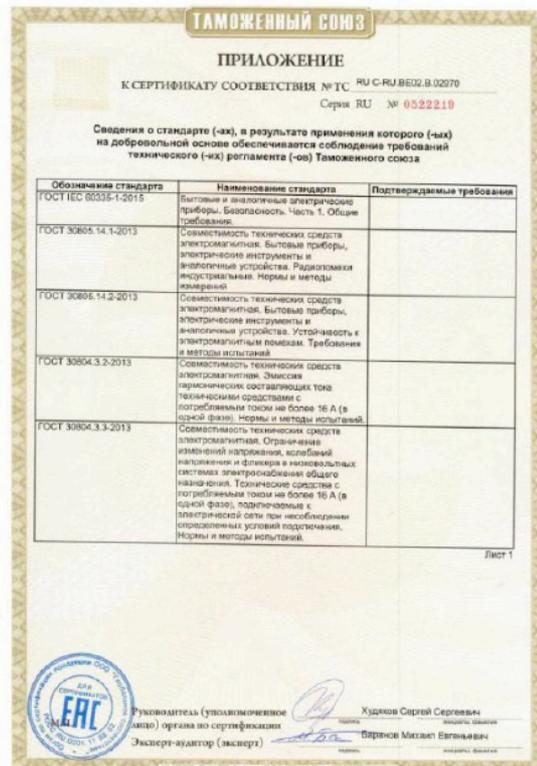
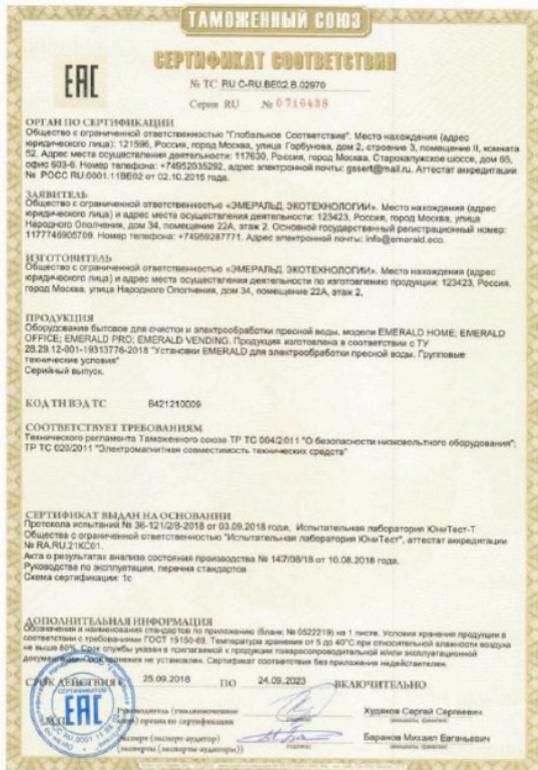
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APPENDIX № 1. CERTIFICATES

1. CERTIFICATE OF CONFORMITY OF QUALITY MANAGEMENT SYSTEM REQUIREMENTS GOST R ISO 9001-2015 (ISO 9001-2015)



2. CERTIFICATE OF CONFORMITY OF THE EAC CUSTOMS UNION



1. EXPERTS' REPORT ISSUED BY RSPOTREBNADZOR


 Федеральная служба
 по надзору в сфере защиты прав
 потребителей и благополучия человека
 Роспотребнадзор
 Федеральное бюджетное
 учреждение здравоохранения
 «Центр гигиены и эпидемиологии
 в Владимирской области»
 Точка ул., д.3, г. Владимир, 600005
 Тел./факс (4922) 51-58-28
 E-mail: sp@vls.fedres.ru
 ОКПО 75638364, ОГРН 1053301228243,
 ИНН/КПП 3327819090/332801601
 Адрес почтовый: 600005, г. Владимир, ул. Точка, д.3
 код почтовый в месте возникновения: 600005, 2019

УТВЕРЖДАЮ
 Главный врач
 ФБУЗ «Центр гигиены и эпидемиологии
 в Владимирской области»,
 руководитель органа инспекции

 М.В.Будяков

№ 5712 от 22.11.2018 г.

ЭКСПЕРТНОЕ ЗАКЛЮЧЕНИЕ № 907

- Наименование продукции:** Оборудование для очистки и электрообработки пресной воды, торговая марка «EMERALD», модели EMERALD HOME, EMERALD OFFICE, EMERALD PRO, EMERALD VENDING.
- Организация-изготовитель:** Общество с ограниченной ответственностью «ЭМЕРАЛД ЭКОТЕХНОЛОГИИ», 123423, г. Москва, ул. Нарядного Ополчения, дом 34, этаж 2, помещение 22А.
- Получатель заключения:** Общество с ограниченной ответственностью «ЭМЕРАЛД ЭКОТЕХНОЛОГИИ», 123423, г. Москва, ул. Нарядного Ополчения, дом 34, этаж 2, помещение 22А.
- Представленные материалы:**
 - ТУ 28.29.12-001-19131776-2018;
 - Сертификат соответствия № ТС: RU С-01:ВБ02 В.02970 от 25.09.2018;
 - Декларация о соответствии ЕАЭС № RU.Д-RU.МЖ01 В.00712/18 от 26.09.2018;
 - Протокол лабораторных исследований Испытательного лабораторного центра «Центр государственного санитарно-эпидемиологического надзора Управления делами Президента Российской Федерации (ФГБУ «Центр государственного надзора»), АТТЕСТАТ № РОСС RU.0001.510440 Федеральной службы по аккредитации. (Срок действия с 26 декабря 2013 г. по 26 декабря 2018 г.) № ИЛЦ-118/OC-11-18 от 13 ноября 2018 г.;
 - Протокол лабораторных исследований Испытательной Лаборатории АНО «Национальный институт экспертизы и сертификации» (аттестат аккредитации № РОСС RU.0001.21П15, срок действия до 24.02.2019 г.) № 124 С - 127 С от 02.04.2018 г.;
- Область применения продукции:** эрозионная пресная вода от органических примесей, микроорганизмов и ионов тяжелых металлов; снижение окислительно-восстановительного потенциала пресной воды.

Экспертное заключение № 907 от 22.11.2018 г., страница 1 из 4
 Ф/03-12-01-2018

- Цель экспертизы:** установление соответствия (несоответствия) продукции требованиям раздела 3 «Требования к материалам, реагентам, оборудованию, используемым для водочистки и водоподготовки»; раздела 7 «Требования к продукции машиностроения, приборостроения и электротехники» главы II Единых санитарно-эпидемиологических и гигиенических требований к товарам, подлежащим санитарно-эпидемиологическому надзору (контролю), утвержденным решением Комиссии Таможенного союза от 28.05.2010 г. № 299.
- Основание проведения санитарно-эпидемиологической экспертизы:** заявление (входной № 1249 от 21.11.2018 г.).
- Проведение санитарно-эпидемиологической экспертизы:** поручено эксперту, врачу по общей гигиене ОТ и ГТ ФБУЗ «Центр гигиены и эпидемиологии в Владимирской области» Брычкову А.А.
- Наличие проведения работ:** Санитарно-эпидемиологическая экспертиза проведена на соответствие положениям раздела 3 «Требования к материалам, реагентам, оборудованию, используемым для водочистки и водоподготовки»; раздела 7 «Требования к продукции машиностроения, приборостроения и электротехники» главы II Единых санитарно-эпидемиологических и гигиенических требований к товарам, подлежащим санитарно-эпидемиологическому надзору (контролю), утвержденным решением Комиссии Таможенного союза от 28.05.2010 г. № 299 на основании представленных результатов лабораторных исследований продукции, данных нормативно-технической документации изготовителя продукции.
- Результаты лабораторных и (или) инструментальных исследований:**

Исследования по 7 разделу:

 - Напряженность электромагнитного поля – не более 15 кВ/м;
 - Напряженность электрического поля частотой 50 Гц – не более 0,5 кВ/м;
 - Индукция магнитного поля частотой 50 Гц, мГц, не более – 3;
 - Эквивалентные уровни шума, дБА – не более 45;
 - Выборка образцов:
 - Корректированный уровень вибростороности, дБА – не более 62;
 - Корректированный уровень виброускорения, дБА – не более 70.

Исследования по 3 разделу:

Корпус (ПВХ):

 - Исследование водной вытяжки (дистиллированная вода, температура 25°С, время экспозиции 3 суток): Запах, баллы – не более 2; Мутность, ЕМФ – не более 2,6; Пенообразование – отсутствие стабильной крупнопузырчатой пены, высота мелкопузырчатой пены у стенок цилиндра – не выше 1 мм; Привкус – отсутствует; Цветность, градусах – 20; Наличие осадка – отсутствует; Водородный показатель (рН), в пределах 6 – 9; Величина перманганатной окисляемости, мг/л – не более 5;
 - Миграция химических веществ в модельную среду (дистиллированная вода, температура 25°С, время экспозиции 3 суток), мг/л, не более:
 - Формальдегид – 0,05; Спирт метиловый – 3; Спирт бутиловый – 0,1; Спирт изобутиловый – 0,15; Ацетальдегид – 0,2; Этилалкоголь – 0,2; Ацетон – 2,2;

Экспертное заключение № 907 от 22.11.2018 г., страница 2 из 4
 Ф/03-12-01-2018

Раскислитель (полиэтилен):

- Исследование водной вытяжки (дистиллированная вода, температура 25°С, время экспозиции 3 суток): Запах, баллы – не более 2; Мутность, ЕМФ – не более 2,6; Пенообразование – отсутствие стабильной крупнопузырчатой пены, высота мелкопузырчатой пены у стенок цилиндра – не выше 1 мм; Привкус – отсутствует; Цветность, градусах – 20; Наличие осадка – отсутствует; Водородный показатель (рН), в пределах 6 – 9; Величина перманганатной окисляемости, мг/л – не более 5;
- Миграция химических веществ в модельную среду (дистиллированная вода, температура 25°С, время экспозиции 3 суток), мг/л, не более:
 - Формальдегид – 0,05; Спирт метиловый – 3; Спирт бутиловый – 0,1; Спирт изобутиловый – 0,15; Ацетальдегид – 0,2; Этилалкоголь – 0,2; Ацетон – 2,2;

Прокладка (резина):

- Исследование водной вытяжки (дистиллированная вода, температура 25°С, время экспозиции 3 суток): Запах, баллы – не более 2; Мутность, ЕМФ – не более 2,6; Пенообразование – отсутствие стабильной крупнопузырчатой пены, высота мелкопузырчатой пены у стенок цилиндра – не выше 1 мм; Привкус – отсутствует; Цветность, градусах – 20; Наличие осадка – отсутствует; Водородный показатель (рН), в пределах 6 – 9; Величина перманганатной окисляемости, мг/л – не более 5;
- Миграция химических веществ в модельную среду (дистиллированная вода, температура 25°С, время экспозиции 3 суток), мг/л, не более:
 - Турнам Д – 1; Каптанс – 3; Дибутилфталат – 0,2; Цинк – 5;

Мембрана (полисульфон):

- Исследование водной вытяжки (дистиллированная вода, температура 25°С, время экспозиции 3 суток): Запах, баллы – не более 2; Мутность, ЕМФ – не более 2,6; Пенообразование – отсутствие стабильной крупнопузырчатой пены, высота мелкопузырчатой пены у стенок цилиндра – не выше 1 мм; Привкус – отсутствует; Цветность, градусах – 20; Наличие осадка – отсутствует; Водородный показатель (рН), в пределах 6 – 9; Величина перманганатной окисляемости, мг/л – не более 5;
- Миграция химических веществ в модельную среду (дистиллированная вода, температура 25°С, время экспозиции 3 суток), мг/л, не более:
 - Бензол – 0,01; Фенол – 0,001;

ВЫВОДЫ ЭКСПЕРТА:

По результатам проведенных испытаний типового представителя образца, экспертиза представленной документации, заявленная продукция – Оборудование для очистки и электрообработки пресной воды, торговая марка «EMERALD», модели EMERALD HOME, EMERALD OFFICE, EMERALD PRO, EMERALD VENDING, соответствует требованиям главы II Единых санитарно-эпидемиологических и гигиенических требований к товарам, подлежащим санитарно-эпидемиологическому надзору (контролю), утвержденным решением Комиссии Таможенного союза от 28.05.2010 г. № 299 (разделы 3 и 7).

Экспертное заключение № 907 от 22.11.2018 г., страница 3 из 4
 Ф/03-12-01-2018

Условия безопасного применения, хранения, транспортирования, маркировки, утилизации, периодического лабораторного контроля продукции должны быть в соответствии с действующими санитарными законодательством РФ, положениями Единых санитарно-эпидемиологических и гигиенических требований к товарам, подлежащим санитарно-эпидемиологическому надзору (контролю), требованиями нормативной документации изготовителя - ТУ 28.29.12-001-19131776-2018.

Эксперт: врач по общей гигиене
 ФБУЗ «Центр гигиены и эпидемиологии
 в Владимирской области»


 А.А. Брычков

Технический директор органа инспекции


 С.Е. Воробьев

Экспертное заключение № 907 от 22.11.2018 г., страница 4 из 4
 Ф/03-12-01-2018

2. VOLUNTARY CERTIFICATE OF COMPLIANCE WITH GOST R

СИСТЕМА СЕРТИФИКАЦИИ ГОСТ Р
ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ РОСС RU.НА36.Н00541
Срок действия с 26.10.2018 по 25.10.2021
№ 0342355

ОРГАН ПО СЕРТИФИКАЦИИ RA.RU.18H36

Орган по сертификации продукции ООО "ТНВ": Адрес: 236038, РОССИЯ, Калининградская область, г. Калининград, ул. Ю.Гагарина, в. 16, стр. Г, оф. 3, 4, 5. Телефон 8-917-623-5741, адрес электронной почты: tsv-on@unifex.ru

ПРОДУКЦИЯ
Оборудование для очистки и электрообработки пресной воды: торговая марка "EMERALD", модели EMERALD HOME, EMERALD OFFICE, EMERALD PRO, EMERALD VENDING. Серийный выпуск. Приложение № 0054872 банка.

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ

ГОСТ 51232-99;
СамИИТ 2.1.4.1074-01;
СамИИТ 2.1.4.2652-10;

ИЗГОТОВИТЕЛЬ
Общество с ограниченной ответственностью «ЭМЕРАЛД ЭКОТЕХНОЛОГИИ». ОГРН: 117746905709, ИНН: 7734405934, КПП: 773401001. Адрес: 123423, РОССИЯ, г. Москва, ул. Народного Ополчения, дом 34, этаж 2, помещение 22А, адрес электронной почты: info@emerald.eo

СЕРТИФИКАТ ВЫДАН
Общество с ограниченной ответственностью «ЭМЕРАЛД ЭКОТЕХНОЛОГИИ». ОГРН: 117746905709, ИНН: 7734405934, КПП: 773401001. Адрес: 123423, РОССИЯ, г. Москва, ул. Народного Ополчения, дом 34, этаж 2, помещение 22А, адрес электронной почты: info@emerald.eo

НА ОСНОВАНИИ
Протокола испытаний № 36-121-2/8-2018 от 03.09.2018 года. Испытательная лаборатория Юни Тест-Т. Общество с ограниченной ответственностью «Испытательная лаборатория ЮниТест», аттестат аккредитации № RA.RU.21KCO1. Протокола испытаний № 122-09/18-КР, № 123-09/18-КР, № 124-09/18-КР от 26.09.2018 года, выданного Обществом с ограниченной ответственностью «МБК-ЛАБ», аттестат аккредитации РОСС RU 31508.04ИЕЧ0.ИЛ.003

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ
Оборудование для очистки и электрообработки пресной воды в соответствии с требованиями ГОСТ 15150-69. Температура хранения от 5 до 40°С при относительной влажности воздуха не выше 80% (далее см. Приложение)
Срок службы указан в прилагаемой к продукции товаросопроводительной и/или эксплуатационной документации. Срок хранения не установлен.

Руководитель органа: С.Е. Федоров
Эксперт: И.Р. Демисов

СЕРТИФИКАТ НЕ ПРИМЕНЯЕТСЯ ПРИ ОБЯЗАТЕЛЬНОЙ СЕРТИФИКАЦИИ

СИСТЕМА СЕРТИФИКАЦИИ ГОСТ Р
ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

№ 0054872

ПРИЛОЖЕНИЕ
К сертификату соответствия № РОСС RU.НА36.Н00541

Перечень конкретной продукции, на которую распространяется действие сертификата соответствия

код ОК	Наименование и обозначение продукции, ее изготовителя	Обозначение документации, по которой выпускается продукция
28.29.12.110	Срок службы указан в прилагаемой к продукции товаросопроводительной и/или эксплуатационной документации. Срок хранения не установлен.	Продукция изготовлена в соответствии с ТУ 28.29.12-001-19313776-2018 "УСТАНОВКИ EMERALD ДЛЯ ЭЛЕКТРООБРАБОТКИ ПРЕСНОЙ ВОДЫ. Групповые технические условия"

Руководитель органа: С.Е. Федоров
Эксперт: И.Р. Демисов

3. DECLARATION OF COMPLIANCE WITH EAC OF THE CUSTOMS UNION

EAC
ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Заявитель: Общество с ограниченной ответственностью «ЭМЕРАЛД ЭКОТЕХНОЛОГИИ»
Место нахождения и адрес места осуществления деятельности: Российская Федерация, Москва, 123423, улица Народного Ополчения, дом 34, помещение 22а, этаж 2, основной государственный регистрационный номер: 117746905709, номер телефона: +7495 928 77 71, адрес электронной почты: info@emerald.eo

в лице генерального директора Гитюка Петра Васильевича, действующего на основании Устава

наименование: Оборудование для очистки и электрообработки пресной воды, модели EMERALD HOME, EMERALD OFFICE, EMERALD PRO, EMERALD VENDING.

изготовитель: Общество с ограниченной ответственностью «ЭМЕРАЛД ЭКОТЕХНОЛОГИИ»
Место нахождения и адрес места осуществления деятельности по изготовлению продукции: Российская Федерация, Москва, 123423, улица Народного Ополчения, дом 34, помещение 22а, этаж 2
Продукция изготовлена в соответствии с ТУ 28.29.12-001-19313776-2018 "УСТАНОВКИ EMERALD ДЛЯ ЭЛЕКТРООБРАБОТКИ ПРЕСНОЙ ВОДЫ. Групповые технические условия"
Код ТН ВЭД ЕАЭС: 8421210009 Серийный выпуск

соответствует требованиям
ТР ТС 004/2011 "О безопасности низковольтного оборудования", ТР ТС 010/2011 "О безопасности машин и оборудования", ТР ТС 020/2011 "Электромагнитная совместимость технических средств"

Декларация о соответствии принята на основании
Протокола испытаний № 122-09/18-КР, № 123-09/18-КР, № 124-09/18-КР от 26.09.2018 года, выданного Обществом с ограниченной ответственностью «МБК-ЛАБ», аттестат аккредитации РОСС RU 31508.04ИЕЧ0.ИЛ.003. Руководства по эксплуатации, перечня стандартов.
Схема декларирования 1а

Дополнительная информация
Требования ТР ТС 004/2011 "О безопасности низковольтного оборудования", ТР ТС 010/2011 "О безопасности машин и оборудования", ТР ТС 020/2011 "Электромагнитная совместимость технических средств" соблюдаются в результате применения на добровольной основе: ГОСТ 30804.6.2-2013 "Совместимость технических средств электромагнитная. Устойчивость к электромагнитным помехам технических средств, применяемых в промышленных зонах. Требования к методам испытаний"; ГОСТ 30804.6.4-2013 "Совместимость технических средств электромагнитная. Электромагнитные помехи от технических средств, применяемых в промышленных зонах. Нормы и методы испытаний"; ГОСТ 12.2.003-91 "Система стандартов безопасности труда. Оборудование производственное. Общие требования безопасности"; ГОСТ 12.2.007.0-75 "Система стандартов безопасности труда (ССБТ). Издания электротехнические. Общие требования безопасности". Условия хранения продукции в соответствии с требованиями ГОСТ 15150-69. Температура хранения от 5 до 40°С при относительной влажности воздуха не выше 80%. Срок службы указан в прилагаемой к продукции товаросопроводительной и/или эксплуатационной документации. Срок хранения не установлен.

Декларация о соответствии действительна с даты регистрации по 25.09.2023 включительно

Гитюк Петр Васильевич
(ИОСЦ заявитель)

Регистрационный номер декларации о соответствии: ЕАЭС N RU Д-РУ.ЫЖ01.В.00712/18
Дата регистрации декларации о соответствии: 26.09.2018

APPENDIX No 2. OPTIONAL CONNECTION OF THE DEVICE TO WATER TAP ABOVE THE SINK.

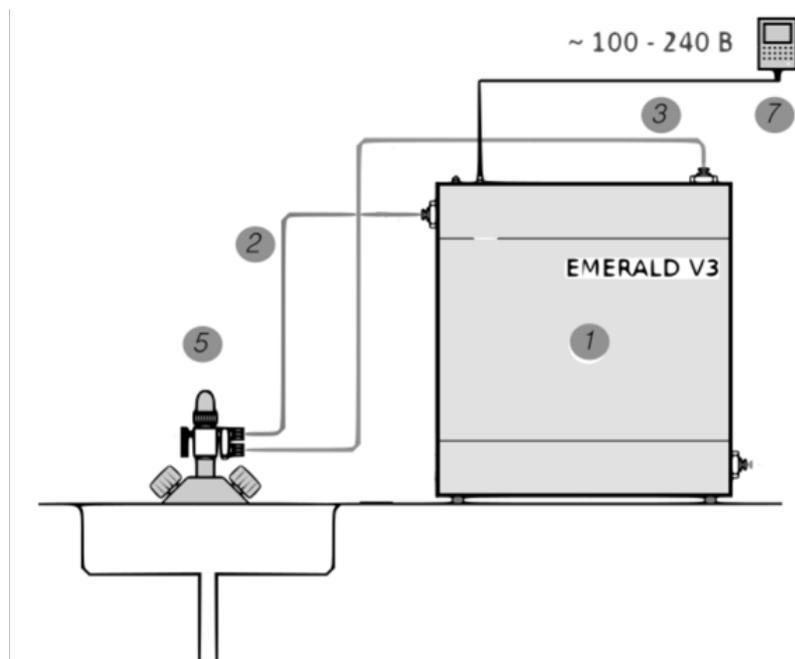


Fig. 2.1 Connection to the tap above the sink.

1 – EMERALD device; 2 - Cold tap water inlet tube; 3 - Purified drinking water outlet tube; 5 – Divertor on the tap with regulator; 7 - Power supply (adapter);



Fig. 2.2 Tap diverter with set of nozzles

Installing the diverter on the tap.

Remove the standard aerator from the tap; install the diverter on the tap using the necessary nozzles in the set. For fixing the diverter on the tap it is necessary to press it to the tap and tighten the ring at the base of the diverter by hand. Check the reliability and tightness of all connections.

Connecting tubes to the diverter.

Unscrew the nuts on both diverter fittings and put these nuts on the connecting tubes; Fit the tubes tightly on both diverter fittings and tighten the nuts. Check the reliability and tightness of all connections.

Device operation.

For the purification and treatment of water in this mode it is necessary to open the tap on the diverter smoothly (Fig. 2.2) so that the cold water starts to flow into the device. For the activation of the device it is necessary to press the sensor key on the disk (4) (Fig. 2.1). For switching off the device the sensor key shall be pressed again.

Please note! The EMERALD is designed only for the treatment of cold tap water. It is not allowed to pass hot water from the tap through the device.

Position the device in close proximity to the water tap and the sink following the strictly vertical position of the body;

Connect the EMERALD to the water tap and to the power network in accordance with (Picture 2.1)

Use connecting tubes with adapters from the delivery set for connection.

Fix the sensor disk in the convenient location, taking into account the length of the cable to be connected. Mounting on double-sided tape or sealant is possible.