"IKAR" SCIENCE AND RESEARCH CENTER

The development was awarded prestigious awards at international salons:

Gold medal,
Geneva, Switzerland, 2004

Silver medal,
Brussels, Belgium, 2003

Bronze medal,
Geneva, Switzerland, 1994.

IKAR

PASSPORT
AND
OPERATION MANUAL

Izhevsk

Attention! Carefully read the present passport before starting up the device.

1. Destination

The "IKAR" device (mod.01os), hereinafter the device, is intended for the purification of water from centralized drinking water supply systems and the production of top-quality activated drinking water with a given mineral composition and antioxidant properties*.

Device provides:

- ✓ aftertreatment of water from all types of chemical, bacterial, organic pollution;
- ✓ effective disinfection of water, even in case of its infection;
- ✓ correction of the ionic composition of mineral elements in water (Ca^{2+}, Mg^{2+}, K^{+}, I^{-} ...);
- ✓ antioxidant properties of water;
- ✓ automatic work control of all basic elements.

In the device "IKAR" (mod. 01os) for pre-treatment of water using a reverse osmosis system, in which all the disadvantages inherent in these systems are eliminated(patents RU 2299859, 0074909, 0023302, 00145022, https://eng.ikar.udm.ru/sb/sb43-1e.htm , http://ikar.udm.ru/sb/sb44-1.htm).

It is proven that water after reverse osmosis systems is:

- ✓ distilled (demineralized) and actually inapplicable for drinking;
- ✓ deionized (oxidized), because its redox potential (ORP), measured relative to the silver chloride electrode, is positive + 200 ... + 400 mV.

The use of new unique activation technologies based on patented devices and methods made it possible to create an device of a fundamentally new generation for the preparation of high-quality drinking water (HQDW) with resonant microcluster structures. Nowdays, the device has no analogues in the world. Today, the device is equipped with a built-in controller, a display, an automatic mineralizer dispenser and three flow sensors, with a two-level display system - monitoring the working of osmosis systems (cleaning), activation (water ionization), mineralization (optimization of mineral composition). The closest analogues of drinking water produced at the "IKAR" device (mod. 01os) is the drink "Your Health" (http://gepatitunet.ru, http://ionvoda.ru, ~400 rub/l) and microhydrin beverage (~100 rub/l).

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* activated aqueous solutions with antioxidant properties - liquids converted to a non-equilibrium thermodynamic state with altered ORP in the direction of negative values (liquids with vortices - localized resonant microcluster structures) – http://ikar.udm.ru/c_n_aw.htm).

2. Terms of Use

2.1. Standard requirements

- Relative humidity of ambient air up to 80% (at 25 °C).
- Ambient temperature +10…+32 °C.
- The device should be installed inside living area.

2.2. Source water requirements

- Temperature of source water +10…+30 °C.
- Pressure range 2…6 atm.
- Mineralization range 100…600 mg/l.
- Calcium (Ca^{2}+) not more 40 mg/l.
- Iron (Fe^{2}+) not more 0,2 mg/l.
- Iron (Fe^{3}+) not more 0,2 mg/l.
- Hardness of water not more 6 °G.
- pH in the range 5…9

3. Specifications

Maximum performance, l/day	50
Minimum water analysis from the tank, l/day	2
Net volume of tank, l	8 ± 2
Volume of mineralizer, l	0,6
Change in ORP (ΔORP), mV *	-250…-600
Power supply network, V	220 ± 5%
Power frequency networks, Hz	50
Maximum power consumption, W	50
Net weight (without water), kg	20
Packing dimensions (W x H x D), mm	440×480×490

* see measurement of the redox potential of non-equilibrium water solutions (“Agony of choices of choice of instrument for measuring the redox potential of water...”) – http://ikar.udm.ru/faq.htm, http://ikar.udm.ru/dsi-2.htm).

4. Completeness

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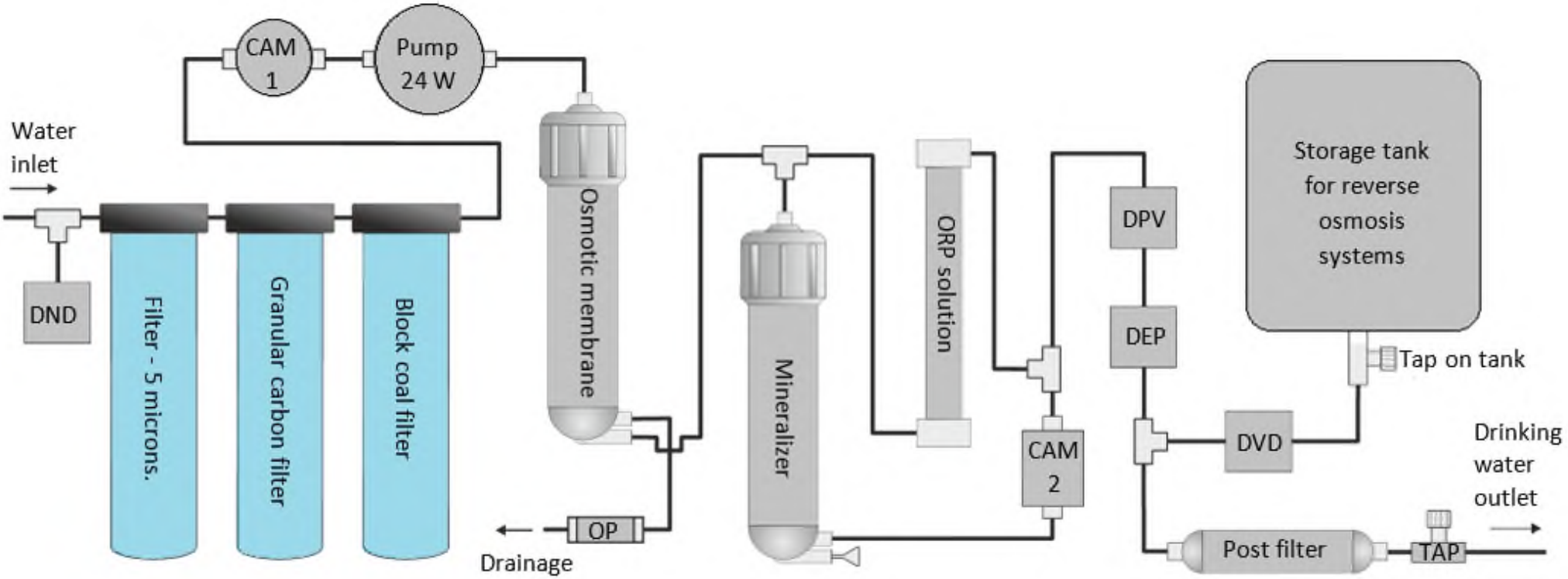
Pic.1. Completeness of device.

1. Osmosis system with storage tank -1 pc.
2. Block of activation and mineralization -1 pc.
3. Tap for clean water -1 pc.
4. Plastic connecting tube, set -1 pc.
5. Inlet water connection kit -1 pc.
6. Set for insertion into drainage -1 pc.
7. Key for unscrewing filter housings -1 pc.
8. Power Adapter -1 pc.
9. Display device -1 pc.
10. Mineral additive * -1 set.
11. Passport -1 pc.

* mineral supplement kit "Severyanka +" is already poured into the mineralizer.



Pic.2. The block diagram of the device "IKAR" (mod.01os)
Note: DEP - conductivity sensor, DPV - water flow sensor,
DVD - high pressure sensor, DND - low pressure sensor,
OP - membrane flow restrictor, CEM1 - inlet valve,
KEM2 - metering valve.

5. Device and principle of operation

5.1. Description

The reverse osmosis device is usually a 5-step filtration system, the principle of operation is based on reverse osmosis technology. The original tap water in such a system first passes through 3 pre-filters (Pic. 3). At the first stage, the primary filter (1) detains mechanical impurities. A second-stage filter (2) with activated carbon removes odor and removes residual chlorine from the water. At the third stage, the carbon cartridge filter (3) removes organochlorine substances, unpleasant tastes and odors. After passing through three stages, the filtered water flows to the fourth stage - reverse osmosis filter (4). The pore diameter of the filter membrane does not exceed 0.0001 microns; it allows almost only water molecules and dissolved oxygen to pass through.

Further processing of water in the device occurs in the block of activation and mineralization. The resonant activator “Faraday Cage” of a special construction made of modern materials allows activating very fresh water, effectively disinfecting, improving cluster structures and shifting its redox potential towards negative values. As a result, water acquires antioxidant properties.

When water passes through the device of the mineralizer of the installation, microelements useful for the human body Ca2 +, Mg2 +, K +, I- are added to it, and then the water enters the storage tank, from where it is fed through the post-filter (5) to the pure water tap.

Antioxidant water collected in the storage tank retains its negative ORP provided that water is withdrawn daily.

Special sensors located in the device give information about the operation of the device using the display: green - normal, red - deviation from the norm (pos. 11, 12, 13, Pic. 5A). With the help of the keys and the display you can monitor and control the operating modes of the device.

The operation of the device is carried out automatically, around the clock. To do this, the water tap and tank tap must be open and the device power cords must be connected to the network. During normal operation of the device, all indicators under the tap should be green. Short-term red luminescence associated with transient processes in the device is allowed. Also, all errors are displayed in the “Status” menu (see clause 5.2.). The activation block is included in the work only after changing the inscription “Start xxxx” to “Tank set”.

Pic.3. The appearance of the main device devices "IKAR" (mod. 01os):

1 - filter **No. 1** primary cleaning (polypropylene);
2 - filter **No. 2** (granulated coal),
3 - filter **No. 3** (pressed coal),
4 - filter **No. 4** (reverse osmosis membrane),
5 - filter **No. 5** (coal post filter),
6 - storage tank,
7 - access to the tap of clean water,
8 - low pressure switch
9 - exit to the drainage,
10 - tap water inlet,
11 - mineralizer inlet fitting,
12 - mineralizer housing cover,
13 - the body of the mineralizer
14 - mineralizer housing plug,
15 - block activation and mineralization,
16 - power adapter connector
17 - pH connector of the reactor (the reactor is purchased separately),
18 - display device connector
19 - output reactor ORP
20 - input reactor ORP,
21 - high pressure switch and exit to the storage tank.

5.2. Setup menu

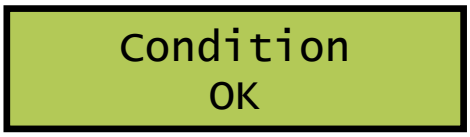
Menu "Main"

Displays the device process.

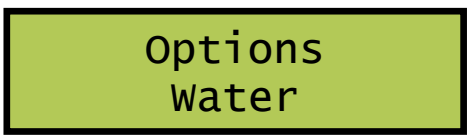
Table No.1.

Tank full	- there was a filling of the storage tank, the device went into standby mode.
Tank kit	- there was a selection of water from the storage tank, the device switched to the water intake mode.
Start xxxx	- the process of the device transition from the standby mode to the operation mode, where **xxxx** is the number for diagnostics.
Replace additive	- salinity of the prepared water below the selected threshold
Replace filter	- the reverse osmosis membrane is contaminated.
Replace the ORP Reactor	- activation of the prepared water below the threshold.
Short circuit in the reactor	- reactor closure or strong mineralization.
Breakage in the reactor	- no contact in the reactor or no water.
Short circuit in the valve	- short circuit of wires or valve coil.
Break in valve	- no contact or open valve coil.
High mineralization	- soured in open position valve stem

When the user is in any menu item, not using the keys for more than 3 minutes and with the "**Full tank**" mode, the device automatically switches to the "**--Information--**" menu, and also turns off the LEDs and the display backlight (if in the "**Energy Saving**" menu) selected "**On**")



Shows the status of the memorized device errors. If there are no errors, then "**OK**" is displayed, otherwise the last stored errors (see table 1). Using the "**Select**" key you can scroll through all the errors (in a circle). Errors are automatically reset the next time you start the device.



Allows you to enter the "**Water**" menu to control the device parameters for the "PVVK" mode.

Allows you to change the display language.

Allows you to change the type of used accessory (connected to the connector in Pic. 3. Pos.18).

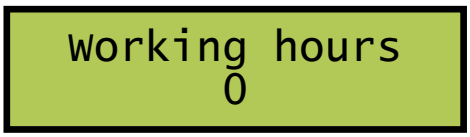
On or off the alert sound for messages (critical).

On or off the power saving function (extending the life of the LEDs and the display backlight).

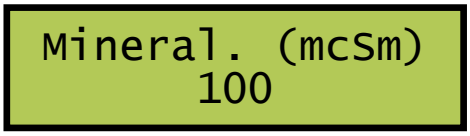
Setting the display contrast.

Login to the service menu
(only for service personnel).

Menu "Water"



It contains information on the number of **minutes** the device has been operating in the top-quality drinking water mode since the device began operating.

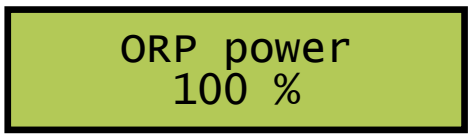


To your taste, choose the mineralization level of the prepared water (~electrical conductivity of water). The device allows you to prepare water with a specified level of mineralization. (**attention** - *preparation of water with a given level of mineralization, is carried out only when the device is running on the tank, and if there is a mineral additive in the mineralizer capacity*). When the mineralization of

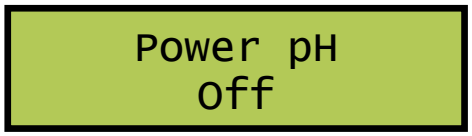
water taken into the tank is lower than the selected threshold (decrease in the concentration of the solution in the mineralizer), the device will beep and change the color of the salinity indicator from green to red.
Using the "**Select**" key, you can select the desired value of mineralization (~mcSm): **50 ... 500**;
"**Off**" - this mode can be used when unwilling to use mineral additives, or if you wish to get osmotic ionized water, the "**Mineralization**" indicator goes out and the readings of the DEP sensor will be ignored (Pic. 2).

Controls the contamination level of the reverse osmosis system membrane.
With increasing membrane contamination above the selected level, the device will beep and change the color of the "**Osmos**" indicator from green to red.
Using the "**Select**" key, you can select the level of membrane contamination control (~ mcSm): **30 ... 70**;

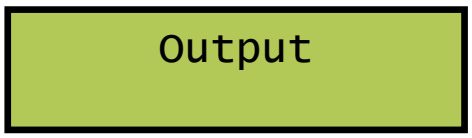
"**Off**" - ignore membrane contamination, "**Osmos**" indicator goes out-no (not recommended).



The "**Select**" button sets the activation level of the prepared water. (~ ΔORP):
25%, 50%, 75%, 100% - activation level;
"Off" - ignoring the water activation sensor, the "**Activation**" indicator will go out and the "ORP" reactor will not work.



The "**Select**" button sets the pH level of the prepared water. (~ ΔpH):
1% … 100% - level pH;
"Off" – ignoring the pH sensor of the water and the reactor will not work "pH". (**Reactor "pH" sold separately**)



Return to "Main" menu.

6. Security measures

6.1. Installation, use and maintenance must be carried out in strict accordance with the requirements of this passport. The manufacturer is not responsible for incidents related to improper installation, use or maintenance performed in violation of the requirements.

6.2. If you are not familiar with plumbing appliances, consult with a professional plumber, or use his services.

6.3. Do not use the device for the purpose of obtaining drinking water from unknown sources without its analysis and consultation with experts.

6.4. Do not install the device on the hot water line.

6.5. Do not install the device in too wet (more than 80% at 25 °C) rooms to avoid corrosion of metal parts and electrical contacts of the device.

6.6. It is forbidden to store and transport the device at temperatures below 0 ° C, without removing water from it.

6.7. New membranes, from their original packaging, must be rinsed before use in accordance with paragraph 9.

6.8. Cartridge filters and membranes should be replaced regularly (see clause 10 of the passport - indicative dates).

6.9. Switch off the power, water supply, and drain the water from all parts if the device is not used for a long time (more than 7 days) or its operation is terminated.

6.10. Do not blow air from storage tank.

All changes made to the menu are automatically remembered 10 seconds after the last key pressed.

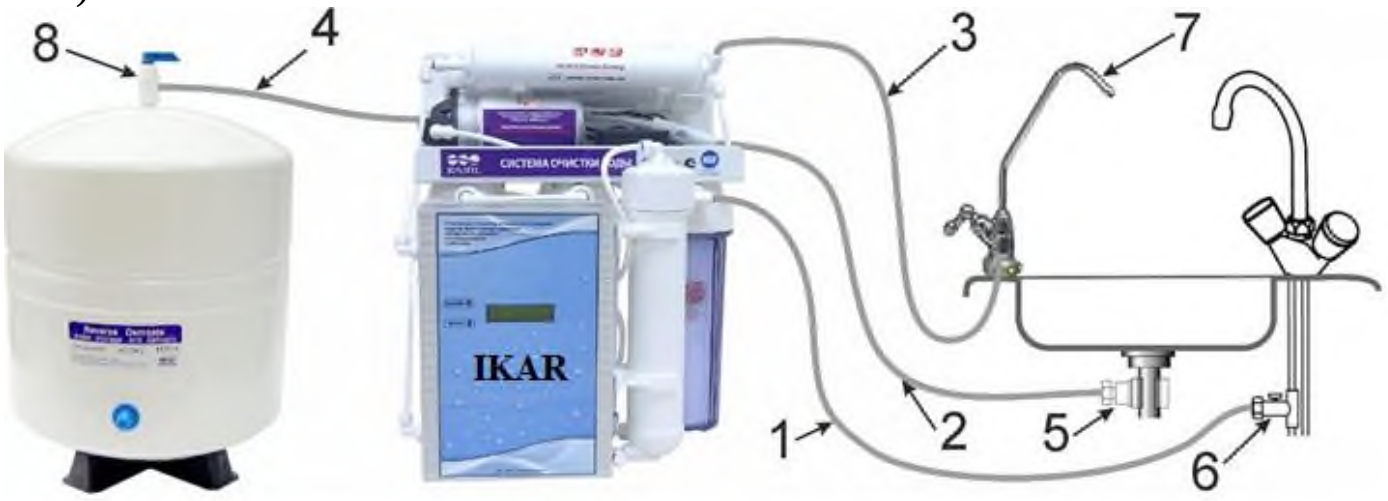
7. Depreservation

7.1. Unpacking the device from the shipping container should be started, keeping it for at least 4 hours at room temperature.

7.2. Remove all parts of the device from the container, check the completeness of the device.

8. Installation

Installation is designed to be placed under the sink, in the kitchen. The tap is installed on the sink or on the surface next to the sink. To supply water to the installation inlet, use parts from the installation kit. For discharge of dirty water from the installation, it is connected to the sewer pipe **above the siphon**. For the installation of a clear water tap, an even and flat surface is required on the sink, which allows placing a round display device with a diameter of at least 52 mm. It is not recommended to install the faucet on porcelain sinks because of the high probability of its cleavage (in this case it is better to place the faucet on the table surface near the sink).



Pic.4. Hydraulic installation wiring device

1 – water inlet tube,
2 – drainage tube,
3 – tube to the tap,
4 – tube to storage tank,
5 – drainage clamp,
6 – water tap,
7 – clean water tap,
8 – storage tank tap.

8.1. Choose the installation location of the installation under the sink (Pic. 4.)

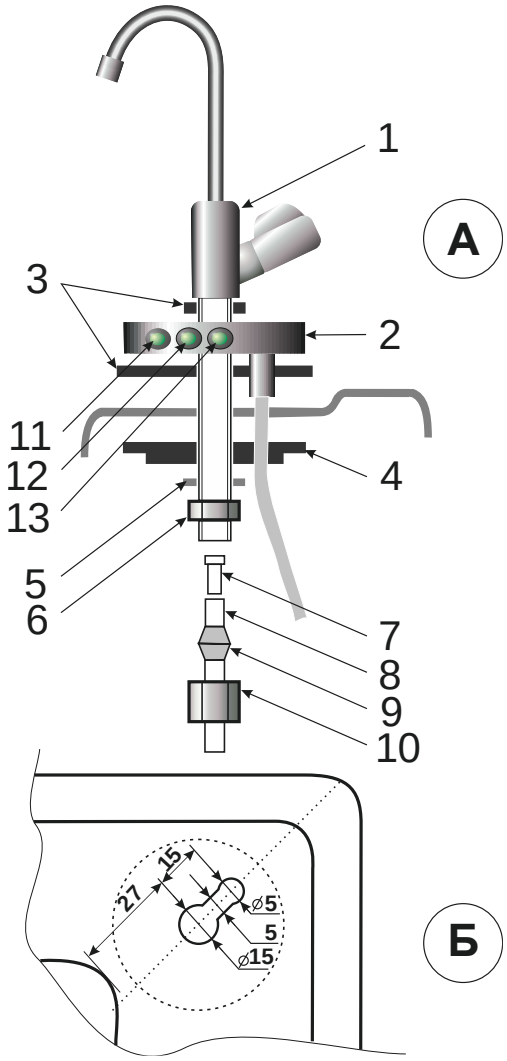
8.2. Close the cold water supply valve to the **tap mixer** at the sink (usually located at the entrance of the water to the apartment).

8.3. Open the cold water tap on the **mixer** and release the pressure in the tap.

Installing a clean water tap on stainless steel sinks.

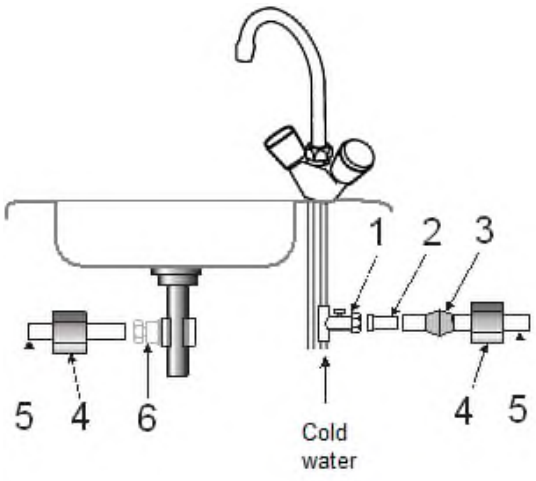
Mark and drill two holes, remove the jumper between them as shown in Pic. 5B. Clean edges and remove metal shavings.

8.4. Install the tap from the installation kit in accordance with Pic. 5A. In this case, there are two types of connecting the tube to the faucet (see Attachment 3).



Pic. 5. Installation of the tap.
1 - clean water tap
2 - display unit
3 - rubber gaskets,
4 - supporting disk
5 - washer,
6 - nut,
7 - sleeve,
8 - connecting tube,
9 - compression sleeve
10 - cap nut,
11 - indicator "osmosis",
12 - indicator "activation",
13 - indicator "mineralization".

Inset cold water line and drainage.



Pic.6. Inset cold water supply and inset drainage outlet.
1 - coupling with tap water,
2 - sleeve,
3 - compression sleeve
4 - coupling nut,
5 - connecting tube,
6 - drainage clamp.

Attention! At the entrance of the installation can only be fed cold water. Hot water can cause irreversible damage to the device.

8.5. Choose the installation kit for the inlet water connection.
8.6. Attach a water supply valve to the coupling, wrapping its threaded end with three turns of Teflon tape.
8.7. Disconnect the flexible pipe from the cold water pipe. Attach the coupling from the kit to the pipe. Do not forget to install the gasket.
8.8. Attach the hose to the coupling flexible hose from the mixer.
8.9. Close the water tap on the coupling.
8.10. Open the cold water supply valve to the mixer and check the tightness of the assembled joint.

Inset drainage

8.11. Select the installation kit drain hose clamp. Disconnect the side drain hole from it.
8.12. Place the drain bracket on the sink drain pipe **above the siphon** (**a prerequisite for the long life of the membrane**) (Pic. 6) and drill a non-through (only one wall) hole ∅ 6 mm through the pipe, using the hole in the bracket.
8.13. Put a sealing gasket from the set on the hole in the pipe, cover the pipe with hose clips, so that the holes in the drain bracket and pipe coincide and evenly tighten the hose clip.

Installation Assembly

8.14. Install the storage tank and the reverse osmosis system unit under the sink with the activation and mineralization unit, the back plane of the mounting bracket to the wall and, if necessary, fix the bracket to the wall.
8.15. Take a plastic tube from the kit, measure the distance from the high-pressure switch (Pic. 3, Pos. 21) to the entrance to the tap of the storage tank. Add 10-15 cm to the size and cut off the corresponding length of tube with a sharp knife (Pic.4, Pos. 4).
8.16. Attach a length of tube to one end of the high-pressure switch and the other to the valve on the storage tank.
8.17. Measure the distance from the entrance to the tap of clean water (Pic. 4, Pos. 7) to the fitting of the exit from the installation (Pic. 3, Pos. 7), measure the distance from the entrance to the installation (Pic. 3, Pos. 10) to the input valve (Pic. 4, Pos. 6) and the distance from the outlet to the drain (Pic. 3, Pos. 9) to the clamp (Pic. 4, Pos. 5). Increase the obtained dimensions by 10-15 cm and cut off the corresponding tubes (Pic.4, Pos.1, Pos.2, Pos.3).
8.18. Attach the ends of the pipes obtained to the fittings of the installation, the corresponding valves and the drainage clamp (see Pic. 4).

8.19. Attach the ends of the tubes (mates) from the reverse osmosis system block to the fittings on the activation block, in accordance with the stickers on the ends of the tubes and on the body of the activation block (see Pic.3, Pos.19, Pos.20).

8.20. Connect the display unit connector (Pic. 1, Pos. 9) to the activation unit connector (Pic. 3, Pos. 18).

8.21. Connect the power adapter (Pic.1, Pos.8) to the activation block connector (Pic.3, Pos.16).

9. Preparation for work

9.1. Disconnect the power adapter (Pic. 1, Pos. 8) of the activation unit and the power cord of the reverse osmosis system (hereinafter OOS) from the mains.

9.2. Close the water supply tap (Pic.4, Pos.6), open the clear water tap (Pic.4, Pos.7) and close the tap of the accumulation tank (Pic.4, Pos.8).

9.3. Disconnect the tube from the fitting in the cap of the mineralizer flask (Pic. 3, Pos.11) and send it to a small container.

9.4. Connect the mains power cable to the mains.

9.5. Open the water supply tap. The pump will automatically work. After a few minutes, water will flow from the tube.

9.6. Wait a couple of minutes and disconnect the mains power cable from the mains.

9.7. Connect the tube (see p. 9.3.) To the fitting in the cap of the mineralization flask.

9.8. Connect the power unit of the activation unit and the mains power cable to the mains.

9.9. After 30 minutes (the flushing time of the system), open the tap on the storage tank, close the clean water tap. Before using the system for the first time, drain the water from the tank by opening the clear water tap (first set).

9.10. Check the tightness of the system.

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1. During the installation, a slight sound is possible (the presence of air in the system).
2. At the first set or after a long break in work (several days), after water is taken through the faucet, the indicators may glow with a red light.

10. Service

Getting top-quality drinking water requires regular replacement of filter cartridges and mineral supplements. The display unit (see Pic. 5A) indicates the need for such changes when the green color of the corresponding indicator changes to a steady red color:

- position 11 - replacement of the reverse osmosis membrane;
- position 12 - regeneration or replacement of the reactor;
- position 13 - pouring a new mineral supplement;

Cartridge replacement intervals (highly dependent on inlet water):

- 1 steps ~ 2 ... 4 months or 6000 liters
- 2 and 3 steps ~ 4 ... 8 months or 6000 liters
- 4 steps ~ 12… 24 months or 12000 liters
- 5 steps ~ 2 ... 8 months or 6000 liters

Frequency of replacement of the storage tank:

- plastic ~ 3 years or 18,000 liters

for the mineral additive "Severyanka +" composition No.4:

- level of mineralization "100" ~ 3500 liters

(The resource of the mineralizer depends on the type of mineral additive used, the chosen level of mineralization, the volume of filling and water temperature.)

10.1. Mineral Supplement Replacement

Perform works in sections 9.1 and 9.2., Then close the clean water tap. Remove the tube from the fitting in the cap of the mineralizer flask (Pic. 3, Pos.11) and pour the entire contents of the mineralizer flask into any container.

Wash the inside of the mineralizer flask with detergent and rinse thoroughly with distilled (or deionized) water.

Next, you need to pour the mineral additive (“Severyanka +” composition No. 4) in the amount of 600 ml into the body of the mineralizer to the very top (so that there is no air bubble). Tighten the cap tightly (Pic.3, Pos.12) and perform the work in paragraph 9.

10.2. Replacing filter elements

Perform work in sections 8.2 and 8.3 and wait a couple of minutes, then perform work in sections 9.1 and 9.2. Then, using the key (Pic. 1, Pos. 7), unscrew the flask of the filter to be replaced and remove it. Remove the used cartridge and install a new one. Twist the flask back with the key.

After replacing the necessary filters, disconnect the tube from the fitting in the membrane housing cover (Pic. 3, Pos. 4) and direct it to a container with a volume of several liters. Open the cold water inlet valve to the mixer. Open the water supply tap (Pic.4, Pos.6). Connect the power cord of the reverse osmosis system to the mains. After 2 minutes (the time of washing the filters), disconnect the power supply cord of the reverse osmosis system from the mains and then close the water supply tap. Connect the tube to the fitting in the diaphragm case cover (Pic. 3, Pos. 4). Perform the work in paragraph 9.

10.3. Enter diagnostic mode

Disconnect the power adapter (Pic.1, Pos. 8) from the mains, press and hold the “Menu” button, connect the power adapter to the mains. At the end of the screen saver, release the button.

A menu similar to the following will appear: “**D1.0 F9.0**” where the digits after **D** are the type of instrument, and after **F** the firmware version. Further, when the installation is in tank set mode, four groups of numbers will appear in the top menu bar, which need to be recorded (or photographed) at 5-second intervals (or video) within a few minutes. Then these data must be transferred to the service department if problems arise in the operation of the installation. The remaining parameters can be viewed by pressing the "**Select**" key (but the number of the advanced parameters group is the number after which there is a # symbol).

For the procedure for replacing the reverse osmosis membrane, see Attachment 3.

11. Troubleshooting

Problem	Possible reason	Remedy	Note
From the tap clean water is milk-colored	Air in the system		Air in the system is a normal case when starting the system. Under normal use, the color will disappear within 1-2 weeks.
Water does not enter storage tank or flow slowly.	Low pressure in the supply line	Eliminate	The rate at which water enters the storage tank (after the membrane) must be at least 100 ml / min.
	1, 2, 3 prefiltration cartridges are clogged	Clean or replace cartridges	Cartridges can quickly become clogged from a salvo discharge of dirt into the water mains or inlet water is more contaminated.
	Osmotic membrane clogged	Replace	The membrane can quickly become clogged, if running on hard water.
Very little water flows from the storage tank.	Low overpressure in storage tank		Normal pressure in an empty tank should be 0.4-0.5 atm.
Leaks	Fitting not tightened	Increase the pressure	
Water tastes or smells bad	Coal post filter has exhausted its resource	Tighten connections	
	Preservative residue in storage tank	Replace	
	The minimum water analysis specified in the passport is not provided.	Drain <u>all</u> the water from the tank and refill it.	Water can stagnate and get an unpleasant taste and smell.
Indicators don’t glow	Bad contact of the indicator cable plug	Drain <u>all</u> water from tank, perform paragraph 9 and refill it.	
Continuously clicks the pressure switch	Inlet filters have exhausted their resources or insufficient pressure in the water supply network.	Disconnect and then reconnect the indicator cable.	
The low value of the shift ORP	“**Start xxxx**” is lit on the display for a long time.	Replace the inlet filters and check the pressure in the water mains.	Due to the increased water conductivity at the inlet of the reactor.

12. Manufacturer's warranty

12.1. The warranty period is 1 year from the date of purchase of the device or 18,000 liters, depending on what comes before.

12.2. The device is designed for domestic use with daily water consumption of no more than 50 liters. Otherwise, the service life of the replaced cartridges and the reactor of the activation device will be significantly reduced.

12.3. The manufacturer guarantees the operation of the installation when the consumer observes the specified operating conditions, safety measures and maintenance.

12.4. Consumables: cartridge filters, post-filter, reverse osmosis membrane and mineral additive are not covered by the warranty; changing consumables during operation is the responsibility of the consumer.

12.5. In case of failure of the installation during the warranty period due to the manufacturer’s fault, the installation should be returned to the manufacturer for warranty repair along with this passport.

12.6. If the installation was damaged by the consumer as a result of a violation of the rules of operation, the repair is made at the expense of the consumer.

12.7. If there are any problems with the device, unplug it, turn off the water supply and contact your local service dealer or manufacturer.

12.8. The consumer has the right to refuse the goods at any time before his transfer, and after the transfer of the goods - within seven days.

Note: The manufacturer reserves the right to make changes to the installation that are not specified in this passport and do not affect the installation functionality.

13. Certificate of acceptance

Device "IKAR" (mod.01os) serial No._____ corresponds to Spec. 28.29.12-001-09377433-2017 and is considered to be fit for service.

QCD representative _____

Stamp here.

Date of sale _____

RC "Ikar"
426075, Izhevsk, p/o box 1619
ikar@udm.ru, https://eng.ikar.udm.ru/

14. Warranty repair

Date of receipt	Date of issue	Description of repair	Printing service center.

Date	For notes

Attachment

Attachment 1

Properties of antioxidant aqueous solutions

The redox potential of solutions (ORP) is considered by physicians to be the most important indicator of their biological activity. Water and solutions based on it, obtained in installations "IKAR" with negative ORP, are electron donor with respect to media with positive ORP. Such water as an electron donor is an antioxidant, which explains its biostimulating effect on body tissues. Water with parameters Δ OBP ~ - (200 ... 400) mV stimulates the processes of physiological regeneration, in particular, DNA synthesis of cells of the duodenal mucosa, has an immuno-corrective effect, enhances the detoxifying function of the liver, stabilizes the permeability of cell membranes and normalizes their energy potential. Ordinary drinking water with ORP ~ (250 ... 450) mV is electron-withdrawing with respect to cells and tissues of the body consisting of 80-90% of water. As a result, the biological structures of the body undergo oxidative destruction and aging.

When activated, water, while maintaining complete biocompatibility (without any chemical additives) is converted into an effective antioxidant. Recall that antioxidants are the most important vitamins E, C, PP, K and a number of other vital substances included in food.

Redox reactions play a crucial role in metabolism and energy. At various diseases or harmful external effects on a living organism, a disturbance of the balance of redox processes occurs.

Activation of oxidation processes in the tissues of organisms can be traced with avitaminosis, the damaging effects of exogenous chemical agents (poisoning by alcohol, nicotine, etc.) and physical factors (cold, fever, radiation damage, etc.), chronic stress and vascular pathology, with other pathological processes, aging.

Numerous experiments on animals in laboratories, on farms, drinking antioxidant water by volunteers showed that there is an activation of the body's defenses, a decrease in susceptibility to colds and infectious diseases.

Note that attempts to obtain biologically active water by simply adding chemicals do not lead to similar results.

Numerous studies have shown the absence of toxicity and mutagenicity in antioxidant water.

Activation allows not only to disinfect the source water, but also to receive along with bactericidal and biostimulating properties.

Antioxidant water is a powerful stimulator of biological processes, has high extracting and dissolving properties. For example, propolis is dissolved in activated water, heated to 40-50 °C for 4 hours, while under normal conditions it dissolves only with alcohol during the day.

Activated water is an immunostimulant and stimulates the processes of physiological and reparative tissue regeneration, normalizes metabolic metabolism, improves blood circulation processes in tissues, stimulates tissue respiration, increases the reliability of antioxidant protection of the liver and myocardium, increases the detoxifying effect of the liver.

This water is easy for the body to assimilate, with its regular use, the person needs less food and, as a result, gets rid of excess weight.

The use of this water improves metabolism, excretion of toxins and chemicals undigested by humans and leads to the activation of all systems of the human body, primarily the activation of the immune system. It is effective for the prevention of geriatric diseases, hypertension, atherosclerosis, diabetes and others.

It is effective in cosmetics, prevents the appearance of wrinkles, softens the skin, gives it a healthy look, when rinsing the hair gives them shine, reduces hair loss.

The effectiveness of herbal remedies is significantly increased with the use of this water.

Activated water has strong extracting properties, reaching a maximum at 70 °C, therefore, herbal extracts infused with such water contain much more useful and necessary substances for the treatment. As a result, the effectiveness of their application is much higher.

The effectiveness of therapeutic baths and aromatherapy using activated water increases.

The physiological usefulness of drinking water is characterized, first of all, by the AFP and its mineral composition, which must meet the biological needs of the human body. In international and national documents of major industrialized countries, minimum levels of standards are set only for water hardness. This indicator is expressed either directly by the total hardness, or in the form of minimum concentrations of bivalent calcium and magnesium. The WHO manual contains an indication of the minimum level of total salinity of drinking water - 100 mg/l, while the optimal mineralization level is 200 ... 500 mg/l.

In St. Petersburg, developed and certified, specifically for the "soft" water of the region, the composition "Severyanka" http://www.severyanka.spb.ru with the help of which you can normalize water, for drinking and cooking food, for calcium and magnesium ions. The composition is used by adding it to drinking water, in accordance with the instructions.

In installations of the IKAR models you receive cleared, disinfected, activated drinking water. Using the equipment available in the installations, you can enter into the installation, on the basis of the recommendations of specialists, any mineral additives that are missing for your region, thus facilitating their absorption by your body.

WE WISH YOU HEALTH!

Your guidebook - Journal "MIS-RT"

http://www.eng.ikar.udm.ru/mis-rt.htm

Features of device "IKAR" (mod.01os)

In the device as a system of preliminary treatment of water can be used for reverse osmosis systems of any manufacturer, available for purchase (example: "Geyser", "Rainbow", "Aqua-pro" and others). All these systems have the same sequence of cleaning steps, namely:

I stage - mechanical cleaning,

- material, polypropylene foam, porosity - 5 microns (EPM series, PPS)
- wound from polypropylene filament, porosity - 5 microns (SWS series (Korea))
- based on corrugated polypropylene, porosity - 5 microns (APP series)

Stage II - removal of chlorine and chlorine-containing compounds,

- material - granulated coconut coal (series GAC, UPF, YS-168)

Stage III - cleaning of organic compounds,

- material - pressed fine-pored coal (series APC, CBC)

IV stage - membrane cleaning by the method of reverse osmosis,

- material - a thin-film composite with a hole diameter of 1 angstroms (10-10 m) transmits only water molecules, and the remaining dissolved impurities, the surface of the membrane merge into a drainage (RO membrane series Filmtech, TFC, CSM)

Stage V - cleaning from odors and gases after complex cleaning,

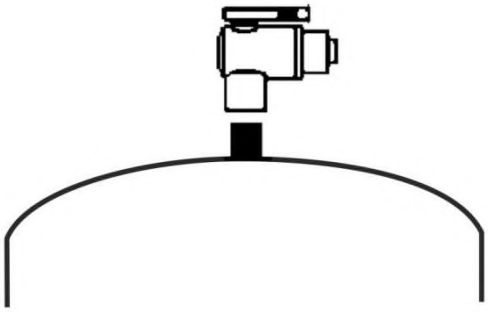
- material pressed activated coconut carbon (series AIC, AIP)

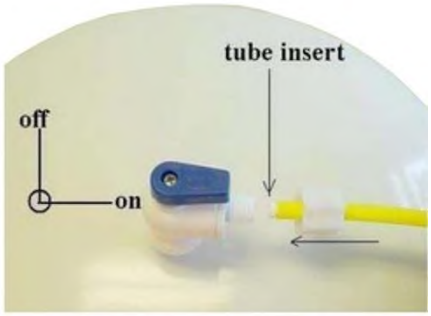
A feature of the device "IKAR" (mod.01os) is that after the IV stage of pretreatment, after receiving the actual water with impurities not exceeding 10 mg/l, it enters the activation and mineralization device, where it is completely decontaminated, acquires antioxidant properties (negative values ORP) and receives the required number of essential trace elements. Water becomes living and biologically useful, and retains its properties while being in the storage tank for at least 3 days. Before taking water through the tap, the water passes through a coal post-filter (V stage).

Replaceable cartridge filters are typical, sold in all stores, trading reverse osmosis systems. The mineralizer is filled with fresh solution "Severyanka +" at the direction of sensor 3.

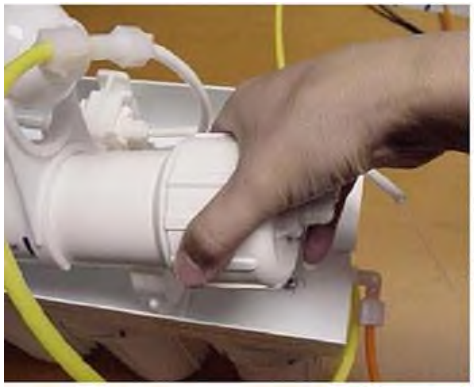
CUT INTO THE LINE OF COLD WATER

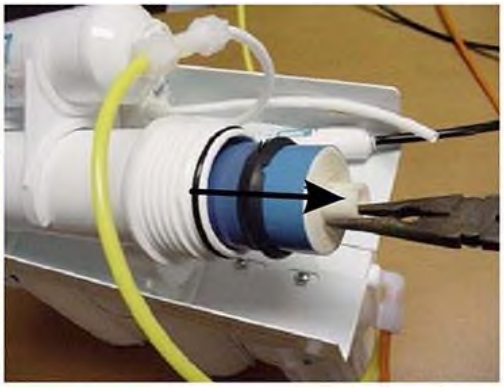
INSTALLATION OF THE VENTILATION OF THE ACCUMULATING TANK

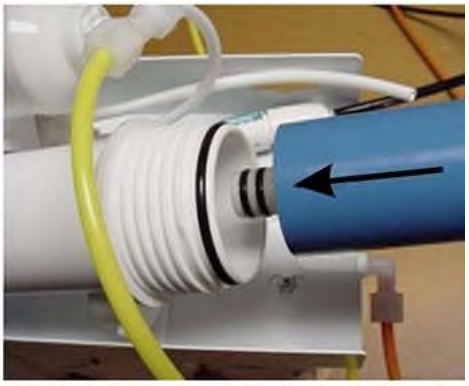




MEMBRANE REPLACEMENT PROCEDURE



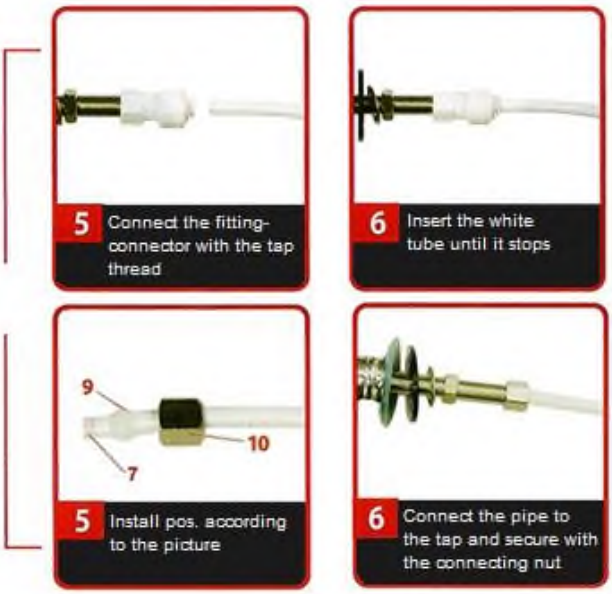




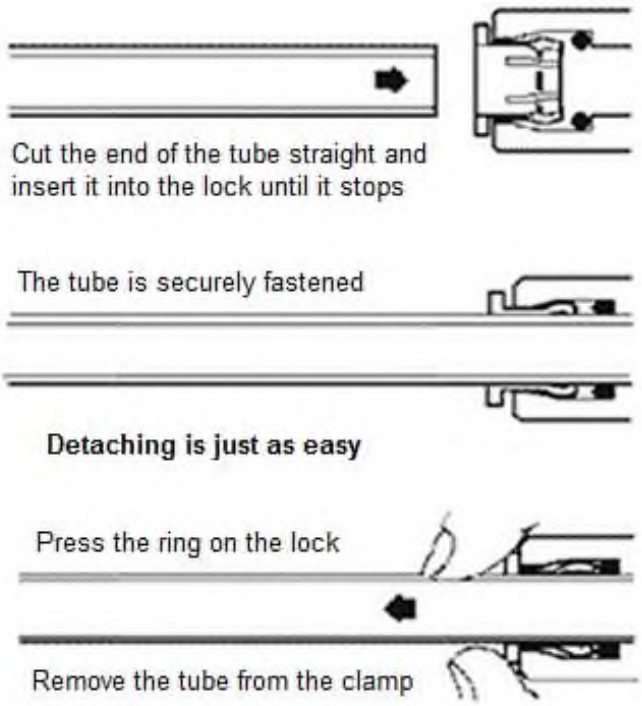
If it is necessary to replace the membrane, unpack the sealed bag with the new membrane and insert it into the case (after removing the used).

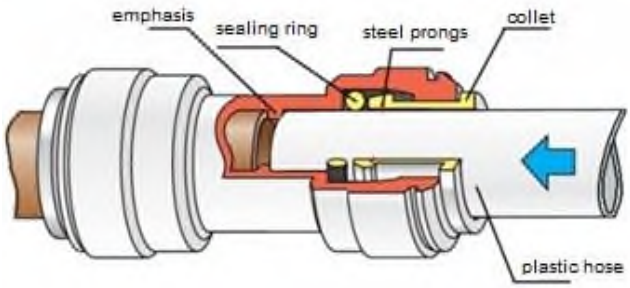
FIXING DRAIN CLUTCH

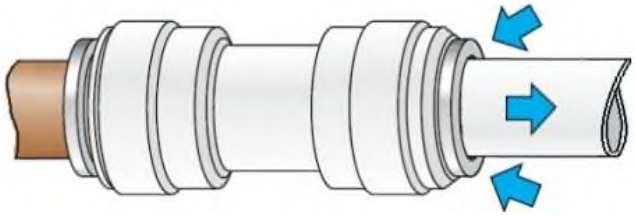
INSTALLING PURE WATER CRANE



CONNECTION OF FLEXIBLE PIPES







Note: the device can use 2 types of fittings (quick-detachable plastic connections):

1) **JACO-type**, connection with cap nut. Before connecting a special bushing from the kit is inserted into the tube. When tightening the nut, the latter compresses the tube fixing and sealing the connection.

2) **JG-type**, connection without nut. The tube is fixed in the fitting with a mechanical clip and a rubber ring inside the fitting seals the connection.

Attaching the tube to the fitting. Insert the tube into the fitting until it stops. The tube is fastened with a mechanical clip. Apply additional force to seal the joint. At the same time, the tube will advance approximately 5-6 mm more and will be tightly compressed by the rubber ring of the fitting. Gently pull the tube out of the fitting to check the connection.

Disconnect the tube from the fitting. Make sure there is no pressure in the tube. Push (symmetrically) the mechanical clamp ring to the base of the fitting. This will free up the phone. Pull up the tube, holding and holding the ring symmetrically.

Attention! The end of the tube attached to the fitting should not have scratches and dents.

Attachment 4

Mineral additive “Severyanka +” composition No. 4.

Today, “Severyanka +” is the best balanced mineral supplement. If you do not find it in the shops of your city, you can order directly through “Eco-Project” LLC (http://www.severyanka.org/).

Mineral additive “Severyanka +”

For physico-chemical parameters, composition No. 4 of the additive should comply with the standards specified in table No. 1.

Table No.1.

Ion concentration in water.			
Ca^{2+}	**Mg^{2+}**	**K^{+}**	**I^{-}**
75-85 g/dm^3	17-22 g/dm^3	4-6 g/dm^3	80-120 mg/dm^3

Additive is used:

- at home; in kindergartens and schools
- in the process of water treatment in the industrial production of bottled drinking, beverages and food.

Transportation and storage rules:

- The transportation of the additive is carried out in a transport container by all means of transport in accordance with the rules for the carriage of goods in force for this type of transport.
- Transportation and storage of the additive is carried out at a temperature of -30 to 30 °C, without access of light.
- Guaranteed shelf life of the additive - 18 months.

Translated by Shironosova O. E.
Found a mistake?
Write me: shironosova.pr@gmail.com

"IKAR" SCIENCE AND RESEARCH CENTER

Devices and environmental safety systems for home, office and hospital

https://eng.ikar.udm.ru/avk_com.htm

(mod.01os)

"IKAR" is a universal device for the preparation of drinking water with a given mineral composition and antioxidant properties, and for obtaining on its basis: detergent, disinfectant and sterilizing solutions.

Device modifications:

(mod.01m)

mod. 01os – to obtain activated drinking water of the highest quality with a given mineral composition and antioxidant properties, the device is equipped with a built-in controller and three flow sensors with a two-level display system - monitoring the operation of osmosis systems (purification), activation (water ionization), mineralization (optimization of mineral composition).

(mod.04)

mod. 04 – universal device for obtaining activated liquids with negative redox potential (drinking water, beverages, saline, blood) based on non-contact and contact activation of liquids for use in everyday life and various fields of national economy (medicine, agriculture, industry, oil production)

(mod. 2000)

mod. 2000 – mini-factory for obtaining the highest quality of drinking water, washing, disinfecting and sterilizing solutions, disinfecting water in swimming pools.