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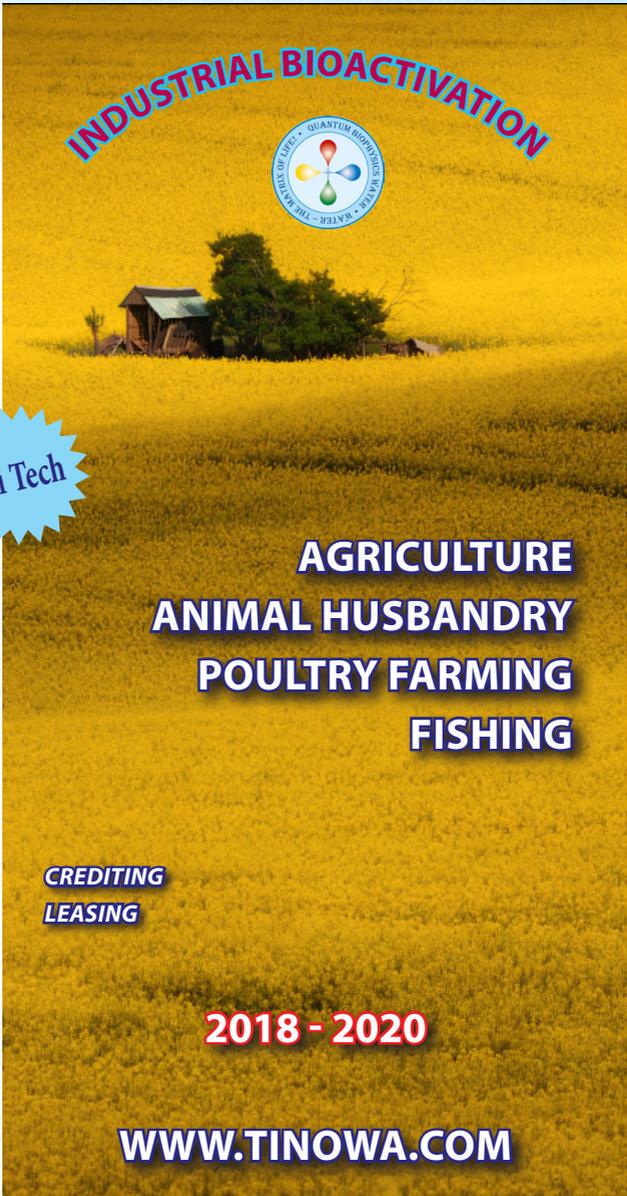
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<< RUSALIA AGRO >>



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INDUSTRIAL BIOACTIVATION



**AGRICULTURE  
ANIMAL HUSBANDRY  
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**INNOVATION INVESTMENT**



**Industrial ecology is a basis of healthy life of the population and prosperity of the planet.**

# INSTALLATION SHEET

Compact portable and industrial water activators  
based on the effect of «tornado» of monopolar hydroplasm

«Rusalia Agro»



## I. Description of the principle of operation of the «Rusalia Agro»

The principle of operation of the «Rusalia Agro» consists in that under certain conditions of water flow movement in the device there appears the condition of macroscopic quantum condensation of electrons from the environment with the formation of an electrically non-equilibrium state of water needed to maintain resistance (stability) of living organisms, including humans, animals, plants to the adverse environmental factors.

Physical conditions for the realization of processes of macroscopic quantum condensation of electrons in the device are achieved through the use of two interrelated phenomena:

1. The non-equilibrium dynamics of the electromagnetic vortex formed in the event of deformation-thermal instability of the phase of associated water in a high-gradient stream of water, with the transition of the vortex to a state of «relaxation failure» and reduction of the wave packet of electrons (Koldomasov effect);
2. The formation of macroscopic quantum «hole» in a rotating flow of monopolar charged water in the conditions of the Earth's geomagnetic field, accompanied by the changes in the energy levels of a Bose condensate of electrons in phase of associated water in the fluid flow and electron tunneling from the environment (the «tomado» effect).

The device consists of preionisation unit and vortex hydro plasma circuit. Preionisation unit is implemented as a hydraulic circuit based on the effect of dynamic compression of flow and shock diffusion to the critical state of plasma formation. The vortex hydro plasma circuit is a toroidal tank with a tangential inlet and outlet of water flow.

The technical design of hydraulic and hydroplasmic circuits is based on one-way movement (left-hand drive - for use in the northern hemisphere, right hand one - in the southern hemisphere) of monopolar (negatively) charged water flow in the circuits.

Application of methods of water activation allows to some extent reduce the chemical load on the ground, as well as reduce the need for means of fight against plant pests and prevention of diseases of animals, birds and fish.

## II. Specifications of «Rusalia Agro».

The main technical characteristic for the installation is its electron-accepting and electron-dissipating abilities:

Technical specifications of generator equipment	Electronic activity indicators	
	Accepting ability	Dissipating ability
Performance (for V=20l), e.:		
- for preionization unit	$2,7 \cdot 10^{15}$	$3,8 \cdot 10^7$
- for plazma vortex unit	$1,2 \cdot 10^{17}$	$4,1 \cdot 10^7$
- total (at the optimum)	$2,5 \cdot 10^{18}$	-
	$(\Delta E_{h_{opt}} = -130mB)$	
- Rotation (without preionization unit) (for V=20l), e.	$4,0 \cdot 10^{15}$	$4,0 \cdot 10^7$

In the optimal mode of device operation - 11 minutes of continuous operation of the plant for the load - 20 liters of water (with an initial temperature of 14°C, the temperature of optimum of - 28°C). The recorded changes of the water state are determined by the reduction of its redox state by minus 130mV. In this case, the rotating flow of activated water provides electronic activation of the environment, determined by the value of  $\sim 4 \cdot 10^6$ el/min.

## III. Description of use of the «Rusalia Agro»

Usage of the product involves several design variants: portable, built-in system of drinking water supply pipeline, built-in recycling system of heating of living environment and working environment, the activator of circulation type (for activation of greenhouses during growth and development of plants and facilities for animals and poultry management).

For preparation of activated water in a portable version of the product it is necessary to fill a container of hydroplasmic circuit with 10, 20 or 30 liters of water (drinking or natural), set the preset mode with automatic product activation and deactivation. Processing time until optimal activation of water is 7-8min-10L, 11min -20L, 15min-30L. Total capacity of production of activated water is 90L / h. The maximum volume of a storage tank of activated water for farms is not more than 5m<sup>3</sup>.

Reprocessing of activated water in both circuits is not permitted. To maintain the water activity in time (about 5-6 hours) after the initial 2-contours treatment the single circuit mode activation is used (water rotation in hydroplasmic circuit bypassing the preionisation unit). The treated water is used for watering of animals, poultry, for preseedling treatment (soaking) of plant seeds, as well as for domestic water supply.

The hydroplasmic circuit in the built-in water supply or recirculation system (activation of livestock farms) is built into the system and launched (activated, disabled, switched to different modes of operation) automatically (according to the set program). The recommended operating mode of the activator for maintenance of activity of livestock farms and the activity of the water used for watering of animals and poultry (in a single circuit circulating circuit with periodic short automatic switch to two circuits) - daily 8 hours a day without a long-term (2 or more days) breaks and continuous operation (2- circuits) - when operating with a storage tank with maximum volume of water (5m<sup>3</sup>).

#### **IV. Individual features of the «Rusalía Agro».**

Individual features of the product are determined by the need to use the electrical power for their operation - 220V, 50-60Hz, 350-500Vt; by the presence of little noise from the motor pump, by the need to place the preionisation unit in the utility room or outside. For implementation of the maximum activity of water, when it is necessary to obtain significant (200 - 300 liters) volumes of activated water with the use of portable installation (for example, for seed soaking), it is recommended to periodically change its location.

#### **V. Expected service life of the «Rusalía Agro».**

The expected product life is 10,000 hours of continuous operation. The warranty period is 24 months. The general term of operable state is 5 years. At the end of its service life the preionisation device (namely the active element) is subject to replacement. **Training and methodological support.**

#### **VI. The safety of use of the «Rusalía Agro».**

The safety of use of the product is set by the safety requirements of operation of electrical installations of domestic use with voltage of 220V, as well as recommendations for the safe use of activators, which determine the need to avoid unnecessary contacts (no closer than 5 meters) of a person with power preionisation installation during its active functioning.

#### **VII. Area and efficiency of application of the «Rusalía Agro».**

The product is used for the following aims:

- Increase of resistance to adverse environmental geophysical factors for animals and poultry, including non-communicable and some infectious diseases; improvement of the quality of products of animals, poultry and fish with increase of their productivity.
- Increase of the yield, quality and resistance to adverse climatic factors and soil types, as well as resistance to pests of crop products.
- Improvement of consumer qualities of the cultivated products (especially in greenhouses): compensation of shortfall in plants of organo-mineral complexes, vitamins and biologically active phytochemical compounds; reduction of the digestibility of toxic nitrates, heavy metals, fungicides and insecticides and other endocrine disruptors by the soil; better palatability traits of fruit crops; better aesthetic perception of flowering plants; increase of the shelf life of products without significant changes in their quality

When using the water, which passed through the activation device, depending on the degree of activation of water, the following effects on animals, poultry and fish are noticed:

- intensification and normalization of metabolism;
- positive impact on the safety of livestock, increase of its adaptive capacity to stress conditions;
- improvement of physiological and biochemical indicators and functional state of internal organs, formation of a more stable cell-mediated immunity and «productive health» of young animals, which allows them to achieve their genetic potential;
- acceleration of bone formation according to age of animals, poultry and fish

Experiments proved the increase of productivity of agricultural products for cereal crops (barley, canola, corn, wheat, rice) - from 15 to 50%, for vegetable crops (sugar beet, tomatoes, cucumbers, lettuce, and radish) - from 20 to 60%, forage and industrial crops (flax, clover etc.) - 20 to 100%. At the same time the preseeding treatment of plants (soaking of seeds for 4-10 hours depending on the type of seed) has a complex effect on plants, which manifests itself in the following effects:

- activation of rooting, development of the leaf surface and thickness of the stems, photosynthesis;
- increase of size of fruit, number of large fruits, grains per ear and total number of productive ears;
- increase of drought and frost resistance of plants;
- improvement of plant immunity, resistance to diseases and pests;
- increase of germination and rooting of plants (including grafting);
- reduction of terms of ripening by 1-1.5 weeks;
- improvement of health of animals and poultry fed on activated agricultural products (especially in later generations).



### **VIII. Competitiveness of the «Rusalia Agro».**

«Rusalia Agro» has a competitive advantage compared with existing prototypes in performance that allows to realize the most effective levels of bioenergetic activation of water and protection of animals, poultry and fish, significantly expands the range of its use for a variety of tasks in the area of farm agricultural production.

Electron-accepting ability of the closest competitive product - water activation device UNN-1 JSC «Aragon» (Russia) is 2,0 • 1016 el / min, which is significantly lower compared with the activity of the «Rusalia Agro» - n • 1017el / min (depending on the mode of activation).

Other competing technologies of water activation and products based on them, such as membrane electrochemical activation, cavitation activators, magnetic treatment, the use of various phase-modulating micro additives in the water, including nanomaterials with plasma activity, do not provide the required levels of activity without significant changes in chemical composition of water, including the generation of molecular hydrogen, the formation of molecular forms of active oxygen and other potentially dangerous compounds.

The proposed installation «Rusalia Agro» has several times higher performance compared to similar activating equipment (Enagic LeveLuk SD501 Platinum, OSG Humanwater HU-88, Panasonic TK-AS43 - Japan, water ionizers and electrolyzers of series Ashbah - Germany and other manufacturers) at a much higher reliability, durability, ease of use and fields of application at compared prices for comparable product.

### **IX. Organizations involved in development of technologies.**

FGOU FPIC «Russian Engineering Academy of Management and Agribusiness» pos. Chkalovskaya, Moscow region. • All-Russian Research Institute of breeding and seed production of vegetable crops RAAS Odintsovo, Moscow Region. • Institute of Human Ecology and Environmental them. AN Sysin Health Ministry of Russian Federation, Moscow • JSC» Institute of Applied Physics and Chemistry «, Moscow • SSI Research Institute of Animal Breeding • MNTP» Plemiitsa «Sergiev Posad • All-Russian Institute of poultry and TI (VNITIP) Sergiev Posad All-Russian Institute • Institute of Animal Husbandry (AUIAB), p. • Dubrovitsy OGPU «Poultry» Sredneursalskaya».

In Russia the management of the quantum states of biological structures, including through seed treatment of electron - active media, were experimentally confirmed using a representative list of crops. Approved by a number of organizations, including RAAS, the seed pre-activation technology shows higher crop productivity and quality indicators, increase of resistance to adverse temperature - climatic and agrochemical conditions (drought, low temperatures, wind load, depleted soils, and so on), disease resistance, as well as microbial and fungal lesions.

During the experimental production of crops the following productivity was obtained (relative to the control seeding using a standard method): Barley - 117-125%; Rape - 112-122%; Salad (cultivar «Anapchanin», «Bouquet») - 112-122%; Radish (cultivar «Aria»), «rose-red», «Sonata») - 124-125%; Corn (cultivar «Petite») - 166-175%; Wheat (cultivar «Elite»), corn, sugar beets - 115-130%; Winter wheat, rice, tomatoes, cucumbers, flax, clover and others - 118-157%.

### **X. Execution of order and supply of installations.**

Installations «Rusalia Agro» is available to order with various power modifications. Installations with small and medium power are used in subsidiary husbandry and farms. For a special order the technological principles are used in the manufacture of industrial-type installations adapted for large-scale agricultural producers in the agricultural, livestock, poultry and fish farms. The cost of manufacture of one installation is from 14.000 EUR, and depends on the configuration (field of use) according to the order. The execution period is up to 2 months after payment. You need to pay 70% when placing the order, 20% when the order is executed and 10% after the transfer of the installation to the customer under the terms of the place of delivery - Moscow. The order shall be sent to the address: [tinowaru@tinowa.com](mailto:tinowaru@tinowa.com)

**We always try to consider individually the issues of selection of the installation, performing calculations, delivery, installation, commissioning and subsequent maintenance.**



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