C A T A L O G

OF THE UVET EQUIPMENT



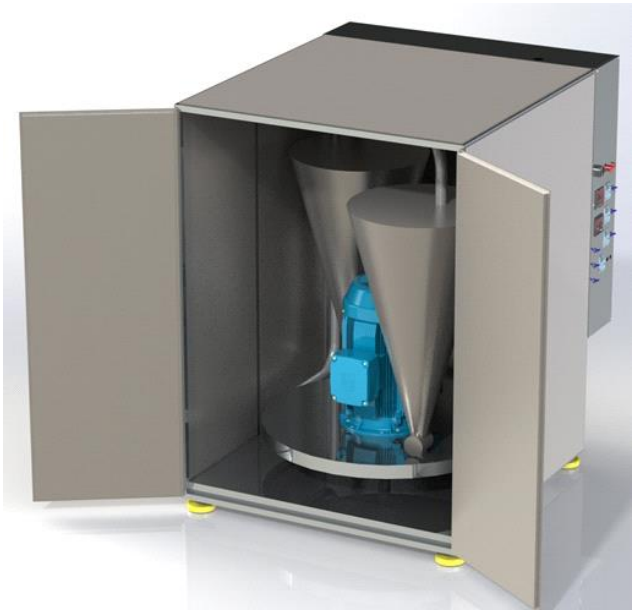

Kharkov, Ukraine – 2024

The UVET equipment is presented in the pictures:

Processing Unit UVET-005

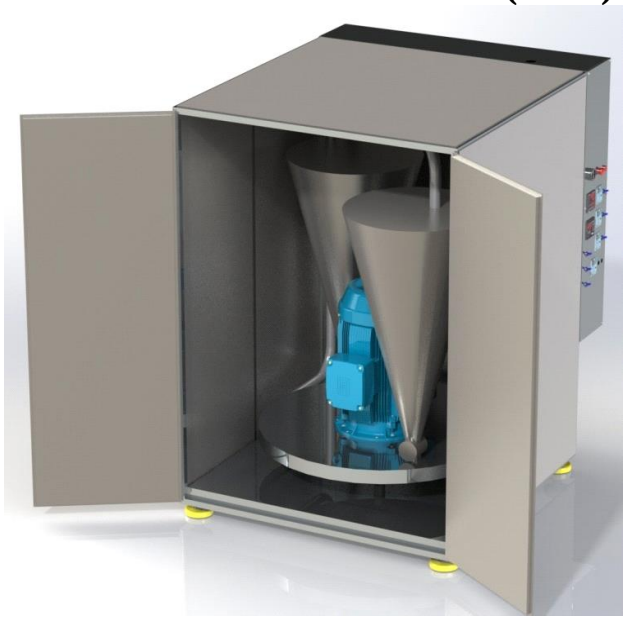
Overall dimensions:
width 2.4 m length 1.8 m height 2.4 m

PRESERVING UNIT



Overall dimensions:
width 1.5 m length 2.0 m height 1.8 m

Versatile Cavitation Unit (VCU)



Overall dimensions of the VCU unit:
width 1.5 m length 2.0 m height 1.8 m

Industrial Heating Unit (IHU)

Overall dimensions of the IHU unit:
width 1.5 m length 1.8 m height 1.2 m

CONTENT

1. Processing Units UVET-005 come in four modifications — industrial, commercial, pharmaceutical, and farming. They are designed for the production of PREMIUM quality powders from agricultural raw materials of vegetable and animal origin.

2. Preserving Units come in 15 main modifications differing in the power of the main drive. They are designed for preservation (canning) of agricultural raw materials of vegetable and animal origin in a pasty state for long-term storage under normal storage conditions.

3. Versatile Cavitation Units (VCU) come in 15 modifications differing in the power of the main drive.
They are designed for performing more than 12 technological processes – providing disinfection and purification of organic effluents; obtaining of clean, soft, medicinal water; desalination of sea water. They are also designed for using in the food industry; biomedicine; animal husbandry; crop production; fish farming; concrete manufacturing; manufacture of foam concrete blocks; obtaining of coal-water fuel; as well as many other technologies.

4. Industrial Heating Units (IHU) come in 15 modifications with the power of the main drive varying from 11 kW to 315 kW. They are designed for heating as well as hot water supply in the residential and industrial premises.

5. The **GLEB blender** is designed for making healthy drinks from food and medicinal UVET powders.

6. The list of patents that formed the basis of constructive proposals and ensure patent protection for technologies and equipment: UVET-005 processing units, PRESERVING units, VCU units, IHU units.

1. PROCESSING UNITS UVET-005

They are designed for manufacturing powders of the PREMIUM grade from agricultural raw materials of vegetable and animal origin.

For example, the photograph shows powder plant UVET-005I (industrial model) with a capacity varying from 30 kg to 70 kg per hour of PREMIUM class powders. To achieve a capacity of 70 kilograms of powder per hour, the processing unit has to process 600 kg to 1000 kg of agricultural raw materials per hour.

The devices and technologies for producing powder are protected by patents for inventions.

Processing Units UVET-005 are designed for producing the PREMIUM class powders (flour) with a dispersion of 100 to 25 and less microns, moisture content from 6% to 10% under the UVET technology using the activation method. Powders are made from vegetables, fruits, berries, milk, mushrooms, meat, fish, medicinal herbs, legumes, spices, honey and other raw materials. The powders completely retain vitamins, biologically active, flavoring and other components. The main consumers of the powders: *milk processing factories; confectionery factories; bakeries, pharmaceutical industry, and perfumery industry. Production of sausages, concentrated instant breakfasts, baby food, food additives, natural dyes, etc.*

In addition, the UVET-005 unit can be used for processing of food products (from stores, warehouses) with the expired shelf life for human consumption into powders for subsequent production from the resulting powders of feed, for example, for domestic animals, animal husbandry, fish farming or for other purposes instead of sending the expires food products to the landfill.

The activation method is based on the fact that, in a small volume of a cylindrical activator, an infinitely developed surface of evaporation - drying (dehydration) of raw materials with simultaneous grinding into powder is created. At the same time, the activation method provides for continuous mechanical opening of the capillaries of the solid parts of the processed raw material, with the simultaneous evaporation of water released from the capillaries that in the form of the shell of the vapor-air mixture protects each dried particle from the effect of a thermal agent, due to which the temperature on the surface of the dried particle does not exceed 20...25 C, despite the fact that the thermal agent has a temperature of 40...65 C. Moreover, in the process of using the activation method, about eight different physical methods are applied simultaneously that has a beneficial effect on the capacity of the processing unit and quality of the final product.

Indicators and characteristics of the units (modules):

Indicators	Values			
	UVET-005I industrial unit	UVET-005C commercial unit	UVET-005Ph pharmaceutical unit	UVET-005F farming unit
Dry powder capacity, kg/h, for production from raw materials with the moisture content, %	30…70	15…50	10…45	25…40
	95…75…30	95…75…30	95…75…30	95…75…30
Dispersion of the powder, μm (microns)	25…100	25…100	25…100	25…100
Moisture content of the powder, %	6…10	6…10	6…10	6…10
Water evaporated from raw materials, l	50…90	40…70	30…55	25…40
Installed power, kW	90	75	63	58
Electricity consumption (average), kW/h	35…60	25…40	15…35	10…30
Overall dimensions: length x width x height, meters: on the machine bed	1.8 x 1.8 x 2.2	1.8 x 1.8 x 2.2	1.8 x 1.8 x 2.2	1.8 x 1.8 x 2.2
on protruding elements	2.4 x 1.8 x 2.4	2.4 x 1.8 x 2.4	2.4 x 1.8 x 2.4	2.4 x 1.8 x 2.4
Mass, kg	980	890	830	780
Warranty period from the date of delivery of the installation, months	12	12	12	12
Service personnel, operator	1	1	1	1
Payback of installation, months	6…8	6…8	6…8	6…8
Price of the processing unit, excluding VAT, EUR				

Powders manufactured under the UVET technology are in no way inferior to sublimated powders, they are rich in vitamins, antioxidants, minerals that are not synthesized in the human body and

are supplied with food. All of them help prevent premature aging and increase life expectancy.

The main advantage of the UVET technology is that the dehydration of raw materials of vegetable origin and their grinding into powder are performed with full preservation of the cell structure — a genetically complete cell of life. This allows not only to fully preserve the bioenergetics of the feedstock, all vitamins, macro- and microelements, organic acids and other nutrients contained in the feedstock, but also to increase the total energy charge of the product dozens of times, and this gives a double positive effect on the human body. The colossal advantage of raw materials processed in this way is that over time it does not lose its original properties, while vegetables and fruits preserved even in the most comfortable conditions lose more than half of their beneficial properties by the middle of winter.

The UVET technology allows manufacturing a qualitatively new product that previously could not be obtained with the help of any technologies existing in the world, which is confirmed by results of biochemical studies of the composition of powders from rose hips, grape pomace, meat, honey, animal organs, etc.

The basis of the ***UVET technology*** is the **processing units UVET-005** (see pictures) of various capacities that are designed for manufacturing dry powders from agricultural raw materials by the **activation method** with preservation of useful substances — vitamins, biologically active substances, flavoring, aromatic and other components.

During the processing stage, products are not oxidized, technological processes are environmentally friendly and do not pollute the environment.
Maintenance of the units is easy; they can be controlled by almost any person who completed training on operation of the UVET-005 powder units.

The UVET-005 units allow processing any agricultural raw materials of vegetable and animal origin into powders (flour). For each product or groups of specific products, preliminary technological preparation is required:

1st technology. *The washed product is reduced in the Grinder into plates, strips or pulp that are additionally dried in any cabinet dryers from a moisture content of 94...88 % to a moisture content of 40...20 %. Dried particles with a moisture content of up to 40...20 % are loaded into the UVET-005 unit, where the particles are additionally dried to a moisture content of 6...10 % and at the same time crushed into powder with a particle size of 80...50 microns or less.*

2nd technology. *The washed product (for example, carrots) is reduced in the Grinder into pulp (gruel); then, in any device, liquid is squeezed out of the pulp (the so-called juice consisting of approximately 50 % of water and 3...5 % of dry soluble substances); the remaining pulp (pomace) (consisting of approximately 40...50 % of water and 97...95 % of dry soluble and insoluble substances) is loaded into the UVET-005 Unit, where the particles are additionally dried to a moisture content of 6...10 % and simultaneously crushed into powder with a particle size of 80...50 microns and less.*

3d technology. *The washed product (for example, carrots) is reduced in the Grinder into pulp with a moisture content of 88 %, then the pulp is mixed with technological carrot powder with a moisture content of 8 % (6...10 %) to a total moisture content of the mixture of 35...40 %. The prepared mixture with a moisture content of 35...40 % is loaded into the UVET-005 processing unit, where the particles are additionally dried to a moisture content of 6...10 % and at the same time crushed into powder with a particle size of 80...50 microns or less.*

4th technology. *Preliminary preparation of raw materials for drying is not required. The washed product (for example, carrots) is reduced into pulp with a moisture content of 88 %; the pulp is loaded into the UVET-005I (industrial) Unit, where the particles are additionally dried to a moisture content of 6...10 % and at the same time crushed into powder with a particle size of 80...50 microns or less.*
Note: such a technological method of direct processing of disintegrated agricultural raw materials directly into powder can only be applied on the Processing Unit UVET-005I (industrial) of the eighth generation.

TECHNOLOGICAL PROCESSES

Examples of some technological methods of manufacturing powders at the UVET-005I Processing Unit

1. Agricultural products are preliminarily sanitized; they are cleaned of soil and washed with drinking water to remove contamination in special equipment (equipment is selected for each group of agricultural raw materials, for example: root crops, berries, fruits, etc.).

2. Washed agricultural products are inspected on the inspection tables, low-quality raw materials are rejected and discarded.

3. Agricultural raw materials undergo preliminary preparation; heads of garlic are broken in parts and the core together with the root system are discarded; the root system and the remnants of the onion seed stalk are cut off; the remains of carrot and beet tops are cut off. Seeds are removed from pumpkins and melons; then pumpkins and melons are cut into pieces (less than 15 cm x 15 cm), cabbage is chopped, after having drilled the stump.

4. Prepared raw materials of vegetable origin with a moisture content of 85...94 % are crushed into strips (in the form of particles similar to those obtained when the grater is used) or is ground into pulp (gruel) in the special grinder. Pulp or strips are loaded into sealed technological tanks in the form of boxes or containers.
Organs of animals for medicines, boiled meat for food purposes or animal skins for producing collagen are ground into minced meat in industrial meat grinders and loaded into hermetic technological tanks in the form of boxes or containers. The tanks with the prepared raw materials are transferred to the UVET-005I Powder Unit.

5. The operator of the UVET-005I unit loads the prepared raw materials from the technological containers (pulp, strips, pomace of any raw materials after removal of juice or minced meat) into the batcher hopper. According to the program set by the operator of the installation, the batcher automatically feeds the prepared raw materials into the activator. In the activator, the raw materials are dehydrated (dried) and simultaneously reduced into smaller particles, and when the particles of the pulp reach the specified parameters: a humidity of 6...10 %, a particle size of 80...50 microns, particles leave the activator and enter the collector of powders through a cyclone of the separator. The cycle is continuous. As the tank is filled with powder, without switching off the installation, the operator takes the tank with powder out from the installation, remove powder from it and puts the empty tank into the installation.
According to this technology, the UVET-005I (industrial) unit operates with a capacity varying from 30 kg to 70 kg and more of finished powder per hour, and the UVET-005F unit (farming unit) that have a lower capacity operates with a capacity varying from 15 kg to 40 kg and more of finished powder per hour.

6. Herbs, for example, STEVIA. Stevia is washed in running drinking water to remove dirt, dust; then it is reduced (chopped) in any grass cutter into pieces with a length of 10 centimeters or less; prepared stevia is loaded into the batcher hopper of the UVET-005I unit. According to the program set by the operator of the installation, the batcher automatically feeds the prepared raw materials into the activator. In the activator, herbs are dehydrated (dried) and simultaneously reduced into smaller particles, and when the particles of herbs reach the specified parameters: a moisture content of 6...10 %, a particle size of 50...80 microns, particles leave the activator and enter the collector of powders through a cyclone of the separator. The cycle is continuous.
According to this technology, the UVET-005I (industrial) unit operates with a capacity varying from 30 kg to 70 kg and more of finished powder per hour, and the UVET-005F (farming) unit that have a lower capacity operates with a capacity varying from 15 kg to 40 kg and more of finished powder per hour.

7. Whole milk is condensed using special equipment, then the condensed milk is loaded into a batcher that, according to a set program by the installation operator, supplies condensed milk to the UVET-005I processing unit, where condensed milk is dehydrated to a moisture content of 7...6 %, dry milk particles leave the activator and, through the cyclone separator, they enter the powder collector. The cycle is continuous.
According to this technology, carcinogens are not formed in milk powder, the UVET-005i unit operates with a capacity varying from 20 kg to 50 kg and more of finished powdered milk per hour, and the UVET-005F (farming unit) that has a lower capacity operates with a capacity varying from 15 kg to 30 kg and more of finished milk powder per hour.

8. Finished powders are sieved using any mechanism intended for this purpose.

9. Then the finished powders are transferred for sterilization, sorting and packaging in consumer containers and then to the warehouse of finished products.

10. Alternatively, finished powders are transferred at the same enterprise for manufacturing balanced functional food products, for example: “School lunches”, “Sports Food Products”, special products for athletes or military units. These products are intended for winterers, tourists, climbers, for areas of natural and other disasters, for crews of ships, submarines, long-range aviation pilots, ground forces, etc.

1.1. The UVET-005 units produce powders of the PREMIUM grade from agricultural raw materials of vegetable and animal origin in the assortment listed below.

POWDERS VARIETY

Consumption rates of raw materials for the production of 1 kg of powders, energy value of powders, dispersion of powders 25...100 microns, moisture content of powders 6...10%

Vegetables, fruits, berries, medicinal herbs		
Powders produced from vegetables, fruits, berries, medicinal herbs, etc. for the food industry, pharmacy and retailers have the properties of finished medicines.	**Weight content of raw agricultural materials in 1 kg of powder, kg**	**Energy value of 100 grams of powder, kcal**
Eggplant Powder	13,2	266,60
Red beet powder	7,8	285,10
Carrot powder	7,6	268,00
Whole tomato powder	15,3	274,60
Onion powder	7,7	276,00
Green Onion Powder	7,5	274,80
White Cabbage powder	8,3	247,30
Sweet Pepper Powder	9,2	289,60
Hot pepper powder	9,0	224,80
Garlic powder	5,7	215,20
Green Garlic Powder	6,0	274,80
Parsley powder	6,0	286,40

Parsnip Root Powder	6,0	255,60
Celery Root Powder	6,0	163,60
Dill powder	5,6	210,20
Parsley root powder	6,0	289,50
Celery Green Powder	5,6	95,68
Lettuce powder	8,9	147,20
Tarragon powder	10,1	171,60
Spinach powder	10,2	217,40
Sorrel powder	6,1	250,20
Horseradish root powder	6,0	300,80
Horseradish leaf powder	6,1	210,00
Green coriander powder	6,2	209,48
Radish powder	8,8	257,20
Cucumber powder	13,2	167,60
Pumpkin powder	12,2	199,30
Melon powder	13,2	326,40
Watermelon powder	13,2	347,00
Zucchini powder	13,2	324,30
Squash powder	12,2	324,30
Green Pea Powder	2,1	337,60
Green Bean Powder	2,2	345,00
Potato powder	3,8	294,30
Champignon mushroom powder	10,0	143,84
Oyster mushroom powder	10,0	258,0
Apple powder	8,4	334,60

Quince powder	7,6	279,70
Pear powder	6,1	408,48
Grape powder	12,1	298,10
Blackcurrant powder	7,7	241,40
Redcurrant powder	7,7	204,80
Blackberry powder	13,1	292,90
Strawberry powder	13,2	214,00
Raspberry powder	7,0	199,50
Rowan berry powder	4,8	198,10
Viburnum powder	6,5	194,90
Elderberry powder	6,5	341,40
Sour Cherry powder	7,0	294,64
Apricot powder	7,0	279,50
Peach powder	7,2	279,50
Cherry plum powder	8,4	220,80
Plum powder	5,9	294,40
Cherry powder	6,2	331,00
Blueberry powder	7,7	284,90
Rose hip powder	5,0	278,80
Aronia powder	5,0	258,00
Sea buckthorn powder	5,2	124,00
Gooseberry powder	8,4	260,00
Cranberry powder	9,2	190,80
Dogwood powder	6,5	381,60
Orange powder	13,0	278,30

Tangerine powder	13,0	306,40
Lemon powder	13,0	121,10
Wheat powder	1,07	325,0
Rice powder	1,07	323,0
Corn powder	1,07	325,0
Buckwheat powder	1,07	326,0
Oat powder	1,07	345,0
Barley powder	1,07	322,0
Boiled meat powders 8 types		
Chicken powder	5,0	340,0
Duck meat powder	5,0	325,0
Goose meat powder	5,0	319,0
Turkey Meat Powder	5,0	366,0
Rabbit meat powder	5,0	390,0
Veal powder	5,0	360,0
Beef powder	5,0	358,0
Pork powder	5,0	306,0

1.2. The range of finished products made of powders of agricultural raw materials of vegetable and animal origin:

Specialized balanced functional food products based on powders under the general name «COMPLEX LUNCHES»
Specialized balanced functional food products based on powders under the general name «SPORTS FOOD PRODUCTS»
Specialized balanced functional food products based on powders under the general name «KOZACK FOOD PRODUCTS» for tourists, alpinists, as well

as for zones of natural and other disasters, for crews of ships, submarines, long-range aviation pilots, ground forces, special forces, including products for *rectal nutrition*
Specialized balanced functional food products for postoperative patients based on powders under the general name «BECOME HEALTHY», including products for *rectal nutrition*
Specialized balanced pasty food products in tubes of functional purpose for people suffering from disorders of the chewing process under the general name «FOOD FOR COSMONAUTS»
Anticancer rations made of powders for the prevention and treatment of oncology diseases. At the same time, they are the basis for the production of specialized balanced functional food products.
Cubes, pieces with a «chewing» effect made of powders produced of vegetables, cooked meat, fish for making first courses as part of balanced (functional) diet based on instant food products
Vitamin complexes in the form of cakes that dissolve in the mouth and are made of beet, carrot, lemon powders for the prevention of diseases of the elderly people in winter and spring
Fruit-berry-vegetable crunchies for children under the general name «TIMOSHA», substitutes for potato chips with carcinogens

2. PRESERVING UNIT

It is intended for preservation (canning) of agricultural raw materials of vegetable and animal origin in a pasty state for long-term storage under normal storage conditions

The photo shows as an example: The PRESERVING UNIT that has the 30kW main drive and a capacity of 15 cubic meters of pumped and processed liquid per hour with two conical tanks with a volume of 300 liters.

The PRESERVING UNITS are protected by patents for inventions.

The PRESERVING UNITS of various powers and different capacities are intended for processing into a pasty state of any product crushed into pulp (pomace) or marc (cake) of any raw material after extraction of juice or minced meat. As a result, the resulting paste packaged in polyethylene bags or containers can be stored under normal storage conditions (room temperature) for six months, a year or a longer period (experiments have shown that the pasty product can be normally preserved for six, twelve, eighteen months, two years without any chemical preservatives/).

The PRESERVING UNITS are produced in a tubular frame lined with sound- and heat-insulated panels equipped with hinges with locks.

Overall dimensions:
width 1.5 m length 2.0 m height 1.8 m

The PRESERVING UNIT is controlled by a Computerized Process Control System. The electronic system has a smooth start-up of the main drive - an electric motor - and regulation of its rotation frequency. The automated control system is located in the cabinet built into the frame of the PRESERVING UNIT.

In addition, the PRESERVING UNITS can be used for processing of food products (from stores, warehouses) with the expired shelf life for human consumption into pastes for subsequent production from them of feed, for example, for domestic animals, animal husbandry, fish farming or for other purposes instead of sending the expires food products to the landfill.

The Preserving Units of various capacities with electronic control and soft start		The volume of processed agricultural raw materials, cubic meters
PRESERVING UNIT-11	**11 kWt**	**6**
PRESERVING UNIT-37	**37 kWt**	**19**
PRESERVING UNIT-90	**90 kWt**	**45**
PRESERVING UNIT-250	**250 kWt**	**150**
PRESERVING UNIT-315	**315 kWt**	**200**

In industrial production, squeezing of juices from fruits, berries, vegetables generate large quantities of pulp (pomace) that is difficult to preserve due to its rapid decay.
Pulp (pomace) that remains after squeezing of juice out of the raw material with a composition of 97...95 % of soluble and insoluble dry substances useful to humans and up to 50 % of water is immediately transferred from the press by a screw into the PRESERVING UNIT.
In the PRESERVING UNIT, the pulp is turned into a paste that can be stored under natural storage conditions for twelve months or a longer period without any chemical preservatives.
Juice containing 40...60 % of water and 3...5 % of dry soluble substances is processed in the PRESERVING UNIT, after which it is stored for a long time without additional sterilization.

Milk or other drinks are processed in the PRESERVING UNIT, after which juices, drinks or milk do not require additional sterilization and can be stored for a long time without preservation under normal conditions.
The created technologies and equipment for preservation allow to preserve many agricultural products or their pulp in the form of paste for a long time as raw materials for subsequent production of powders (flour) from them. In addition, paste is intended for producing various food products.

The widespread use of PRESERVING UNIT for the processing of agricultural raw materials into pasty products will allow to consume 90 % or more of the crops grown, and not traditional 40 % consumed at the present all over the world.

Examples of preservation of plant raw materials:
- seaweed is processed into paste directly on the water (sea, ocean) with the use of PRESERVING UNITS driven by internal combustion engines; is packed in synthetic sealed bags and brought to the shore;
- tomatoes are processed into paste right in the field with the use of PRESERVING UNITS in mobile facilities, are packed in airtight containers and delivered for the warehouse.

It is important to note that tomato paste is made in the PRESERVING UNIT from whole tomatoes, including skin and seeds of tomatoes that are rich in anti-cancer antioxidant useful to humans — lycopene that protects the human body from cancer by 37 %.

Examples of processing raw materials of animal origin:
raw meat with removed bones and other unnecessary components is ground into minced meat in a meat grinder and processed into pasty in the PRESERVING UNIT, packed in the airtight container and delivered to the warehouse.

3. VARSATILE CAVITATION UNITS

Versatile Cavitation Units (VCU) are intended for applying all kinds of technologies related to various branches of economic activity. Such technologies as obtaining of clean, soft, medicinal water; disinfection and treatment of effluents; desalination of sea water; technologies applied in the food industry; biomedicine; animal production; plant growing; fish farming; in the production of concrete; the manufacture of foam concrete blocks; in obtaining of water-coal fuel; preparation of hot water and many other technologies. VCU units, created on the basis of innovative UVET technologies, can be manufactured and sold with a power of the main drive varying from 11 kW to 315 kW, the characteristics are given in the table.

The photo shows as an example: The VCU-30 Versatile Cavitation Unit with the 30 kW main drive and a capacity of 15 cubic meters of pumped and processed liquid per hour with two conical tanks with a volume of 300 liters each.

The VCU units are protected by patents for inventions.

Designation **The 4 ... 315 VCU unit of various capacities with electronic control and soft start**		**The volume of processed liquid raw materials, cubic meters per hour**
VCU-11	**11 kW**	**6**
VCU-18.5	**18.5 kW**	**10**
VCU-22	**22 kW**	**12**
VCU-30	**30 kW**	**15**
VCU-37	**37 kW**	**19**
VCU-45	**45 kW**	**24**
VCU-55	**55 kW**	**28**
VCU-90	**90 kW**	**45**
VCU-160	**160 kW**	**80**
VCU-200	**200 kW**	**130**
VCU-250	**250 kW**	**160**
VCU-315	**315 kW**	**200**

The VCU aggregate consists of an activator and two conical tanks installed on the activator. The VCU unit is manufactured in the sound-, heat-insulating casing made of stainless rectangular pipes and closed with original stainless sandwich panels, overall dimensions are: width 1.5 m; length 2.0 m; height 1.8 m.

The main structural operating element of the VCU unit is the activator driven by the main drive — an electric motor of a given power with certain characteristics with a function of frequency soft start and electronic control.

	The activator (ref. to the photo) works on various physical principles of influence on the processed liquid media, and, depending on the purpose of the VCU unit, it performs various technological processes, such as dispersion (grinding), heating of liquids, evaporating of water, homogenization (mixing), disinfection of liquids, destruction of harmful microorganisms, etc.

The Versatile Cavitation Units is operated according to the following schemes.

VCU-WATER: the pump pumps a certain portion of the processed water (up to 300 liters) into the cone tank. From the cone tank, water flows by gravity into the activator of the VCU unit. The activator breaks cold water at the molecular level, and a phase transition of water occurs. From the activator, water flows through the bypass pipe into the second container, the process repeats the specified number of revolutions set by the technological process. During cavitation processing, water is heated. Moreover, the thermal energy prevails over the consumed power.

VCU-ECOLOGY: a fecal pump with blades pumps a certain portion of liquid biological waste in a volume of up to 300 liters/kilograms into a conical tank. From the conical container, the waste is fed by a vertical screw into the activator of the VCU unit. In the activator, the waste undergo physical treatment due to which harmful microorganisms present in the liquid waste are killed — they are simply torn apart at the molecular level, hydrogen sulfide, ammonia, urea are neutralized, due to which fetid odors disappears. Upon expiration of a time set by the automatic control system, the portion of liquid waste poured into the container

passes through the activator many times and upon completion of the set disinfection the waste is automatically unloaded from the VCU unit. Then the next portion of the waste is loaded into the loading container. The process is repeated.

Note: Three-year tests of the VCU-30 and VCU-75 units (Versatile Cavitation Units with a capacity of the main drive of 30 kW and 75 kW, respectively) that are developed and manufactured by us have shown efficiency in the disinfection of toxic waste from the station at one of the 12,000 Bio Power Plants in the European Union (Slovakia). Microorganisms present in the waste were destroyed at the molecular level, fetid odor disappeared, liquid began to smell like coffee, as a result, the waste turned into the basis of liquid fertilizers.

According to experts estimate operation of 12,000 Bio Power Plants in Europe resulted in accumulation of about 270 million tons of toxic wastes of plant origin that are harmful to soil, water bodies, rivers. The proposed VCU units can turn this harmful waste into very useful elements of effective fertilizers.

VCU-FOAM CONCRETE BLOCKS: Water is poured into the loading tank of THE VCU-FOAM CONCRETE BLOCKS unit, cement of grade 300, slag from burnt coal, building sand are loaded into water in portions, the mixture is fed by gravity into the operated activator, where the elements of the mixture are subjected to dispersion (ultrafine grinding). From the activator, the mixture goes through the bypass pipe into the second tank, the process repeats the specified number of revolutions established by the technological process, but at the same time, the VCU unit grinds cement of grade 300 to grades 800...900, slag and building sand are crushed to the same values.

No.	Name and Purpose of the VCU unit	Production methods in various sectors of economic activity performed by specialized VCU units
1	**VCU-WATER unit**	The VCU-WATER Versatile Cavitation Units perform high-quality purification of water, after which water becomes soft, qualitative and healing. In case of installation of the VCU unit at drinking water treatment plants for settlements (cities, towns, villages) for performing the finishing operation instead of chlorination, the consumer water supply system will receive soft, high-quality, medicinal drinking water.
2	**VCU-ECOLOGY unit completed with a fecal pump equipped with knives**	The VCU-ECOLOGY units disinfect liquid waste of urine, feces from portable closets on the railway, aviation and water transport, city street portable toilets. Disinfection of liquid waste of urine, manure, droppings from the natural activity of animals — pigs, cattle, small cattle, as well as all kinds of birds. Disinfection of urban fecal wastewater. Disinfection of toxic waste of plant origin. Treatment of biological diseases of the fertile soil layer. Disinfection of toxic waste of organic and mineral origin; Production of organic and mineral fertilizers from these wastes by means of their decontamination and transformation into a resource of raw materials. Increasing of the ability of effluent to settle residual

		suspended matter. Cleaning, disinfection, restoration of natural and artificial reservoirs
3	**VCU-DESALINATION unit** **completed with water condensing unit**	The VCU-DESALINATION units create efficient evaporation of water for its desalination. The main and widespread technology of seawater desalination is based on evaporation, only in our case evaporation is performed due cavitation effect, and this process requires much less energy than heating of water in boilers.
4	**VCU-FOOD INDUSTRY unit**	The effect of the VCU-FOOD INDUSTRY unit on living media in the food industry is expedient and effective, since the unit disinfects, activates, disperses, homogenizes liquid media with high efficiency. The VCU-FOOD INDUSTRY unit is applicable in the production of pectins, dairy production, production of drinks, juices, etc.
5	**VCU-BIOMEDICINE unit**	Cold disinfection and activation of water and other liquid media with the VCU-BIOMEDICINE unit made it possible to obtain the most valuable results in curative, preventive medicine, in cosmetology and sports medicine. Activated water is a natural activator of metabolic processes, including those in athletes. The units perform high-quality purification of water, after which water becomes soft, high-quality, healing. They allow obtaining structured water with medicinal properties. They also provide an opportunity for massage washing of the human body with a cavitation jet that helps to heal many pathologies due to the effect of the cavitation jet during washing of the body with it. When washing sore joints, pain disappears after moving the cavitation jet over the skin, this procedure creates an effect similar to an acupuncture session. Skin becomes elastic and firm, and the overall well-being improves. In the process of washing, a gradual decrease in the fat layer is observed due to the process of cavitation liposuction.

		After such water procedure of washing with the cavitation jet, the human being feels healthy.
6	**VCU-ANIMAL PRODUCTION unit**	The VCU-ANIMAL PRODUCTION unit produces liquid and semi-liquid feeds, commonly called messes. This is a liquid mixture containing bran, cereals, chopped grain, cakes and other dry components. In this case, the VCU-ANIMAL PRODUCTION unit not only activates the water component of these suspensions, but also performs a high dispersion of the mixtures that leads to ultrafine «grinding» of the protein component and significantly increases the digestibility of these feeds. An essential point is the possibility of watering livestock with activated water, especially young birds, pigs, rabbits and other animals for commercial breeding. It has been shown that, in this case, animals gain weight faster, the protein component of meat rises, and resistance to a variety of diseases increases. Activated water speeds up the recovery of sick animals. It is advisable to use activated water when breeding fur-bearing animals: minks, arctic foxes, foxes, martens, etc.
7	**VCU-CROP PRODUCTION unit**	The use of activated water in plant growing obtained with the help of the VCU-CROP PRODUCTION unit is aimed at: Germinating seeds; Accelerating the development of plants that require watering; Using activated water in breeding: reaction to the activator: Hydroponics Crop production in greenhouses; Flower business; Growing rice — for filling of rice paddies with activated water during germination and then for growing rice increases — the yield of rice is increase by 30 % or more.
8	**VCU-FISH FARMING unit**	Activated water obtained with the help of the VCU-FISH FARMING unit has a significant commercial effect in fish hatcheries in order to activate eggs, increase immunity, physical activity and increase rate of fry growth. With such start, the development and fattening of marketable fish is higher. It is advisable to develop this direction for the production of

		valuable fish species — sturgeon, whitefish, trout and others.
9	**VCU-CONCRETE unit**	The use of water prepared with the help of the VCU-CONCRETE unit in the production of concrete should be considered as an effective commercial use of activated water in small volumes. It has been repeatedly and reliably shown that the use of such water accelerates the «maturation» of concretes, increases their strength, density, frost resistance, hydrophobicity, resistance to aggressive media and other very useful properties, while saving more than 10 % of concrete, increasing the technological properties of cement mortars and their «fluidity», workability in the process of filling technological volumes, etc. It is important to note that even in the case of a limited life span of «excited» water, its use in concrete production remains appropriate and effective.
10	**VCU-FOAM CONCRETE BLOCKS**	Grinding of slag, building sand, cement and other components up to fine particles and their simultaneous mixing with water in the specialized equipment of the VCU-FOAM CONCRETE BLOCKS unit that allow obtaining mixtures of very high quality for foam concrete blocks. For example, the VCU unit grinds cement of grade 300 up to grades 800...900, slag and building sand are ground to the same values, this ensures high quality of finished products.
11	**VCU-WCF unit** **(Water-Coal Fuel)**	Grinding of low-grade coal, peat to nano-particles and simultaneous mixing with liquid at the molecular level using specialized equipment — VCU-WCF unit — in order to obtain water-coal fuel (WCF) for its efficient combustion in boiler plants by spraying through special nozzles.
12	**VCU-HOT WATER unit (hot water for domestic and technological needs)**	The VCU-HOT WATER unit is applicable for space heating, as well as for hot water supply at farms and other agricultural facilities. The cone tank is poured with water that is being heated up to 92...104°C by the VCU activator in turn heats *operating water* supplied for heating of the secondary circuit or hot water supply through the superheater up to 70...80°C.

4. INDUSTRIAL HEATING UNITS

Overall dimensions of the IHU unit: width 1.5 m length 1.8 m height 1.2 m

The IHU unit is manufactured in a sound-, heat-insulating casing made of stainless rectangular pipes that is closed with original stainless sandwich panels or has no casing.

The IHU unit is protected by patents for inventions.

Industrial Heating Units (IHU), thirteen+ options with a power of the main drive varying from 7.5 kW to 315 kW.

The IHU units are intended for heating, supplying hot water in the residential and industrial premises.

Taking into account many years of experience in creating all kinds of devices in many countries of the world for systems of autonomous heating, hot water supply and technological processes associated with heating of intermediate heat carrier, in recent years, effective fifth-generation heating units have been developed in order to fulfill the above tasks.

The primary circuit of the IHU unit consists of an activator installed on the tank or in the tank, in which the heat superheater of the secondary circuit with the working medium is located.

The main structural working element of the IHU unit is the activator driven by the electric motor of a given power with certain characteristics with a function of frequency soft start and electronic control.

The activator (ref. to the photo) based on the cavitation effect acts on cold water at the molecular level that is accompanied by a phase transition of water.

In the process of cavitation treatment, the water is heated. Moreover, the thermal energy prevails over the consumed power.

The activator installed in the tank container with the superheater plays the role of the primary circuit in the hot water generation system. The operation of the activator is based on the cavitation method of influencing the environment. In this method, an active role is played by nozzles with channels made in them in the form of a stylized Laval nozzle. The nozzles are located on the rotating disc of the activator. A special role in the nozzles is played by a channel with a special profile (having a narrowing) to change the speed of the fluid passing through it.

In the figure, liquid (shown in blue) entered the left side of the nozzle at high speed under pressure, in the narrow place of the nozzle channel, liquid was compressed. Then, when compressed liquid came out of the narrow area of the nozzle, it abruptly threw energy out of itself in the form of collapsed billions of cavitation bubbles (zone shown in blue).

As the bubbles move away from the narrow area of the nozzle, the bubbles begin to expand (zones shown in light blue, greenish, yellow colors), when the bubbles expand, similar to micro-explosions occur, at which high pressure is formed and heat is released at the same time. Due to the continuous pumping of liquid through the nozzle, heat is accumulated in liquid (see the red zone in the figure).

The effectiveness of the IHU unit is achieved due to the versatility of the activator of the IHU unit and the manufacturability of the product design ensured by the use of simple organizational techniques:

1. The tank of the primary circuit of the IHU unit is poured with **water** that being warmed up by the activator of the IHU unit up to 92...104°C, in turn heats operating water supplied to the secondary circuit of the heating system or to the hot water supply system through the superheater up to 70...80°C. At the same time, when the water temperature in the primary circuit reaches 92...104°C, the load on the electric motor of the IHU activator is halved, and the unit's operation process stabilizes, excessive noise is reduced to the minimum.

2. The tank of the primary circuit of the IHU unit is poured with a 50/50 mixture of water and glycerin that is being warmed up by the activator of the IHU unit up to 150°C heats *operating water* of the secondary circuit of heating through the heat superheater much faster.

3. The tank of the primary circuit of the IHU unit is poured with silicone oil with a decomposition temperature of 360°C, the activator of the IHU unit will heat silicone oil up to 250…300°C, and this will heat up operating water of the secondary heating circuit much faster and more efficiently.

The IHU unit can be operated in any heating system, receiving *operating water* from the superheater of the primary circuit of the IHU unit or receiving *operating water* directly from the activator of the IHU unit.

The IHU units of different power and different capacity are shown in the table:

Designation of the IHU unit (Industrial Heating Unit of a certain power (kW) is used to heat liquids.)	**Estimated thermal power of the IHU unit, kW**	**Heated area, m^3/m^2**
IHU-7.5 Industrial Heating Unit with a capacity of 7.5 kW	**22**	**450/150**

IHU-11 Industrial Heating Unit with a capacity of 11 kW	**33**	**990/330**
IHU-18.5 Industrial Heating Unit with a capacity of 18.5 kW	**60**	**1,665/555**
IHU-22 Industrial Heating Unit with a capacity of 22 kW	**90**	**2,640/880**
IHU-30 Industrial Heating Unit with a capacity of 30 kW	**120**	**3,600/1,200**
IHU-37 Industrial Heating Unit with a capacity of 37 kW	**150**	**4,440/1,480**
IHU-55 Industrial Heating Unit with a capacity of 55 kW	**220**	**6,600/2,200**
IHU-90 Industrial Heating Unit with a capacity of 90 kW	**450**	**10,800/3,600**
IHU-160 Industrial Heating Unit with a capacity of 160 kW	**800**	**19,200/8,000**
IHU-200 Industrial Heating Unit with a capacity of 200 kW	**1000**	**30,000/10,000**
IHU-250 Industrial Heating Unit with a capacity of 250 kW	**1,250**	**36,000/12,000**
IHU-315 Industrial Heating Unit with a capacity of 315 kW	**1600**	**38,000/16,000**

IMPLEMENTATION: An example of heating a GREENHOUSE for growing greenery with an area of 2400 square meters, a height of ceiling of 8 meters.

		
Warm air and microclimate in the greenhouse is created by 8 fan heaters located on two opposite walls.	Hot water with a temperature of 70...60 °C is supplied to the fan heaters from two heat accumulators with a capacity of 10 tons each or directly from the IHU-55 unit.	In the heat accumulators, water is heated to a temperature of 80 °C by one IHU-55 unit. The third IHU-55 is a reserve one for reliability duplication

IMPLEMENTATION: Example of heating a PRODUCTION SHOP with an area of 4,800 square meters, a height of ceiling of 16 meters.

		
Warm air and microclimate in the PRODUCTION SHOP are created by 14 fan heaters located on two opposite walls.	Hot water with a temperature of 70...60 °C is supplied to the fan heaters from two heat accumulators with a capacity of 20 tons each or directly from the IHU-55 unit.	In the heat accumulators, water is heated to a temperature of 80 °C by two IHU-55 units. The third IHU-55 is a reserve one for reliability duplication.

SUGGESTIONS: We recommend using similar methods to heat COTTAGE VILLAGES, MULTI-STOREY MULTI-APARTMENT BUILDINGS, POPULATED RESIDENTIAL AREAS. It is recommended to place heating points in the premises of the relevant type or in a 20- or 40-foot railway container buried in the ground and equipped with anti-vandal doors near the apartment buildings and in residential areas.

5. THE GLEB BLENDER

is intended for making healthy drinks from food and medicinal powders produced by the UVET technology.

 **The photo shows the GLEB blender with a processing capacity of up to 0.05 cubic meters of liquid per hour.**	The GLEB blender produces a homogeneous mixture by mixing liquid and powders produced from fruits, berries, vegetables, dehydrated whole milk, thus the blender activates the mixture and can heat it up, thus the blender makes the GLEB DRINKS. The GLEB blender is also intended for home processing of tap water into soft, high-quality, medicinal water. The operation of the GLEB blender is based on the following UVET technology — two tubes protruding from the unit are lowered down into a container with liquid, then the unit is switched on, liquid enters the unit through one tube and activated in the unit, solid particles of the powder are subjected to ultrafine grinding, the mixture of liquid and powder is

The sound- and heat-insulating polyurethane foam body of the unit and tripod are conventionally not shown in the photograph. **Several different variants of the GLEB blender have been created for different application.** **The GLEB blender for home use is intended for a small one-time load of up to 200 grams and a low price.** **The GLEB blender is protected by patents for inventions**	homogenizes (mixed) into a homogeneous mass, may be heated or not heated and returned from the blender through another tube into the container. The process is repeated many times. Liquid and powder are mixed at the molecular level.

The GLEB blender can be used internationally for consumption of the UVET powders produced from whole fruits, berries, vegetables, dehydrated milk and ready-made balanced (functional) food products made of these powders without any PRESERVATIVES in the form of the GLEB drinks, the photo of the general view and description of the blender are given in the text.

Preparation of the GLEB drinks: water is poured into a tall glass, then powder is poured with a measuring spoon, say, a certain number of assorted fruits and berries, the glass with the mixture is installed on two tubes of the GLEB blender that results in turning-on of the blender. The blender additionally grinds the powder in water to nano sizes and mixes water and powder at the molecular level into a homogeneous mixture that does not separate for a long time (many hours). After all, it is pleasant to enjoy a drink with a homogeneous appearance and a homogeneous taste.

By mixing water and whole dehydrated milk powder, we can make a drink similar to warm fresh milk that mothers and of course the children like.

The developers believe that the GLEB drinks will bring one of the elements of the healthy lifestyle into everyday life of young people — they will replace beer and other alcoholic drinks with the GLEB drinks.

First of all, the developers plan to equip cafes, restaurants, spa salons and other catering establishments intended for the mass consumption of healthy drinks with the GLEB blenders.

Taking into account that, after treatment with the GLEB blender, tap water becomes purified, activated and very useful for humans like spring water, every family needs to have the GLEB blenders.

6. List of Patents that formed the basis of constructive proposals and ensure patent protection of technologies and equipment — UVET-005 powder units, PRESERVING UNITS, VCU units, IHU units.

Patents of Ukraine

УКРАЇНА

(11) 46435

(19) (UA)

(51) 7 A23B7/026

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ДЕРЖАВНИЙ ДЕПАРТАМЕНТ ІНТЕЛЕКТУАЛЬНОЇ ВЛАСНОСТІ

ПАТЕНТ

на винахід

видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі"

Голова Державного департаменту інтелектуальної власності М. Паладій

(21) 2001075001
(22) 16.07.2001
(24) 17.01.2005
(46) 17.01.2005. Бюл.№ 1

(72) Юдін Олександр Ілліріонович, Юдіна Світлана Дмитрівна, Юдін Сергій Олександрович, Юдін Євген Олександрович
(73) Приватне підприємство "Український технологічний центр"

(54) СПОСІБ ОДЕРЖАННЯ ПОРОШКУ З РОСЛИННОЇ СИРОВИНИ І ПРИСТРІЙ ДЛЯ ЙОГО РЕАЛІЗАЦІЇ

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НА КОРИСНУ МОДЕЛЬ

№ 28369

СПОСІБ ОТРИМАННЯ ХАРЧОВОГО ПОРОШКУ З БІОЛОГІЧНОЇ СИРОВИНИ

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Голова Державного департаменту інтелектуальної власності М.В. Паладій

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ПАТЕНТ

НА КОРИСНУ МОДЕЛЬ

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УСТАНОВКА ДЛЯ ОТРИМАННЯ ХАРЧОВОГО ПОРОШКУ З БІОЛОГІЧНОЇ СИРОВИНИ

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ПАТЕНТ

НА ВИНАХІД

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СПОСІБ ОТРИМАННЯ ХАРЧОВОГО ПОРОШКУ ТА УСТАНОВКА ДЛЯ ЙОГО ЗДІЙСНЕННЯ

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Голова Державного департаменту інтелектуальної власності М.В. Паладій

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ПАТЕНТ

НА КОРИСНУ МОДЕЛЬ

№ 83838

УСТАНОВКА ДЛЯ ОТРИМАННЯ ПОРОШКОПОДІБНОГО ПРОДУКТУ З РОСЛИННОЇ СИРОВИНИ

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Голова Державної служби інтелектуальної власності України М.В. Ковіня

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НА КОРИСНУ МОДЕЛЬ

№ 83839

УСТАНОВКА ДЛЯ ОТРИМАННЯ ПОРОШКОПОДІБНОГО ПРОДУКТУ З БІОЛОГІЧНОЇ СИРОВИНИ

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Голова Державної служби інтелектуальної власності України М.В. Ковіня

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ПАТЕНТ

НА КОРИСНУ МОДЕЛЬ

№ 84281

СПОСІБ ОТРИМАННЯ ПОРОШКОПОДІБНОГО ПРОДУКТУ З РОСЛИННОЇ СИРОВИНИ

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Голова Державної служби інтелектуальної власності України М.В. Ковіня

УКРАЇНА

ПАТЕНТ

НА КОРИСНУ МОДЕЛЬ

№ 84714

СПОСІБ ОТРИМАННЯ ПОРОШКОПОДІБНОГО ПРОДУКТУ З БІОЛОГІЧНОЇ СИРОВИНИ

Видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі".

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Голова Державної служби інтелектуальної власності України М.В. Ковіня

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СПОСІБ ОТРИМАННЯ ХАРЧОВОГО ПОРОШКУ ТА УСТАНОВКА ДЛЯ ЙОГО ЗДІЙСНЕННЯ

Видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі".

Зареєстровано в Державному реєстрі патентів України на винаходи **25.02.2009.**

Голова Державного департаменту інтелектуальної власності М.В. Паладій

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ПАТЕНТ

НА ВИНАХІД

№ 108268

СПОСІБ ОТРИМАННЯ ПОРОШКОПОДІБНОГО ПРОДУКТУ ТА УСТАНОВКА ДЛЯ ЙОГО ЗДІЙСНЕННЯ

Видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі".

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Голова Державної служби інтелектуальної власності України А.Г. Жарінова

УКРАЇНА

ПАТЕНТ

НА ВИНАХІД

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ПРОТОЧНИЙ НАГРІВАЧ РОТОРНОГО ТИПУ

Видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі".

Зареєстровано в Державному реєстрі патентів України на винаходи **10.03.2015.**

Голова Державної служби інтелектуальної власності України А.Г. Жарінова

УКРАЇНА

ПАТЕНТ

НА ВИНАХІД

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РОТОРНИЙ АПАРАТ

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Голова Державної служби інтелектуальної власності України А.Г. Жарінова

УКРАЇНА

ПАТЕНТ

НА ВИНАХІД

№ 116617

СПОСІБ ОТРИМАННЯ ПОРОШКОПОДІБНОГО ПРОДУКТУ ТА УСТАНОВКА ДЛЯ ЙОГО ЗДІЙСНЕННЯ

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Заступник міністра економічного розвитку і торгівлі України М.І. Тітарчук

УКРАЇНА

ПАТЕНТ

НА ВИНАХІД

№ 120031

СПОСІБ КОНВЕКТИВНОГО СУШІННЯ ОВОЧІВ І ФРУКТІВ І УСТАНОВКА ДЛЯ ЙОГО ЗДІЙСНЕННЯ

Видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі".

Зареєстровано в Державному реєстрі патентів України на винаходи **25.09.2019.**

Заступник Міністра розвитку економіки, торгівлі та сільського господарства України Д.О. Романович

УКРАЇНА

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НА ВИНАХІД

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РОТОРНИЙ АПАРАТ

Видано відповідно до Закону України "Про охорону прав на винаходи і корисні моделі".

Зареєстровано в Державному реєстрі патентів України на винаходи **25.09.2015.**

Голова Державної служби інтелектуальної власності України А.Г. Жарінова

УКРАЇНА

ПАТЕНТ

НА ВИНАХІД

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ПРОТОЧНИЙ НАГРІВАЧ РОТОРНОГО ТИПУ

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Голова Державної служби інтелектуальної власності України А.Г. Жарінова

Aleksandr YUDIN
Developer of the UVET technologies and equipment
Telephones: +38 099 024 98 47; +38 067 717 42 74
Viber; WhatsApp: +38 050 530 95 77
e-mail: utckharkov1@gmail.com