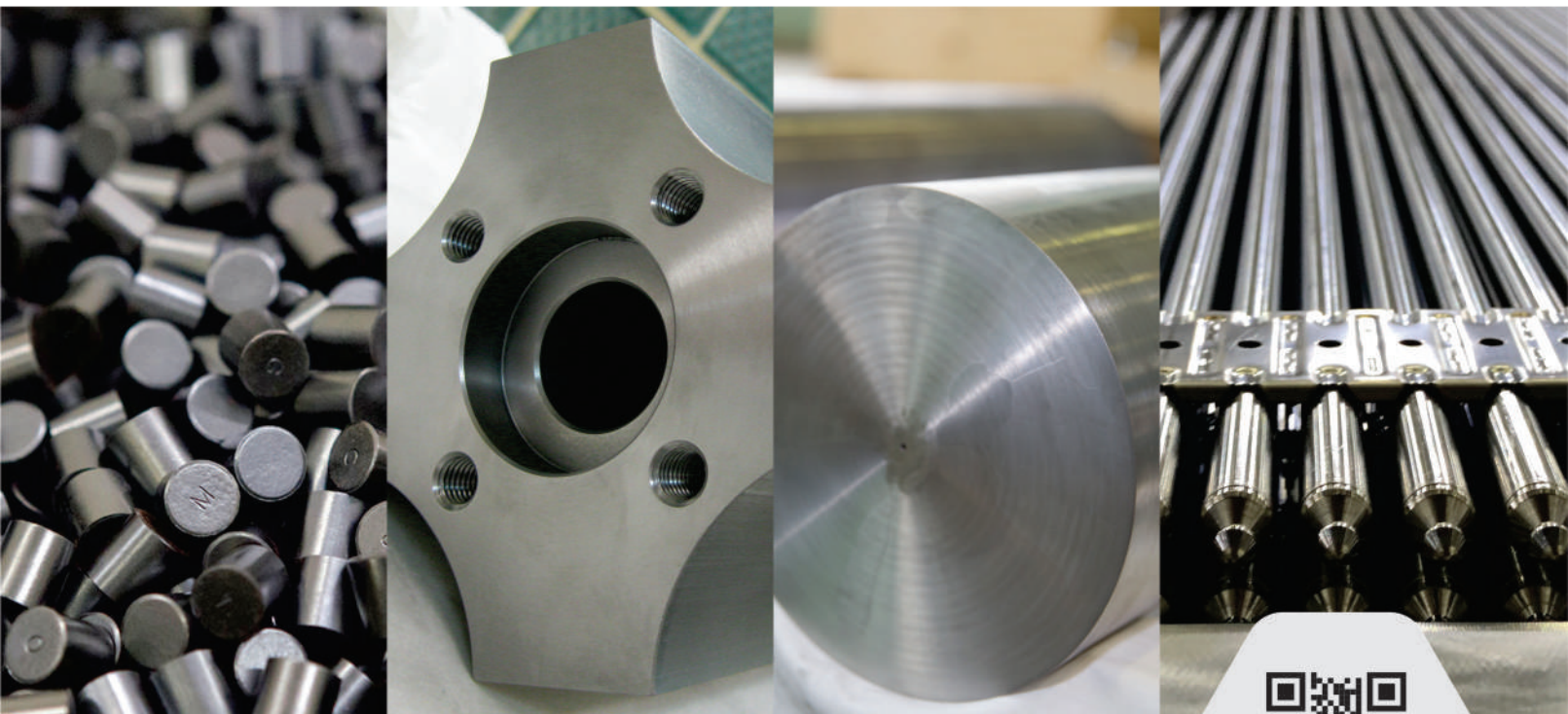




ULBA METALLURGICAL PLANT

JOINT-STOCK COMPANY



BRIEF INFORMATION ABOUT THE COMPANY





SERGEY BEZHETSKY

Executive Board Chairman
of UMP JSC

ADDRESS FROM THE EXECUTIVE BOARD CHAIRMAN

Dear partners!

Joint Stock Company Ulba Metallurgical Plant offers uranium, beryllium, tantalum and niobium products of the highest quality and is always open for cooperation.

Our company has the resources and production facilities to implement unique engineering solutions. We carry out standard orders, as well as work on the individual requirements of consumers.

The plant has more than 70 years of experience in the production and supply of world-class high-tech products, which are used in the nuclear, aviation, rocket and space industries, as well as in electronics, medicine, instrument making, science and many other leading industries.

UMP JSC today is a company with great potential. The slogan of the plant is «Into the future with us!» - a bright confirmation that we are ready to implement the most daring and ambitious projects of our consumers.

ABOUT THE COMPANY



UMP JSC is the largest company producing fuel pellets for nuclear energy, as well as tantalum, niobium, beryllium and their alloys.

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The company's products are used in nuclear, aviation, rocket and space technology, electronics, medicine, instrument engineering, science and many other sectors of the national economy. Products with ULBA trade mark are delivered to the United States, Europe, Japan, China, Southeast Asia, and the Eurasian Union.

Since 1997, the company has been a part of Kazatomprom National Atomic Company, presenting interests of the Republic of Kazakhstan in the nuclear industry.

Currently UMP JSC management system is certified for compliance with the requirements of ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 for operation in the following areas:

- production of beryllium, beryllium compounds and products;
- production of tantalum, niobium, tantalum and niobium compounds and products;
- production of uranium compounds and products.



COMPANY DEVELOPMENT STRATEGY



MISSION

Provide high-tech products to the world nuclear energy, electronic, metallurgical and other industries



VISION

To become a priority partner in the global nuclear power industry and strengthen the achieved positions in the supply of high-quality beryllium, tantalum and niobium products, focusing on the long-term goals of consumers, personnel, shareholders and society

UMP JSC OWNS PARTICIPATORY INTEREST IN AN AUTHORIZED CAPITAL /SHARES OF THE FOLLOWING COMPANIES:



Ulba-FA LLP



Ulba-China Co., Ltd.



Mashzavod LLP



Volkovgeologia JSC

NAC KAZATOMPROM JSC



World **uranium mining** leader



1st place in the world in terms of Uranium sales volume



More than **20,000** employees

NAC Kazatomprom JSC has a status of a national operator of the Republic of Kazakhstan for export and import of Uranium, rare metals, nuclear fuel for nuclear power plants. This gives the Company the priority access to one of the world's largest resource bases.



KAZATOMPROM
NATIONAL ATOMIC COMPANY

COMPANY DEVELOPMENT STRATEGY



MISSION

Develop Uranium deposits and develop components of the added value chain, creating long-term value for all the Company's stakeholders, in accordance with the principles of Sustainable Development.



VISION

Become the Preferred Partner for global nuclear industry.

AREAS OF ACTIVITY AND MAIN PRODUCTS OF THE COMPANY:

- Geological exploration;
- Natural Uranium mining;
- Production of Uranium products: natural Uranium concentrate, nuclear ceramic grade Uranium dioxide powders, fuel pellets;
- Production of Beryllium, Tantalum and Niobium products;
- Research activities, social support and training.



CORPORATE STRUCTURE

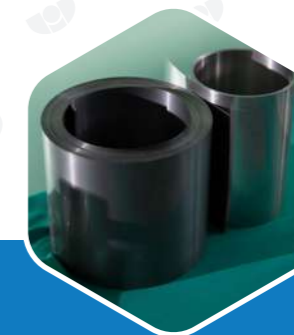
ULBA METALLURGICAL PLANT JSC



Uranium Operations



Beryllium Operations



Tantalum Operations



Mining and Concentration Complex



Research Center



Ulba Design Institute

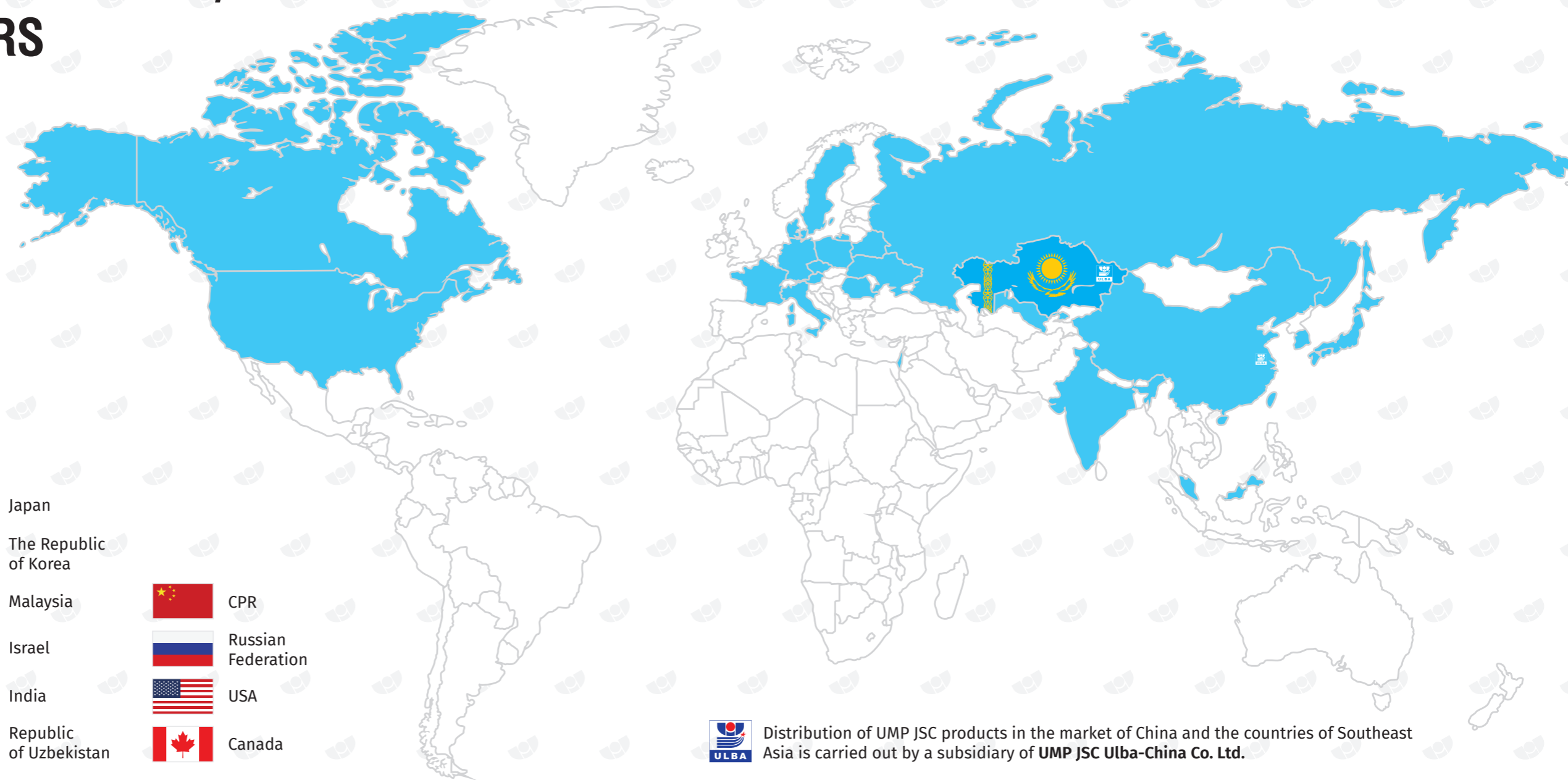


Testing Center

PRODUCT CONSUMERS/ DISTRIBUTORS

Partner countries
of the Joint Stock Company
«Ulba Metallurgical Plant»:

-  France
-  Italy
-  Germany
-  Sweden
-  Ukraine
-  Republic of Belarus
-  Austria
-  Romania
-  Poland
-  Czech Republic
-  Denmark
-  Japan
-  The Republic of Korea
-  Malaysia
-  Israel
-  India
-  Republic of Uzbekistan
-  CPR
-  Russian Federation
-  USA
-  Canada



Distribution of UMP JSC products in the market of China and the countries of Southeast Asia is carried out by a subsidiary of **UMP JSC Ulba-China Co. Ltd.**



PRODUCTION OF URANIUM PRODUCTS

Since 1954 Ulba Metallurgical Plant has been processing uranium materials to be used in the nuclear industry. Today products are used as fuel components in the nuclear power plants reactors around the world.

SERVICES:

- > Processing of natural uranium chemical concentrate;
- > Processing of conventional low enriched uranium raw materials (uranium hexafluoride, uranium oxides);
- > Conversion of reprocessed low enriched uranium raw materials;
- > Processing of the hard-to-recover uranium materials, including those with the burnable neutron absorbers (erbium, gadolinium);
- > Down-blending of highly enriched uranium to low enriched uranium.

TYPES OF PRODUCTS:

- > **NATURAL URANIUM OXIDES** (including those of nuclear grade which are suitable for direct fluorination) produced from uranium concentrates mined in Kazakhstan.
- > Nuclear ceramic low enriched **URANIUM DIOXIDE POWDERS**.
- > **FUEL PELLETS** for AFA 3G fuel assemblies for PWR reactors of the French design.



PRODUCTION OF BERYLLIUM PRODUCTS

UMP JSC Beryllium Operations is one of the leading companies in the world for production of Beryllium-containing products.

Process flowchart of Beryllium production at the company includes all processing stages from processing of ore concentrate to production of finished products with specified quality parameters. Beryllium master alloys produced at UMP JSC are superior in quality to their world counterparts. The plant manufactures beryllium reflectors and other articles for research reactors and neutron sources.



PRODUCTS:

✉ Marketing-be@ulba.kz

Type of product	Purity	Specifications
Technical grade Beryllium metal	B-1A, B-1B – 99.5% min.	- ingots up to 30kg (in the form of flattened cone with height from 380mm to 480mm, base sizes: smaller from 190mm to 210mm, larger from 220mm to 250mm);
	B-2A, B-2B – 99.0% min.	- pieces.
Sintered Beryllium (ceramic metal, structural grade)	97.8% min.	HP, HPR- hot pressed in vacuum, (Ø450×500) mm; EHP, EHPR- extruded hot pressed, (Ø185×1,500) mm; BHP, BHPR - forged from hot pressed billets, (Ø710×215) mm; FCIP, FCIPR - forged from cold isostatic pressed billets (Ø530×400) mm; FP, FPR- forged from powder, (Ø960×130) mm; HIP, HIPR- hot isostatic pressed, (Ø260×440) mm. “R” in a grade designator stands for “reactor type”.
Aluminium Beryllium master alloy	2,5-6,0%	- ingots up to 2.5kg; - pieces up to 550g; - granules up to 20mm.
Nickel Beryllium master alloy	5,5-15,5%	- ingots up to 20kg; - pieces up to 100mm.
Copper Beryllium master alloy	2,0-10,5%	- ingots (depending on grade) from 2.5kg to 17kg; - pieces from 60g to 120g;
Beryllium bronze	0,2-2,85%	- ingots with diameter from 100mm to 300mm; - pressed rods БpБ2 with diameter from 20mm to 145mm; - granules (alloy 275C); - articles as per customers' drawings.



PRODUCTION OF TANTALUM PRODUCTS

Tantalum Operations of Ulba Metallurgical Plant JSC is one of the largest companies in the world with a full production cycle from processing of tantalum and niobium containing raw materials to finished products.



The technology used in the production process ensures the production of tantalum with a purity of 99.97% minimum.

Tantalum Operations is notable for a flexible technology for processing of any types of Tantalum / Niobium raw material including one difficult to overburden ensuring the manufacturing of products with specified quality parameters.

TANTALUM AND NIOBIUM ARE USED FOR MANUFACTURING OF THE FOLLOWING:

- > Sputtering targets as qualified up to 6N;
- > Electrolytic capacitors;
- > Heat-resistant and corrosion-resistant alloys;
- > Corrosion-resistant equipment for the chemical industry;
- > Heat exchangers for nuclear power systems;
- > Tantalum Beryllide used in aerospace technology;
- > Tantalum Carbide used in the production of hard alloys;
- > Tantalum Pentoxide used in nuclear technology for glass melting absorbing gamma radiation;
- > Superconducting alloys;
- > Round and flat-rolled products with specified mechanical properties and microstructure;
- > Niobium Carbide in Zirconium Carbide and Uranium-235 carbide alloy which is the most important structural material for fuel rods of solid-phase nuclear jet engines.



PRODUCTION OF TANTALUM PRODUCTS

TANTALUM PRODUCTS

Marketing_ta@ulba.kz

Ingots	Purity	Characteristics	Specification
Standard grade (double (EB-2) and triple (EB-3) electron-beam melted)	99,92% 99,97%	Diameter 115, 150, 200 and 225 mm Length 300 to 2000 mm	Company Standard CT AO-02-2017 or Customer's specification
High purity grade (triple (EB-3) electron-beam or vacuum-arc (VAR) melted)	99,99% 99,995%	Diameter 150, 200 and 225 mm	Customer's specification* with a reduced mass fraction of refractory and gas impurities
Powder	Characteristics	Specification	
Standard capacitor grade 1-4 grades 5 grade	Specific capacity 7 to 22 $\mu\text{F/g}$ Specific charge 4000 to 5600 $\mu\text{C/g}$	Company Standard CT AO-31-2020	
High voltage capacitor grade	Specific charge 600 to 2200 $\mu\text{C/g}$	Company Standard CT AO-31-2020	
Agglomerated capacitor grade	Specific charge 1900 to 8000 $\mu\text{C/g}$	Company Standard CT AO-45-2020	
Wire	Material	Characteristics	Specification
Capacitor grade	EB-2 VAR	Diameter 0.15 to 3.0 mm	Company Standard CT AO-30-2020 or Customer's specification*
Medical grade	EB-2 EB-3	Diameter 0.5 до 3.0 mm	ASTM F 560-17 or Customer's specification
Flat-rolled products	Material	Characteristics	Specification
Foil	EB-2 EB-3 VAR	Thickness 0.01 to 0.2 mm Width 30 to 200 mm Length 300 mm, min.	Company Standard CT AO-22-2019 or Customer's specification*
Sheets	EB-2 EB-3 VAR	Thickness 0.2 to 10.0 mm Width 30 to 400 mm Length 300 to 1500 mm	Company Standard CT AO-22-2019 or Customer's specification*
Strip (for deep drawing)	VAR-2 VAR	Thickness 0.2 to 0.5 mm Width 12.7 to 230 mm Length 500 mm, min.	Company Standard CT AO-23-2019 or Customer's specification*
Fabricated Products (trays, lids, tube blanks, hot zone elements, crucibles, discs, plates, etc.)	EB-2 EB-3 VAR		Customer's specification and/or drawings*

Rods	Material	Characteristics	Specification
Drawn grade	EB-2 EB-3 VAR	Diameter 3.0 to 8.0 mm	Company Standard CT AO-30-2020 or Customer's specification*
Turned grade	EB-2 EB-3 VAR	Diameter 8.0 to 90.0 mm	Company Standard CT AO-30-2020 or Customer's specification*
Alloy additives	Purity	Characteristics	Specification
Standard grade	99,9%	Any dimensions per Customer's request	Customer's specification
High purity grade	99,95%	Any dimensions per Customer's request	Customer's specification with a reduced mass fraction of gas impurities

NIOBIUM PRODUCTS

Ingots	Purity	Characteristics	Specification
Standard grade (double (EB-2) and triple (EB-3) electron-beam melted)	99,8% 99,9%	"Diameter 115, 150, 200 and 225 mm Length 300 to 2000 mm"	GOST 16099-80 or Customer's specification
High purity (reactor) grade (four-fold (EB-4) electron-beam melted)	99,83%	Diameter 150, 200 and 225 mm	Customer's specification
Alloy additives	Purity	Characteristics	Specification
Standard grade	99,8%	Any dimensions per Customer's request	Company Standard CT AO-44-2018 or Customer's specification
High purity grade	99,9%		Customer's specification with a reduced mass fraction of gas impurities
Rolled products	Material	Characteristics	Specification
Foil, sheets, plates	EB-2 EB-3 VAR	Thickness 0.01 to 75 mm	Company Standard CT AO-41-2019 or Customer's specification*
Rods, wire	EB-2 EB-3 VAR	Diameter 0.15 to 90 mm	Company Standard CT AO-43-2020 or Customer's specification*
Fabricated Products (trays, lids, tube blanks, hot zone elements, crucibles, discs, plates, etc.)	EB-2 EB-3 VAR		Customer's specification and/or drawings*

FLUORINE-CONTAINING PRODUCTS

Hydrofluoric (HF) acid	Concentration	Specification
A, Д, E grade	35,5%	National Standard of the Republic of Kazakhstan ST RK 2503-2014
B, Г, Ж grade	40,0%	National Standard of the Republic of Kazakhstan ST RK 2503-2014

* It is possible to manufacture the Products with stabilized grain



PRODUCTION OF FUEL ASSEMBLIES



Ulba-FA Limited Liability Partnership is a joint venture established between UMP JSC and China General Nuclear Power Corporation - Uranium Resources Company (CGNPC-URC) in 2015.

The purpose of the plant is to produce AFA3G™ A and AA design fuel assemblies (FAs) for nuclear power plants of the Chinese corporation CGN, as well as to meet the future needs of nuclear power in Kazakhstan.

The production line is based on the design of the developer of the fuel assembly fabrication technology Framatome, the world leader in the field of nuclear energy, while the main technological equipment was manufactured and supplied by Framatome, as well as leading manufacturers of equipment for the nuclear industry in China.

The delivery of components and fuel elements with uranium-gadolinium fuel pellets from the European factories of Framatome has been organized.

Fuel pellets UO_2 are supplied from JSC UMP. Their production was established more than 10 years ago and is certified for compliance with the requirements of fuel buyers and the developer of the pellet design.

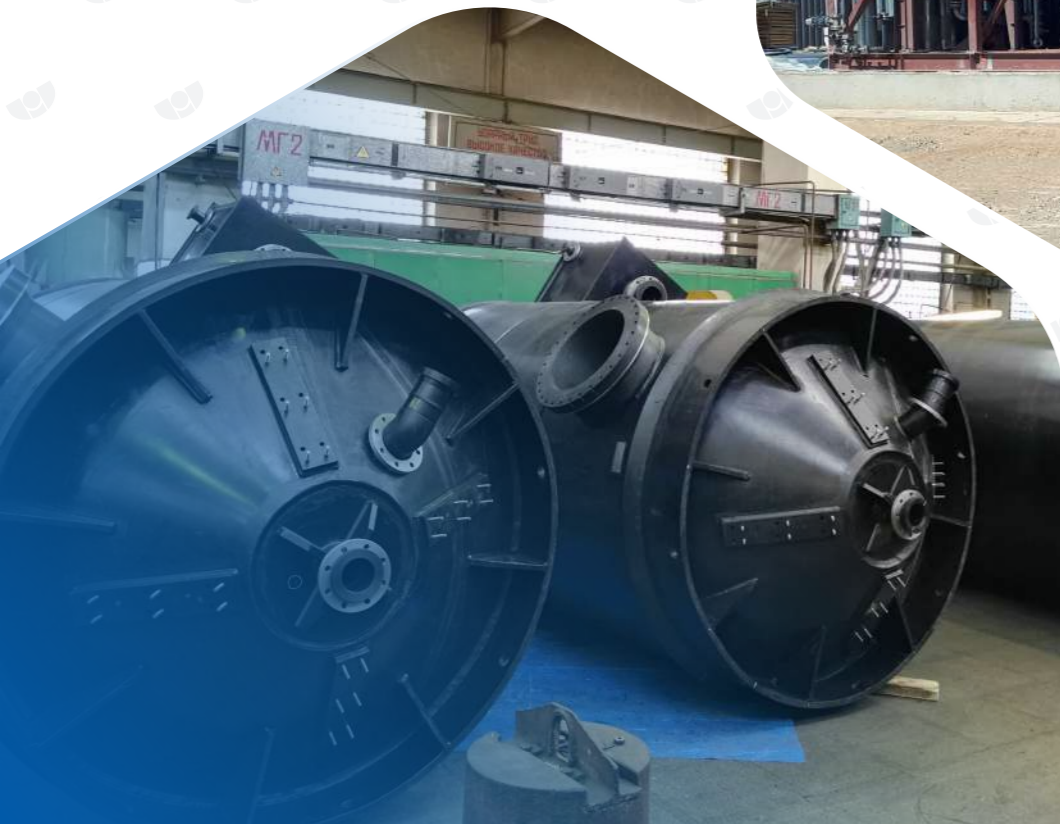
The delivery of components and fuel elements with uranium-gadolinium fuel has been arranged from the European plants of Framatome. Fuel pellets which production was established more than 10 years ago and certified for compliance with the specifications of the fuel purchasers and the developer of pellets design are supplied from UMP JSC.



MACHINE BUILDING PLANT



MASHZAVOD LLP was established in 1996 on the basis of several divisions of UMP JSC and is a subsidiary of UMP JSC.



Process capabilities of the plant make it possible to produce more than 5000 types of products for enterprises of various industries, including the sophisticated process equipment for the mining and processing industries, including its installation and commissioning.

For the moment the quality management system of MASHZAVOD LLP has been certified for compliance with ST RK ISO 9001-2016 (ISO 9001:2015) «Quality Management System. Requirements».

MASHZAVOD LLP has been also licensed for the performance of the following activities:

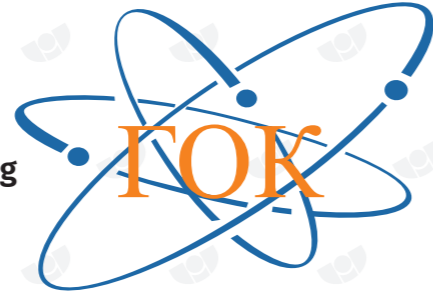
- Category 1 construction and installation (License No. 15017103 dated 22.09.2015);
- Physical protection of Class I nuclear facilities and nuclear materials (License No. 16012780 dated 10.08.2016);
- Works related to the nuclear facilities life cycle (License No. 16015108 dated 29.09.2016).

MASHZAVOD LLP IS A DEVELOPER AND MANUFACTURER OF VARIOUS INDUSTRIAL EQUIPMENT, COMPONENTS AND PRODUCTS. HERE ARE SOME OF THEM:

- > **METAL STRUCTURES**
of any complexity and installation.
- > **NON-STANDARD EQUIPMENT:**
 - Column-type tank equipment made of stainless steels and polymeric materials;
 - Industrial tank equipment with up to 1000m³ capacity made of stainless steels and polymeric materials;
 - Industrial furnaces, including those for drying and calcining the initial product to produce uranium oxide (U₃O₈);
 - Other industrial equipment and spare parts.
- > **VARIOUS RUBBER PRODUCTS.**
- > **PUMPING EQUIPMENT USED IN AGGRESSIVE ENVIRONMENT:**
 - Semi-submersible vertical;
 - Console horizontal.
- > **SHIPPING PACKAGES:**
 - TUK 44/8 for storing and transportation of natural uranium concentrate;
 - TUK-118 for storing and transportation of chemical uranium concentrate.
- > **POLYMERIC PRODUCTS:**
 - Shut-off valves (ball, diaphragm);
 - Protective devices (casings of Ø 25-600mm);
 - Other products and spare parts.

MINING AND CONCENTRATION COMPLEX

UMP JSC includes a mining and processing plant (MPP): a mine and a processing plant, which was put into operation in 2006.



PRODUCTS:

- > **FF-95A FLUORSPAR CONCENTRATE**
(GOST 29219-91 "Acid-based and ceramic fluorspar concentrates")
is used in production of electrolytic aluminum, hydrofluoric acid, anhydrous hydrogen fluoride, glass heat-proof tubes, glass balls, glass fiber, high-quality silicate enamels and special viewing systems;
- > **QUARTZ-FLUORITE ORE**
(10-20% CaF₂)
is used during cement production.

JSC UMP actively cooperates in the supply of fluorspar concentrate with enterprises of Kazakhstan, Russia, there is an interest in the MPP's products by the enterprises from the countries outside the former Soviet Union.





Research Center of UMP JSC was founded in 1952. It was accredited by the Ministry of Science and Education of the Republic of Kazakhstan as a subject in the field of science, scientific and technical activities.

RESEARCH CENTER OF UMP JSC

Laboratories of Uranium, Beryllium, Tantalum, innovation research and development are the part of Research Center.

At the present time Research Center is engaged in scientific and research and technology activities in the field of production and processing of Uranium, Tantalum, Niobium and Beryllium, rare metals and rare-earth metals, environmental protection.

Research Center cooperates with a wide range of partners of the world community.

PRODUCTS AND SERVICES:

- > Scientific and technological support of the main production operations technology;
- > Development of projects and implementation of new technologies in various areas of scientific and technological development;
- > Development of technologies and creation of business justifications for new knowledge-intensive productions of high-tech products based on traditional metals for UMP JSC, rare metals and rare-earth elements from mineral and technogenic raw materials, as well as rational use of resources of the Kazakhstan's mineral resource base;
- > Production of trial and non-standard products in accordance with the customer's requirements.



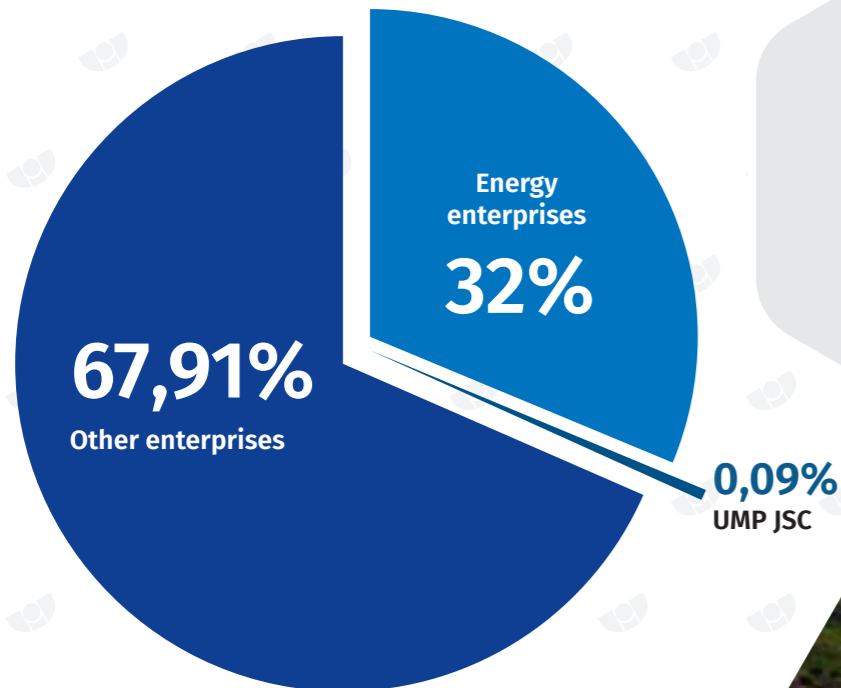
ECOLOGY AND LABOR PROTECTION

The most important issue of UMP JSC policy in the field of ecology is to minimize negative impact on the environment. The policy is implemented through introduction of modern technologies that make it possible to reduce emissions of harmful substances into the atmosphere and the volume of industrial waste.

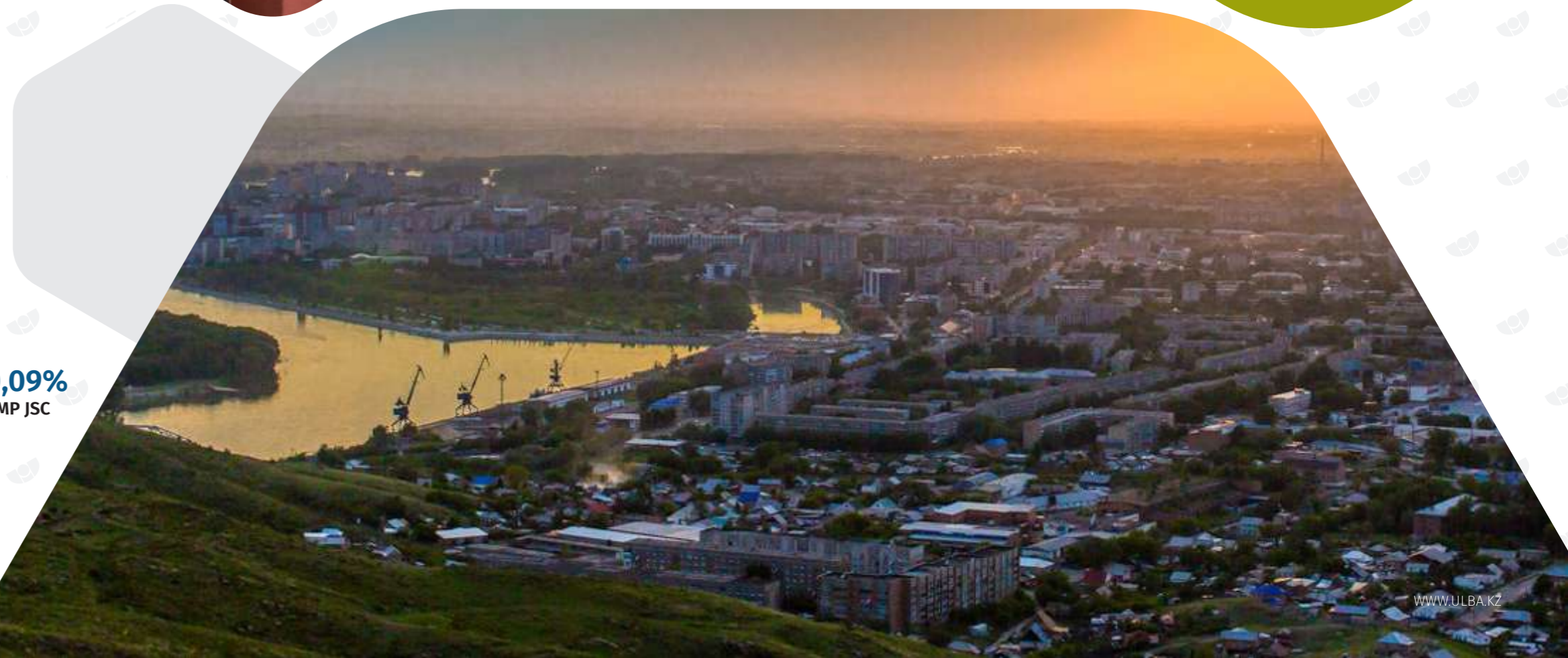


Health and safety of employees is the priority number one at UMP JSC.

Within the framework of VIZION ZERO concept, work is constantly being carried out to achieve the main goal – drive to zero injuries. Study, analysis and implementation of the “best world practices” in the field of occupational safety such as: system for identifying, registering and eliminating hazardous production factors (Near Miss), system for blocking hazardous energy sources (LockOut/TagOut), behavioral safety audits and the “STOP-CARD” work stoppage procedure are conducted on a regular basis.



Gross emissions of enterprises in Ust-Kamenogorsk



BUSINESS SOCIAL RESPONSIBILITY

Business social responsibility is assistance in development of social, economic and environmental spheres of society, solving social problems of the region by combining the efforts of state administrative bodies, public organizations and city-forming industrial companies.

UMP JSC strives to preserve and create new jobs through development of production, improves corporate relations and corporate culture. All this contributes to establishment of favorable internal and external socio-psychological environment, educates employees to a sense of commitment to the plant, to the industry, forms and implements corporate norms and values.





Into the future with us!

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