



ISSN: 2350-0328

**International Journal of Advanced Research in Science,
Engineering and Technology**

Vol. 5, Issue 11, November 2018

Condition and Development of the Uzbekistan's Glass Industry

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ABSTRACT: The article presents data on glass factories of the Republic of Uzbekistan, on their performance and equipment with modern equipment. The existing problems of development and their solutions, as well as the potential development in the coming years are shown. Also provides information on raw materials used for the production of glass. The authors indicated reserves of quartz sand and their chemical composition, and recommendations were given on the organization of its enrichment.

KEY WORDS: glass, glass container, glass factories, quartz sand, sand enrichment, glass making.

I.INTRODUCTION

The interest in the development of the production of glass containers in the Republic of Uzbekistan is inextricably linked with the processing of agricultural products, in connection with which their volume is continuously growing. According to the decree of the President of the Republic of Uzbekistan PP-2716 dated January 6, 2017 "On additional measures to further deepen processing and creation of capacities for storing fruit and vegetable products in 2017–2018", as well as in accordance with the Action Strategy in 5 priority areas of the Republic of Uzbekistan, modernization and the intensive development of agriculture. The programs focus on expanding the raw material base of the food industry, processing and preserving agricultural products, obtaining drinks and juices, expanding and increasing the output of wine and vodka products, fully providing the domestic market with domestic products and exporting finished products with high added value. The tasks are interconnected with the solution of tasks to provide the industry with packaging materials, in particular with glass containers. The year 2018, declared the Year of Support for Active Entrepreneurship, Innovative Ideas and Technology, sets a number of important scientific and technical tasks for scientists.

A systematic analysis of the branches of production of glass in the conditions of Uzbekistan is not performed. In the literature there is little information on the organization and on scientific and technical research relating to the production of glass in the Republic of Uzbekistan.

The problems of increasing the pace of the glass industry in the Republic of Uzbekistan are related to the lack of argon coordinating its activities, lack of personnel and the lack of research laboratories and processing plants for the enrichment of quartz sand.

The purpose of this article is to provide information about the state of the glass industry in Uzbekistan and possible ways of their development in the coming years.

The glass industry of Uzbekistan is the most youthful and rapidly developing, the demand for products of which is developing rapidly. The production of glass containers in Uzbekistan was started in 1975 in the Fergana Valley on the basis of the Kuvasay glass factory. At present, this plant has been renamed to QUARTZ JSC and is the largest



ISSN: 2350-0328

International Journal of Advanced Research in Science, Engineering and Technology

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enterprise in the Central Asian region for the production of colored sheet, tinted and tempered glass, glass jars and bottles. Products fully meet the needs of the domestic market and are exported to many countries, such as Kazakhstan, Turkmenistan, Tajikistan, Kyrgyzstan, and Afghanistan. Quartz JSC produces annually - 220 million conv. PC. glass jar per year - more than 150 mln. glass bottles and 10 million m² of polished sheet glass. JSC Quartz is equipped with equipment supplied from Russia, Germany, (Emhart) and Italy (Tecking).

One of the leading and rapidly developing glass enterprises is ASL OINA JSC, located in Tashkent. Today, the company produces over 100 million pieces of glass containers per year. The share of exports is about 30% in total sales. The plant is equipped with the equipment of the German company "HEYE INTERNATIONAL" and produces mainly glass containers of a colorless, semi-white and color assortment for bottling alcoholic beverages. JSC Aslino plans to build the third and fourth glass melting furnaces with a total capacity of 350 tons per day in 2018-2021. This project is tentatively estimated at around \$ 40.0 million. Another enterprise located in Tashkent is the CAMPALIA IP LLC, which manufactures products for the pharmaceutical, food and household industries, fully compliant with international standards and competitive in the global market. The company has installed equipment manufactured in Russia and Germany, the main ones are three glass melting furnaces with a total capacity of about 300 tons of glass mass per day. Currently, the existing capacity allows producing per month: 45 tons for furnaces - up to 3 million units, 90 tons for furnaces - up to 5.3 million units. and on the furnace 160 tons — up to 10.5 million pieces of 0.25 glass bottles; 0.33; 0.5 liters 0.75 liters The total annual capacity of the enterprise is 225.6 mln. PC.bottles for food liquids. In addition, there are glass-forming machines for the manufacture of various pharmaceutical glassware, as well as glass bottles for blood, transfusion and infusion preparations with a capacity of 250 sm³ of glass brands MTO GOST 10782-85-white glass, with a capacity of 7.0 to 250 ml capacity of about 73 million bottles.

In recent years, a number of enterprises producing glass containers have also been commissioned in the regions. Such enterprises include LLC Karakalpak glassware and JV LLC Khorazm shisha Yidishlari. In 2017, Karakalpak Glassware LLC produced more than 18 million units. glass bottles, but the investment policy by 2018-2020 is aimed at expanding and reconstructing the plant with an increase in productivity by 2-3 times. The newly built and equipped with modern equipment is considered to be a glass container plant located in the Khorezm region - JV LLC Khorazm Shisha Yidishlari, the daily removal of glass mass is 50 tons per day with a total capacity of 40 million pieces per year. cond glass containers. The plant has a molding machine ("Bottero spa" - Italy), an annealing furnace ("Car-Met" Italy), packaging equipment ("Emmeti spa" -Italia), commissioning works have been successfully completed by the team of CJSC "Steklo-gaz" .

In the Republic, great attention is also paid to the construction of new glass production facilities. These facilities include the plant under construction in the Jizzakh region. The official ceremony of laying the foundation of a new glass manufacturing enterprise was laid in 2017. The total cost of the project is about 110 million US dollars. According to the plans, the first phase will be commissioned in May 2018, and full commissioning will take place in September 2019 and will become the largest producer and supplier of flat glass in Central Asia. Also, it is planned to build a new glass container plant in the city of Turtkul to produce colorless and green glass containers, meeting the needs of the southern regions of Karakalpakstan and the Khorezm region.

According to forecasts, in the future conditions of Uzbekistan, interest in the production of glassware will grow, because there is a huge raw material and energy potential, free labor resources and a huge consumption market both domestically and abroad. The export of canned agricultural products is the main priority of the Republic in increasing the inflow of foreign currency and the conquest of the market abroad.

The available reserves of quartz sand, feldspar, dolomite and limestone can be attributed to the raw potential of the Republic. There is Kungrad soda plant producing soda ash (plant capacity 200 thousand t.vyear), in Kungrad sodium sulfate LLC sodium sulfate is produced in sufficient quantity and quality.

At present, for the production of container glass, quartz sands of the Mayskoye and Dzheroyskoye deposits are used, the explored reserves of which are depleted. The most promising deposits of quartz sand for the manufacture of colorless glass containers are considered to be Kulantai (Navai region), Ugun (Kashkadara region), Khodzhakul and Kyzyltuysk (Republic of Karakalpakstan) [1-2]. Table 1 and 2 provide information on the reserves and chemical compositions of some deposits of quartz sand.

Table 1
Known deposits and estimated reserves of quartz-containing resources of the Republic of Uzbekistan

Field	Reserves, mln.t	Location	Characteristic
Dzheroy	13,5	Navoiregion	Quartz
Kulantai	30,0	Also	Also
Kermeninskoe	20,0	-	-
Akmurdskoe	3,0	-	-
Mashikuduk	3,0	-	-
Yakkabag	4,0	Kashkadaryaregion	quartz
Chirakchi	1,0	Also	Also
Mayskoye	2,5	Tashkentregion	-
Azatbash	2,0	Also	Quartz-polyspin
Chiyalinskoe	38,0	Surkhandaryaregion	Also
Ilansea	45,0	Samarkandregion	-
Tozbulak	2,0	Bukhararegion	Quartzvein
Obruchevskoe	3,0	Sirdaryoregion	Quartz
Yangiariq	30,0	Khorezmregion	-
Tabakum	20,0	Karakalpakstan	-
Kyzyltuyskoe	5,0	Karakalpakstan	-
SultanUvayskoe	2,0	Karakalpakstan	veinedquartz
Khodjakul	10,0	Karakalpakstan	Kaolinized

As can be seen from the table, the reserves of quartz sand are concentrated in the Central Kyzyl Kum region, where the construction of an enrichment complex for the deironing of quartz sand is expedient, which would give impetus to the production of colorless sheet and container glass. On the enrichment of quartz sand there is little information [3]. We reported on some deposits of quartz sand of Uzbekistan in the foreign press [4, 5].

Uzbekistan has significant energy resources, and the energy sector is one of the components of the country's economy and has significant production and scientific and technical potential, has a significant impact on the development of the entire national economic complex. In the conditions of the formation of new economic relations, the state provided tremendous support to the basic industries, in particular, the enterprises of the fuel and energy complex, where state policy was aimed at realizing the priorities of the energy strategy, which resulted in resolving the issues of providing glass enterprises with fuel and energy resources.

A problematic issue is the lack of specialists in glass production, machine gunners, mechanics and specialists in the installation and commissioning of glass equipment and units. Also, undue attention is paid to the issues of enriching glass sands and expanding the range of glass for the needs of the automotive and energy industries. Due to the poor quality of flat glass for road transport, polished glass is currently being imported.

In addition, there are still many deposits of quartz sand, which are not sufficiently studied and not mastered. The lack of technology and the necessary equipment for their enrichment is considered a temporary phenomenon. Also, the absence of specialized laboratories or institutes of glass that would be engaged in developments concerning the composition and properties of glass for the enrichment of raw materials. Such institutes and laboratories exist in developed countries, thanks to which the glass industry has developed and is developing. Due to the absence of such a sector in the production of glassware in the Republic of Uzbekistan, in our opinion, it is impossible to develop the glass industry.

Nevertheless, the specialists of various institutes have established the chemical composition of quartz sand at some deposits, which are given in the following table 2.

Table 2
The average chemical composition of some quartz containing raw materials of the Republic of Uzbekistan

Field	Content%							
	SiO ₂	Fe ₂ O ₃	Al ₂ O ₃	CaO	MgO	K ₂ O	Na ₂ O	n.n.n
Dzheroyskoe [1]	97,16	0,16	1,1	0,36	0,24	0,18	0,1	0,4
Kermeninskoe [1]	87,2	0,89	5,2	0,56	0,64	1,9	0,6	2,14
May [1]	94,2	0,18	2,8	0,3	0,2	1,2	0,2	0,54
Kulantayskoe [1]	96,7	0,20	1,62	0,44	0,23	0,22	0,1	0,44
Tozbulak [6]	98,7	0,22	0,46	0,1	0,1	0,05	-	0,1
Mashikuduk [7]	97,56	0,068	1,27	0,17	0,16	Сл.	сЛ	0,9
Yangiarik [8]	97,32	0,05	0,27	0,20	0,12	0,9	0,3	0,86
Ugunskoe [9]	97,54	0,08	0,10	0,25	0,13	0,70	0,02	1,10
Hodzhakulskoe [10]	96,80	0,02	2,20	0,46	-	0,20	0,20	-

As can be seen from the table, a number of deposits of quartz sand of the Republic more fully meet the requirements of GOST 22551-77 - Quartz sand, ground sandstones, quartzite and veined quartz for the glass industry. Also, we are working to improve the quality of quartz raw materials for the production of container glass [11] and a number of research projects to develop innovative technology to obtain glass products from local quartz sand.

In conclusion, We would like to note that in the Republic of Uzbekistan the glass industry is becoming a booming sector, for which there is interest in the republic from both the Government and business. Economic and other opportunities provide a rationale for the conclusion that in

In the coming years, the production and export of canned food and other sweets of sunny Uzbekistan, which are overstocked in glassware, are increasing.

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