
Issues of Rational Use of Waste in the Production of Building Materials

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Annotation: This article presents an analysis of the ways of using glass production waste in the production of concrete with an assessment of the possibility of using glass-grinding clay. The use of modern technological approaches in the molding of products can significantly improve the quality of concrete and increase its conservation of natural resources, the use of waste and glass is to produce concrete with improved properties by adding waste to concrete.

Keywords: glass waste, superabsorbent, cement, energy efficiency, concrete production.

Introduction: currently, the construction practice is characterized by the increased use of a new generation of high-tech concrete, among which there are dense high-strength modified concrete. Of particular importance is the R & D, which reveals new opportunities for the use of waste in the creation of building materials on their basis in the conditions of the cost of natural raw materials.

The development of the direction of use of man-made raw materials and household waste in the production of high-strength modified concrete is promising and innovative. The most important direction in the economy of funds in construction is the widespread use of sources of material for secondary processing. In the development of the economy of the Republic of Uzbekistan, it is important to introduce into practice the composition of concrete, which has a new constructive solution, which is economically efficient, based on theoretical and practical research, in raising its material and technical base. In the process of glass production, various types of waste are formed, a large part of which is waste with glass components. It is possible to reduce the amount of this waste by improving the technological processes of glass production, as well as attracting waste into economic circulation as secondary material resources. Currently, the glass industry mainly reuses pure waste.

The purpose of the work is to analyze the directions for the use of glass production waste with an assessment of the possibility of using glass grinding clay in the production of concrete .

As an object of research, we used a glass grinder formed in glass production enterprises. This type of waste is formed after grinding and polishing the glass blank. After these operations are completed, the surface of the glass blank is washed with water and the glass clay consisting of the resulting small glass particles and a mixture of water is fed into a sink to sink the suspended particles . Every year a typical glass making plant produces about 600 tons of glass grinding clay per year.

Due to the rapid development of the construction industry, the demand for concrete and reinforced concrete structures made using portland cement is increasing. In this respect, in the production of concrete and reinforced concrete structures, one of the priorities of the building materials production industry, there is a great emphasis on the use of existing local raw materials and industrial waste, moderating production technologies, improving the quality of the product produced, reducing its cost. In addition to optimizing the composition of concrete mixtures used for the production of concrete and reinforced concrete structures, there are many R & D works aimed at the use of industrial waste, chemical and mineral additives in their preparation, targeted management of the formation of a structure in hardened cement stone. In this regard, it is important to use chemical and mineral additives in order to increase the resistance of concrete and reinforced concrete structures to the harmful effects of the environment, especially groundwater, ensure the comfortable fit of the concrete mixture, accelerate the initial

strength of concrete by intensifying its hydration, and ensure high strength, and at the same time improve the strength of.

The main part: decree of the president of the Republic of Uzbekistan No. PF-60 of January 28, 2022, PQ-4335 of May 23, 2019 “on additional measures for the rapid development of the building materials industry” and also the implementation of the tasks provided for by other regulatory legal acts adopted in this area, the results of this study serve to a certain extent[1-4].

Today, due to the rapid development of the construction industry, the demand for concrete and reinforced concrete structures made using portlandement is increasing. In this respect, in the production of concrete and reinforced concrete structures, one of the priorities of the building materials production industry, there is a great emphasis on the use of existing local raw materials and industrial waste, moderating production technologies, improving the quality of the product produced, reducing its cost.

Particular attention is paid to the introduction of resource and energy-efficient technologies and the creation of corrosion-resistant concrete types in our republic, which allow the development of the building materials industry, the economy of natural raw materials and the use of industrial waste in production. In the implementation of these tasks, the provision of the construction process with quality materials and structures, especially concrete and reinforced concrete structures resistant to the aggressive effects of groundwater, using local raw materials and industrial waste, and the creation of structures and technologies for the production of quality structures and objects of concrete mixtures is one of the urgent tasks.

Results of the study: when comparing the composition of glass grinding clay and waste, it was found that the composition of this type of glass production waste is almost the same. In this regard, it can be assumed that the main use of glass grinding Clay may be similar to the methods of working with waste, since the analysis of documents made it possible to determine the main directions of the use of glass waste.

The quality of concrete largely depends on the materials from which it is made. The correct choice of materials for concrete, that is, the requirement for concrete, taking into account the properties of the materials themselves, occupies a high place in concrete technology. In this case, the maximum economy of cement and labor consumption is achieved in the production of concrete. Inorganic binders are widely used to make concrete of construction structures. These substances, when mixed with water, gradually solidify from the soft hamir state under the influence of internal physico-chemical processes, go beyond their strength and turn into a stone-like solid state. Inorganic binders are found in water (Cements) and air (lime, gypsum, etc.) hardens. The most commonly used in concrete production is portlandement.

By injecting 0.01-1.2 percent of the cement mass into the concrete, as well as 15-40 percent of the surface activated dispersing materials, such as Quartz minerals, can improve properties and save cement. Classification of concrete binder by type: cement, silicate, gypsum, mixed Binder and so on. In relation to the type of filler: dense, porous, with a special filler. Special fillers include flame retardant, chemically resistant, radiation beam repellent, and so on[1-8].

In the preparation of concrete, portland cement and its types, slaked, pussolan, gilt-coated and other types of cement are used. The brand of cement is determined in the following proportion to the brand of concrete:

Table 1.1 The ratio of cement to the brand of concrete

Brand of concrete	B150	B200	B250	B300	B350	B400	B 450	B 500	B 600 and high
Cement brand	B 300	B 300 B 400	B 400	B 400 B 500	B 400 B 500	B 550 B 600	B 550 B 600	B 600	B 600

When the cement mark is higher than recommended for a particular concrete mark, crushed active minerals must be added to the cement content. High-activity cements such as diatomite, trepel, opoka, gliège are saved by adding natural, domna and fuel slag, ash, and the like to cement. The density, strength, frost resistance of concrete directly depend on the granular composition of a large filler.

In the process of glass production, various types of waste are formed, a large part of which is waste with glass components. It is possible to reduce the amount of this waste by improving the technological processes of glass production, as well as attracting waste into economic circulation as secondary material resources. Chemical additives can accelerate the hardening of concrete under normal conditions and during heat treatment, provide frost resistance, water resistance, durability and corrosion resistance. Their rational use can change the technology of transportation and placement of concrete mixture, make this process mechanized and less labor-intensive, significantly reduce the time of obtaining technological or tempering strength of concrete, and, as a result, Shorten and eventually increase the construction time.

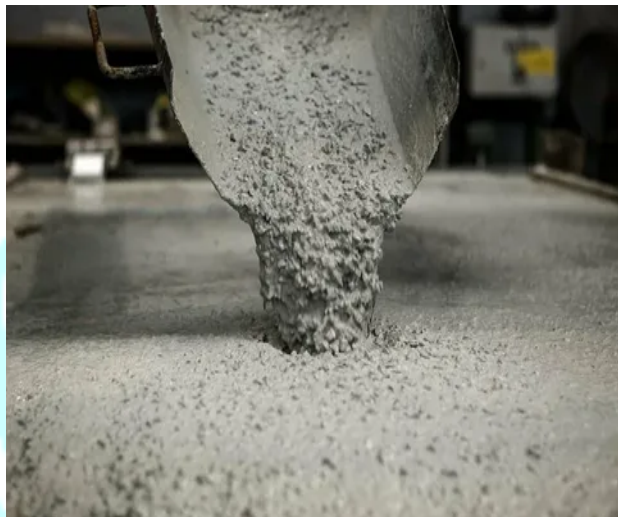


Figure 1. Efficiency of the technological line.



Figure 2. Types of cubes with the addition of chemical additives

Chemical additives make it possible to purposefully carry out the technological process of manufacturing reinforced concrete structures for certain operating conditions with the necessary Frost, water resistance and durability.

Currently, the glass industry mainly reuses pure waste. Other waste (including grinding mud, waste with metal additives, contaminated waste, fiberglass Waste, Etc.) is not used and must be stored or disposed of. Glass grinding in the production of production waste concrete is the analysis of the directions of its use with an assessment of the possibility of using clay[1-10].

We used a glass grinder formed in glass production enterprises. This type of waste is formed after grinding and polishing the glass blank. After these operations are completed, the surface of the glass blank is washed with water and the glass clay consisting of the resulting small glass particles and a mixture of water is fed into a sink to sink the suspended particles. Every year a typical glass making plant produces about 600 tons of glass grinding clay per year.

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The construction sector forms the most important component of the Territorial Infrastructure of our country, ensuring that housing and settlements are cozy and comfortable in all respects. The level of development and efficiency of activity of this sphere form a corresponding quality of life of the population, reflect the standard of living and lifestyle, serve as one of the factors for further raising economic potential[1-10].

Conclusion: In conclusion, such tasks as high-quality production of traditional building materials on a scientific basis, adaptation of the technologies for their creation to the requirements of the time, development of inexpensive, economical, high-quality objects and technologies, obtaining new and thorough materials, creating their cost-effective technologies, perfecting the methods of repair and reconstruction of buildings and structures, as well as

The mechanism of pore formation in glass waste concrete fillers is an important problem that attracts the attention of many researchers and engineers in the field of materials science and production technology. Glass waste fillers such as absorbent polymer material are used in various industries such as construction, automotive, furniture, etc. These materials have a number of advantages over other fillers, which are: weight, good heat holder, noise barrier, moisture and chemical resistance.

One of the main requirements for glass waste concrete fillers is the presence of holes in their structure, which provide air permeability, gas permeability and moisture permeability properties. The porous structure of fillers ensures good dispersion of gases and liquids, which is an important factor in achieving the desired properties of fillers.

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