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ИСПОЛЬЗОВАНИЕ В ПРОМЫШЛЕННОСТИ СТРОИТЕЛЬНЫХ МАТЕРИАЛОВ ЗОЛОШЛАКОВ ТЭЦ

Аннотация: Использование золошлаков тепловых электростанций позволяет получать новые эффективные строительные материалы с улучшенными строительно-техническими свойствами.

Ключевые слова: шлаки, зола, строительство, золоотвалы.

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USE IN THE INDUSTRY OF BUILDING MATERIALS OF ASH AND SLAG OF THERMAL POWER PLANTS

***Annotation:** The use of ashes and slags from thermal power plants makes it possible to produce new effective building materials with improved construction and technical properties..*

***Key words:** slags, ashes, construction, ash dumps*

At present, at the vast majority of thermal power plants, fuel is burned in a pulverized state at a temperature in the combustion chamber of 1200-1600 ° C.

Conglomerates of various compounds formed from the mineral part of the fuel are released in the form of a dusty mass. Small and light particles (from 5 to 100 microns in size), contained in the ash in an amount of up to 80-85%, are carried away from the furnaces of boiler units with flue gases, forming the so-called fly ash. Larger particles settle on the hearths, melt into lumpy slags or into a vitreous slag mass, which is then subjected to granulation. The quantitative ratio between the resulting slag and fly ash is different depending on the design of the furnace. So, in furnaces with solid ash removal, 10-20% of

all fuel ash usually passes into slag, in furnaces with liquid ash removal - 20-40%, and in cyclone furnaces - even from 85 to 90% of all fuel ash .

Fuel slag and fly ash differ in composition and properties depending on the type of fuel and the method of its combustion. Fly ash is a finely dispersed material with a very small particle size, which allows it to be used for a number of industries without additional grinding. A characteristic feature of ash is the presence of about 5-6% of unburned fuel in it. Fuel slags, on the contrary, are characterized by almost complete burnout of fuel carbon and the presence of iron, mainly in the ferrous form. Slag particles have sizes from 0.2 to 20-30 mm. In furnaces with liquid slag removal, the slag is obtained in granular form. These slags are characterized by a glassy structure.

Solving the problem of disposal of ashes and slags from thermal power plants in connection with the development of energy in Uzbekistan is becoming increasingly important for the national economy.

Under the ash and slag dumps of only the largest thermal power plants in the country, thousands of hectares of land suitable for use in agriculture are occupied. The removal of ashes and slags into dumps and the maintenance of the latter require enormous expenditures. Suffice it to say that in just 1 day of operation on coal at a TPP with a capacity of 1 million kW (according to the current scale, an average power plant), about 10,000 tons of coal are burned and more than 1,000 tons of slag and ash are formed, under the dump of which (8 m high) requires an area of more than 1 ha per year. In addition, the dispersion of TPP ash during its storage in dumps poses a danger to the water and especially the air basin, since during the combustion of coal, radionuclides of the uranium-radium and thorium series remain in the ash, not diluted by the mass of carbon, i.e., located in concentrated, and therefore , the most dangerous form. Meanwhile, the ashes and slags of thermal power plants, if used correctly and efficiently, are a huge wealth and a source of expanding raw materials for various sectors of the national economy, and primarily the building materials

industry. According to the calculations of the Research Institute of Construction Economics of the Gosstroy of Uzbekistan, the use of 25-30 million tons of ashes and slags from thermal power plants as building raw materials instead of traditionally used materials provides savings in capital investments for the development of the material and technical base of construction in the amount of at least 400 million sums.

The fields of application of ash and slag are numerous. In Uzbekistan, extensive research work has been carried out and significant practical experience has been accumulated in the use of ash and slag waste from power plants in various sectors of the building materials industry.

Lump slag is used as a concrete filler in road construction and for heat-insulating backfills.

Fly ash is used as: hydraulic additive to cement (10-15%); component of the cement raw mix (basic ash); silica component in the production of autoclaved and non-autoclaved aerated concrete, light dense and porous expanded clay concrete, silicate brick; component in the production of artificial porous aggregates; burnable additive in the production of clay bricks. Ash and slag mixtures are used in production as a local binder such as lime-ash, cement-ash, lime-cement-ash.

Thus, the use of ashes and slags from thermal power plants makes it possible to produce new effective building materials with improved construction and technical properties. As mentioned earlier, the disposal of ashes and slags is of great economic importance, because it allows you to drastically reduce the capital and current costs for the construction of new and maintenance of existing ash dumps and, ultimately, significantly reduce the cost of electricity generated.

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