

PROSPECTS FOR THE USE OF INDUSTRIAL WASTE IN THE VINNYTSIA REGION IN THE CONSTRUCTION INDUSTRY

Vinnitsia National Technical University

21021, Khmelnytsky highway, 95, Vinnytsia, Ukraine; b15.stadnychuk@gmail.com

Анотація. Запропоновано використовувати золу-винос як активну мінеральну добавку. Таку добавку можна отримати після хімічної активації золи-винос (ЗВ) розчином червоного шламу. Активация ЗВ призводить до збільшення міцності зчеплення цементного каменю із ЗВ, що призводить до покращення основних експлуатаційних властивостей будівельних виробів.

As a result of analytical studies, it was found that the largest amount of industrial waste is generated by enterprises of the mining, metallurgical and thermal power industries. Technogenic industrial waste disrupts the ecological balance in the natural environment and is a source of environmental pollution [1-2]

The use of industrial and household waste in the construction industry will allow solving the ecological, economic and social situation in Ukraine [3].

One of the most common wastes in Vinnytsia region is fly ash from Ladyzhynska TPP. The use of fly ash in concretes and mortars has a positive effect on their main physical and mechanical properties. Firstly, the average density of construction products decreases compared to products made from natural raw materials. Secondly, due to the significant hydraulic activity of fly ash, the heat treatment time is reduced and 10-15% of cement is saved [4-5]. Replacing part of the cement with fly ash leads to a decrease in the water consumption of the concrete mixture [6]. A moderate ash content in the mixture increases the water resistance of the concrete and reduces the open porosity of the concrete [7].

The second common industrial technogenic waste is red sludge from the Mykolaiv Alumina Plant. A very important feature of red sludge is its alkaline reaction and its finely dispersed structure. Red sludge is characterized by a constant chemical composition [8], which is very important for its use.

Scientists from VNTU proposed using fly ash as an active mineral additive. Such an additive can be obtained after chemical activation of fly ash (FA) with a solution of red sludge. Activation of FA leads to an increase in the bond strength of cement stone with FA, which leads to an improvement in the basic operational properties of construction products. The authors in their studies [9] established that the water absorption of concretes on activated fly ash decreases depending on the activity of the alkaline medium of the red mud solution.

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