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Ash deposits CHP-as an additional source of raw material for construction production(Article)

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Issues related to the rational processing of industrial waste and the protection of the environment are of particular importance. The prerequisite for writing this article was the ecological situation in Kazakhstan. Currently, many industrial enterprises have accumulated and continue to accumulate man-caused waste of production processes that not only pollute the atmosphere and, washed away by rain and snow, pollute the water basin of nearby areas. The work of CHP is one of the main polluters of the environment, mainly the air basin. CHP plants operating on traditional types of fuel contribute up to 30 % of the volume of harmful emissions of the atmosphere, pollute the land and water with combustion products and sewage. Technogenic wastes occupy hundreds of thousands of hectares of fertile land. In them, the content of nonferrous metals reaches up to 5 %, iron up to 45 %, in addition, some of them contain noble metals. The bulk of this waste is siliceous materials, which are the main source of building materials. In Kazakhstan, as yet, they have not been engaged in the utilization of ash, these are technogenic waste from the thermal power station. Known methods of processing such raw materials do not fully comply with modern requirements of scientific and technological progress. Dumps of ash and slag materials occupy large areas, and their content requires significant operating costs, which affect the increase in the cost of production of energy. They are a source of environmental pollution, present a danger to public health and a threat to the plant and animal life of the surrounding areas. Especially dangerous are ash dumps located near water basins (rivers and lakes), because of the possible breakthrough of dams. Effective utilization of coal energy coal plants can help significantly reduce the negative impact on the environment and improve the economic performance of the enterprise. In general, ash is widely used in various industries and has good market prospects. There are available technologies for ash utilization, some of which are widely used commercially. At present, the main quantity of ash is used in the construction industry - this is the production of cement, bricks, cellular concrete products, slag blocks, lightweight aggregates, roofing material, expanded clay, construction of dams for ash dumps, construction and repair of roads. The use of ashes and slags of CHP as building materials is the most ambitious direction and can solve the problem of building materials shortage in the regions of Kazakhstan in the future. Due to the use of ash waste, we can save up to 30 % of cement and more than 50 % of natural aggregates, thereby reducing the thermal conductivity of concrete will reduce the mass of buildings and structures. To attract investments in order to increase the level of processing and use of ash waste, it is possible to use interest in the purchase of ash and slag from the thermal power stations of Kazakhstan in those Western European countries and the Middle East, where there are not enough sources of mineral raw materials in sufficient quantities. The solution of the above problems is necessary to increase the level of utilization of ash waste with a view to reducing their accumulation, improving the environmental situation in the vicinity of the CHP plant, as well as receiving income from the sale of products produced on the basis of ash waste.