

EXPERIMENTAL RESEARCH OF PROPERTIES SUBSTITUTE MINERAL POWDER MADE FROM THE SEDIMENT SLUDGE COMPLEX TREATMENT FACILITIES

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The properties of experimental substitute mineral powder (which is a part in the production of asphalt mixtures and organic-mineral mixture) manufactured using heat treatment sludge from the activated sludge treatment facilities m. Chernihiv.

Experimental mineral powder, organic-mineral mix sediment sludge area, physical and mechanical properties.

One of the biggest environmental problems including Ukraine and Chernihiv areas of contamination are waste [1-4]. Particular attention cause disturbed land - land that lost its economic and ecological value through disturbance of the soil as a result of industrial activity. For Chernihiv disturbed land up thousands of acres, and also increases the number of degraded lands. So, if in 2009 the number of degraded land was 3.9 hectares, in 2011 their number increased to 4.35 thousand. Ha [4]. Much of the territory occupied precipitate formed after aeration in biological wastewater treatment and sludge transported to the card (sludge sites). A significant proportion of the territory are contaminated areas of waste obtained after sewage treatment - Sewage mules or sewage sludge. Sewage sludge obtained as a result of defending his cards on sludge, which occupy large areas and are not used in the land sector (Figure 1).

There are various research areas for disposal OMM and reduce sediment busy areas (silt sites). Hypothetically areas actively discussed in the literature [5-13] is used in construction and agriculture, but it is known that precipitate may contain a variety of toxic components, which are at various stages of the chain of recycling sludge maps poorly studied.

The presence of toxic sludge components can be nivelirovana during its thermal processing and obtaining material for reuse in road construction. Requirements to materials traditionally used in road construction, there are certain requirements, in particular organic mixture should have the following properties (Table 1)

An urgent task is to study the properties of building materials derived from the use of treated sludge. Known for information on the use of additives for the manufacture of asphalt samples [6], and the possibility of using sediment silt sites for the production of organic pavement mixture (OMC) has not been investigated.

The purpose of research - to receive experimental samples of thermo-treated sediment silt sites, make this material pavement samples with OMC and explore their physical and mechanical properties.

Materials and methods of research. For this study sediment sludge (AM) complex treatment plants (WWTP) m. Chernihiv was thermally treated in a muffle furnace-8 PM at $t = 500$.

The results (given the fact that the replacement of mineral powder treated waste treatment plant brings economic, environmental and social impact) indicate the possibility of use as additives (substitute mineral powder) deposit of silt sites, given that the sediment sludge does not degrade the quality of organic -mineralnoyi mixture, and the use of sludge activated sludge designed to save mineral powder in an amount of 50 to 70 kg per tonne of CBOs, engaged reduce waste - sludge sludge - territory.

Conclusions

1. The established values of the investigated experiment-tailed organic mixture and the comparison of regulatory requirements:

- water saturation = 4.6 - 4.8%; (Meets standards)
- strength: a) at $t = 20$ ° C is 4.7 - 6.0 MPa (not standard <1.8 MPa)
b) at $t = 50$ C is 1.7 - 1.9 MPa (not standard <1.0 MPa)
- water resistance coefficient = 0.88 - 1.03 (not standard <0.7)

2. Study the properties of substitute mineral powder (which is a component of various road surfaces) and take account of the value of output and the proposed

material revealed the possibility of using sludge treating sludge as a way of recycling and reuse of OAM in road construction.