INFLUENCE OF FLASH ASH ON PROPERTIES OF FOAM CONCRETE

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Annotation

Based on the analysis and laboratory experiments, it is preliminary possible to conclude the use of foam concrete with fly ash.

Key words: strength, fly ash, foam generator.

Lightweight foam concrete is one of the latest innovations in concrete technology in civil engineering, which can be used as an environmentally friendly material and is suitable for thermal insulation. Foam concrete contains fine sand, cement, water and foam without using a coarse aggregate [1].

Foam concrete is produced by adding foam to the mixture. The function of foam is to create air voids in the mixture, which makes the weight of concrete lighter. The foaming agent is diluted in water, and then air pressure is applied using a foam generator to produce foam.

Fly ash used as a filler in foam concrete not only saves resources, but also improves the properties of foam concrete. In this article, the thermal properties of fly ash foam concrete were studied during experiments, and the results were [2,3,4,5]

The effect of fly ash on the strength of foam concrete is studied in this article. The dry density of the foam concrete used in this experiment is 600 kg/m3, which is mainly used in foam concrete to conserve heat in construction [6,7,8]

For more efficient use of fly ash of solid household waste for the development of new foam concrete building materials, various proportions of fly ash are studied, and this article analyzes the dry density, mechanical characteristics and appearance of the microstructure of foam concrete of different ages [9].

For experimental studies, the Portland cement of the Kuvasaycement plant of the PC400 D20 brand, the composition of foam concrete (Tables 1, 2), the thermal insulation brand and the structural foam concrete were used M800[10].

By experimentally examining various compositions of foam concrete, high efficiency indicators of the components were observed with the content of fly ash structural foam concrete with fly ash were investigated by manufacturing 2 series of twin prism samples measuring 4x4x16 cm. The first series is control samples, the second is from fly ash. The test periods are 1, 3, 7, 14 and 28 days after hardening. The test results are presented in Table 3. [11].

Table 1 Laboratory composition with sand thermal insulation and thermal insulation structural foam concrete mixture

№	Name of the material	The composition of the foam concrete mixture, kg	
		1 м^3	control tests for 5 liters of kneading
1.	Cement	300	1500
2.	Sand tailcoat. 0-5 mm	300	1500
3.	Foam	50	250
4.	Water, l	160	800

Table 2 Laboratory composition with fly ash thermal insulation and thermal insulation structural foam concrete mixture

№	Name of the material	The composition of the foam concrete mixture, kg	
		1 м^3	control tests for 5 liters of kneading
1.	Cement	300	1500
2.	Fly ash	300	1500
3.	Foam	50	250
4.	Water, l	180	900

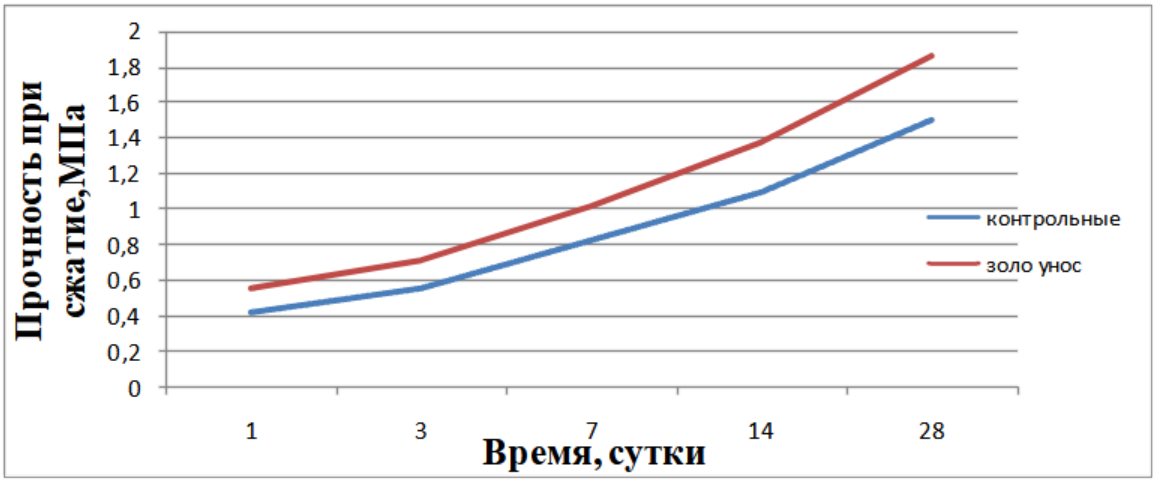
The introduction of thermal insulation and thermal insulation structural foam concrete fly ash increases the strength of thermal insulation and thermal insulation structural foam concrete at all times of hardening.

Table 3 Results of the study of compressive strength thermal insulation thermal insulation structural foam concrete

№	Name of the samples	Average density, kg/m3	Compressive strength of thermal insulation and thermal insulation structural foam concrete (MPa) in age and its increase (%), day				
			1	3	7	14	28
1	With sand	800	0.42	0.55	0.82	1,1	1.5

			100	100	100	100	100
2	With fly ash	850	0.56 130	0.72 130	1.02 124	1.38 125	1.86 124

Figure 1 Effect of fly ash on compressive strength of thermal insulation and thermal insulation structural foam concrete



Conclusion. Thus, experimentally examining various compositions of foam concrete, to obtain increased strength of foam concrete with the addition of fly ash.

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