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HIGH-PERFORMANCE CONCRETE BASED MINERAL ADDITIVES

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ANNOTATION. *Research is shown, a literature review of various bibliographic sources on the use of additives of wollastonite and metakaolin for high-performance-concretewas conducted. Influence of additives among themselves and their influence on the properties of high-performance-concrete is analyzed.*

KEY WORDS. high-performance-concrete, complex modifying additives, metakaolin, wollastonite, composites.

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I. INTRODUCTION

In modern construction most technology, economic expedient and universal way of the regulation characteristic building mixtures, solution and concrete is an using different modifying additives. Changing them certain portion of the cement or using as additives, possibly get the more steadfast systems with perfected characteristic [1-3]. Industry of the building materials in connection with deterioration of the ecological situation, mastering region with aggressive ground water and ubiquitous using concrete product on manufacture factories, actively increases use a concrete on base complex modifying additives half-functionalactions.

Significant volume of the studies is organized for present-day in the field of using modifying additives on base metakaolin (MTK) [4]. B, is considered possibility of the reception complex modifying additives on base metakaolin for shaping cement stone with high operatingcharacteristic, explored influence of the additives on structure and phase composition cement stone. In have recently begun to study metakaolin, as active dispersion additive for high-quality concrete [5]. Unlike other mineral additives, metakaolin presents itself thermoactivated fluosilicate material, having high pozzolan characteristic. Metakaolin on its activities can be shall compare to micro-silica. [6]

II. MATERIALS AND METHODS:

Also one experiment is organized not with using wollastonite in complex with other additive. Wollastonite can be an efficient additive-filler, needle of form crystal of wollastonitedefines its using as reinforcing component of composition material with different matrix, including as alternative asbestos-cementsince unlike asbestos-cementof wollastonite is not a carcinogen [7]. With physic-chemical standpoint, reinforcing effect, is caused that that roughness surfaces wollastonite possess high chemisorption characteristic, and crystals wollastonite are a center of the formation association with particle mixture, «constraining» mobility last comparatively each other [8].

On the grounds of got positive experience of the using the complex additives with participation such component what wollastonite and MTK, on our glance, perspective consideration possible synergetic result of the manifestation of the complex work these materials in modified high-performance-concretefor improvement their characteristic.

As a result of righteous review of the literary sources are worded: subject, object, purpose, problems and methods of the studies.

The Subject – high-performance-concrete, modified additive wollastonite and MTK.

The Object of the study – experimental-statistical dependencies of the influence wollastonite and MTK on structure and characteristic high-performance-concrete.

The Purpose of the study – optimization characteristic high-performance-concreteadditive half-functional of the action: metakaolin and wollastonite.

For achievement delivered purposes necessary to solve the following tasks:

- conduct the planned experiment and build experimental-statistical models of the influence of the additives wollastonite and MTK on structure and characteristic high-performance-concrete.

-conduct the optimization of the composition concrete mixture and high-performance-concrete for floor.

III. RESULTS AND DISCUSSION:

The following factors varied In experiment: contents VMK = x4 = (6±4%), VL= x5 = (5±5%), S-3= x6= (1±0,5%)и specific surface of the filler S1=300м^2 on kgs – V1; S2=450 m^2 on kgs - V2; S3=600 м^2 - V3.

On result called on experiment is calculated experimental-statistical models of the type:

The General type of the model:

Y=	$A_1v_1+A_{12}v_1v_2$	$D_{14}v_1x_4+D_{15}v_1x_5+D_{16}v_1x_6$	$B_{44}+B_{45}x_4x_5$	
	$A_2v_2+A_{13}v_1v_3$	$D_{24}v_2x_4+D_{25}v_2x_5+D_{26}v_2x_6$	$B_{55}+B_{46}x_4x_6$	(1)
	$A_3v_3+A_{23}v_2v_3$	$D_{34}v_3x_4+D_{35}v_3x_5+D_{36}v_3x_6$	$B_{66}+B_{56}x_5x_6$	

ESM influences wollastonite and metakaolin with account of the specific surface of the filler on crack-resistance of high-performance-concrete:

Kc1=	$0.6v_1+\cdots\cdots$	$\cdots\cdots+\cdots\cdots+$	$\cdots\cdots+\cdots\cdots$	
	$0.63v_2+0.46v_1v_3$	$0.08v_2x_4+\cdots-0.06v_2x_6$	$-0.18+\cdots\cdots$	(2)
	$0.54v_3+\cdots\cdots$	$\cdots\cdots-0.4v_3x_5+\cdots\cdots$	$\cdots\cdots+\cdots\cdots$	

CONCLUSION

Calculated ESM (2) describes the influence of the additive VMK and wollastone on factor of charity MZB. The Analysis of the model has shown that wollastone (x4) and VMK(x5) capable to raise demencity. The Necessary further analysis of the joint influence of these additives on improvement characteristic and parameter of the structure MZB.

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