The Importance Of Microsilicate As An Active Mineral Supplement In Cement Production

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ABSTRACT

In the scientific laboratories of the world's leading research centers and universities, much research is underway to study mineral binders and materials based on them, reduce carbon dioxide emissions to the environment in the cement production process, and make the most of the use of local raw materials and the activation of waste, chemical additives and mechanics in industrial cement production. In this regard, it is important to develop optimal compositions of low-demand water bindings, energy-efficient building materials that allow you to ensure the transparency of the portland cement clinic in the production of cement using local raw materials and technological waste, as well as surfactants. in scientific research in this regard.

Keywords:	Low-demanding cement, microcremny, superplasticating water.

Log in. One of the most common ways to change the cement structure is the introduction of highly active microflates - microsilicate, metacaolin, etc., based on active amorphous oxides that are part of composites [1, 768-b].

Initial research studies discussed found that partial replacement of cement with high-quality ash would yield good results. That is, when pure portland cement was used to obtain the same 28-day durable concrete, when large aggregates of cement were replaced by flying ash, the amount of water decreased relative to the volume of the concrete.

Increasing the long-term durability of reinforced concrete is mainly due to its smooth, spherical particles, as well as an increase in the share of pastes. When uchikava looks at rheological studies of concrete with flying ash, flying ash particles larger than 45μm are unsuitable for mixing, but can be used after grinding them at the mill [2, 349 – b].

The main part.A comparative study of microcremny from 18 sources showed significant changes in the composition and properties of the material. One of the microsilicates studied is 23% SiO2 and has a specific surface area of 7500 cm2/g. The same study showed that most of the microcremnium from glass is 98-99.5% of the total diffraction intensity and is located at 0.405 nm, which is considered to be viscous. The most common

crystalline substances are KS1, quartz, metal and iron silicide. [2, 364-b].

The effect of reotechnological parameters on bonding power, such as the type of cements that require less water, the amount of components, the specific surface area, and the demand for water, is listed in Table 1.

Table 1

Effect of superplastifier on the thickness of cement hammock norms and the time of removal

T/R	PS Klinker miqdori, %	Gypsum %	JK-02 quantity, %	Comparative surface surface, sm^2/g	Water-cement ratio, %	Alloy period, hour-min	
						start	ohiri
1	95	5	0	3200	25,6	1-32	3-50
2		5	0,6	5000	19,6	0-25	1-30
3		5	0,8	5000	17,0	1-25	3-35
4		5	1,0	5000	16,3	1-30	4-35

Microsilicate as mineral supplement for concrete is characterized by the smallest particle size and high activity. In the absence of additives that reduce water, the percentage of replacement in cement can be limited in practice with high water demand (about 5%), but this value can be increased using superplastic substances (table 1). In such mixtures, when the v/c ratio is reduced to 0.2-0.3, concrete with high pressure resistance can be obtained, and the cement dough's demand for water is reduced. (Figure 1).

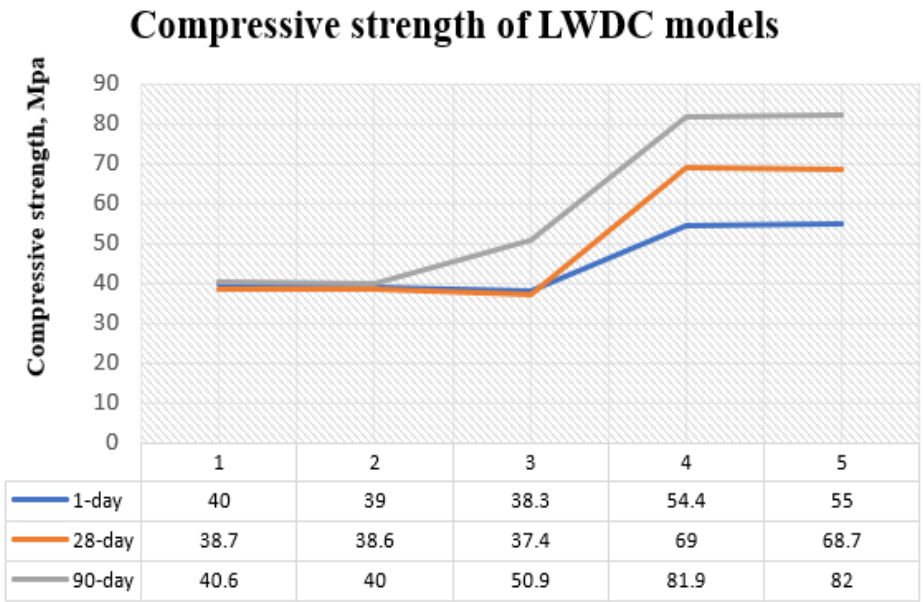

Figure 1: The pressure strength of LWDC.

Figure 1 shows the pressure strength of LWDC, which can be seen to be superior to ordinary portland cement.

Tratteberg used microsilicate as an additive for cement and showed significant putsolanical activity within 7-14 days after being mainly mixed with water and found a correlation of approximately 1,1 between CH and reactive and Ca/Si. Some additional

studies have shown that putzsolan reactions occur within hours, while the initial stage of alite hydration is accelerated.

X-ray phase analyses show that the Ca/Si ratio decreases significantly as the amount of microsilicate contained in C-S-H increases. For a cement product that contained a 30% crystalline slag surrounding the clinker grains, Regur and others had a ratio of 1.70% for cement containing 25% slag and 5% microsilicate. A similar decrease was observed in cement containing granular slag or flying ash. That is, the Ca / Si ratio for cement paste, which is stuck for 200 days, is 1.3 and 0.9 respectively, a value of 13 and 28% per cent. Uchikava found Ca/Si value of 1.43%, aluminum in bulk, 0.33% Na20 and 0.32% K2O and microsilicate 10% [2,365-b].

The authors showed that a new generation of binders is a combination of cement clinker, silicon containing minerals (building sand, granular high furnace shlaki, coal burning flying ash, etc.) and a number of water-soluble organic matter. These include microparticles around hydrationally active particles of klinker minerals and other amorphous silicon substances, their interaction with the dispersion environment. An example is the process of perfectly moisturizing the surface of the powder [3]. As a result, it is necessary to reduce the amount of water to obtain a normal consistency dough. The maximum approach of a part of the disperse phase to a volume unit creates special prerequisites for the formation of chemical and physical-chemical processes [4]. Under such conditions, the distance between the particles is minimal, since the particles of the disperse phase are densely located and the free space is filled. The very fine particles of the mineral supplement interact with the hydrolysis ca(ON)2, which leads to the formation of a dense structure and the synthesis of additional components of low-base calcium hydrocycles.

The authors show that the slow initial hydration of cement, which requires less water, contributes to the formation of a cement stone structure that reflects the interconnection of several formations specific to low-base calcium hydrocycles. However, the reliable adhesion and bonding of fine fiber calcium hydrocycles is achieved due to the maximum closeness of the solid phase with a reduced content of the dispersion environment. Microsilica has a much higher resistance to sulphate than ordinary cement stone with cement stone, especially active silicate supplements, which require less water. This is thought to be due to the formation of the putzsolan reaction between SiO2 and lime and the decrease in their content over time.

Thus, the developed modern low-water cements differ significantly from traditional portland cements and can be the basis for the creation of a number of cements in terms of phase formation, structure formation, hardening kinetics, high density and sulphate resistance.

Superplasticators are also called tools that reduce the demand for strong water. A significant reduction in the S/S ratio they cause, especially if they contain microsilicate, allows for the production of high-powered concretes. On the other hand, the use of superplastic agents in ordinary water allows you to obtain cast concrete, which can be leveled by itself and be erected by such methods. Commonly, s / ts is caused by the fact that large-impact supplements can be used at high concentrations (more than 1% by cement weight) and do not cause additional delays or air input. When used at the same concentrations, water-reducing additives are identical to the water reduction rate achieved [2, 419-bet].

The abstract. Changes in the amount of microcrysmia in bark sand were found to be a parameter that significantly affected LWDC activity. Barhan sand was found to have the benefits of obtaining, properties and production technology of LWDCs based on microcremny supplements. Analysis of consistency charts for optimizing the composition of LWDC and finely grinding cements found that the factor most commonly affecting the stability of the connector was the amount of silica sand.

Literature

1. Batrakov V. G., Modifitsirovannie concrete. Theory and practice. Trail 2nd, pererab. i dop- M.1998.-B. 768.

2. Taylor H. F., Chemistry cement. M: Mir, 1996. – 560 B.C.E.
3. Babayev Sh.T. Visokoprochnie concrete on the basis vyajushix nizkoy vodopotrebnasti. Promishlennost stroitelnix materials. Seriya 3. Promishlennost sbornogo jelezobetona. VNIIESM. 1990. Vip. 4. B. 16-30,
4. Krikunov O.K., Bashlikov N.F. Effectiveness vyajushix nizkoy vodopotrebnasti and betonov na ix osnove. Concrete and jelezobeton. - M, 1998 - No 6. - B. 3-6.
5. Sustainability Tarts, Kline J., Kline C., «COP21 and Cement`s CO2 Challenge», March 2017 International Cement Review.
6. CEMBUREAU – cement and energy RYNKI IN Europe and mire. Cement and yego primenenia. 2019. No. 3. B. 20-27.
7. Komarov S.M. Civilization starevshika. Chemistry and jizn XXI veka. 2013. No. 12. B.C.E. 2-7.
8. Chernivtsi P.I. Complexoye ispolzovaniye mineralnogo sirya i ekologiya. – M.: ASV. 1994 – 265 b.
9. Leytan F. Implementation principle ustoychivogo razvitiya na sementnom zavode Cajati. Cement and yego primenenia. 2018. May-June. 44-46 B.C.E.