

Shumeiko V.
Shabanova H.
Logvinkov S.
Korohodska A.
Pitak Y.

Shumeiko V. Electrokinetic and Microstructural Peculiarities of the Portland Cement Hydration with Microadditives / V. Shumeiko, H. Shabanova, S. Logvinkov and other // Ce/papers. – 2023. – Vol. 6. - No. 6. – P. 101–105.

The results of given studies included a comparison of changes in temperature, redox potential, OH-ions concentration and pH values in the Portland cement-water-additive system depending on the hydration time and features of hydration processes in the microstructure of the cement stone. The studied additives were selected taking into account the prospects for their use in the complex modifiers compositions for cement-containing building materials. The results of electrokinetic measurements are presented and regularities and features of the influence of each studied additives on the processes of hydration structure and phase formation in Portland cement paste in the early stages of hardening are determined. The microstructure and fracture surfaces of cement stone samples formed during cement paste hardening with the optimal content of additives and features of hydration processes of cement stone were studied. The features of the mutual arrangement of individual phases in crystalline hydrate aggregates of cement stone, as well as the nature of the porosity of its microstructure, were investigated.

Key words: portland cement, cement stone, water-additive system, hydration process, microstructure, redox potential, OH-ions concentration, pH value