APPLICATION FEATURES OF ANHYDRITE IN RUSSIAN CONSTRUCTION INDUSTRY

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Abstract

It is known that natural anhydrite is anhydrous calcium sulfate, has feebly marked astringent properties.

Statistical analysis of the physic-chemical properties of fluoro-anhydrite, especially binding properties, were studied. It was determined that 50\% of waste samples showed resistance of over 7.5 mPa (resistance corresponds to the strength of water anhydrite binder, showing compressive strength not less than 7.5 mPa after solidifying during 28 days); 75\% of samples - over 5.0 mPa; 95\% of samples - over 1.0 mPa, whereas 5\% of all samples were impractical as binders. To produce fluoro-anhydrite binders by means of technogenic anhydrite sterilization, mechano-activation and chemical modification, both compounds and corresponding resource-conscious production technology were developed for the following construction products: anhydrite slag blocks, wall materials in cast-in-place concrete modulus, anhydrite finish sheets "PANO", and, due to their quality, exceed "Knauf" GKL and GVL sheets, and dry building composites.

Later, JSC "Galogen", Perm (renamed as JSC "Galopolymer") conducted similar statistical analysis in defining binder properties of technogenic anhydrite. Perm technogenic anhydrite showed the following results: 20\% of samples had resistance of 12 mPa; 90\% of samples - 10 mPa; 100\% - 7.5 mPa. This technogenic anhydrite property furthered the possible production of above-mentioned products based on Tomsk technogenic anhydrite.

The properties of Ulba Metallurgical Plant (Kazakhstan) fluoro-anhydrite (JSC "UMP") are studying, and, in particular, the statistical analysis of anhydrite binder properties. Resistance indexes were lower than those of Tomsk and Perm technogenic anhydrite: 65\%
of samples had resistance of 5.0 mPa; 78% of samples – 2.5 mPa and 100% of samples-
resistance of more than 1.0 mPa. Thus, are conducting new experiments in improving the
binder properties of above-mentioned material.