

## Modifying of Portland cement for modern foam concrete technologies

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### **Abstract**

The increasing of residential construction against the background of rising energy costs is making the problem of ensuring energy efficiency of housing more urgent. Exist steady trend of increased demand for structural and thermal insulation products and local energy efficient wall materials for low-rise construction. One such material is non-autoclaved foam concrete. The results of investigation of the effect of foaming agents on the setting time and strength of Portland cement are presented. It was established that the foaming agents increases the setting time of Portland cement and reduces the strength of cement paste at early age of hardening by 50-62%. The least negative effect on cement performance is observed when Centripor foaming agent is used. The hardening accelerator was used to compensate negative effect of the foaming agent on the properties of Portland cement. The accelerator provides high strength development of the Portland cement and increase the strength of the cement paste with the foaming agent by 14-27%. The modifying of Portland cement with hardening accelerator and foaming agent provides increasing of the degree of hydration by 1.2 time compered to Portland cement with foaming agent. © 2023 Author(s).