

Alkali-Activated Binders and Their Environmental Benefits: A Literature Review

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Résumé

The manufacture of cement requires the use of raw materials and fuel, and generates significant carbon dioxide emissions, prompting the exploration of cement alternatives with less environmental impact. In this context, alkali-activated cements have attracted the attention and interest of researchers as an alternative to reduce negative effects. Research and work indicate that alkali-activated materials have the potential to become an alternative binder to portland cement. The result is high compressive strength, fire resistance and acid resistance. Many studies examine the effect of portland cement combined with geopolymer pastes produced from low-calcium fly ash from the power station, on the development of mechanical strength under curing conditions, they concluded that the combined materials obtained better resistance results, several researchers in their study of the alkaline activation of blast furnace slag, concluded that thermal hardening had a benefic effect on strength, and that the limiting hardening temperature at which strength reached its best result was 80°C. The intermediate calcium content system is due to the combination of low and high calcium precursors, in which N-A-S-H and C-A-S-H gels coexist, so the choice of activator depends on the nature of the material composition. The aim of this article is to present a literature review on: alkaline activation of binders and thier environmental impact. En conclusion, le FTP-dust peut être efficacement valorisée dans les matériaux cimentaires et géopolymères, ouvrant la voie à des solutions de construction écologiques et durables.

Mots Clés: *Alkali-activated cement, Geopolymer, Alkali-activation, Geopolymerization.*

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