ID 16

Using small amount of metakaolin and lime to activate fly ash paste

Uporaba majhne količine metakaolina in apna za aktiviranje EF pepelne paste

PROF.DR. J. M. KHATIB[1], ASSOC.PROF.DR. SUNNY O. NWAUBANI[2], C. HALLIDAY[1]

[1] *University of Wolverhampton, Faculty of Science and Engineering, Wolverhampton, UK*

j.m.khatib@wlv.ac.uk

[2] *Anglia Ruskin University, Faculty of Science and Engineering, Cambridge&Chelmsford, UK*

sunny.nwaubani@anglia.ac.uk

Abstract

The use of non-cement binder has been investigated. The cement was fully replaced with large amount of fly ash. Other materials were metakaolin and lime. The work was conducted on paste. Some of the physical and mechanical properties are reported in this work. These included density, compressive strength and ultrasonic pulse velocity. Two fly ash pastes were prepared, one without metakaolin and one with small amount of metakaolin. 10% lime (by weight of dry materials) was added to both pastes. The water to binder materials was maintained constant for both pastes. The presence of metakaolin increases the compressive strength compared to the paste without. The ultrasonic pulse velocity values showed similar trend.

Key words: fly ash, geopolymer, high LOI fly ash, lime, metakaolin, paste.

Povzetek

Raziskana je bila uporabo ne-cementnega veziva, pri čemer je bil cement v celoti nadomeščen z večjo količino elektrofilterskega (EF) pepela. Druga uporabljena dodatka sta bila metakaolin in apno. Raziskava se je nanašala na materiale v obliki paste. V članku so prikazani rezultati nekaterih fizikalnih in mehanskih raziskav, ki obsegajo gostoto, tlačno trdnost, in ultrazvočno hitrost. Izdelani sta bili dve EF pepelni pasti, ena z veliko in druga z malo količino metakaolina. V obe pasti je bilo dodano 10 ut. % apna. Vodo-cementno razmerje je bilo v obeh primerih konstantno. Prisotnost metakaolina povzroči večjo tlačno trdnost paste. Podoben trend je opaziti v primeru ultrazvočne hitrosti.

Ključne besede: elektrofilterski (EF) pepel, geopolimer, visok LOI EF pepel, apno, metakaolin, pasta.