

Accepted Manuscript

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I. Garcia-Lodeiro, Nassima Boudissa, A. Fernandez-Jimenez, A. Palomo

PII: S0167-577X(18)31301-6
DOI: <https://doi.org/10.1016/j.matlet.2018.08.098>
Reference: MLBLUE 24809

To appear in: *Materials Letters*

Received Date: 30 December 2017
Revised Date: 13 July 2018
Accepted Date: 19 August 2018



Please cite this article as: I. Garcia-Lodeiro, N. Boudissa, A. Fernandez-Jimenez, A. Palomo, Use of clays in alkaline hybrid cement preparation. The role of bentonites, *Materials Letters* (2018), doi: <https://doi.org/10.1016/j.matlet.2018.08.098>

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USE OF CLAYS IN ALKALINE HYBRID CEMENT PREPARATION. THE ROLE OF BENTONITES

Garcia-Lodeiro I. ⁽¹⁾, Boudissa Nassima⁽²⁾, Fernandez-Jimenez A. ⁽¹⁾ and Palomo A. ⁽¹⁾

(1) Eduardo Torroja Institute (CSIC), Madrid, Spain

(2) Université de Boumerdes, Algeria

Abstract

‘Portland-alkaline’ hybrid cements (HYC), the latest generation of alkaline cements, are multi-component systems consisting in blends with high mineral addition and low portland cement contents. In the presence of alkaline activators, these systems set and harden into materials with excellent cementitious properties. This study explored the 2 and 28 day mechanical strength of a series of hybrid cements comprising blends with different proportions of portland cement (OPC) and dehydroxylated bentonite (BT). The reaction products were characterised with XRD and BSEM/EDX. The presence of an alkaline salt activator hastened reaction product precipitation and favoured strength development.

Keywords: *alkaline activation, geopolymer, hybrid cements, mechanical strength, bentonite*

1. INTRODUCTION

Portland-alkaline hybrid cements (HYC) are multi-component systems containing a large fraction of mineral additions and a small proportion of portland cement [1]. In the presence of alkaline activators, these systems set and harden into materials with excellent cementitious

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