



CHARACTERIZATION OF ECOLOGICAL MACRO DEFECT FREE (MDF) CEMENTS BY INFRARED SPECTROMETRY

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Abstract

The structural characterization is very important in evaluating the performance and the durability of Macro Defect Free (MDF) cements. These are cement-polymer composites characterized by high value of flexural strength. In spite of such remarkable mechanical properties, their use on large scale has been limited due to insufficient moisture resistance.

In this study the structure alteration of MDF cements under humid conditions has been investigated, in order to better understand the complex phenomena that occur at inter-phase.

FTIR spectroscopy in reflectance mode has been used. Analyses on the MDF surface and on MDF bulk, reflecting surface and mass composition, have been performed. New absorption bands and the shifting of the others have been noted and discussed.

On the basis of the test results it is revealed that FTIR spectroscopy is a suitable technique that allows emphasizing the differences between the MDF cements structure in bulk and at surface.

Key words: FTIR spectroscopy, macro defect free cement, microstructure, moisture sensitivity

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