

ABSTRACT PAPER 94

A Study on the Effect of Granulated Powder on bending Strength (MOR) and Water Absorption of Floor Tile" monocottura "

Authors:

Gholam-hossein Mahdavi, Sirus Arjmandnia, Masoud Fouladkar
Based in R&D Unit, Mashhad Firoozeh Tile Co, Iran
Email:fouladkar@yahoo.com

Abstract

In order to study how the particle size distribution affects on bending strength and water absorption of monocottura tiles, a series of floor-tile bodies with certain scopes of granulation were examined through powder compression. The powder used in making body biscuits was obtained from a given formula at fixed level of moisture by a spray dryer. It was then formed through powder compression at fixed level of pressure. The examination of bending strength and water absorption in the monocottura tiles indicate that each scope of powder size can be significantly effective on creating certain properties in the final body. Moreover, with regard to tile bodies constructed at different ratios of various powders, it was found out a variety of granulations can be employed so as to achieve desirable properties in the final tile body. Relocation and motion of powder particles during formation of a tile body can take place through motive force from compression, which is regarded as a major factor contributing to congestion in biscuit body. Increased compaction in a biscuit is accompanied by reduced porosity and extended grain boundary, which in turn remarkably contributes to better sintering in firing process and ultimately enhanced bending strength and reduced water absorption.

Keywords: particles Size distribution, bending strength, water absorption, sintering.