A Study to Assess the Efficiency of some Gap Filling Materials for Ancient Ceramic Tiles

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Abstract:

This research deals with the study of some gap filling materials for ancient ceramic tiles. In addition, evaluating them in terms of efficiency, even with the passage of long periods, and if exposed to different atmospheric fluctuations, as the Complete of missing parts of ceramic tiles is one of the most important stages in the treatment and maintenance stages. Because it is a kind of preservation of pottery and ceramic relics of damage and shattering that collected or parts of which were lost. In addition, the supplement material must meet a set of basic conditions, including that it has a stable chemical composition, amenable to formation, amenable to additives and colorants, compatible with different environmental conditions, and that it also has an appropriate density. The tiles investigated and analyzed by; Digital optical microscope USB, X-ray diffraction analysis XRD and Scanning electron microscope (SEM-EDX). It was necessary the selected complementary materials experimented and study to identify and measure the different physio-mechanical properties of them such as (porosity - density - water absorption - pressure resistance - shrinkage) before application to reach the best mixtures that can used in the process of completing ceramic tiles. Among these, materials the mixture: Kemaboxy 150 + modern ceramic powder + fiberglass, in addition to the mix: Araldite 1306 + modern ceramic powder + fiberglass. The mixture, which contained Kemaboxy 150, gave the most value for pressure resistance, porosity and water absorption. Moreover, it gave very good results in the process of completing the ancient ceramic tiles. That recommended using by restorers in the different sites.

Key Words:

Gap filling materials, Ancient ceramic tiles, Moldable, Compatible with environmental conditions, Kemaboxy 150.

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