

Nuovi consolidanti minerali

E' stato pubblicato su "Int. Journal of Architectural Heritage (n5, anno 2011, pp 717-736) l'articolo relativo allo studio effettuato in collaborazione dal Dott. Matteini, ricercatori del CNR di Firenze e di Roma ed il sottoscritto, su nuovi prodotti consolidanti minerali per materiali naturali ed artificiali carbonatici.

Inserisco il collegamento all' International Journal of Architectural Heritage da cui è possibile accedere a tutto l'articolo. L'abstract è visibile con "leggi tutto"

AMMONIUM PHOSPHATES AS CONSOLIDATING AGENTS FOR CARBONATIC STONE MATERIALS USED IN ARCHITECTURE AND CULTURAL HERITAGE:

PRELIMINARY RESEARCH

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Organic and inorganic consolidants display an unsatisfying behavior particularly in the case of artifacts highly porous stone in presence of soluble salts and water. Therefore, in this study of the mechanism for the consolidating action of ammonium oxalate, treatment with ammonium phosphate was considered. This product is very promising due to its high water solubility, absence of toxicity, and very low solubility of the reaction product, calcium phosphate.

Tests were conducted on two kind of limestone applying a cellulose poultice with 5% water solutions of the following agents: diammonium hydrogen phosphate (DAHP) (pH 8.0), ammonium dihydrogen phosphate (ADHP) (pH 5.6–6.0), and ammonium-dihydrogen phosphate (ADHP) equilibrated with NH₃ (30%) up to pH 7.0–8.0. application times of 4, 8, and 17 hours were used. The consolidating effect was evaluated with other parameters (water capillary absorption capacity, color variation), by comparison with the untreated samples and with the ammonium oxalate treatment. The results indicate a good consolidating efficacy, absence of significant color variation, and reduction of water absorption, making the ammonium phosphates greatly promising agents for the consolidation of artifacts made of porous carbonatic stones and plasters.