

Performance Evaluation of Boards Containing Calcium Carbonate and Zeolites

ABSTRACT

Housing materials that contain adsorbent materials may provide enhanced protection for enclosed objects by adsorbing environmental pollutants. Environmental pollutants include those from the general surrounding environment and compounds released by objects. Reduction of pollutant concentration in the storage micro-environment can significantly slow some aspects of artifact deterioration. This project directly compares the performance of mat boards, made with identical fiber furnishes, that contain either calcium carbonate, calcium carbonate plus zeolite, or neither. Acetic acid was chosen as the model environmental pollutant because it can be present as both an ambient indoor pollutant and a vapor-phase contaminant formed by in situ degradation of collection items, including paper and acetate film. Samples of the different types of mat board were exposed to varying concentrations of acetic acid vapors in gas-tight enclosures, and the adsorption quantitated using ion chromatography.

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