THE EFFECTS OF DESALINATION ON ARCHAEOLOGICAL CERAMICS WITH EVIDENCE OF USE

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Abstract

A preliminary investigation into the effects of desalination on archaeological ceramics from the Casas Grandes region in northern Mexico, with evidence of use as cooking pots, was carried out. Soluble salts extracted during desalination were identified by ion chromatography (IC) and inductively coupled emission spectroscopy (ICP). The results were related to local raw materials and the burial environment in the Casas Grandes region.

The extraction of other soluble components in the ceramics during desalination, such as organic materials used in the manufacture or present as a result of use, was investigated by analyzing dry residues of the desalination solutions. Fourier transform infra-red spectroscopy (FTIR), pyrolysis gas chromatography (Py-GC) and X-ray diffraction (XRD) were used to analyze the desalination residues.

Changes in the microstructure as a result of prolonged immersion in distilled water were examined by petrographic analysis and scanning electron microscopy coupled with energy dispersive X-ray spectroscopy (SEM/EDS) of thin sections prepared from sherds before and after desalination. The effect of desalination on the physical property of color was also examined.

The results of the experimental work suggest that desalination has significant limitations that need to be considered before its application as a conservation treatment for archaeological and ethnographic ceramics with deterioration due to salts.

The results of this research project have been published as "The Effects of Desalination on Archaeological Ceramics from the Casas Grandes Region in Northern Mexico", in the Proceedings of the Fourth Symposium on Materials Issues in Art and Archaeology, Cancun 1994 (Materials Research Society, Volume 352, 1995).

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