

POST-DEPOSITIONAL CHEMICAL AND MINERALOGICAL ALTERATION OF LATE BRONZE AGE CERAMIC ARTEFACTS (TRANSYLVANIA, ROMANIA)

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The study focuses on the post-depositional alteration recorded in the ceramic potshards found at the Bronze Age site of Ilisua, N Transylvania. The alteration processes are expressed by the formation of analcime, the re-hydroxylation and re-hydration of the matrix, the deposition of silica and the enrichment in P and S.

The analcime crystals show an angular shape, as they are newly grown at the expense of inclusions of volcanic glass shards. Alternatively, analcime may have been formed as well by the reaction of the vitreous ceramic matrix with the underground brines originating from Badenian salt diapirs occurring in the surroundings.

The re-hydroxylation process is reflected by the formation of smectite, while the re-hydration by the adsorbed molecular water is evidenced by the thermal analyses and the low total sum of electron microprobe analyses.

During the burial, thin layers of silica (opal?) lined the walls of pores and fissures. Rarely, the glassy matrix is slightly devitrified, probably also due to the burial in a humid climate of the area.

A high amount of phosphorus, ranging from 0.51 to almost 8% P₂O₅ as well as some Cl and S were identified in the matrix by microprobe and EDS, respectively. The relatively high amounts of phosphorus in the shards may be considered also as indication of burial contamination. Taking into account that the ceramic shards were discovered inside cremation tombs, it is most likely that phosphorus might at least partly originate from the dissolution of human ash by circulating groundwater. Partly, P might also originate from the soil during the burial. The chlorine content can be assigned to burial contamination due to brines, while sulphur might come from organic parts of the soil.