

Use of LA-ICP-MS for the analysis of archaeological samples

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Laser Ablation Inductively Coupled Plasma Mass Spectrometry as one of the most extensively evolving methods for minimally destructive analysis of cultural heritage objects has been used for the provenance determination of stone tool artifacts made up from porcellanite rock. By linking artifact to distinct geographical sources an information about the mobility of our ancestors is obtained.

A set of porcellanite artifacts originating from Central European archaeological localities and comparative source material was analysed to assess the provenance of an artifact. Emphasis was placed especially on the optimization of sampling procedure of porcellanite as relatively inhomogeneous material. Since laser ablation is a sampling method of surface analysis, the influence of artifact diagenesis, as a process influencing the chemical composition of an artifact matter, is discussed. The statistical evaluation using multivariate statistical methods is described.