

## GRAIN SIZE ANALYSES IN TIN-LEAD GLAZES BASED ON 2D-SECTIONS

A. Schwedt, J. Buxeda i Garrigós and M. Madrid Fernández

*Equip de Recerca Arqueomètrica de la Universitat de Barcelona (ERAUB)*  
*Facultat de Geografia i Història, Departament de Prehistòria, Història Antiga i Arqueologia,*  
*C/ de Baldori Reixac, s/n, 08028 Barcelona, Catalonia, Spain*  
*e-mail: [schwedt@iskp.uni-bonn.de](mailto:schwedt@iskp.uni-bonn.de)*  
*Tel.: +34-933333466 ext. 3192*

A problem in the archaeometric classification of Catalan Renaissance pottery is the fact, that the clay supply of the pottery workshops was centrally organized by guilds, and therefore usually all potters of a single production centre produced chemically similar ceramics.

However, analysing the glazes of the ware usually a large number of inclusions in the glaze is found, which reveal technological differences between single workshops. These inclusions have been used by the potters in order to opacify the transparent glaze and to achieve a white background for further decoration.

In order to distinguish different technological preparation procedures of the single workshops, at a Scanning Electron Microscope the chemical composition of those inclusions as well as their size in the two-dimensional cut is recorded. Based on the latter, a frequency distribution of the apparent diameters is estimated for each sample and type of inclusion.

Following an approach by S.D. Wicksell (1925), it is principally possible to transform the distributions of the apparent 2D-diameters back to those of the true three-dimensional bodies. The applicability of this approach and its practical problems are examined using different ways of kernel density estimation and Monte-Carlo tests of the methodology. Finally, it is tested in how far the obtained frequency distributions can be used to classify the pottery.

### References:

Wicksell, S. D., 1925, *The corpuscle problem*, *Biometrika* 17, 84 – 99.