

## MICRO SCANNING XRF, XANES AND XRD STUDIES OF THE DECORATED SURFACE OF ROMAN TERRA SIGILLATA CERAMICS

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The red glaze (slip) that characterizes the *Terra Sigillata* potteries, has greatly contributed to their success during the Roman period. The colour of the slip can in fact be partially explained by the microstructure (crystalline phases, grain sizes) and the physico-chemistry (compositions) of the ceramics, but the precise process of production and the origin of the process are still not fully known. In this work, we used a combination of different micro scanning synchrotron techniques to get a better understanding of the elaboration process and origins of these ceramics. The small (micron) size of the x-ray beam available at SSRL and ALS synchrotron sources, coupled with the use of a sample scanning stage allows to spatially resolve the distribution of the constitutive mineral phases related to the chemical composition and valence state of iron. A representative selection of slips including Italic, standard Gallic and mixture Gallic at the sample surface and for sample cross-sections has been studied. Sample surfaces were cleaned prior to chemical analysis and cross sections were obtained thanks to Focused Ion Beam apparatus available at CEMES, Toulouse (France). Thin slides will be prepared for transmission experiments. This work has been supported by a France – Stanford center Grant for the 2006–2007 academic year.

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