

## Study of the structural features of a glazed pottery sherd from Dion, Pieria

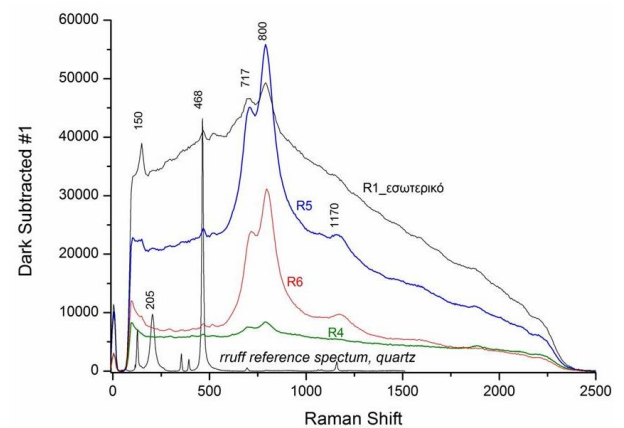
Small body fragment of a glazed bowl with vertical walls. It was made of brownish-red clay with lots of small inclusions, coated overall with a whitish slip, decorated on the outside with brushstrokes in olive green and brownish-yellow paint and finally covered, on both the inside and outside, with a transparent colourless glaze.



Outer surface



Inner surface



### Results

The overall evaluation of the analytical results derived from XRF and microRaman measurements has led to the following conclusions, regarding the manufacturing technique and materials used for the production of the particular object:

During the first stage of manufacture, the bowl was covered with a quartz based whitish slip.

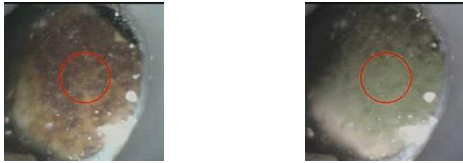
**Molecular structure investigation using microRaman spectroscopy:** Through micro-Raman spectroscopy quartz ( $465\text{ cm}^{-1}$ ) was identified as the main component of the white slip. The broad peaks 717, 800 and 1170 are attributed to the lead glaze.

During the first stage of manufacture, the bowl was covered with a quartz based whitish slip. Subsequently, after the first firing, brushstrokes in olive green and brownish-yellow paint that was mixed with lead glaze were applied on the outer surface (perhaps partly on the inside too; it is also possible that the bowl had additional decoration).

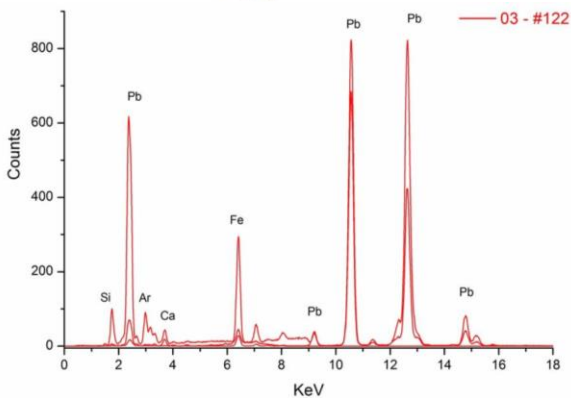
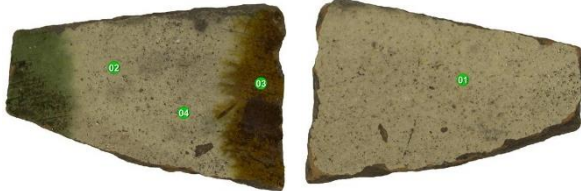
The brownish colour was due to the addition of iron oxide and the green due to copper oxide.

Finally, the vessel was covered overall with a colourless lead glaze and refired.

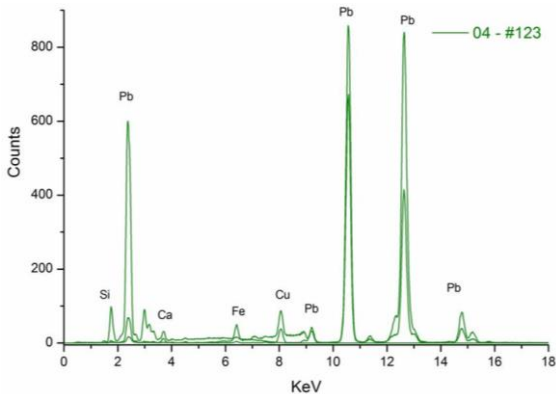
**XRF elemental analysis**



XRF measurement area 03 XRF measurement area 04

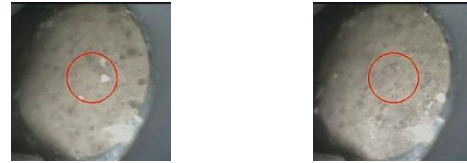


Traced on the yellowish-brown painted decoration (#122):  
Major elements Pb, Si, Ca, Fe Minor elements Sb, Ba, Cu

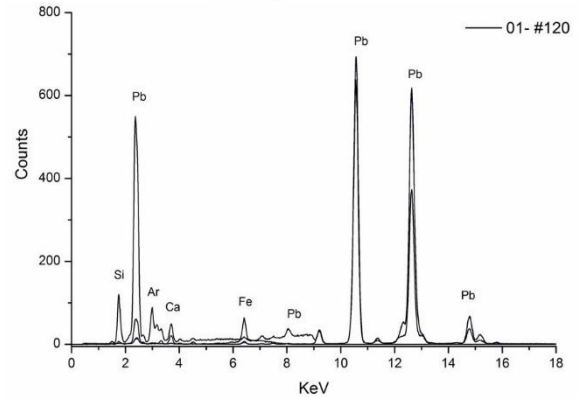
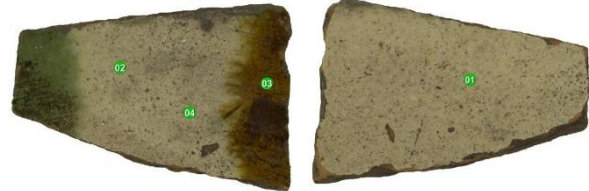


Traced on the olive green painted decoration (#123):  
Major elements Pb, Si, Ca, Cu Minor elements Sb, Ba, Fe

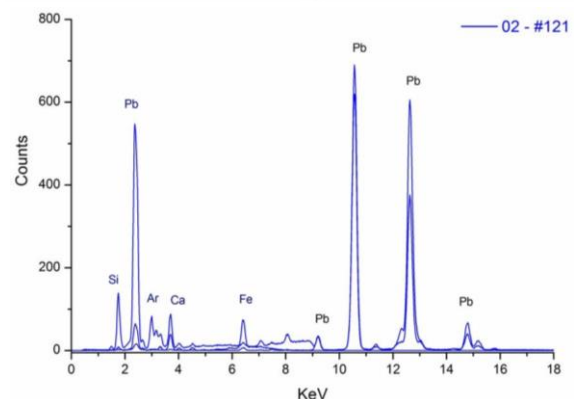
**XRF elemental analysis**



XRF measurement area 01 XRF measurement area 02



Traced in the areas with whitish slip: (#120-121):  
Major elements Pb, Si, Ca Minor elements Sb, Ba, Fe, Ca



Traced in the areas with whitish slip: (#120-121):  
Major elements Pb, Si, Ca Minor elements Sb, Ba, Fe, Ca

It remains uncertain whether or not an extra firing intervened after the decoration and prior to the last firing made for the application of the final layer of glaze (three firings in total), since, as already mentioned, the paint was mixed with glaze. This question, which constitutes an important issue in the ongoing research on the production technology of Byzantine and post-Byzantine glazed pottery, could possibly be addressed by the acoustic microtomography that revealed in the greatest detail the object's relief and layered structure.