Ormylia Art Diagnosis Centre

ARISTOTLE UNIVERSITY OF THESSALONIKI

ΓΕΩΑΝΑΛΥΣΗ Α.Ε.

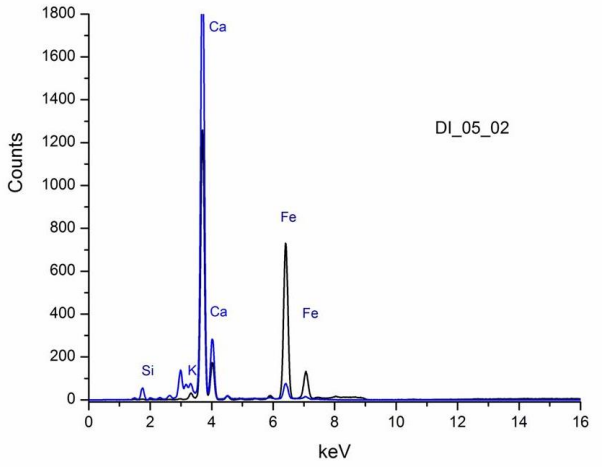
SURGICAL EXCAVATION

Traces of colour on a terracotta gladiator figurine from the ancient city of Dion, Pieria: analysis using the non-destructive testing mobile lab

Fragmentary terracotta figurine on a rectangular base, coarsely modelled (surviving height 11cm). It depicts a gladiator in action, standing behind a large rectangular convex shield (*scutum*) that is decorated with a large central and four smaller domed bosses. His left arm, with which he would presumably be holding the shield, is protected behind it, while he appears to be holding a sword or dagger in his right hand, which is missing. It isn't possible to determine the exact type of gladiator depicted, since his armament matches more than one. In addition, the absence of the head makes the identification even more difficult (the type of the helmet is a characteristic feature). However, it can be said that he is probably a *secutor* or a *murmillo*. The figurine preserves few traces of red paint found on the front side of the legs, the shield, and the rear part of the torso. The fired terracotta was first covered with white slip, on which the painted decoration was employed.

XRF elemental analysis

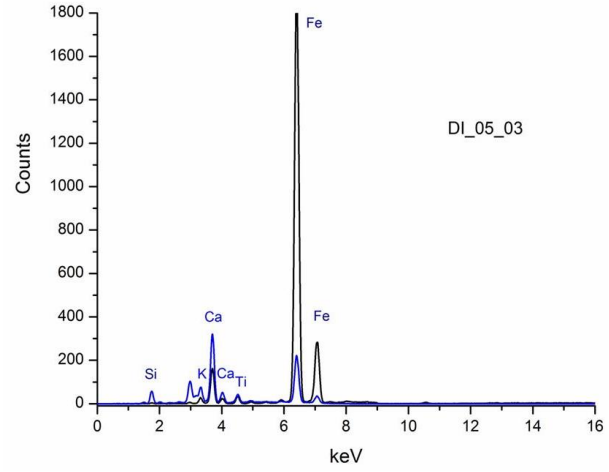
XRF measurement area 02



Major elements Ca
Minor elements Fe, Si (from clay)

In measurement 02, the high concentration of calcium on the white slip is attributed to its calcitic composition ($CaCO_3$) that was confirmed by the molecular structure investigation performed with microRaman και FTIR spectroscopies.

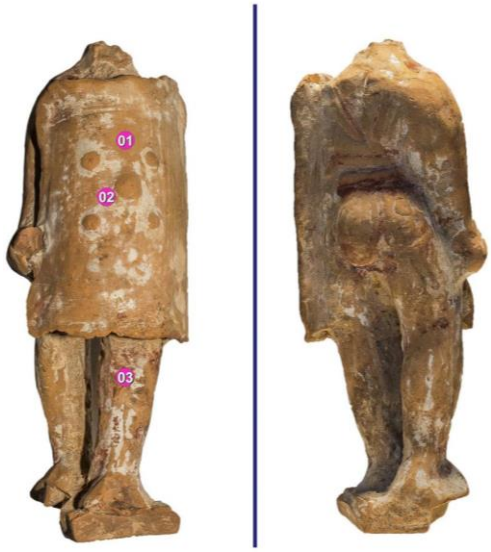
XRF measurement area 03

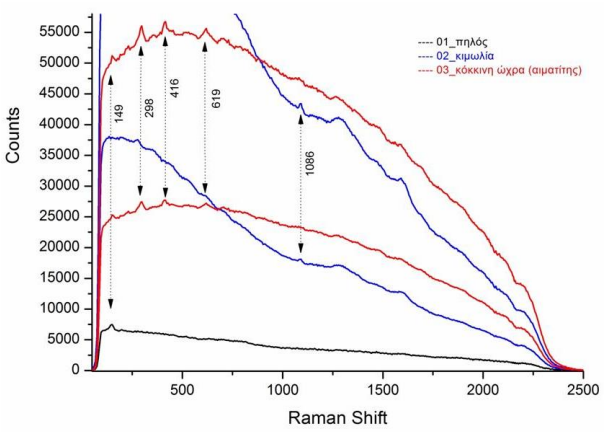


Major elements Fe
Minor elements Si, K, Ca, Ti (from clay)

On the spots where red paint is traced, like in measurement area 03, high levels of iron (Fe) are exhibited, identified as an element of a red ochre.

Molecular structure investigation using microRaman spectroscopy





On the white slip (measurement 02) calcium carbonate has been traced (characteristic peak at 1086 cm-1).

On the traces of red paint (measurement 03), the pigment identified was hematite (characteristic peaks at 416 και 619 cm-1), as the colouring principle of a red ochre. Measurement 01 was made on a clay surface.

Conclusions

Elemental analysis performed with the X-Ray Fluorescence method (XRF) has shown that the main component of the white slip is calcium (Ca), while the traces of red paint exhibit a high concentration of iron (Fe). According to the FTIR and microRaman spectroscopy results, along with the XRF measurements, it appears that the white slip mostly consists of chalk (calcium carbonate – $CaCO_3$) and the pigment used in the painted decoration is red ochre (the colouring principle identified is hematite $Fe2O_3$).