

THE PROTOHISTORIC VITREOUS MATERIALS OF PUNTA ZAMBRONE (SOUTH ITALY).

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In this study the results of an archaeometrical investigation on some protohistoric vitreous materials coming from the archaeological site of Punta Zambrone, (Calabria-South Italy, Early to Late Bronze Age) are presented. The subject of this research is a set of samples (9 faience disc-shaped beads and 1 glass bead) pertaining to the decades around 1200 BC (RBA), and recovered during the excavations of 2011 and 2012. The integrity of the objects did not allow any sampling, and therefore the analyses were carried out by environmental scanning electron microscope (ESEM) following a non-destructive protocol. The glassy bead is an opaque light-blue silica soda lime glass produced with natron (Na_2O ~10% associated with low amount of MgO and K_2O , both <1.5%), coloured with copper (CuO ~1.70%) and owe its opacity to the not complete fusion of the vitrifying raw material. The faience has unfortunately suffered from extensive weathering which lead, in some cases to the loss of alkalis from the surface glaze layer and, in other, to the complete loss of the surface glaze layer. The microstructural examination and the qualitative and semi-quantitative analyses undertaken by the ESEM have allowed the classification of the 9 faience in three different groups: 1) light beads (white and light green samples) consisting almost entirely of quartz crystals (Fig. 1) without any original interparticle glass; 2) brown-black beads, which present an high content of manganese oxide in the body (Fig. 2) that would indicate the originally presence of manganese rich interparticle glass [1]; and 3) one green sample showing an inhomogeneous body rich of magnesium, potassium, titanium and iron but not containing manganese. The apparent absence of interparticle glass from the white bodies (group 1) could suggest they were glazed by the application method, but taking into account the very small size of the beads (2 mm of diameter) it is more probable that the cementation method was used [1]. The original presence of interparticle glass in the brown-black bodies (group 2), indicates that a glazing mixture containing alkalis and colorant was mixed with the quartz; therefore the efflorescence method could have been used for the glazing [1].

References

[1]. Tite, M. S., Shortland, A. J., 2008. Production technology of faience and related early vitreous materials. Oxford University School of Archaeology: Monograph 72, Oxford.

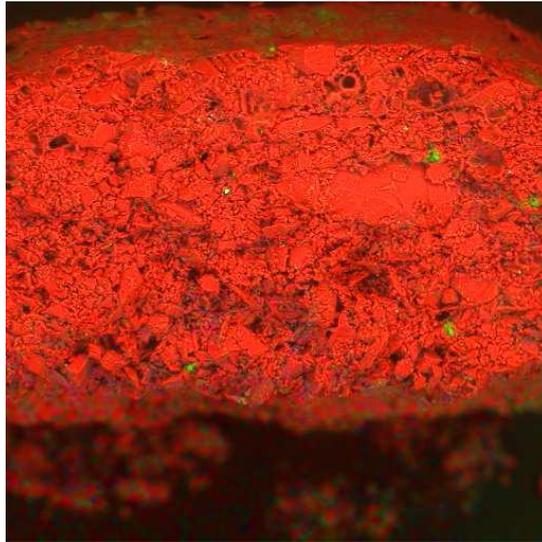


Fig. 1. ESEM-BSE image at 500 μm . Group 1. Red= silica, purple=manganese, green= calcium.

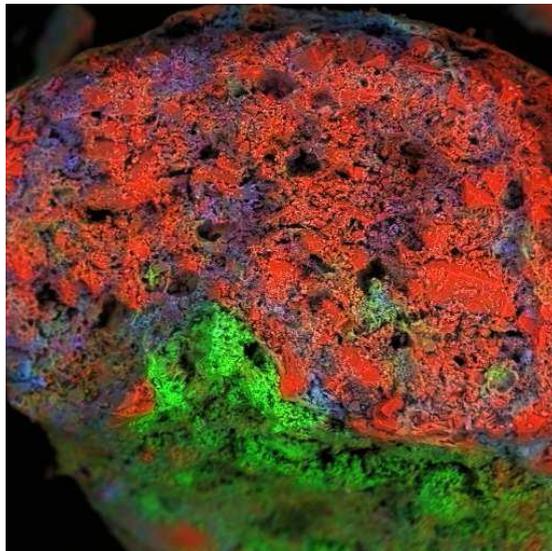


Fig. 2. ESEM-BSE image at 500 μm . Group 2. Red= silica, purple=manganese, green= calcium.