

Gold enrichment in Staffordshire Hoard K455: results of SEM-EDX analysis

Object Type Pommel
Date 600-620

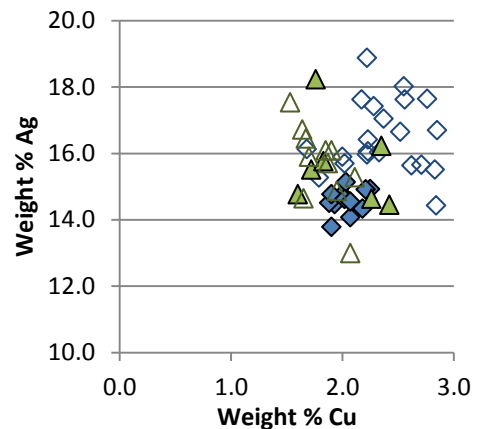
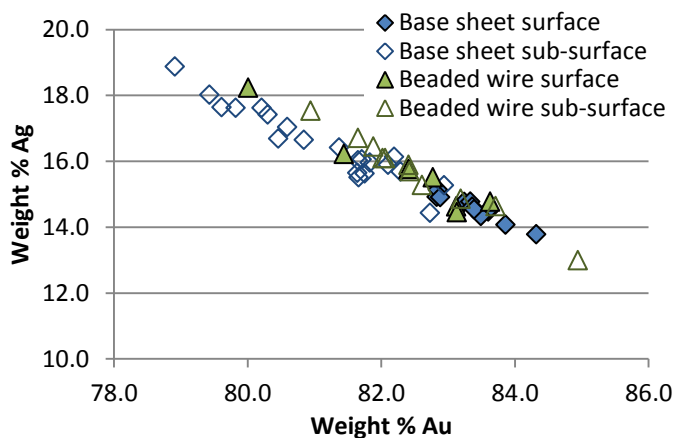
Decoration Filigree Glass
Garnet Other



SEM-EDX analysis was undertaken on the filigree wires and the base sheet to which the wires were attached.

Area analysed	No of analyses		Wt% Au	Wt% Ag	Wt% Cu
Base sheet surface	12	Average	83.4	14.6	2.0
		Standard Deviation	0.43	0.38	0.13
Base sheet sub-surface	21	Average	81.1	16.5	2.4
		Standard Deviation	1.13	1.07	0.34
Beaded wire surface	7	Average	82.3	15.7	2.0
		Standard Deviation	1.25	1.31	0.34
Beaded wire sub-surface	11	Average	82.5	15.7	1.8
		Standard Deviation	1.09	1.21	0.19

SEM-EDX surface and sub-surface compositions for each component analysed (the results are normalised). This analysis was carried out as part of the gold enrichment study. For full details of methodology and associated results see report PR07444-10 and PR07444-15



Plots of gold vs silver and copper vs silver contents, based on SEM-EDX analysis, showing the differences between the sub-surface and surface analyses.

The analysis revealed a c.1.9 wt% loss of silver from the surface of the base sheet (a difference of c.12% from surface to core), which is indicative of treatment to deliberately enrich the gold colour of the metal. Only copper and small amounts of silver are normally lost from the surface during burial. The analysis of the beaded wire revealed no loss of either silver or copper from the surface of the object. Comparison of the sub-surface compositions of the base sheet and wire suggests that they may have used a similar gold alloy.

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Analysed August 2013

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