

Gold enrichment in Staffordshire Hoard K375: results of SEM-EDX analysis

Object Type Pommel  
Date 580-610

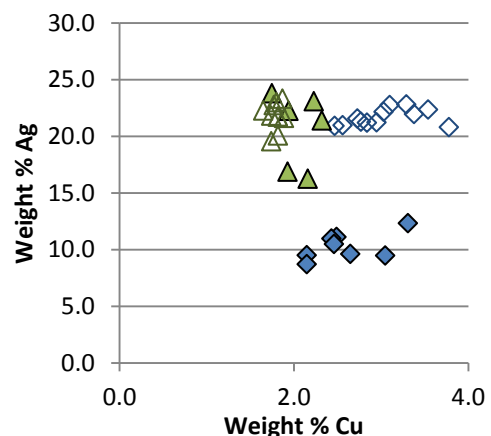
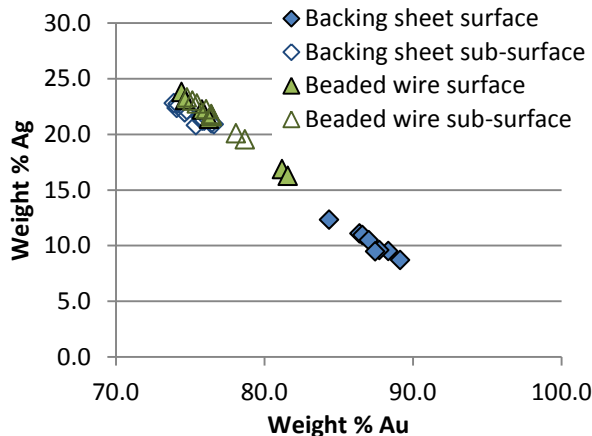
Decoration Filigree  Glass   
Garnet  Other



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
Backing sheet surface	8	Average	87.1	10.3	2.6
		Standard Deviation	1.44	1.17	0.41
Backing sheet sub-surface	12	Average	75.3	21.7	3.0
		Standard Deviation	0.94	0.71	0.40
Beaded wire surface	6	Average	77.3	20.6	2.1
		Standard Deviation	3.22	3.24	0.22
Beaded wire sub-surface	10	Average	76.4	21.8	1.8
		Standard Deviation	1.21	1.20	0.07

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 sub-surface composition of both components is similar, although the sheet had a higher copper content. The analysis revealed a c.11.4 wt% loss of silver from the surface of the base sheet (a difference of c.53% 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 filigree wire revealed a small loss of silver from the surface, most likely indicative of corrosion that can occur during burial which results in natural surface enrichment.

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Analysed January 2014

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