

Gold enrichment in Staffordshire Hoard K379: results of SEM-EDX analysis

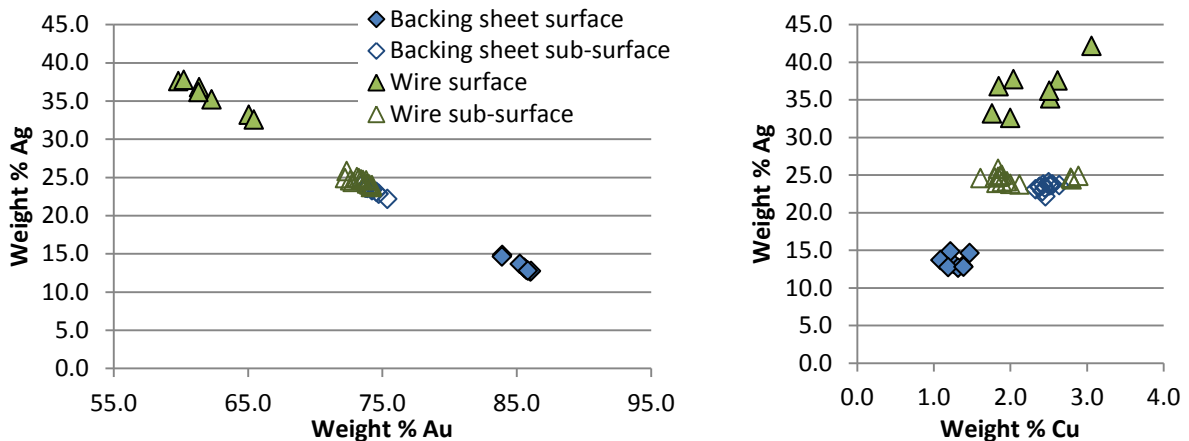
Object Type Hilt-mount
 Date 630-660
 Decoration Filigree Glass
 Garnet Other



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	8	Average	85.3	13.4	1.3
		Standard Deviation	0.88	0.87	0.12
Base sheet sub-surface	12	Average	74.2	23.4	2.5
		Standard Deviation	0.53	0.49	0.09
Filigree wire surface	8	Average	61.3	36.4	2.3
		Standard Deviation	3.33	2.99	0.45
Filigree wire sub-surface	14	Average	73.4	24.5	2.1
		Standard Deviation	0.70	0.56	0.42

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.

Comparison of the sub-surface compositions suggests that both components may have been made from the same gold alloy. The analysis revealed a c.10.0 wt% loss of silver from the surface of the base sheet (a difference of c.43% 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. There was an increase in silver at the surface of the wire which is most likely from close contact to corroding silver objects in the burial environment.

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 Analysed December 2013

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