

Gold enrichment in Staffordshire Hoard K140: results of SEM-EDX analysis

Object Type Hilt ring
Date 600-635

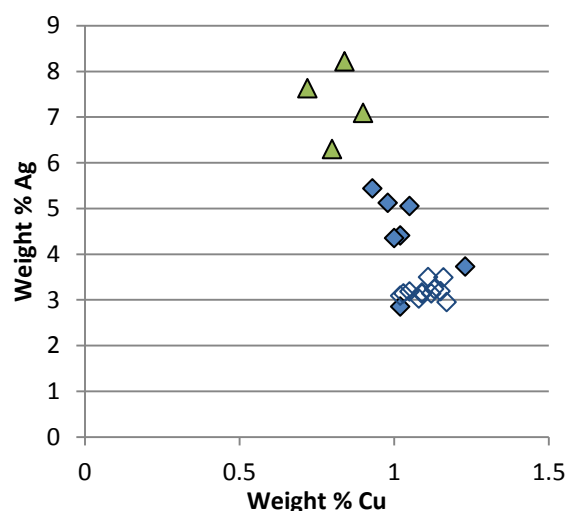
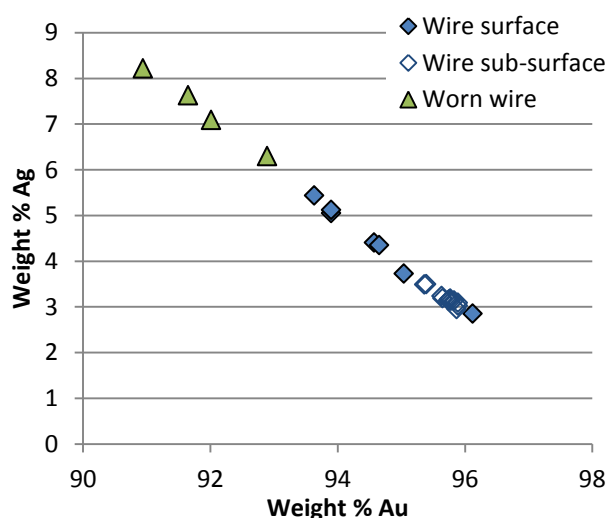
Decoration Filigree ☒ Glass ☐
Garnet ☐ Other ☐

SEM-EDX analysis was undertaken on the edge of the beaded wire hilt ring.



Area analysed	No of analyses		Wt% Au	Wt% Ag	Wt% Cu
Surface	7	Average	94.6	4.4	1.0
		Standard Deviation	0.86	0.90	0.09
Sub-surface	12	Average	95.7	3.2	1.1
		Standard Deviation	0.18	0.16	0.05
Worn surface	4	Average	91.9	7.3	0.8
		Standard Deviation	0.81	0.82	0.08

SEM-EDX surface and sub-surface compositions (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.

SEM-EDX analysis of the sub-surface indicated a composition of approximately 91-93 wt% gold, 6-8 wt% silver, the rest being copper. The analysis revealed a small loss of copper at the surface, in quantities suggesting corrosion that can occur during burial which results in natural surface enrichment. There was a small increase in silver at the surface which may be re-deposited silver from nearby corroding silver alloy objects.

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Analysed October 2013

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