

Gold enrichment in Staffordshire Hoard K79: results of SEM-EDX analysis

Object Type Hilt plate
Date 600-650

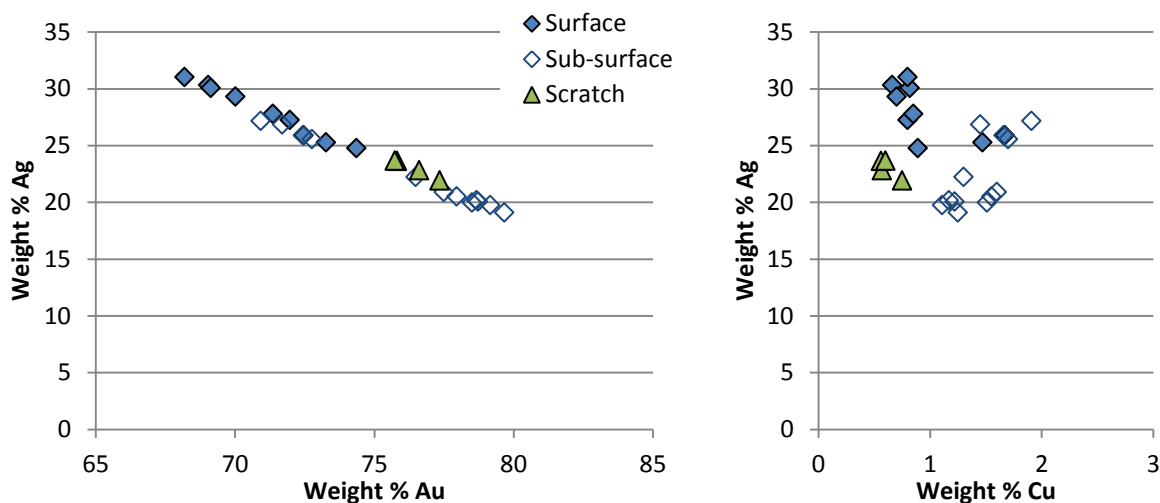
Decoration Filigree Glass
Garnet Other



SEM-EDX analysis was undertaken on the base sheet on the back of the hilt plate.

Area analysed	No of analyses		Wt% Au	Wt% Ag	Wt% Cu
Surface	9	Average	71.0	28.0	1.0
		Standard Deviation	2.11	2.33	0.36
Scratch	4	Average	76.4	23.0	0.6
		Standard Deviation	0.76	0.82	0.09
Sub-surface	12	Average	71.9	26.4	1.7
		Standard Deviation	0.82	0.77	0.19

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 71-73 wt% gold, 25-28 wt% silver, the rest being copper. The analysis revealed a small loss of copper at the surface, most likely indicative of 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 December 2012

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