

Gold enrichment in Staffordshire Hoard K699: results of SEM-EDX analysis

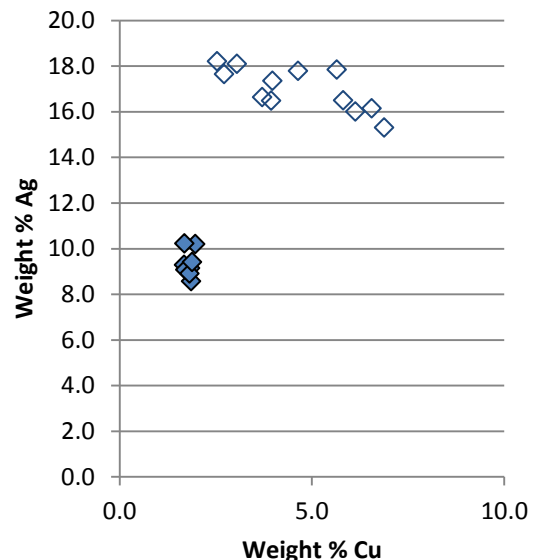
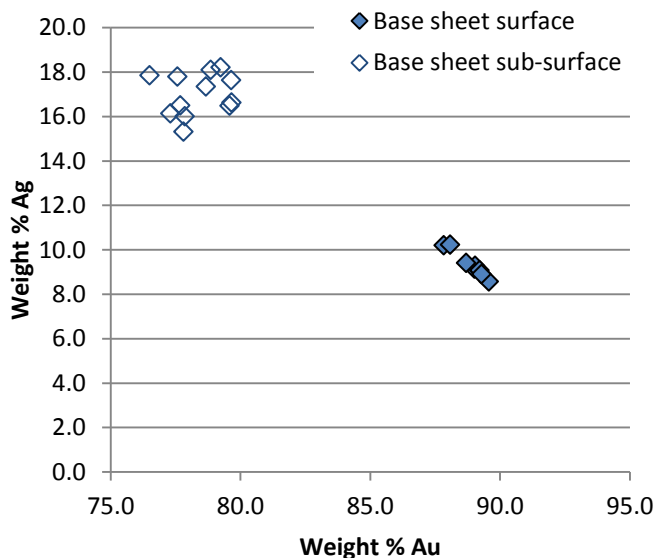
Object Type Hilt collar
 Date 620-630
 Decoration Filigree Glass
 Garnet Other



SEM-EDX analysis was undertaken on the gold sheet to which the wire was attached.

Area analysed	No of analyses		Wt% Au	Wt% Ag	Wt% Cu
Surface	8	Average	88.8	9.4	1.8
		Standard Deviation	0.60	0.59	0.10
Sub-surface	12	Average	78.4	17.0	4.6
		Standard Deviation	1.05	0.94	1.53

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 surface composition of approximately 77-80 wt% gold, 16-18 wt% silver, the rest being copper. The analysis revealed a c.7.6 wt% loss of silver from the surface (a difference of c.45% 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.

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 Analysed September 2013

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