

Gold enrichment in Staffordshire Hoard K554: results of SEM-EDX analysis

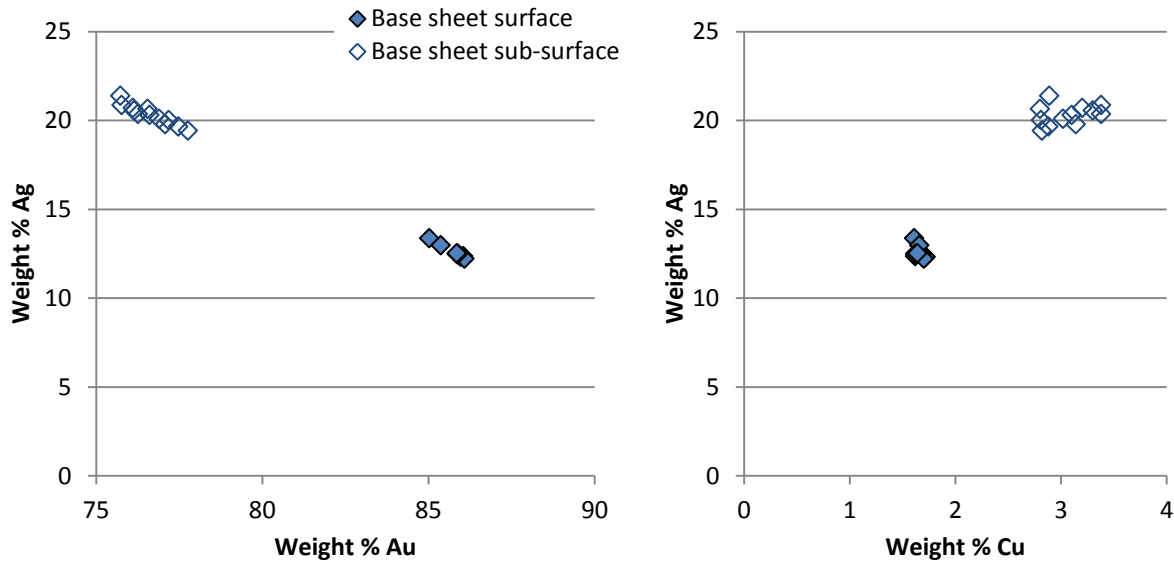
Object Type Pommel
 Date 600-635
 Decoration Filigree Glass
 Garnet Other



SEM-EDX analysis was undertaken on the base sheet to which the filigree wires were attached.

Area analysed	No of analyses		Wt% Au	Wt% Ag	Wt% Cu
Surface	8	Average	85.7	12.6	1.7
		Standard Deviation	0.37	0.39	0.04
Sub-surface	12	Average	76.6	20.3	3.1
		Standard Deviation	0.66	0.56	0.22

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 76-77 wt% gold, 20-21 wt% silver, the rest being copper. The gold analysis revealed a c.7.7 wt% loss of silver from the surface (a difference of c.38% 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.

Eleanor Blakelock
 Analysed October 2013

This report contains unpublished research. Its contents should not be published without the permission of the Keeper of the Department of Conservation and Scientific Research.