Gold enrichment in Staffordshire Hoard K679: results of SEM-EDX analysis

Object Type Hilt collar
Date 625-650

Decoration

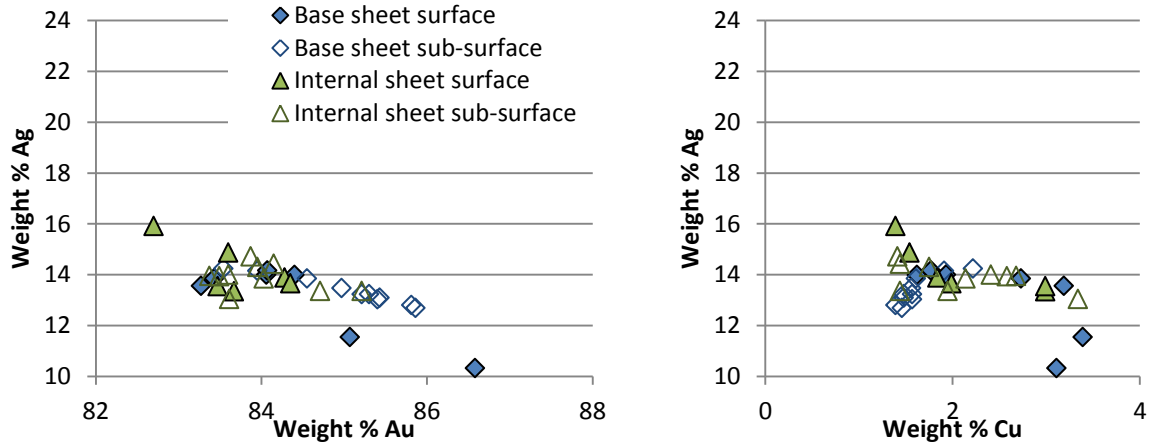
Filigree	✓	Glass		
Garnet	✓	Other		

SEM-EDX analysis was undertaken on the sheet at the base and also the internal sheet.

Area analysed	No of analyses		Wt% Au	Wt% Ag	Wt% Cu
Base sheet surface	7	Average	84.4	13.1	2.5
		Standard Deviation	*1.13*	*1.51*	*0.74*
Base sheet sub-surface	10	Average	85.0	13.4	1.6
		Standard Deviation	*0.77*	*0.54*	*0.25*
Internal sheet surface	6	Average	83.7	14.2	2.1
		Standard Deviation	*0.60*	*0.99*	*0.70*
Internal sheet sub-surface	10	Average	84.0	13.9	2.1
		Standard Deviation	*0.58*	*0.52*	*0.64*

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

The analysis of the base sheet revealed a loss of *c*.0.3 wt% silver from the surface of the internal sheet, most likely indicative of corrosion that can occur during burial which results in natural surface enrichment. There was a slight increase in silver at the surface of the internal sheet, possibly contamination from the solder used. Both sheets appear to have a similar core composition so were probably made with the same alloy.



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.

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