Chemical analysis of a sherd of Malling jug from Shapwick, Somerset

Alan Vince and Michael J Hughes

Summary

A sherd of tin-glazed pottery from Shapwick was submitted for analysis. The sherd comes either from the neck of a drinking jug with an external mottled blue/purple glaze. The interior of the vessel is unglazed. The sherd was thin-sectioned, stained using Dickson's method and given the sample code AG136. A sub-sample was analysed using Inductively Coupled Plasma Spectroscopy. The petrological analysis demonstrates that the vessel is of Eastern English or Low Countries origin and the chemical analysis pinpoints Antwerp as its source.

Results

Petrology by Alan Vince

The fabric contains sparse subangular to rounded quartz, with rare rounded chert up to 0.3mm across. The clay matrix contains abundant angular quartz up to 0.1mm across and sparse altered glauconite up to 0.2mm across in an optically isotropic clay matrix.

The clay would originally have been a calcareous marl (as demonstrated by the high Ca0 content) but no calcium carbonate remains in the body, having reacted with other constituents to form a glassy ceramic. The present of altered glauconite suggests a source in south-eastern England or the Low Countries rather than a local West Country source (tin-glazed wares were produced at Brislington on the outskirts of Bristol from the mid 17th century onwards). Furthermore, a more exotic source, such as Italy, can also be excluded on these grounds. The distinction between Eastern English (Norwich/London) and Low Countries (Antwerp) sources cannot yet be made using petrological evidence.

Chemical composition by *Michael J Hughes*

The ICP data was compared by eye with the NAA database on Low Countries tin-glazed pottery held at the Department of Scientific Research at the British Museum. The ICP result does fit into the pattern for reference sherds of tin-glazed pottery from kilns in Antwerp, and also with the Museum of London Malling jugs which were analysed at the British Museum, and which proved to have an Antwerp composition. The comparison is based on those elements which are in common: Fe, Na, K, Ba, Ca, Co, Cr, Sc, La, Ce, Sm, Eu, Yb. I am reasonably confident even with only visual comparison of the data that the Shapwick vessel was an Antwerp product. There are a number of characteristic features which are definitely present in the Shapwick analysis, which Antwerp consistently shows. The only ICP result I have to compare it with is of a Herkenrode tile, which was slightly different, mainly because it had a lot more Ca, which depresses the concentrations of most of the other elements, relatively. However, the analysis of the latter still seems to be with the Antwerp pattern.

Table 1. Percentage frequency of major elements

TSNO	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO
AG136	10.35	4.3	0.92	14.8071	0.49	1.17	0.61	0.5088426	0.06

Table 2. Frequency of minor and trace elements (ppm)

TSNO	Ba	Co	Cr	Cu	Li	Nb	Ni	Sc	Sr	V	Y	Zn	Zr*	La	Ce	Nd	Sm	Eu	Dy	Yb
AG136	381	16	87	57	41	11	37	10	316	79	20	65	70	35	60	27	4.7	0.8	2.5	1.5

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