

CONSERVATION TREATMENT RECORD

Lab number: 8424
 Brief description: Copper alloy nail head
 Name of owner: c/o James Hales
 Owner's number: Thwing small find no. 303

Name of student: Katy Elizabeth Smith
 Date allocated: 05/02/09
 Date completed: 08/06/09

Material type

Copper alloy

Dimensions

Width across head – 17mm
 Depth at edge of nail head – 0.55mm
 Depth at centre – 4mm

Weight: Before - 1.85g After – 1.7g

Technology

The nail head has been made from a copper alloy. The nail may have been mould-made and hand finished.

Pre-treatment condition

The condition of the nail head was fair. There was minimal corrosion on the upper (flat) surface, but there was slight pitting and variations in the colour from brown to green. The edges were in tact with no signs of damage. There were hard corrosion products on the underside, ranging from brown to black.

Significance

This decorative nail head indicates the presence of furniture within the Roman-period dwelling. This type of object is commonly found on archaeological sites and bears no special significance for either its form or composition.

Examination

The object was examined under an optical microscope at 30X magnification. XRF analysis was conducted on the flat upper side of the nail head, and gave the composition of the metal as 54% copper, 21% tin, 11% zinc, 3% lead and 2.5% aluminium.

Justification for treatment

The object had been brought to the Institute of Archaeology along with many other small finds from the same site for conservation treatment. The copper alloys were to be cleaned of soiling and corrosion products and packaged for long-term storage. There was slight soiling on the underside of the nail head, and a small quantity of corrosion products had built up. These corrosion products were hard and required a sharp scalpel to remove them. Once new corrosion had been initiated by the exposure of the underlying metal, a spot-treatment was necessary to inhibit further corrosion. A surface coating was also needed to offer a degree of protection against the effects of humidity.

Cleaning

The nail head was cleaned using Industrial Methelated Spirits and cotton swabs. The soiling was minimal and was easily removed. The hard corrosion products on the underside of the nail head were removed using a sharp scalpel. The blade was changed frequently as it was used to carefully carve away the build up. The loose corrosion products were then cleaned away with IMS and cotton swabs. The cleaning was carried out while viewing the object with an optical microscope at 30X magnification.

Stabilisation

The active corrosion was passivated with a spot treatment of benzotriazole 3% w/v in water applied with a fine brush. A surface coating of microcrystalline wax diluted in white spirit was brushed lightly onto the surface.

Packaging

The nail head was packaged for long-term storage in a crystal box with a Plastazote lining. The box is fully labelled with the object number and context number from which the coin was excavated.

Condition after treatment

The condition of the nail head is now stable. The soiling and corrosion products have been removed. The surface coating will provide protection against atmospheric pollutants and moisture.

Student evaluation of treatment

I am satisfied with the outcome of this treatment. I found the removal of the corrosion products difficult and exposed two areas of metal to further corrosion. Hopefully the BTA treatment will continue to be successful in passivating these areas.

Recommendations for further care

The nail head should be stored in an environment without fluctuations in the temperature and relative humidity. The packaging will offer some protection against atmospheric pollutants and humidity changes. The object should be checked periodically for signs of deterioration, and should new corrosion products form, the nail head must be returned to a conservator for further treatment.

Photography / other illustrations

Colour slide/digital/ print

Other documentation

XRF analysis

Student signature

Date

Staff signature

Date