

Master-Thesis en Conservation

A STUDY OF MINERALISED ORGANIC REMAINS ON METAL OBJECTS FROM FELDKIRCHEN (4TH CENTURY AC) AND THEIR IMPACT ON THE METAL CONSERVATION

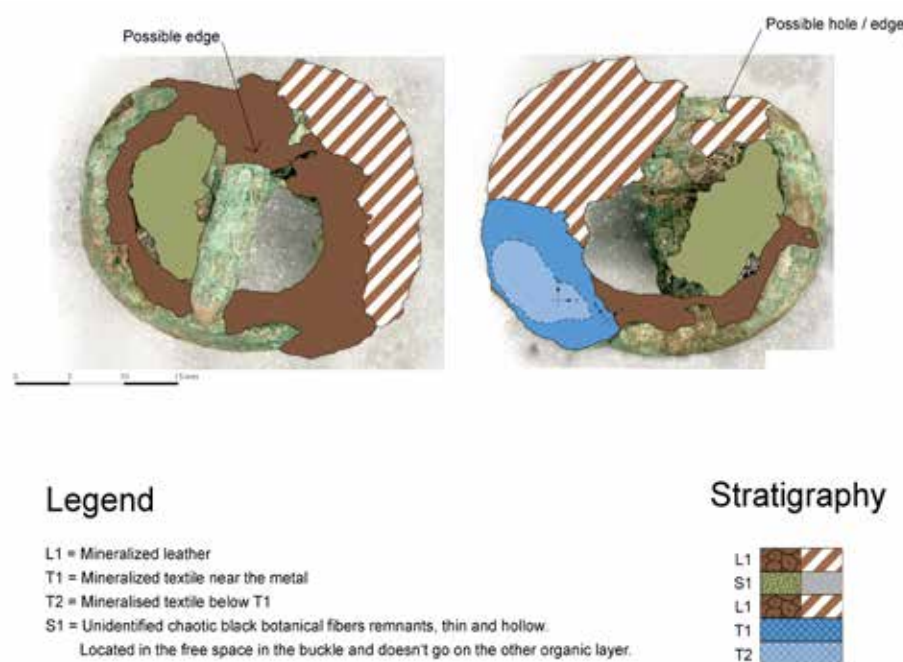


Fig. 1: Organic mapping and legend of the organic remains on a copper buckle. ©HE-Arc, Roux Marine, 2026.



Fig. 2: Mineralised organic remains on copper and iron bracelets, Feldkirchen 4th CE. ©HE-Arc, Roux Marine, 2026.

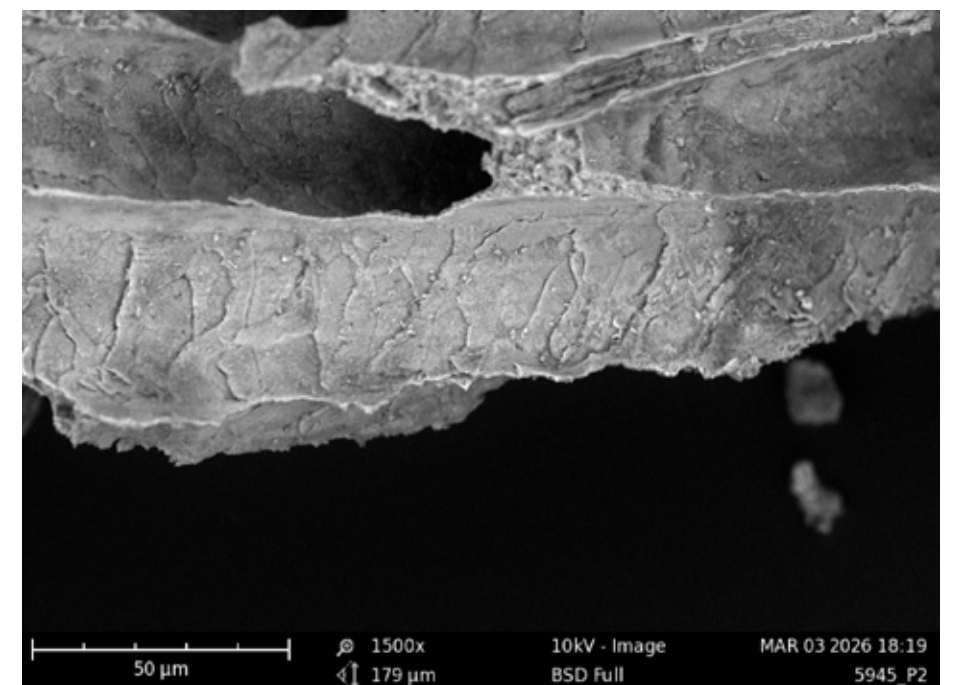


Fig. 3: Negative mineralisation of animal fibres (wool?) in copper corrosion under a MEB. ©HE-Arc, Roux Marine, 2026.

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Master of Arts HES-SO en Conservation-restauration

Orientation: Objets archéologiques et ethnographiques

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SUMMARY

This study focuses on mineralised organic remains preserved on archaeological metal objects unearthed from a late Roman cemetery. Through the analysis of organic materials associated with a buckle, an inkwell and a set of bracelets, it examines challenges involved in identifying, studying and conserving these remains. It provided an opportunity to implement documentation methods developed specifically for the study and subsequent interpretation of these remains. It followed a methodology outlined first, leading to the creation of detailed documentation of the preserved organic remains, giving rise to treatment proposals for these metal objects, and aims to share observations made regarding the preservation process: mineralisation.

MINERALISATION PROCESS

Mineralisation is defined by Gillard et al., as “the combination and/or replacement of the fibre’s organic matrix by an inorganic matrix”. Depending on the rates of degradation and corrosion and deposition on the fibres, the types of mineralisation vary, leading to different states of preservation of the organic materials.

ANALYSES AND DOCUMENTATION

One step of the work consisted of the observation and the study of the object using different methods such as digital and polarised-light microscopes, SEM-EDS, and XRF. The results of the observations of the mineralised organic remains were presented in a normative document. The documentation method used was developed by the Bayerisches Landesamt für Denkmalpflege. It implements computer-aided design for the mapping and microstratigraphy of organic remains. The advantages are uniform documentation and presentation, an easy comparability of organic finds between objects in the same grave, between graves, and even between excavation sites.

RESULTS

The study, carried out 28 years after the excavation, yielded some interesting results. Whilst it is generally recommended that organic remains be analysed immediately, proper handling and preservation under stable conditions allow them to be studied even several years after their discovery. It was also the occasion to observe several types of mineralisation on a single object, or even within the same material, allowing us to make comparisons.