LEAD-GLAZED ARCHITECTURAL TERRA COTTA: A COMPARATIVE STUDY OF CONSOLIDANTS

Louise Vuillermoz
Freelance conservator of ceramics & glass
Paris, France
louise.vuillermoz@gmail.com

GOAL of the study : Find a consolidant for a lead-glazed terra cotta

SPECIFICATIONS :

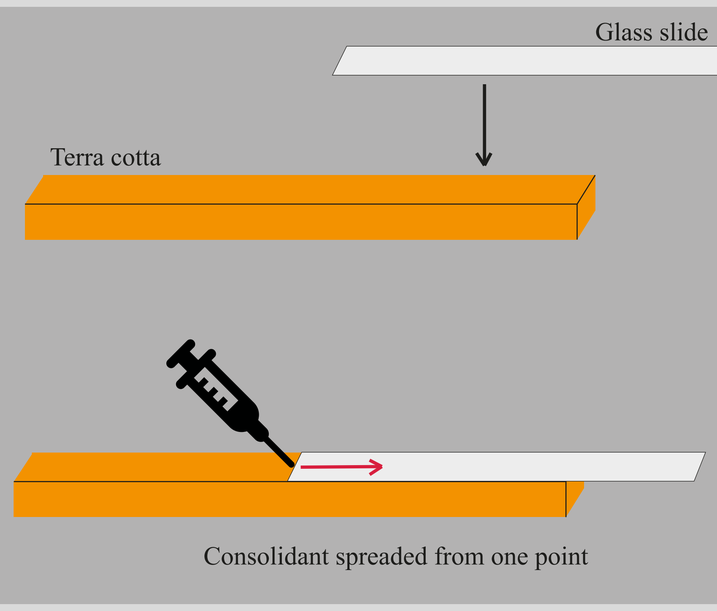
Suitable bond strength
The consolidant has to permit a bond strong enough - but not excessive - to maintain the flakes.

Appropriate viscosity
The consolidant has to be fluid enough to penetrate between the glazes and the terra cotta without penetrating the substrate.

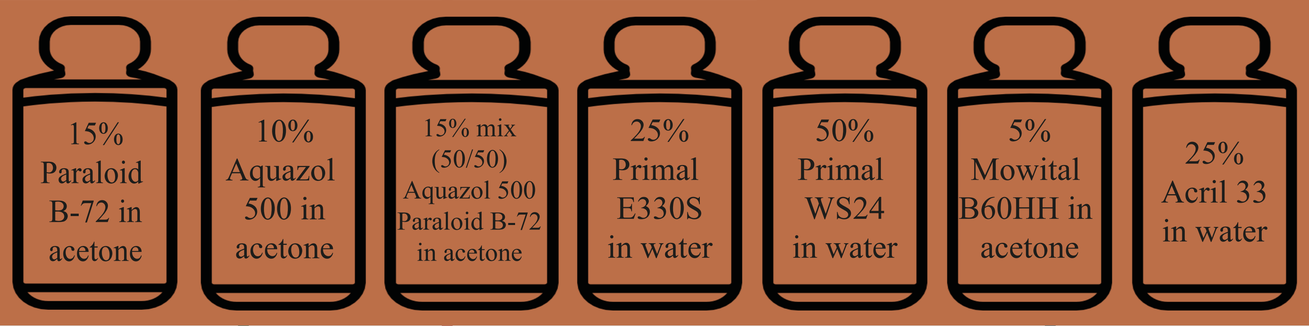
No impact on the object's original brightness and colour
Glazes are translucents : the consolidant must not change the color or brightness of the surface.

Good ageing properties
Consolidation can hardly be reversible. The consolidant needs to have good ageing properties.

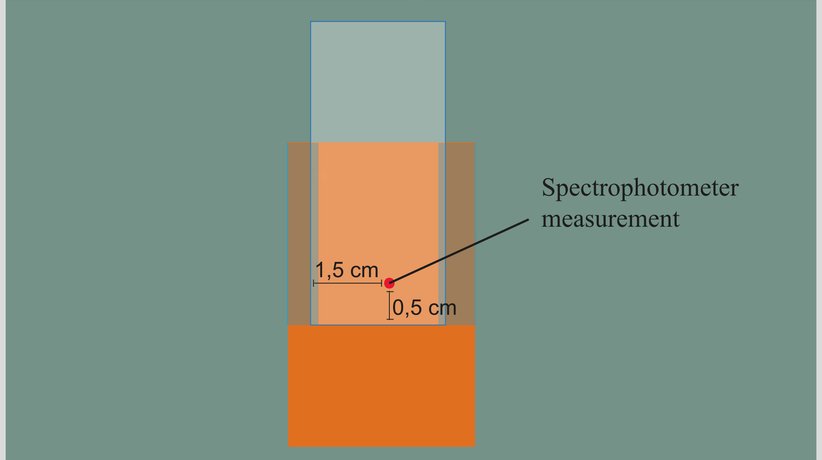
CREATION OF THE SAMPLES :



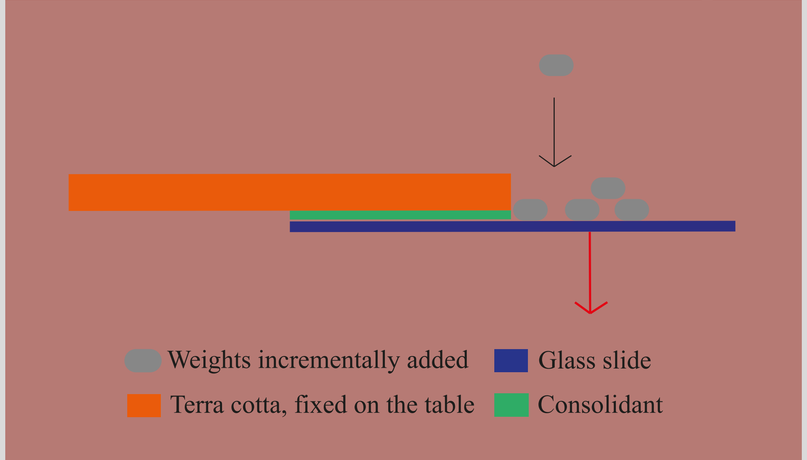
After consulting the literature (Down 2015, Horie 2010, and Koob 1981), seven consolidants (concentration w/w) were selected for their good ageing properties to be tested.



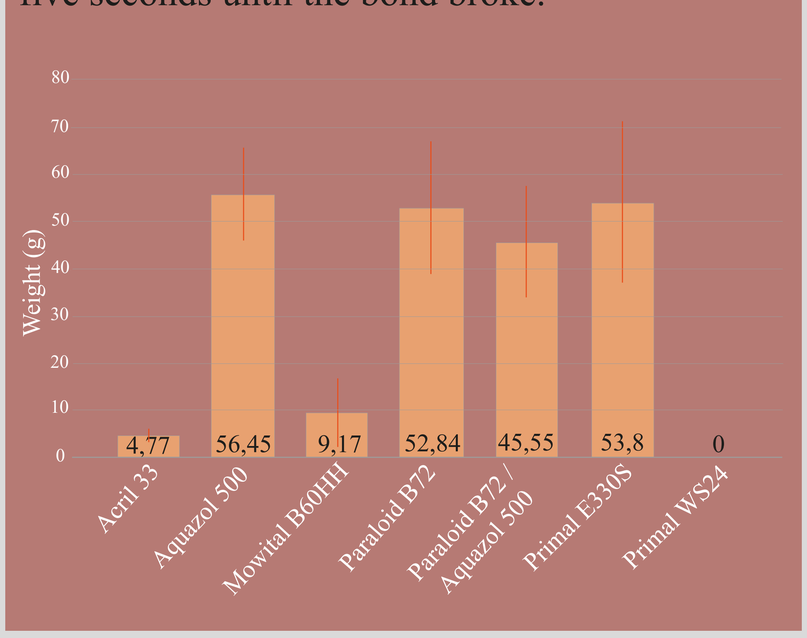
TESTS :

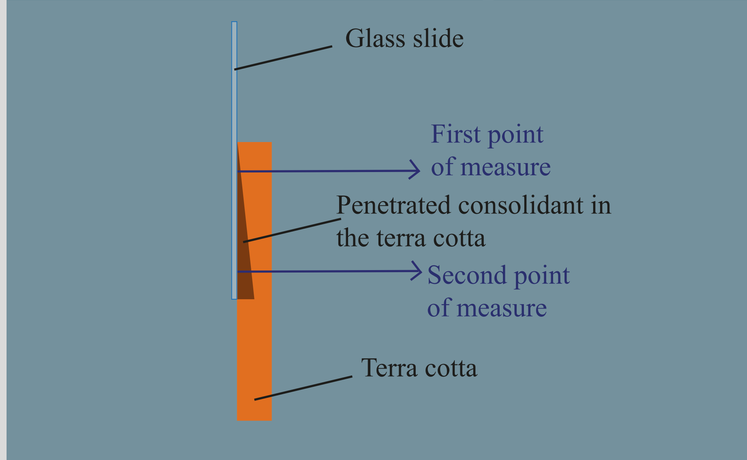


The colorimetry was measured before and after applying the consolidant, using a spectrophotometer. The difference of the measures (Δ*L) permitted to compare the results.

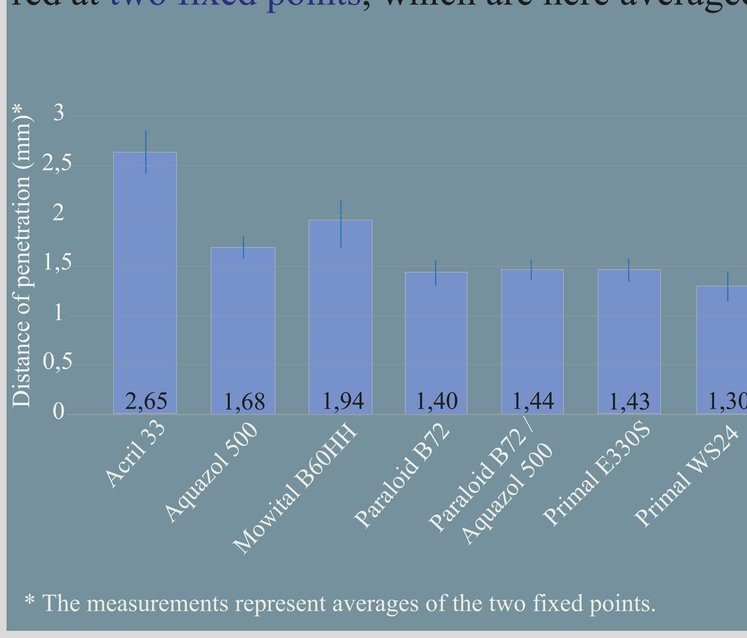


To evaluate bond strength, the terra cotta was fixed on the table and weights (2.2 g each) were incrementally added on the glass overhang every five seconds until the bond broke.





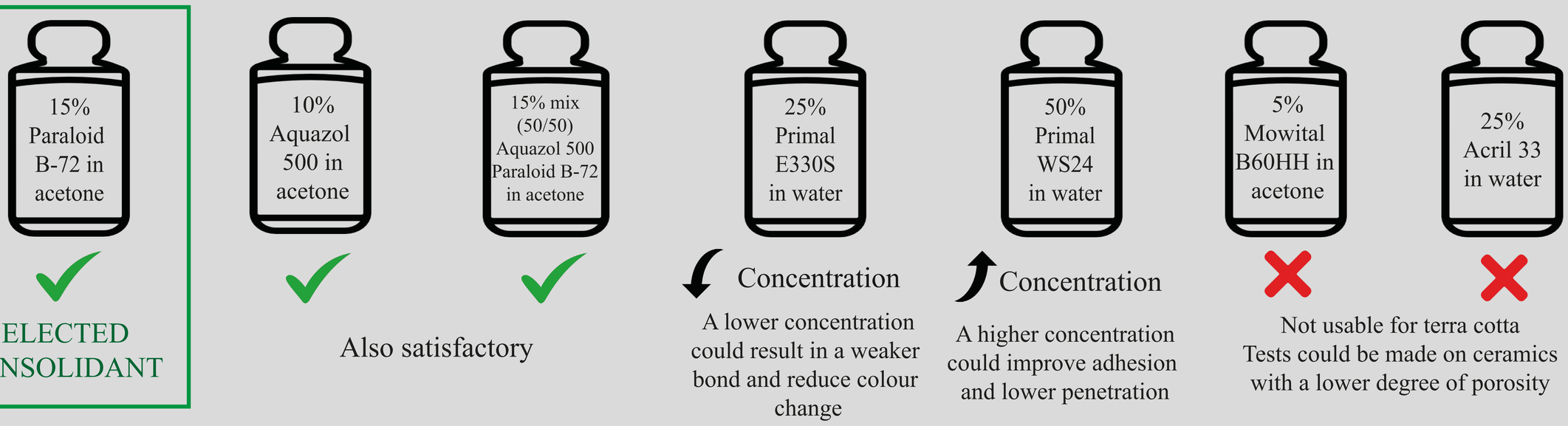
The penetration of the consolidant was visible on the samples, cut in half. The distance travelled by the consolidant in terra cotta thickness was measured at two fixed points, which are here averaged.



* The measurements represent averages of the two fixed points.

RESULTS :

CONCLUSIONS :



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Horie, C. V. 2010. Materials for cConservation: Organic consolidants, adhesives and coatings, 2nd ed. Amsterdam: Elsevier.
Koob, S. 1981. Consolidation with acrylic colloidal dispersions. In AIC 9th Annual Meeting Preprints, Philadelphia, 27-31 May 1981, comp. M. Craft and S. Jones, pp. 86-94. American Institute for Conservation.