CMAS Conservation & Museums Advisory Service

Propagroup S.p.A

Material Suitability Assessment Report

24.02.2026

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Wiltshire Council

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Introduction

Accelerated ageing tests are undertaken to determine the suitability of materials to be used in the vicinity of museum objects.

As materials deteriorate some will release gaseous emissions which speed the deterioration of nearby objects and the materials they are composed of. The presence of pollutants in the air can cause metals to corrode, organic materials to become brittle and plastics or pigments to discolour.

CMAS undertakes accelerated ageing tests in accordance with the 3 in 1 variation outlined in the British Museum Occasional Paper 11, 1996 'Selection of Materials for the Storage or Display of Museum Objects', updated to include revisions outlined in IIC, Studies in Conservation, Volume 48 Number 4, 2003 and Volume 63 Number 1, 2018. Minor modifications have also been made in response to Diaz et al 'Review and interlaboratory comparison of the Oddy test methodology'.[1]

Sample materials are artificially aged during the test within glass test tubes sealed with silicone stoppers. Copper, lead & silver coupons are used in the test. If corrosion forms on the coupons it indicates the presence of a pollutant. The combination of metals used is believed to detect the presence of the majority of corrosive emissions.

The results can be extrapolated to determine reactions of some organic and inorganic materials, which is explained further in the appendices.

[1] Diaz, I., Alvarez-Martin, A., Grau-Bove, J., Norrehed, S., Salvadori, B., Krasevec, I., Duran-Romero, D. and Cano, E. (2024) Review and interlaboratory comparison of the Oddy test methodology. *Heritage Science* 12(1). https://www.researchgate.net/publication/379081225_Review_and_interlaboratory_comparison_of_the_Oddy_test_methodology

Details of Test

Client	Propagroup S.p.A
Job Number	J3281
Conservator	Alison Dwyer
Dates test run (to/from)	28.01- 24.02.2026
Date of report	24.02.2026

Details of Samples

- Dry samples (2g) were prepared by the CMAS, by dismantling a desiccant cassette

CMAS Reference number	Proposed use	Sample type	Colour	Trade Name	Supplier
827	Blue plastic-desiccant cassette	Plastic	Blue	Unknown	Unknown
828	White plastic/paper-desiccant cassette	Paper/plastic	White	Unknown	Unknown
829	Desiccant	Desiccant	Off-white	Unknown	Unknown

Results

Suitable for Permanent use

Samples are classed as suitable for permanent use if the metal coupons show no discernible tarnish or corrosion when compared to the control coupons.

The following samples have been classed as suitable for permanent use in the vicinity of museum objects:

- **827- blue plastic- desiccant cassette**
- **828- white paper/plastic- desiccant cassette**
- **829- desiccant**

Suitable for Temporary use

Samples are classed as suitable for temporary use (up to 6 months) if the metal coupons show only a slight change in colour or small spots of tarnish when compared to the control coupons.

The following samples have been classed as suitable for temporary use in the vicinity of museum objects:

- **N/a**

Unsuitable for use

Samples are classed as unsuitable for use if the metal coupons have clearly visible tarnish or corrosion when compared to the control coupons.

The following samples have been classed as unsuitable for use in the vicinity of museum objects:

- **N/a**

Voided

Samples are classed as voided where an error occurs during testing. Most commonly this involves stoppers coming off during testing due to a build of gases. Where possible these tests will be repeated to gain accurate results.

The following samples were voided during testing:

- **N/a**

Reading results

Assessment of the metal coupons is undertaken through visual comparison with the control coupons produced at the same time as the sample test is undertaken. The categorisation of the result into permanent, temporary and unsuitable is determined through comparison with the control coupons and to previous reference coupons. The accelerated aging test therefore produces results which are subjective and should only be used as a general indication of the suitability of material.

Comparison to control coupons
The control coupons may show some signs of change after the test which are not related to the presence of testing samples

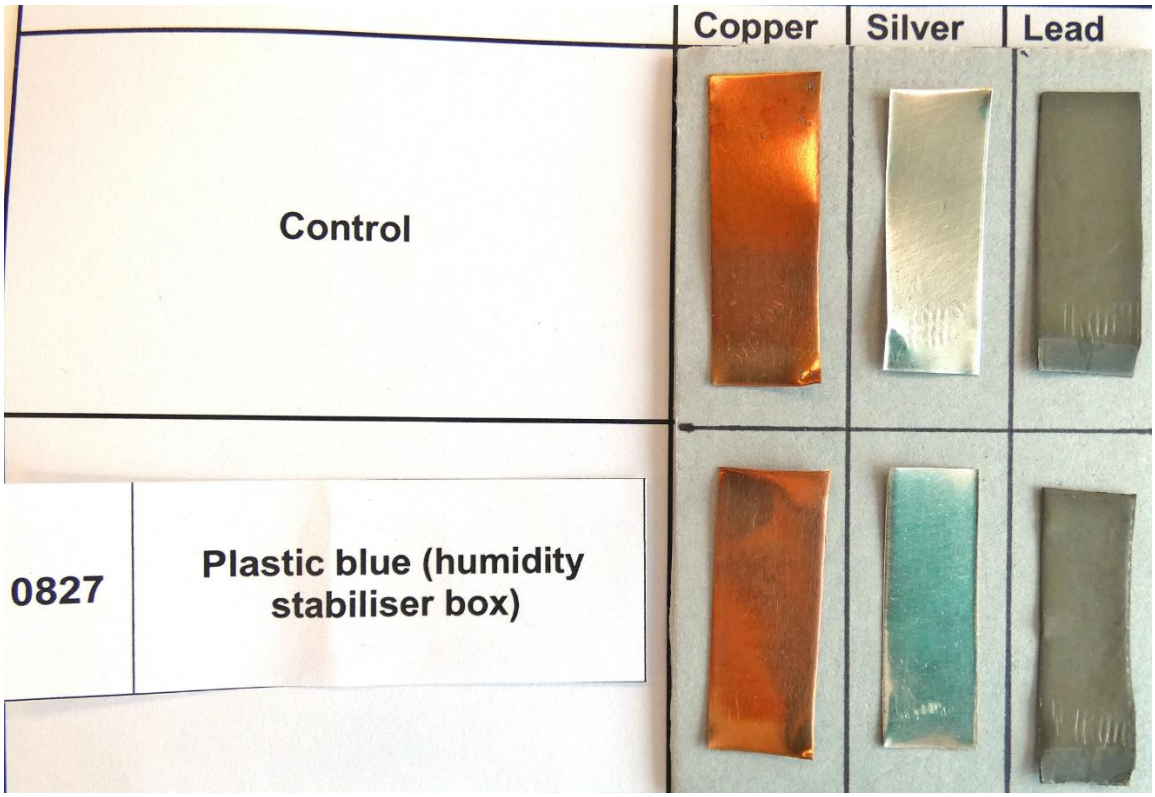
Copper – orange/red iridescence is sometimes formed from natural oxidation of the surface of the token
No loss of shine should be evident on the surface of the token.

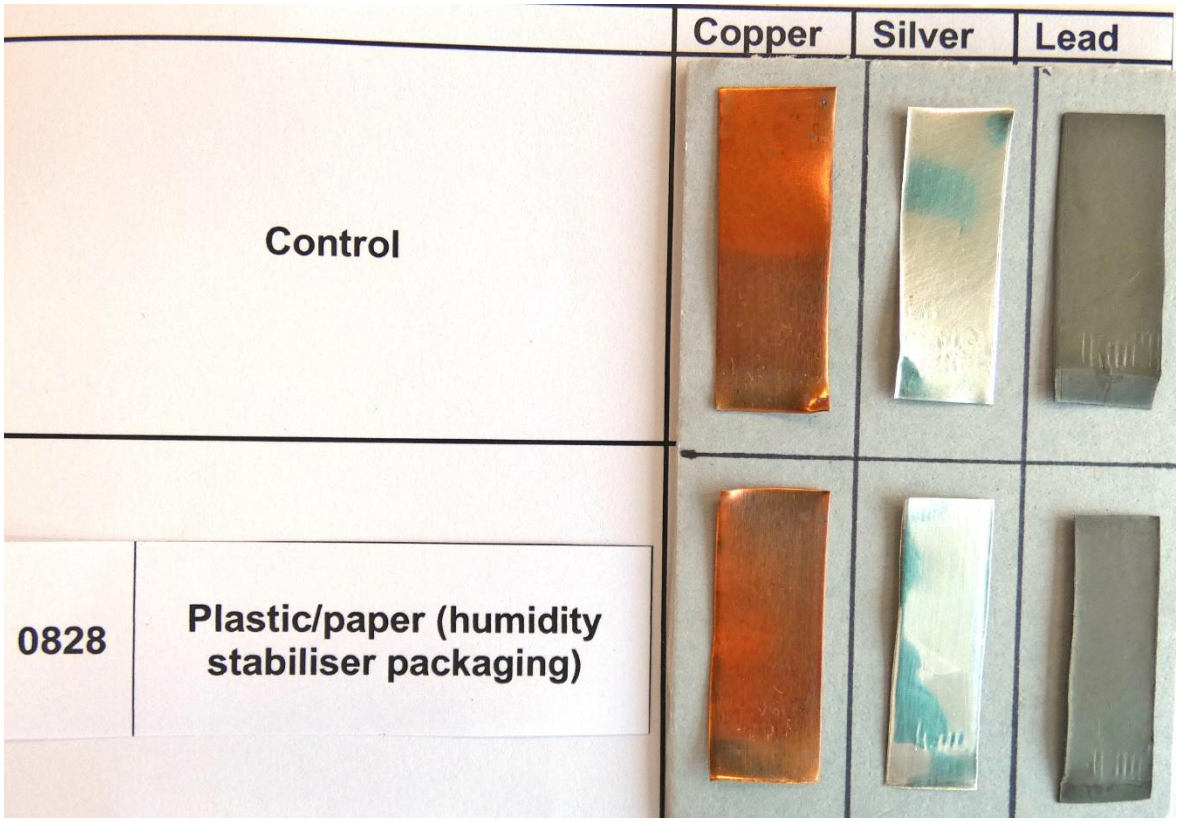
Silver – no change should occur on the silver token

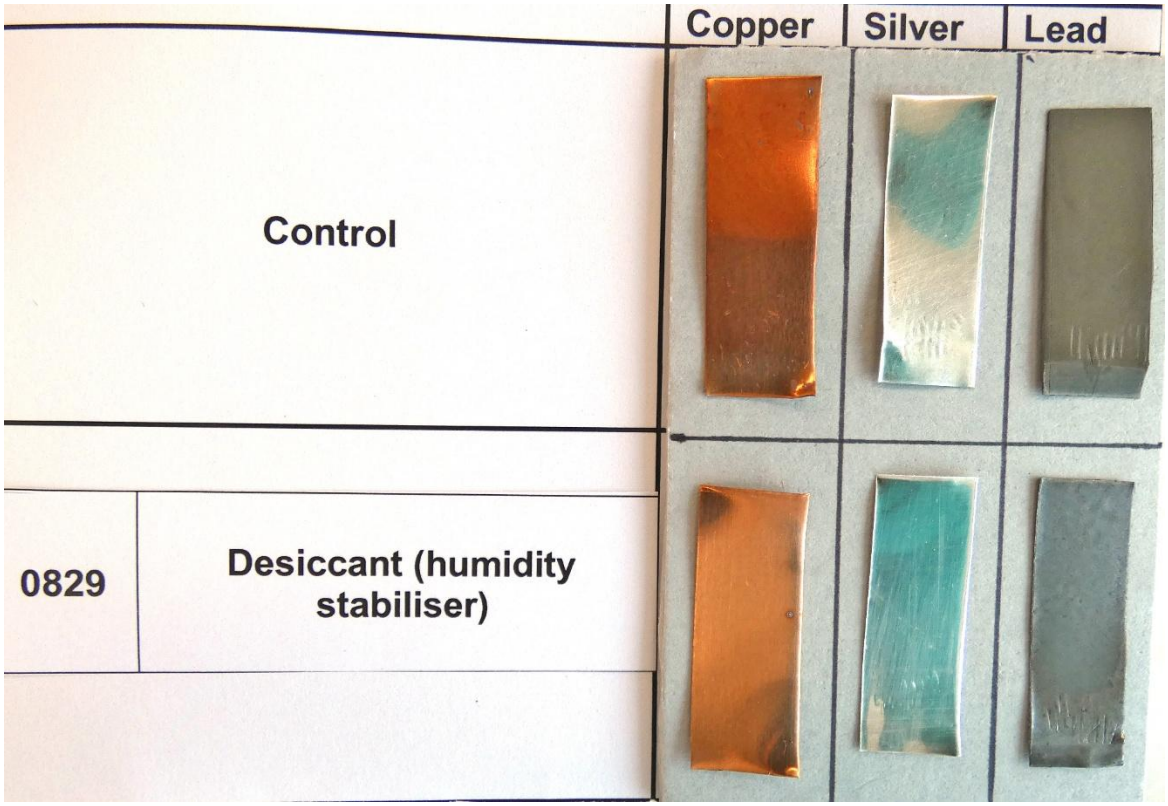
Lead – Loss of shine, darkening of the surface and occasional rusty or purple discolouration is normal through exposure to high humidity and natural oxidation during the test.

Appendix 1

Images of metal coupons compared to control coupons






Copper
Silver
Lead
Control
0829
Desiccant (humidity stabiliser)

Appendix 2

What Corrosion on the test coupons can indicate:

Corrosion on: **Lead**	Shows the presence of: **Volatile Organic Acids** **Formaldehyde**	This can cause the deterioration of: **Most metals** **Glass** **Pigments** **Stone** **Ceramic** **Paper**
Corrosion on **Copper**	Shows the presence of: **Volatile Organic Acids** **Formaldehyde** **Chlorides** **Nitrogen based pollutants** **Sulphur based pollutants**	This can cause the deterioration of: **Most metals** **Glass** **Pigments** **Stone** **Ceramic** **Paper**
Corrosion on **Silver**	Shows the presence of: **Sulphur based pollutants**	This can cause the deterioration of: **Silver** **Iron** **Photographic materials**