

COLLECTIONS PACKAGING & SILICA GEL

BOXES AND BAGS

Requirements for boxing, bagging, marking archaeology archives should be specified in your **Deposition Policy and Procedure**.

There are a range of materials and suppliers to ensure that archaeology collections are well stored and cared for. In addition to monitoring and controlling display and storage environments for temperature and relative humidity, putting in place recommended packing and storage solutions will support ongoing conservation and care of collections.

When packing and labelling collections, using good-quality, conservation-grade materials can enhance the lifespan of objects. These materials are as stable and long-lived as possible to provide a safe environment and prevent loss of information. The materials outlined here have been proven to have long-life conservation grade properties and are most appropriate for collections and archive storage.

Boxes

Boxes protect objects from damage, help buffer them from dust and the environment and enable efficient organisation of storage.

- ◆ **Acid free boxes (brass stapled or wire stitched):** made from acid-free cardboard. A universal product for storing documents, artefacts, costumes, photographs, bulk archaeological finds and for general long term archive storage. They come in many different sizes.

- ◆ **Plastic boxes:** made from polypropylene. Can be used to safely store artefacts for the long or short term. Air-tight plastic boxes maintain a microclimate, so are useful for storing objects that need a controlled environment (e.g. metals or waterlogged materials). Silica gel can be added to reduce relative humidity inside the box (see below). Do not stack plastic boxes as this can disrupt the seal on the box (due to the stacked weight). Clear plastic boxes allow humidity indicator strips or silica gel colour to be monitored without opening the box.

The most commonly used brand is Stewart. They come in different sizes. If you choose a different brand of plastic box, make sure it is polypropylene or polyethylene and that it has a lid with a good seal.

- ◆ **Polystyrene (crystal) boxes:** rigid boxes used to protect small fragile objects (e.g. metal small finds), often with plastazote support inside. They come in different sizes.

Ensure that your **Deposition Policy and Procedure** includes a specified standard box size for your collections – this ensures you are getting maximum benefit from your shelving, and therefore making best use of available space.

Bags

Polythene bags: for bulk finds, or objects that need individual buffering from the environment (e.g. iron, waterlogged objects). They come in different sizes, and should be 500 gauge, sealable and with write-on panels.

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PACKING MATERIALS

Careful packing is vital to protect objects in storage as well as during transport.

- ◆ **Acid free tissue:** made from acid free paper. Used for separating objects or supporting them with 'puffs' made of acid free tissue. Comes in large sheets and rolls.
- ◆ **Bubble wrap:** useful for lining boxes and providing padding for fragile artefacts. **Always use with the bubbles away from the artefact** as they can leave an impression on softer materials if stored for long periods of time. Comes in rolls with different size bubbles. Buffer with a layer of acid free tissue to avoid direct contact between objects and bubble wrap.
- ◆ **Plastazote (or ethafoam):** inert, acid free, closed cell polyethylene foam. Can be cut to shape with a scalpel to create bespoke support. Multiple uses include: lining and packing boxes to support objects; drawer and shelf lining for specimens, glass photographic negatives and finds of all types; book rests; display supports; transport packing. Can be used with wet or dry materials. Comes in different colours (black, white and grey are archival), densities and thicknesses: LD45 is a useful, multipurpose weight.
- ◆ **Jiffy foam:** cheaper, easily available polyethylene foam. Suitable for providing support to fragile finds or providing support in-between stacked 2D objects in short term storage only. Only plastazote is suitable for long-term storage.
- ◆ **Polyurethane foam:** not the same as polyethylene- do not use. Deteriorates rapidly and can become attached to objects causing severe damage. It is identifiable from its distinctive yellowing and discolouration.
- ◆ **Corex:** heat resistant, chemically-stable polypropylene/ polyethylene copolymer made into corrugated board. Sturdy material ideal for box making, artwork backing and framing and support for objects that do not fit into conventional-size boxes.
- ◆ **Tyvek:** high-density, pH-neutral polyethylene. Can be used in sheets to cover objects for dust protection and to protect historic textiles (e.g. garment hangers) and artworks. Smooth, lint-free, breathable and tear resistant.
- ◆ **Cotton tape:** can be used for supporting objects or securing packing materials.

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LABELLING AND MARKING

High-quality labels and marking are important to prevent disassociation through future loss of information.

- ◆ **Tyvek labels:** high-density, pH-neutral polyethylene used for archival-quality labels. It is strong, waterproof and tearproof, and particularly useful in damp or wet contexts. Suitable for long or short-term storage.
- ◆ **Acid free string, cotton tape:** used for tying labels to objects.

Archival pens: don't assume because a pen is 'permanent', it will last as long as you'd like it to. Search out archival quality pens from good suppliers, and archival ink for object labelling:

For marking photographs and drafting film

- ◆ Staedtler Pancolor 303;
- ◆ Staedtler Lumocolor 313, 317;
- ◆ Shachihata Artline 70.

For Tyvek labels and plastic bags

- ◆ Bic Biro - fine point, clear-bodied plastic, black ink;
- ◆ Berol Autoseal Permanent Marker, fine tipped 1.2mm, black.

For objects and X-ray plates

- ◆ Rotring ink, black and white.

Always ensure your labels are clear and legible.

The Collections Trust booklet '[Labelling and Marking Museum Objects](#)' is a very useful guide.



Pottery sherds: labelled, bagged and boxed © Bristol Culture

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SILICA GEL

Silica gel is a desiccant which can be used to reduce the relative humidity inside a bag or box. It can be used with all metals (which favour a very dry environment) but not organic materials such as wood or leather.

- ◆ **Silica gel:** porous, granular, non-toxic silica with a high absorbent capacity. Standard grades of silica can absorb 40% of their own weight of water from the environment.
- ◆ Silica gel is purchased either with or without a self-indicator. Without, the gel does not visibly change as it becomes saturated and a humidity indicator card must be used. Self-indicating silica gel changes colour as it becomes saturated. It is more expensive but a small amount of this can be mixed with non-indicating silica gel to reduce costs.
- ◆ Wear a dust mask and gloves when handling silica gel.

Silica gel should not be used in direct contact with objects, either buy it in pre-packed sachets or pour granules into a polyethene finds bag. Ensure that you have holes in the bag so the silica gel can absorb water from inside the box. As a general rule, use 20% weight by volume (i.e. 200g of silica per litre of box), but seek specialist advice if in doubt.

Silica gel can be regenerated/reconditioned by heating, no special equipment is required and a domestic oven is suitable. To regenerate or dry silica gel, it should be placed in a thin layer on a baking tray and placed in an oven at 110°C for about two hours, then shaken and left for another two hours. Keep the door of the oven slightly open to allow moisture to escape during drying. Allow the silica gel to cool before placing in a sealed container, but do not leave out for too long as it quickly begins to absorb moisture from the atmosphere again.

- ◆ **Humidity indicator cards:** cards with a reactive, colour-coded scale which gives an estimate of the relative humidity (RH). Used inside plastic boxes containing metal objects to ensure the environment is dry enough to prevent corrosion. Colour ranges from pink to blue. The top blue square on the scale indicates the RH.

When storing metals, the silica gel should be changed or regenerated as soon as the first section of the humidity indicator card turns pink. Cards need to be replaced when the ink in the indicating squares begins to run.

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SOURCES OF FURTHER INFORMATION

Guidelines for the Storage of Archaeological Metals

Cardiff University has launched an online resource based on 5 years of research into iron corrosion and conservation:

<https://www.heritagepreservationguidance.co.uk/guidelines-for-storage>

Real time experiments to assess microclimate storage in plastic boxes has resulted in recommendations for choosing the design of boxes that perform best in leakage tests, the amount of silica gel desiccant to use in the box and details of how this impacts on regeneration periods (i.e. how often you have to replenish silica gel). It also provides guidance on silica gel positioning in boxes and the process for bagging objects for storage.

Suppliers of packing and storage materials

These are not the only suppliers of conservation grade materials, just some commonly used ones. Not all of the products supplied by these companies are conservation grade - always read the specification before purchasing:

General conservation suppliers

- ◆ Conservation by Design Ltd
<http://www.conservation-by-design.co.uk>
- ◆ Conservation Resources (UK) Ltd
<http://www.conservation-resources.co.uk/>
- ◆ Preservation Equipment Ltd
<http://www.preservationequipment.com>

Boxes and packing materials

- ◆ Davpack
<https://www.davpack.co.uk/>
- ◆ Kite Packaging
<https://www.kitepackaging.co.uk/>
- ◆ Macfarlane Group UK Ltd
<https://www.macfarlanepackaging.com/>
- ◆ [Stewart and crystal boxes] The Stewart Company
<http://www.stewartcompany.co.uk>
- ◆ [Archive boxes] G. Ryder & Co. Ltd
<https://www.ryderbox.co.uk/>
- ◆ [Correx] Antalis Ltd
www.antalis.co.uk
- ◆ [Foam] Polyformes Ltd
<https://www.polyformes.co.uk/>
- ◆ [Foam] GB Foam Direct
<https://www.gbfoamdirect.co.uk/>
- ◆ [Really Useful Boxes – not airtight]
<http://www.reallyusefulproducts.co.uk/uk/>
- ◆ [European standard crates for transport] Allibert Handling Ltd
www.allibert-equipment.com
- ◆ [Bags] Polybags Ltd
www.polybags.co.uk

Silica gel

- ◆ GeeJay Chemicals Ltd
<http://www.geejaychemicals.co.uk/>
- ◆ Agropharm Ltd
www.agropharm.co.uk