

Creating a Time Capsule



Time capsules are a collection of items used as a means of communicating and sharing artifacts with future generations. Often capsules contain everyday items like newspaper clippings, fliers, and photographs that paint a picture of the people who created the capsule. Many libraries, organizations, and individuals bury time capsules, or place them in building cornerstones or plinths to commemorate significant moments. The prognosis for survival of time capsule contents is not very good. However, there are measures that can be taken to improve the chances of better preservation for time capsule contents.

Inside this issue:

How to Get Started?	1
The Capsule	2
Conditions Inside the Capsule	2
Location	3
Storing the Contents	4
Consulting the Conservator	7
Additional Resources	7

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http://pilotonline.com/news/government/local/virginia-beach-time-capsule-whets-history-appetite/article_86860062-4e33-5063-8258-d7d5e35600c4.html

How to Get Started

The first step is to determine the most important items to go in the capsule. Materials can range widely from textiles like flags, to small trinkets like pins, but the majority of time capsule contents are paper-based; documents, handwritten letters, and photographs

often best tell a story. Keep in mind that smaller contents are easier to store. A list of the contents that explains the significance of each object should be included in the capsule. Including a photograph of each item will also help to show future historians and

conservators how the items have aged. Copies of this documentation should also be kept in other locations

in case the time capsule interior becomes damaged.

“If your capsule is not water and moisture tight, the contents will deteriorate.”

The Capsule

It is important to use a strong, waterproof enclosure that can be sealed. If your capsule is not water and moisture tight, the contents will deteriorate. Any amount of moisture that seeps into the capsule will cause problems ranging from mildew to mold to structural and physical damage to the contents. Paper is especially sensitive to moisture and harbors mold growth.

Canisters can be made of copper, aluminum, stainless steel, glass, or polyethylene. Sheet metal and plastic fabricators can make custom containers. The capsule can be sealed either with a screw-cap closure and a gasket or a welded joint. Glass containers can be sealed with silicone sealant. Soft solder should not be used because the solder will deteriorate allowing water and moisture to enter the container and damage the contents. Large di-

ameter polyethylene pipe end-caps can be heat-sealed and the cap threads can be sealed with thin Teflon tape.

Do not use polyvinylchloride (PVC) pipe or plastic containers as the capsule. Some chemical components in PVC are naturally unstable and will release acids into the canister as they break down; these acids will attack and deteriorate the contents.



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Condition Inside the Capsule

The microenvironment inside the capsule will directly affect how the contents are preserved. It is important to exclude as much water and oxygen as possible when sealing the container.

Do this in a cool, dry environment, if possible. The following are a few simple precautions to help keep the interior environment dry.

Water and Moisture

Silica gel is a buffer that can be added to the capsule to absorb and release moisture vapor to create equilibrium in the relative humidity in the closed capsule. Silica gel comes in granular or powder form, but it perhaps most commonly seen in small packets that are often added to packaged goods like shoe-boxes. Closely follow the manufacturer's instructions for conditioning the silica gel to a low humidity level before it is used and be sure to seal the capsule soon after adding the silica gel. Silica gel is sold in art supply stores, hardware stores, and by conservation suppliers. ART-

SORB[®], a more costly but easy-to-use form of silica gel, is available from conservation suppliers such as University Products (see suppliers list).



Oxygen Removal

Oxygen will play a part in the degradation of the items in the time capsule, even without the presence of water. Argon or nitrogen gas may be introduced into the capsule just before it is sealed to replace oxygen and air. Bottled gas companies supply these gases and can offer advice on this procedure. Another method for removing oxygen in

the capsule is to use an oxygen scavenger such as Ageless[®], which is a powder or granular substance available from conservation suppliers. It should be placed in the container just before it is sealed and should not be placed near heat-sensitive items because it generates heat as it reacts with oxygen.

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Location

The location of the capsule should be as dry as possible. A time capsule can be placed inside a cement burial vault for added protection, or coated with asphalt- or pitch-impregnated fabric to keep out water. If the capsule is placed

in a cornerstone, make sure the area is northerly or otherwise sheltered from fluctuations in temperature caused by sun heating. The area should also be vibration-free.

Storing the Time Capsule Contents

“All of these items should be stored individually in zippered bags or rigid containers composed entirely of inert plastics such as polyester, polyethylene, or polypropylene.”

Even with the best intentions and quality storage materials, time capsules are not guaranteed to perfectly preserve contents. Some materials are inherently unstable and will chemically react with neighboring items, which over time causes deterioration and discoloration. The following is a short list of

common time capsule contents and tips for best storing (or not including) them. All of these items should be stored individually in zippered bags or rigid containers composed entirely of inert plastics such as polyester, polyethylene, or polypropylene.

Photographs

In general, properly processed, fiber-based, black-and-white photographic prints on archival quality paper with an alkaline reserve of pH 7.5-8.0 will keep best. Remember, color prints and slides can fade even when kept in the dark.

Less stable photographic materials, which are more prone to deterioration and not recommended to include:

- Prints on resin coated papers
- Negatives on acetate and nitrate film stock

- Digital prints may not last as long as traditional prints

Prints of similar sizes can be stored together in the same inert plastic bag but should be placed in individual polyester sleeves or interleaved with acid-free, unbuffered tissue (see supplier list). This allows for added protection should the photographs swell from moisture. Further information on print stability can be found online at the following link:

www.imagepermanenceinstitute.org

Paper Documents

Paper documents should be housed individually. They should be placed within inert plastic sleeves or acid-free, lignin-free folders to provide support. Acid-free, lignin-free tissue can be used as interleaving. The sleeves or folders containing the documents should then be placed inside of an inert plastic bag.

It is not recommended to include original newsprint because it deteriorates quickly and releases acids that could harm nearby items. An alternative to newsprint items is to include photocopies or digital images of the newspaper on acid-free, lignin-free paper with high alpha cellulose content and an

alkaline reserve of pH 7.5-8.0. However, if newsprint must be included, it

should be isolated from all other materials in its own inert plastic bag.

Rubber and Other Unstable Plastics

Objects made of rubber and other unstable plastics, like squeeze balls and VCR tapes, should not be placed in time capsules since rubber and some plastics deteriorate over time. In the time capsule this deterioration could release sulfur and other pollutants

which will damage other materials in the container. Avoid including items made of or containing polyvinyl acetate (PVAC), or polyvinyl chloride (PVC) (like plastic food wrap), as they will deteriorate and release acetic acid and hydrochloric acid as they age.

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Wood

All wood, especially oak, gives off acidic vapors and will harm other ma-

terials in the capsule, such as metal.

Metal

Metal objects should be housed in corrosion intercept film enclosures to help reduce tarnishing. Coins can be placed

in coin holders composed of polyethylene or polypropylene.

Textiles

Textiles should be cleaned and free of insects before they are included in a time capsule. Their folds should be padded out with acid-free tissue paper before they are put in the time capsule to prevent severe creasing. They can be placed in a large zipper bag composed of an inert plastic. If possible,

avoid including materials such as silk, wool and hair. These materials give off sulfuric pollutants when they deteriorate, which will harm other objects. If it is absolutely necessary to include these items, they should be housed individually in inert plastic zipper bags.

Electronic Devices and Media

Batteries should be removed from all electronic media before these items in the time capsule. Electronic media can

be problematic because it is often made of unstable plastics with short life spans. If electronic media such as

DVDs or flash drives are included, be sure to also include instructions and playback equipment.

Food Products

Most food products will deteriorate and damage other items in the capsule.

Consulting a Conservator

It is always best to consult a conservator if there are concerns about contents or appropriate storage in a time capsule. Also see *Materials Guidelines* for a list of stable and unstable materials.

Additional Resources

Time Capsule Guidelines

Minnesota Historical Society. (2003). "Building a Time Capsule: Guidelines for Preserving Materials." <http://www.mnhs.org/preserve/conservation/timecapsule.html>.

Smithsonian Institution, Museum Conservation Institute. (2006). "Time Capsules: Archival Protection." http://www.si.edu/mci/english/learn_more/taking_care/timecaps.html.

History of Time Capsules

International Time Capsule Society. Retrieved from <http://crypt.oglethorpe.edu/international-time-capsule-society/>

Conservation Suppliers

Conservation Resources International

5532 Port Royal Road
Springfield, VA 22151
Toll free: (800) 634-6932
www.conservationresources.com
Archival housing/storage supplies, photographic supplies, general

Gaylord Archival

P. O. Box 4901
Syracuse, NY 13221-4901
Toll Free: (800) 448-6160
www.gaylord.com
General conservation supplies, housing supplies

Hollinger Metal Edge, Inc.

6340 Bandini Blvd
Commerce, CA 90040
Toll Free: (800)-862-2228
www.hollingermetaledge.com
Archival housing/storage supplies

Light Impressions

100 Carlson Road
Rochester, NY 14610
Toll Free: (800) 975-6429
www.lightimpressionsdirect.com
Photographic supplies, housing, matting and framing supplies

University Products

517 Main Street
P. O. Box 101
Holyoke, MA 01041
Toll Free: (800) 628-1912
www.universityproducts.com
General conservation supplies, housing and matting supplies

Talas

330 Morgan Ave
Brooklyn, NY 11211
Telephone: (212) 219-0770
www.talasonline.com
Conservation supplies, photographic supplies, general

Gerald R. Ford Conservation Center

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