

- Ensure the Time Capsule and everything you're preserving is completely dry.
- Do not include staples, paper clips, or rubber bands. They can corrode over time and leave residue on your other contents.
- Separate items as much as possible.

- Calculator
- Lists of Members, Parishioners, Students
- Invitations to Past & Current Events
- Menus
- Golf Ball & Tee

- Further minimize the risk of unexpected chemical interactions among the time capsule contents by packaging each item: put each item or group of like items in acid- and lignin-free paper envelopes, folders, or boxes; uncoated PET zipper bags; or glass or PET, HDPE, or PP plastic vials with screw-top lids
- Include a list of the contents in the time capsule and why they were included
- DO NOT use polyvinyl chloride (PVC) pipe, bags or plastic containers in or as the capsule. Some of the chemical components in PVC are naturally unstable and break down in a process that cannot be reversed, releasing acids into the canister that will attach other items in the canister.
- Water and Moisture Silica gel is a substance that can help to buffer the humidity in the capsule. It is a granular material that absorbs and gives off moisture vapor to create an equilibrium in the relative humidity in a closed space. At least one-fifth of the capsule's volume should be packed with silica gel to provide enough buffering to make the interior as dry as possible. The gel must be conditioned to a low humidity level before it is used and should be isolated from the contents in the capsule by placing it in a cotton bag. Place the contents into the capsule first and then add the silica gel filled bag. Seal the capsule soon after adding the silica gel. Silica gel is sold in granular

or powder form in art supply stores, hardware stores, and some department store closet shops. Follow the manufacture's instructions for conditioning the silica gel. ART-SORB®, a more costly but easy-to-use form of silica gel, is available from conservation suppliers. (See the Supplier List) Oxygen Removal Oxygen will still 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. Another method for removing oxygen in the capsule is to use the product Ageless®. Ageless® is a powder or granular substance often supplied in tablet form. It is an oxygen scavenger and when sealed in a small space will grab up any available oxygen that might be in the container. It should be placed in the container just before sealing the container and should not be placed near heat-sensitive items as it generates heat as it reacts with oxygen. Ageless® is available from conservation suppliers.

- Notes on Stable and Unstable Materials for Inclusion Electronic Media Electronic media can be very problematic in a time capsule. Videotapes, audio tapes, and compact disks may be a problem because the equipment to play them back may not be available when the time capsule is opened. If you do choose to include such items remember to include instructions and playback equipment. Information about the software and hardware required can be important. Media carriers can also be made of unstable plastics with short life spans.
- Photographs Photographic prints on paper should fare well. Prints on resin coated papers and some newer printer papers may not last as long. Negatives on unstable plastic carriers such as acetate and nitrate film stock will not survive. In general, properly processed, fiber based, black-and-white photographic prints, preferably treated with gold, selenium or poly-sulfide toner 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. Digital prints may not last as long as traditional prints
- Newspaper Newsprint is acidic and deteriorates quickly. An alternative for including newsprint is to make photocopies of the newspaper on archival quality acid free lignin free paper (high alpha cellulose) with an alkaline

reserve of pH 7.5-8.0 and include these with the newsprint in the capsule. The acids in the newsprint will make the environment inside the capsule acidic, so it should be isolated from other materials.

- Rubber and Other Unstable Plastics Objects made of rubber and other unstable plastics, like those used to make squeeze balls, should not be placed in time capsules since rubber and some plastics deteriorate over time, releasing sulfur and other pollutants which will attack other materials in the container. Items made of or containing polyvinyl acetate (PVAC), polyvinylidene chloride (plastic food wrap), or PVC will deteriorate even in a sealed capsule and will release acetic acid and hydrochloric acid as they age.
- Wood All wood, especially oak, gives off acid vapors and will harm other materials in the capsule. Textiles Textiles should be clean and insect free. Cotton can act as a humidity buffer in the capsule when the temperature fluctuates. Polyester fabrics will most likely remain stable. Silk will deteriorate and give off sulfurous pollutants. Wool and hair contain sulfur and will off gas corrosive gases.
- Some Things Last Better Than Others When selecting items made of paper, choose a good quality paper. Avoid newsprint and inexpensive yellow tablet paper as these deteriorate quickly. Photocopy newspaper articles onto archival quality paper. "Permalife" paper is a brand that is acceptable.
- Lamination or dry-mounting is not recommended. Black and white photographs last longer than color ones, so these are preferable. Those on fiber-based paper last the longest. If color is important, make color photocopies in a stable format such as those provided by Epson color printers.
- Avoid canned foodstuffs as they may explode from trapped gases emitted during microbial breakdown of the food and stain surrounding items permanently. Freeze-dried foods sealed completely in impermeable packaging are preferable. Don't use pressure sensitive tapes or adhesives of any kind for wrapping items or sealing envelopes, because these can stain other items. PVC (polyvinyl chloride), vinyl sheeting, natural rubber, or polyurethane foam may deteriorate quickly over time and release gases that can harm other materials in the capsule space. These materials are

commonly found in toys, dolls, and other objects. If you select these items, isolate them from the other items in the capsule.

- Avoid wool, silk and nylon fabrics, if possible. Wool and silk contain sulphur that can tarnish metals. Nylon deteriorates relatively quickly over time. Don't place loaded ammunition or other explosive materials or chemicals in the capsule. Unloaded weapons are acceptable, but isolate them so that lubricants cannot seep out and stain other objects.
- How to Protect Items in the Capsule- Some items are fragile and need to be wrapped or otherwise protected for long term storage in the capsule.
- If flowers are to be placed in the capsule, freeze-dry or press them and place into a polyethylene bag.
- Polyethylene zip lock closure bags are the best to use as they are stable. They can be found in grocery stores, but check the box to be sure that the plastic is made of polyethylene only.
- Items that are not in individual bags or other containers should not touch each other in the capsule in order to eliminate color transfer and the migration of acids and other chemicals from poor quality paper.
- Place all natural and paper items in polyethylene bags or polyester film enclosures.
- Polypropylene plastic is also very stable and can be used to protect photo and paper enclosures. Polyester clear film is very stable and also can be used to protect papers and photos.
- Interleave between posters and maps or other flat items in the same bag or enclosure with acid-free tissue. Use unbuffered MicroChamber or ArtCare papers and boards for black and white photographs and protein-based materials.
- Wrap textiles in polyester film and tie with un-colored cotton twill tape.
- When folding clothing items, place crumpled pieces of acid-free tissue in the fold to prevent sharp creasing and broken threads.
- Place coins and other metal objects in a tarnish-reducing enclosure such as Corrosion Intercept film or polyethylene/polypropylene coin holders. Tarnish-inhibiting papers and cloths should be avoided as the inhibitors are volatile organic chemicals and may dissolve plastics and harm other materials in the capsule.

- Place items in enclosures such as Corrosion Intercept or Static Intercept film bags. Oxygen absorbers such as Ageless or RP may be used to further prevent oxidation of sensitive surfaces (available along with other supplies from Keepsafe Systems).
- Place the heaviest objects on the bottom of the capsule.
- Use only a soft pencil to label items rather than ink, ink pens or felt-tip markers. Do not use stick-on labels.
- Fill any empty spaces around the items with crumpled acid-free tissue paper to prevent shifting. Don't use plastic packing materials, especially bubble pack. It is best to avoid the starch-based packing "peanuts", as they are not made for long term use.
- The interior of the capsule, as a rule, should be conditioned to 20%-25% relative humidity. Desiccant silica gel may be used in individual enclosures for materials such as metals and electronic components, but paper and other organic materials require a minimal level of moisture to avoid extreme embrittlement and deterioration. Silica gel crystals in canisters or sheet form (ArtSorb panels) should be conditioned to 20%-25% and sealed until ready for use, then placed inside the capsule housing immediately before sealing. One ounce of gel should be used for every cubic foot of air inside the capsule.