

## Cold Storage of Photographic and Film Materials

*This leaflet is for institutions with smaller collections that need an affordable method for preserving their photographic and film material. This is not meant to be inclusive, or to discuss methods outside of packing material for frozen storage. For further information on all the issues revolving around cold storage, see sources marked in the bibliography.*

So, you have determined that cold storage is appropriate for your collection. Many smaller collections can be stored, with precautionary packing, in commercial chest freezers. These are easy to obtain, have relatively low energy use, and easy to find a local service agent. The challenging part to chest freezers is that although achieving cold temperature within these units is easy, humidity control is not. This is where conditioning and packaging for humidity control becomes important. Below is a “recipe” for packaging your items for cold storage.

### Materials (per package)

- Two freezer weight zippered polyethylene bags
- Two four-ply archival quality mat boards
- One archival storage box
- One humidity indicator card
- Archival paper/plastic for filler material

### How to do it:

- Put your photographs into freezer bags, gently press out air and seal.
- Desiccate the mat board. This can be done in a few ways, keeping the following in mind:
  1. Keep all sides exposed in heating and cooling to avoid warping.
  2. Drying times may need adjustment, depending on your equipment.
  3. Check actual RH of board after cooling by placing a piece of the desiccated mat board in a polyethylene bag with a humidity indicator card, close and leave for a few hours- if properly desiccated, the humidity indicator card should be low- around 10%. Once you get your timing down for proper desiccation, you will not have to do this all the time.
- OK! Back to drying out the mat board: two methods: (of course, perform these under constant supervision)
  1. Microwave:
    - Without turntable, place board horizontally in oven, exposing as much surface area as possible (a little microwave dish would work to elevate the board).
    - Heat on high for 30 seconds, turn over, and heat on other side for 30 seconds.
    - Cool. Use immediately after cooling or store for a short period in a well-sealed bag.
  2. Conventional/convection oven:
    - Preheat to 195-210 degrees.
    - Place single sheets of mat board on clean metal rack.
    - Heat 3-5 minutes.

- Cool on a rack. Use immediately after cooling or store for short period of time in a well-sealed bag.
- Make a sandwich within the archival box: one piece of desiccated mat board, bag(s) of photographs, second piece of desiccated mat board.
- Add filler material of acid-free tissue/paper, ethafoam, corrugated acid-free paper or plastic to fill so items are snug within box.
- Place Box within second larger bag. Place humidity indicator card within bag, press out extra air and seal.
- This package is now ready for cold storage.
- Monitor indicator cards when retrieving items from storage. Higher humidity on card may indicate a leak in the bag- replace bag as necessary.
- Monitor bags- bags that do not seal well or have holes should be replaced.

#### FOR MORE INFORMATION

- You can find vendors to purchase storage packaging materials through the LYRASIS Preservation Services and Supplies database: <http://www.lyrasis.org/Preservation/Search-For-Vendors.aspx>
- Image Permanence Institute: <http://www.imagepermanenceinstitute.org/>
  - The Image Permanence Institute is a wealth of information for photographic materials and acetate film. See: "Storage Guide for Color Photographic Materials", "IPI storage Guide for Acetate Film" by James Riley.
- Wilhelm Imaging Research, Inc.: <http://wilhelm-research.com/index.html>
  - See: The Permanence and Care of Color Photographs: Traditional and Digital Color Prints, Color Negatives, Slides and Motion Pictures: Chapter 19 and 20
- Bigelow, Sue. "Cold Storage for Photographs at the City of Vancouver Archives." 2004. Available at: [http://www.wilhelm-research.com/canada/Vancouver\\_Archives\\_2004.pdf](http://www.wilhelm-research.com/canada/Vancouver_Archives_2004.pdf)
- Wagner, Sarah. "Cold Storage Options: Costs and Implementation Issues." Topics in Photographic Conservation, Volume 12. AIC Photographic Materials Group. <http://mac.mellon.org/issues-in-conservation-documentation/ColdStorCostsCORRFinal.pdf>
- National Park Service Conserv-o-Grams on cold storage packaging. <http://www.nps.gov/history/museum/publications/conservoogram/14-10.pdf>  
<http://www.nps.gov/history/museum/publications/conservoogram/14-11.pdf>  
<http://www.nps.gov/history/museum/publications/conservoogram/14-12.pdf>