

Drying Damaged Paper Goods

Water damaged paper goods such as books, manuscripts, family records, scrapbooks, keepsakes, collectibles and other paper goods can absorb on an average of 60% of their weight in additional water. The major damage to paper goods and books will take place within the first 4 to 8 hours. Coated stock papers of today propose a special problem that is if they become wet the clay or starch base coatings left to air dry will weld together and become permanently bonded. Dry standard of 7 to 9% EMC is normal for paper goods.

The first line of defense for the technician is not to try and determine the value of the damaged items but protect paper goods from further damage by either freezing items that are 20% EMC to saturation as soon as possible. Freezing will buy time to determine the restoration procedure. This process is called stabilization by freezing. A level of about -5°F is recommended.

A photographic record keeping is advised of content items from inspection, during the drying and restoration process and final inspection. Paper goods, keepsakes, collectibles can become very fragile when wet. Care in handling and inspecting is very important so not to further damage the item or its value.

Five methods of drying water or moisture damaged paper goods and content items. When unsure as to the drying procedure, freeze the items and seek professional advice.

1. Hand-Drying:

Hand-drying should be considered only if the item have surface moisture. This may include hand drying with hand and paper towels or using hand held low heat air blowers (hair dryers). Do not rub items.

2. Air-Drying

Air-drying should be considered when the amount of items need drying is small in numbers. Air-drying can be very time-consuming and should be done in a clean cool open area. Electric fans can be used to move air over items and air circulation of the area.

3. Desiccant Dehumidification

Desiccant dehumidification can be associated with hand-drying and air-drying. This process has been effective on items up to moderately wet. This would include items with a moisture content of 18% and less or where the items are in an area of high relative humidity.

4. Vacuum-Drying

Vacuum-drying takes place in a vacuum chamber. Using low (32°F) temperature the pressure is lowered until the moisture becomes volatile and mixes with air. Warm air is pumped into the chamber and the pressure is raised to complete the drying process. The process takes a wet item and changes a wet or liquid to a vapor during the drying cycle, this can take up to several weeks to complete.

5. Vacuum Freeze-drying

Vacuum freeze-drying is a process in which frozen materials are placed in an environmental chamber that simulates the condition found in space. The process takes a frozen item in the vacuum chamber, the air is removed to create a vacuum, controlled heat is applied to complete the drying process. The process takes a wet frozen item and passes the solid ice to a gaseous state thus avoiding re-liquefaction. This process is called sublimation.