



MINNESOTA HISTORICAL SOCIETY

ARCHAEOLOGICAL: GENERAL CONSIDERATIONS

Priority: The actual priority of drying treatment will vary according to the nature of the material and the specific object. In general, organic materials should be moved and treated first (within 24 hours). The order of priority should be: botanical and plant materials; leather and skin; textiles; bone, antler, horn, teeth, shell; non-glazed ceramics; reconstructed glass and ceramics; glazed ceramics and glass; untreated metal; conserved metal and lithics.

An essential general priority is the retention of provenance information from the objects or packaging materials associated with the objects.

Handling Precautions: Refer to the sheets for specific object materials for actual handling precautions. Many archaeological objects, such as lithic collections, have multiple objects that may be stored in the same box or bag belonging to one provenance. Wrap fragile and/or fragmented artifacts individually to keep the parts together and to help prevent further fragmentation. Each individual artifact may or may not be labeled. When the bags and boxes become wet or damaged in some way, the labeling information on the object or package may become lost during the recovery process. Keep each lot/catalog number of artifacts together if the original packaging container is damaged beyond use. Create a duplicate label with the provenance information on it and place it with the objects. Noting the shelf location would also be helpful before the materials are moved for drying.

Packing Method: Varies with the fragility of the material; see individual sheets for specific requirements. In general, pack in such a manner so that provenance lots will not get intermixed during unpacking and drying.

Supplies Needed

- soft bristle brushes
- portable dehumidifier
- fans
- clean water labels
- sponges, clean towels, paper towels or unused newsprint

Preparation For Drying: Varies with the specific material, however, in most for cases, archaeological materials will tolerate sponging with clean water or a slightly damp soft bristle brush to remove surface mud.

Drying Procedure: Again, make certain that provenance information is kept intact and with the artifacts throughout the drying process. Most artifacts and materials can be dried using fans that are set up so as not to blow directly upon the objects. Excess moisture can be absorbed by sponges, clean towels, paper towels or unused newsprint. Check daily to make certain that mold growth has not occurred. A portable dehumidifier should be set up to slowly bring the relative humidity in the room down to 50%.

## ARCHAEOLOGICAL: BONE AND SHELL

**Priority:** These materials are susceptible to water damage if allowed to be wet for extended periods of time. Treat within 48 hours, if possible. Mold growth will occur in packages that contain excess moisture.

**Handling Precautions:** Shells with powdery surfaces will be readily affected by water, whereas mammalian long bones will be relatively unaffected. Move items only after a place has been prepared to receive them. Empty bags and boxes of excess water and extraneous debris before moving.

**Packing Methods:** Varies with the fragility of the objects. Wet bone and shells should be kept wet until controlled drying procedures are begun. Pack each object separately on damp absorbent materials such as paper towels, acid-free tissue, etc. Label decorated and objects with fragile surfaces to go to the Objects Conservator for drying and treatment.

### Supplies Needed

**clear water  
fans**

**plastic for wrapping  
labeling supplies**

**sponges, clean towels, paper towels  
or unused newsprint  
dry blotting materials**

**Preparation For Drying:** Rinse or sponge stable objects with clear water to remove mud and extraneous dirt. Be careful to preserve provenance information, especially where the labels on the objects have been abraded or dissolved off. Keep these objects moist by wrapping in plastic until they can be treated.

**Drying:** Sponges, clean towels, or unused newsprint may be used to absorb excess moisture.

**Procedure:** Exchange wet for dry blotting material at least daily until items are dry. Check daily for mold growth.

Air dry, using fans to keep air moving without blowing directly on the pieces. Place items on propped up window screens if drying racks are not available. This will allow air to circulate on all sides of the objects. Use portable dehumidifiers to slowly remove moisture from the area and objects. Bring relative humidity down to 50%.

## ARCHAEOLOGICAL: CERAMICS

(earthenware, terra cotta, unglazed stoneware, and sunbaked earth)

**Priority:** Sunbaked earth and terra cotta objects should be dried within 24 hours to prevent loss of surface detail and disintegration. Begin drying within 48 hours to prevent mold growth and softening if objects have been saturated.

**Handling Precautions:** Reconstructed vessels may become unstable at the joins, especially if water permeable adhesives were used (e.g., Elmer's Glueall). Keep pieces together in a plastic bag or box. Be careful to retain provenance information.

**Packing Methods:** Some low-fired ceramic objects may contain soluble salts that will migrate to the surface when the object dries, causing loss of surface detail due to recrystallization and subsequent spalling. Separate those objects and very low-fired ceramics. Keep moist by packing in damp toweling and plastic bags.

### Supplies Needed

**plastic bags or boxes**  
**blotting material**  
**fans**

**damp toweling**  
**soft bristle brushes**

**distilled water**  
**portable dehumidifier**

**Preparation For Drying:** Have a place set up where pieces can be laid out for maximum air flow to allow for even drying. Place objects on raised screening to distribute air flow. Salt containing objects may have to be soaked to remove the salts by diffusion into distilled water; consult a Conservator.

**Drying Procedure:** Blotting material can be used to absorb excess moisture. Gently brush off excess mud and dirt if it can easily be distinguished from the object (e.g., in the case of low fired prehistoric material and sunbaked earth). Dry slowly with fans blowing above the surface of the objects. A portable dehumidifier should be set up to slowly bring the relative humidity in the room down to 50%.

## ARCHAEOLOGICAL: METALS

Priority: Unstable (i.e. actively corroding, heavily mineralized, and copper chloride involved objects) should be treated with 48 hours since they can suffer damage from long term exposure to water. Stable and treated artifacts can be dealt with last.

Handling Precautions: Move items only after a place has been prepared to receive them.

Packing Water sensitive artifacts, such as copper alloys should be packed with silica gel in

Methods: individual containers. Metal artifacts with textile or leather remnants and pseudomorphs must be wrapped quickly to retain the moisture. Letting these objects dry out without proper treatment may cause the loss of the pseudomorphic evidence. Previously treated objects (e.g., tannic acid and wax may exhibit "flash" rusting under the wax coating. These objects should be packed with silica gel to stabilize the rust until the wax can be removed and the tannin treatment reapplied. The same is true for artifacts that have been treated and coated with an acrylic resin.

### Supplies Needed

**silica gel**  
**clear water**  
**fans**

**plastic wrapping materials or bags**  
**blotting material**  
**heat gun**

**soft bristle brushes**  
**portable humidifier**

Preparation For Drying: On most metal artifacts that have become wet, the mud or dirt can be gently removed with clear water and a soft brush. If previously dry, composite objects such as a jackknife with bone handles should be kept moist and taken to a Conservator for treatment or advice.

Drying Procedure: Blotting material can be used to absorb excess moisture. Exchange wet for dry blotting material at least once daily until artifacts are dry. Check daily for increased corrosion, shrinkage and fragmentation.

Air dry, using fans to keep air moving without blowing directly on the artifacts. Raise items off the floor or work surface on trestles, pallets, or lumber to allow air to circulate underneath the items. Smaller artifacts such as nails can be placed on drying screens.

Metal pieces that have not previously been coated with a thermoplastic resin can be dried with moderate heat (90-100 degrees F) in an oven or with a hand held heat gun. Use portable dehumidifiers to slowly remove moisture from the objects and area. Bring the relative humidity down to 50%, although the optimal range for completely metal objects is 30%-35%.