

Salvage at a Glance

The “❄” symbol indicates that materials can be safely frozen. In some cases freeze drying or a sequential treatment like freeze-thaw-air dry is the most appropriate technique for salvage. In other cases freezing is the best way to “buy time” by putting wet items in stasis. See recommendations for individual materials below for more detail.

Books

	Material	Priority	Handling Precautions	Packing Method	Drying Method
❄	Cloth or paper covers	Air Dry. Freeze within 48 hours, if many books.	Do not open or close; do not remove covers.	Pack spine down in plastic lined cardboard box, one layer deep.	Air Dry, fanning pages and standing upright. Freeze, then Vacuum Freeze Dry.
❄	Leather and vellum covers	Air Dry immediately. Freeze if many books.	Do not open or close; do not remove covers.	Separate with freezer paper, pack spine down in plastic lined cardboard box, one layer deep.	Air Dry, fanning pages and standing upright. Freeze, then Vacuum Freeze Dry.
❄	Books with coated paper	Freeze immediately. Air Dry if no other option.	Do not open or close; do not remove covers. Coated paper will permanently block if allowed to dry.	Keep wet, pack spine down in plastic lined cardboard box, one layer deep.	Freeze, then Vacuum Freeze Dry. Air Dry, interleave pages and fan books open.

Paper: Uncoated

	Material	Priority	Handling Precautions	Packing Method	Drying Method
❄	Stable media	Air Dry or Freeze within 48 hours.	Do not separate single sheets.	Pack in plastic lined cardboard box.	Air, vacuum or freeze dry.
❄	Soluble inks (e.g., felt, colored, ball point pens)	Freeze immediately. Air Dry if no other option.	Do not blot.	Pack in plastic lined cardboard box.	Air or freeze dry.
❄	Friable media (pastels, chalks)	Immediately freeze or dry.	Do not blot.	Interleave between folders and pack in milk crates or cartons.	Air or freeze dry.
❄	Maps and posters	Freeze immediately. Air Dry if no other option.	Wet paper is fragile; use extra caution if folded or rolled.	Support large items with board covered with plastic or keep in existing metal drawers.	Air or freeze dry.

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Paper: Coated

	Material	Priority	Handling Precautions	Packing Method	Drying Method
❄	Maps and posters	Immediately freeze or dry.	Wet paper is fragile; use extra caution if folded or rolled. Coated paper will permanently block if allowed to dry.	Support large items with board covered with plastic or keep in existing metal drawers.	Freeze drying preferred.
❄	Thermofax and fax copies (sensitize coatings)	Freeze immediately. Air Dry if no other option.	Coated paper will permanently block if allowed to dry.	Pack in plastic lined cardboard box.	Freeze, then Vacuum Freeze Dry. Air Dry on blotter paper or nylon screen.
❄	Architectural or engineering drafting linens	Freeze immediately. Air Dry if no other option.	Avoid pressure - inks can smear away. Coated paper will permanently block if allowed to dry.	Support large items with board covered with plastic or keep in existing metal drawers.	Support large items with board covered with plastic or keep in existing metal drawers.

Paper: Framed Works on Paper


	Material	Priority	Handling Precautions	Packing Method	Drying Method
		Remove from frames if possible. Air Dry or Freeze within 48 hours.	Handle with care - glass can puncture or tear wet paper.	Unframe if possible, then pack according to recommendations for paper type.	Once unframed/ unmounted, dry according to recommendations for paper type.

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Parchment and Vellum Manuscripts

Material	Priority	Handling Precautions	Packing Method	Drying Method
	Immediately freeze or dry.		Interleave between folders. Pack oversized material flat.	Air or freeze dry. Do not freeze dry gilded or illuminated manuscripts.

CDs & DVDs


Material	Priority	Handling Precautions	Packing Method	Drying Method
CDs & DVDs	Air Dry immediately.	Do not scratch the surface.	Pack vertically in milk crates or polypropylene bins.	Air dry.
 Paper enclosures	Air dry or Freeze within 48 hours.		Pack in plastic lined cardboard box.	Air Dry according to paper type. Freeze, then Vacuum Freeze Dry.

Magnetic Media: Computer




Material	Priority	Handling Precautions	Packing Method	Drying Method
Tapes	Immediately rinse off tapes in clean water. Dry paper boxes and labels within 48 hours. Tapes can stay wet for several days. DO NOT FREEZE.	Do not touch magnetic media with bare hands. Handle open reel tapes by hubs or reel.	Keep tapes wet in plastic bags. Pack vertically in plastic crate.	Air dry.
Floppy Discs	Immediately pack and move to a location where they can be dried. DO NOT FREEZE.	Do not touch disk surface with bare hands.	Pack discs wet and keep them wet for transport. Pack vertically in plastic bags or tubes of cold water.	Air dry.

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Magnetic Media: Video and Audio

Material	Priority	Handling Precautions	Packing Method	Drying Method
Audio and Video Tapes	Immediately rinse off tapes soaked by dirty water. Dry within 24 hours.	Do not touch magnetic media with bare hands. Keep away from magnets (i.e. loud speaker enclosures).	Keep tapes in wet plastic bags. Pack vertically in plastic crate or tub.	Air dry. Never freeze.
 Paper enclosures, boxes, labels	Air dry or Freeze within 48 hours.		Pack in plastic lined cardboard box.	Air Dry according to paper type. Freeze, then Vacuum Freeze Dry.

Microforms






Material	Priority	Handling Precautions	Packing Method	Drying Method
Microfilm rolls	Rewash and dry within 48 hours.	Do not remove from boxes; hold together with rubber bands.	Keep wet. Pack (in blocks of 5) in plastic lined cardboard box.	Arrange with a microfilm processor to rewash and dry.
 Aperture cards	Freeze or dry within 48 hours.		Keep wet. Pack in plastic bags inside boxes.	Air dry; or freeze, thaw, and air dry.
 Jacketed microfilm	Freeze or dry within 48 hours.		Keep wet. Pack in plastic bags inside pail or boxes.	Air dry; or freeze, thaw, and air dry.
 Diazo and vesicular microfiche	Freeze or dry within 48 hours.		Interleave between envelopes and pack in milk crates or cartons.	Air dry; or freeze, thaw, and air dry.

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Motion Pictures


Material	Priority	Handling Precautions	Packing Method	Drying Method
Motion pictures	Rewash and dry within 48 hours.	Do not remove from cans.	Keep wet. Pack in plastic pails or plastic lined cardboard box.	Arrange with a film processor to rewash and dry.

Black and White Photographic Prints

Material	Priority	Handling Precautions	Packing Method	Drying Method
 Albumen prints	Freeze or dry within 48 hours.	Do not touch binder with bare hands.	Interleave between groups of photographs.	Air dry or thaw and air dry.
 Matte and glossy collodion prints	Freeze or dry within 48 hours.	Avoid abrasion. Do not touch with bare hands.		Air dry, thaw and air dry, or freeze dry.
 Silver gelatin printing out and developing out papers	Freeze or dry within 48 hours.	Do not touch emulsion with bare hands.	If freezing, keep wet. Pack in plastic bags inside boxes.	Order of preference: Air dry Thaw and air dry Freeze dry DO NOT vacuum dry.
 Photomechanical prints (collotypes, photogravures) Cyanotypes	Freeze or dry within 48 hours.	Do not separate single sheets.	Interleave every 2" and pack in boxes or crates.	Air dry or freeze dry.
 Carbon prints and Woodburytypes	Immediately freeze or dry.	Handle carefully; binder can swell.	Pack horizontally.	Air dry or thaw and air dry.

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Color Photographs

Material	Priority	Handling Precautions	Packing Method	Drying Method
Dye transfer prints	Package to prevent damage. Recovery rate is poor. Immediately dry.	Do not touch emulsion.	Transport horizontally.	Air dry face up.
 Chromogenic prints and negatives	Freeze or dry within 48 hours.	Do not touch binder with bare hands.	If freezing, keep wet. Pack in plastic bags inside boxes.	Order of preference: Air dry Thaw and air dry Freeze dry DO NOT vacuum dry.

Cased Photographs

Material	Priority	Handling Precautions	Packing Method	Drying Method
Ambrotypes Pannotypes	Recovery rate is low. Immediately dry.	Handle with care. Extremely fragile binder. Glass supports.	Pack horizontally in a padded container.	Air dry face up. Never freeze.
Daguerreotypes	Immediately dry.	Handle with care. Fragile surface and cover glass.	Pack horizontally in a padded container.	Air dry face up. Never freeze.
Tintypes	Immediately dry.	Handle with care. Fragile binder.	Pack horizontally.	Air dry. Never freeze.

Transparencies

Material	Priority	Handling Precautions	Packing Method	Drying Method
 Lantern slides (glass), silver gelatin	Freeze or dry within 48 hours	Handle with care – loose binding tapes and glass.	Pack vertically in a padded container.	Air drying preferred; thaw and air dry.

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Color Transparencies

	Material	Priority	Handling Precautions	Packing Method	Drying Method
	Additive color transparencies (most are glass) Autochromes, Agfacolor, Dufaycolor	Package to prevent damage – recovery rate is very poor. Immediately dry.	Handle with care – loose binding tapes and glass.	Horizontally in padded container.	Air dry. Never freeze.
❄	Chromogenic color transparencies Mounted color slides and sheet film	Freeze or dry within 48 hours.	Handle by mounts or edges.	Keep wet. Pack in plastic bags inside box.	Order of preference: 1) Air dry in mounts, 2) thaw and air dry, 3) Freeze dry. DO NOT VACUUM DRY

Negatives

	Material	Priority	Handling Precautions	Packing Method	Drying Method
	Wet collodion glass plates	Recovery rate is low. Immediately dry.	Handle with care. Glass supports and fragile binder.	Pack horizontally in a padded container.	Air dry immersion side up. Never freeze.
❄	Gelatin dry plate glass negatives	Freeze or dry within 48 hours.	Handle with care – glass.	If freezing, keep wet. Pack in plastic bags, vertically in a padded container.	Air drying preferred; or thaw and air dry; freeze dry.
❄	Deteriorated nitrates with soluble binders	Immediately freeze or dry. Recovery rate may be low.	Do not blot.	Pack horizontally.	Air dry; thaw and air dry; test freeze drying.
❄	Deteriorated acetates	Immediately freeze or dry. Recovery rate is low.	Handle with care – swelling of emulsion.	Pack horizontally.	Air dry; thaw and air dry; test freeze drying.
❄	Polyester based film, nitrates and acetates in good condition	Freeze or dry within 48 hours.	Do not touch emulsions with bare hands.	If freezing, keep wet. Pack in small plastic bags inside boxes.	Order of preference: air dry; thaw and air dry; Freeze dry; DO NOT vacuum dry.

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Scrapbooks and Photograph Albums


	Material	Priority	Handling Precautions	Packing Method	Drying Method
❄	Scrapbooks	Air Dry or Freeze immediately.	Interleave pages with photos with spunbond polyester.	Wrap album in wax or freezer paper; pack flat in box, no more than two scrapbooks per box.	Air Dry; interleave pages with absorbent paper, opening and turning pages regularly. Freeze, then Vacuum Freeze Dry.
❄	Photograph Albums	Air Dry or Freeze immediately.	Interleave pages with photos with spunbond polyester.	Wrap album in wax or freezer paper. Pack flat in box, no more than two albums per box.	Air Dry; interleave pages with absorbent paper, opening and turning pages regularly. Freeze, then Vacuum Freeze Dry.

Record Albums

	Material	Priority	Handling Precautions	Packing Method	Drying Method
	Shellac and acetate discs	Air Dry immediately	Discs are very fragile. Hold by their edges; avoid shocks.	Pack vertically in rigid polyethylene foam-padded boxes.	Air Dry vertically in dishrack. Use record cleaning machine.
	Vinyl discs	Air Dry within 48 hours.	Hold by their edges; avoid shocks.	Pack vertically in rigid polyethylene foam-padded boxes.	Air Dry vertically in dishrack. Freezing untested; if necessary, freeze above -18C (0F).
❄	Album jackets or enclosures	Air dry or Freeze within 48 hours.	Use caution in removing wet paper next to discs.	Pack in plastic lined cardboard box.	Air Dry according to paper type. Freeze, then Vacuum Freeze Dry.

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Paintings

Material	Priority	Handling Precautions	Packing Method	Drying Method
Canvas	Air Dry immediately.	Drain and carry horizontally.	Face up without touching paint layers.	Air dry. Consult a conservator.
 Watercolor, ink (soluble media)	Air Dry or Freeze immediately.	Do not blot.	Interleave with spunbond polyester and place flat in plastic lined box or drawer.	Air Dry. Freeze, then Vacuum Freeze Dry.

Organic Material

Material	Priority	Handling Precautions	Packing Method	Drying Method
Bone & Ivory	Treat within 24 hours.	Handle with care – wet objects may be fragile.	Wrap individually in absorbent material.	Air dry. Use fans.
Shell	Treat within 24 hours.	Handle with care – wet objects may be fragile.	Wrap individually in absorbent material.	Air dry. Use fans.
Skin & Leather	Treat within 24 hours.	Handle with care – wet leather is fragile.	Pad with toweling to maintain shape and provide support.	Air dry. Use fans.
Basketry	Treat within 24 hours.	Lift from the bottom of object.	Pad with toweling to maintain shape.	Air dry slowly. Keep lids on.
Wood	Treat within 24 hours.	Lift from bottom of object.	Wrap in absorbent material.	Air dry slowly.

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Inorganic Material

Material	Priority	Handling Precautions	Packing Method	Drying Method
Sun baked Ceramics or Terracotta	Treat within 24 hours to prevent disintegration and loss of surface.	Watch for cracking or peeling. Blot dry- do not rub	Wrap with paper towels or absorbent material.	Air dry. Use fans.
Low-Fired Ceramics	Treat within 48 hours.	Watch for cracking or peeling. Pat dry- do not rub	Wrap with paper towels or absorbent material.	Air dry. Use fans.
High-Fired Ceramics	Treat after less stable material.	If the surfaces are stable, blot with lint-free towels.	Wrap with paper towels or absorbent material.	Air dry. Use fans.
Metal	Treat unstable (corroded) metals within 48 hours. Treat stable metal after less stable materials.	Use gloves when handling. If the surfaces are stable, blot with lint-free towels.	Wrap with absorbent materials. Pack copper in individual containers with silica gel.	Air dry. Use fans.
Stone	Treat after less stable materials.	If object has smooth surface, blot. If surface is rough or has an applied finish, do not blot.	Wrap with absorbent materials.	Air dry. Use fans.
Glass	Treat after less stable materials	Pat dry, do not rub.	Wrap with absorbent materials.	Air dry. Use fans.

Geological Specimens

Material	Priority	Handling Precautions	Packing Method	Drying Method
Geological Specimens	Treat within 48 hours.	Handle with care—wet specimens may be fragile.	Wrap with paper towels or other absorbent material.	Air dry slowly. Consult a conservator; some specimens should be dried quickly.

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Biological Specimens

Material	Priority	Handling Precautions	Packing Method	Drying Method
Animal Skins and Taxidermy Mounts	Treat within 24 hours to prevent mold growth.	Avoid direct handling. Many stuffed mounts may contain arsenic or other pesticides.	Separate items with freezer or wax paper . Isolate from other objects in boxes with plastic sheeting.	Air dry slowly.
Herbarium Specimens	Treat within 24 hours to prevent mold growth.	Avoid direct handling.	Separate with plastic sheeting, freezer or wax paper.	Air dry with good ventilation. Consult a conservator.
Fluid Preserved Collections	Treat within 24 hours to prevent objects from drying or shriveling.	Avoid direct handling.	Place specimens and labels in sealed polyethylene boxes with a small amount of alcohol.	Rinse with distilled water or a preservative. Store in new jar with fresh liquid or preservative.
Pinned Insects	Treat within 24 hours to prevent mold growth.	Handle with care—wet specimens may be fragile.	Ensure pins are secured and specimen trays/boxes are supported.	Air dry with good ventilation.

Paleontological Specimens

Material	Priority	Handling Precautions	Packing Method	Drying Method
Paleontological Specimens	Treat within 48 hours.	Handle with care—wet specimens may be fragile.	Wrap individually with absorbent material.	Air dry slowly. Use ties to hold fragile or repaired specimens while drying.

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Textiles

	Material	Priority	Handling Precautions	Packing Method	Drying Method
❄	Small Flat Textiles	Treat within 48 hours. Bleeding dyes should be treated immediately by a conservator.	Gently press water out with palm or blot with lint-free towels. Do not wring or twist.	Separate with freezer or wax paper and box in small groups.	Air dry. Freeze items that cannot be dried with 48 hours and consult a conservator.
❄	Large Flat Textiles	Treat within 48 hours. Bleeding dyes should be treated immediately by a conservator.	Gently press water out with palm or blot with lint-free towels. Do not wring or twist.	Keep rolled on tubes if possible. Be careful of weakened tubes.	Air dry. Freeze items that cannot be dried with 48 hours and consult a conservator.
❄	Embroidered or Multi-Layered Flat Textiles (Quilts)	Treat within 48 hours. Bleeding dyes should be treated immediately by a conservator.	Gently press water out with palm or blot with lint-free towels. Do not wring or twist.	Keep rolled on tubes if possible. Be careful of weakened tubes.	Air dry. Freeze items that cannot be dried with 48 hours and consult a conservator.
	Painted or Stenciled Fabrics	Treat within 48 hours.	Do not blot painted surfaces.	Separate with freezer or wax paper to prevent staining between items.	Air dry. Do not freeze.
❄	Framed Needlework and Silk Pictures	Treat within 48 hours.	Blot gently. Remove from frame.	Interleave freezer paper and cardboard to provide support.	Air dry. Freeze items that cannot be dried within 48 hours and consult a conservator.
	Beadwork	Treat within 48 hours.	Blot gently. Minimize movement. Provide support.	Separate with freezer or wax paper to prevent staining between items.	Air dry. Do not freeze.
❄	Fragile Garments (Silk)	Treat within 48 hours.	Avoid handling if possible. Be aware of metal closures etc. that can tear fabric.	Separate with freezer or wax paper to prevent staining between items.	Air dry. Freeze items that cannot be dried within 48 hours and consult a conservator.
❄	Sturdy Garments (Wool)	Treat within 48 hours.	Blot.	Separate with freezer or wax paper to prevent staining between items.	Air dry. Freeze items that cannot be dried within 48 hours and consult a conservator.

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Textiles (cont.)

Material	Priority	Handling Precautions	Packing Method	Drying Method
Tapestries	Treat within 48 hours.	Blot gently. Provide support when moving.	Keep rolled on tubes if possible. Be careful of weakened tubes.	Air dry.
Fans and Parasols	Begin drying within 48 hours to prevent mold growth.	Support if movement is required. Do not open when wet.	Wrap in freezer or wax paper. Do not layer, pack items side by side.	Air dry.
Hats, Gloves, and Shoes	Begin drying within 48 hours to prevent mold growth.	Gently support with absorbent material. Do not reshape while wet.	Wrap in freezer or wax paper for textiles or plastic sheeting for leather items. Do not layer uneven shapes.	Air dry. As hats dry they can be gently reshaped and padded with acid-free tissue or polyester batting.

Adapted from "Salvage at a Glance" by Betty Walsh and NPS Conserve O Grams 21/6-21/8

For detailed descriptions to accompany this chart, see Appendix 11, "Salvage of Water Damaged Collections": <http://www.box.net/c3workshops>

Sources:

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