



Conserve O Gram

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Use Of Acryloid B-72 Lacquer For Labeling Museum Objects

All materials that are used to label museum objects must meet the following criteria:

- be as chemically stable as possible
- have excellent aging characteristics to ensure the longevity and legibility of the label
- prevent absorption of marking inks by porous materials, such as unglazed ceramics or wood
- be removable, if for any reason the object must be renumbered or the number relocated

The National Park Service has replaced the cellulose nitrate lacquer used for many years to label museum objects with a new lacquer that satisfies these criteria. The resin selected for this purpose is the acrylic copolymer Acryloid B-72®. Many museums currently are using Acryloid B-72 lacquer to avoid the potential problems of curling, flaking, and loss of numbers that occurred with the cellulose nitrate lacquers because of their long-term instability. Acetone was chosen as the solvent for the solid resin because it is less hazardous to staff than other solvents for acrylic resins. The new lacquer supplied to the parks, as of July 15, 1992, is a 25% solution by weight of Acryloid B-72 in acetone. It is available in both clear and white formulations. The white lacquer has inert titanium dioxide added as the pigment. The white lacquer also contains .01 percent of toluene to keep the titanium dioxide in suspension. The .01 percent of toluene, according to the manufacturer, is equivalent to one-tenth the amount of toluene commonly found in fingernail polish. This small amount of toluene represents a negligible health risk.

Because the Acryloid B-72 lacquer behaves differently than the old cellulose nitrate lacquer, persons used to the old product initially may experience problems when applying the new lacquer. Therefore, users should practice on non-museum objects made of similar materials to master the technique before numbering museum objects.

Materials

- Acryloid B-72 Clear Lacquer (25% Solution) in bottle with applicator brush in cap
- Acryloid B-72 White Lacquer (25% Solution) in bottle with applicator brush in cap
- Permanent black ink
- Acetone
- Rapidograph® pens or crowquill pens
- Artist brushes
- Paper towels
- Cotton swabs
- Water

Procedure

The following standard procedure applies to the labeling of all museum objects, except paper, textiles, objects with painted or unstable surfaces, some plastics, and many natural history specimens. (See *Exceptions to Standard Procedure* below.)

1. Read the Material Safety Data Sheets (provided to parks by the Curatorial Services Division) on Acryloid B-72 and acetone. (Refer to *Conserve O Gram* 2/1, "Hazardous Materials Health and Safety Update," for guidance on Material Safety Data Sheets.)

2. Select a well-ventilated work area for affixing catalog numbers to objects. Refer to the *NPS Museum Handbook, Part I (Rev 9/90)*, Chapter 11, for guidance on ventilation.
3. Select a clean area on the object's surface in the standard location recommended for that particular object type in the *NPS Museum Handbook, Part II (under revision)*, Chapter 3. The mark should be small and unobtrusive, yet easily found. On shiny, unpainted glass and metal surfaces it may be necessary to first clean the surface receiving the catalog number with alcohol or acetone. This will remove any grease, fingerprints, or oil that might interfere with the lacquer application.
4. Select white lacquer for dark colored objects or clear lacquer for light colored objects. Fill the cap brush or artist brush with lacquer, but do not overload it in order to avoid excessive dripping or pooling of lacquer on the object. With one steady movement, first move the brush in one direction to make a mark only slightly larger than the size of the catalog number to be applied. Then stroke again in the opposite direction to use the lacquer on the other side of the brush. These two strokes count as *one* application, and usually suffice for non-porous surfaces, such as glass.
5. It is important that the ink not be allowed to penetrate into the object, causing irreversible disfigurement of the surface. Porous objects, such as unglazed ceramics and unfinished wood, may require multiple applications of lacquer in order to build up a base that will prevent absorption of the ink. (*NOTE:* The new 25% lacquer will not require as many coats as the 10% lacquer it is replacing.)

Because acetone is a relatively fast evaporating solvent, applications can be repeated quickly, although 30-60 seconds should be allowed between applications. When the lacquer field appears to have a fairly

consistent dull sheen, enough lacquer has been applied to safely apply an inked number.

6. The lacquer field should be dry enough to accept an inked number in the time it takes to close the lacquer bottle and prepare the marking pens, whether crowquill or Rapidograph pen. *Use only permanent black ink for marking objects.* Make sure that the catalog number is written *within* the applied lacquer field to ensure protection of the object's surface.

If a mistake is made, and the number must be removed prior to the top coat being added, the ink may be removed with a cotton swab slightly moistened with water without affecting the lacquer base coat. If the number has to be removed at a later time, the lacquer and the number can be removed with acetone and the application process repeated.

7. Make sure that the ink is completely dry before applying the top coat of clear lacquer. The drying time for the ink may vary depending upon the type of pen used, the thickness of the mark, and the relative humidity in the work area. Practicing on a non-museum object will help determine the length of the drying time.

The top coat of lacquer is applied in a single stroke over the inked number on the lacquer field. Be sure that both the base coat and the number are completely sealed with the lacquer. Ensure that numbers are not smudged or removed by application of the top coat. Once the initial top coat dries, additional two-stroke applications as described in step 4 may be added to reduce the chance that the number will be worn away.

Exceptions to Standard Procedure

Paper. Never use lacquer or ink to mark a catalog number on paper objects. Apply a

catalog number to a paper object with a soft lead HB, H, or 2H pencil only, as outlined in the *NPS Museum Handbook*, Part II (under revision), Chapter 3.

Textiles. As outlined in the *NPS Museum Handbook*, Part II (under revision), Chapter 3, label textile objects by sewing twill tape tags to the fabric.

Unstable Surfaces. When objects to be marked have a highly uneven or friable surface (e.g., unfinished or weathered wood, archeological iron, and severely corroded metals) or a very powdery surface (e.g., some ethnographic painted wooden objects or leather objects), it is recommended that the catalog number be written on an acid-free paper or spun polyethylene (Tyvek®) tag and tied to the object with cotton string.

Component Parts. According to basic marking rules, the permanent catalog number is marked on the main body of an object and never placed solely on those parts of an object that can be removed, as for example, on the buckles of horse harness. However, in the case where the material of the main body, such as leather, cannot be marked on the surface, an exception may be made. If the object is a composite of leather or cloth and an inorganic material, apply the lacquer field on the inorganic component (e.g., metal buckle of harness) instead of the leather.

When this marking exception is not possible, attach a tag bearing the catalog number to the object or place the object in a labeled container.

NOTE: Attaching a supplementary acid-free tag bearing the catalog number to the museum object minimizes handling and facilitates ease of finding the catalog number. In the event that a catalog number cannot be placed either on the object or on a tag attached to the object, place the object in a container (e.g., vial, polyethylene bag, acid free box) and write the catalog number on the container.

Plastic and Painted Surfaces. The acetone solvent in the lacquer can permanently damage a wide variety of plastics and the surface of some painted objects by serving as a solvent for the plastic or paint. Because of the variety of plastics and paints in collections, it can be difficult to differentiate between surfaces that are safe to label and those that are not. Therefore, it is best not to apply Acryloid B-72 to the surface of an object when there is any doubt. Instead, use tags as noted above or put the object in a labeled polyethylene bag (e.g., Ziplock® bag).

NOTE: The NPS Curatorial Services Division, Harpers Ferry, West Virginia, continues to seek satisfactory labeling materials and methods for labeling plastics and objects with painted surfaces and will revise these instructions as new solutions are found.

Natural History Specimens. Follow the procedures for labeling natural history specimens as outlined in *NPS Museum Handbook*, Part II (under revision), Chapter 3.

Thinning the Lacquer

From time to time it may become necessary to thin the lacquer because the acetone solvent evaporates whenever the bottle is opened for use. Should the lacquer become too viscous for proper application, it can be thinned by adding acetone. The best way to add acetone is with a medicine dropper, one or two drops at a time, followed by gentle agitation to mix. Add more drops as needed. A small supply of acetone, usually no more than a pint, should be kept on hand for lacquer thinning and removal of numbers.

Sources

Parks can obtain Acryloid B-72 Clear and White Lacquers (25% Solution) from NPS Curatorial Services Division, Harpers Ferry, WV.

Curatorial Services Division can also provide source assistance for non-NPS users.

Permanent black ink, Rapidograph pens, crowquill pens, and artist brushes are available from artist supply stores.

Twill tape, acid-free paper, and spun polyethylene (Tyvek) tags are available from archival-quality material suppliers. Also refer to the NPS *Tools of the Trade*.

Acetone can be obtained from druggists and paint stores.

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