SAVING YOUR Treasures

A Website about what you can do to protect and preserve the things of importance in your life

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CARING FOR CERAMICS AND GLASS

Composition of Ceramics and Glass:

Ceramics are made from clays with varying composition. Additives such as modifiers and colorants are added to alter the appearance and properties of the finished ceramic. The clay mixture, also called the body, is shaped using a variety of techniques including turning, coiling, and molding. The shaped objects are heated in a kiln to drive off water and realign the crystalline structure of the clay. The clay becomes compacted and in some cases begins to melt during firing.

The common clay bodies are earthenware, stoneware, and porcelain. Earthenware is porous and often coarse bodied and has been fired at a relatively low temperature. Stoneware is also often coarse bodied, but is fired at a high enough temperature that the stoneware body is impermeable to water. Porcelains are fine-bodied ceramics that are fired at very high temperatures to create a glass-like, vitrified body.

Ceramics are usually decorated with colored slips and glass slurries. The slurries contain ground glassy materials that melt upon firing forming a glaze. Colorants and other minerals are used to modify the glaze to produce different colors and effects.

Glass objects are made from a mixture of ground silica (sand) and other mineral modifying agents (usually metallic salts) that are melted together to create molten glass. The molten glass is formed by a variety of methods, including blowing and molding. The shape is allowed to cool and harden forming glass.

Handling Ceramics and Glass:

The major source of damage to ceramics and glass is improper handling and carelessness. When moving ceramic and glass objects, always carry one object or one part of an object at a time. Place your hands around the body of the object rather than lifting by a handle or rim.

Before you move a piece make sure that there is a level space large enough to place the object and a clear path through which to carry the piece. Carry objects in a padded basket or box rather than in your hands. Use soft padding to prevent objects in the basket or box from clinking into each other.

Storage of Ceramics and Glass:

Ceramics and glass should be stored on level, sturdy shelving. They can be placed on open shelving that is protected from dust or can be wrapped in acid-free, lignin-free tissue and stored in acid-free boxes. Newspaper and acidic wrapping paper should not be used as it will discolor the objects. Storage boxes should be strong enough to hold the weight of the ceramics and glass without bowing.

Cleaning Ceramics and Glass:

Cleaning of glass and ceramic objects is a process that requires deliberation and forethought. There are many factors to consider. **A conservator and curator should be consulted in order to assess all the issues relating to the care of the objects in question.** These procedures should **not** be used on:

- objects that have been repaired,
- objects that have gilt, lustre, or painted surfaces,
- objects without glaze, or
- objects that are damaged or deteriorated.

These types of objects should only be cleaned by dusting with a soft brush. If it is decided to proceed with "wet" cleaning, the materials and techniques used should be extremely gentle. The materials and techniques listed below have been tested and found to be safe and effective when used in a careful and sensitive manner. A clean, well ventilated work area should be provided for the cleaning process, including a large padded work table, adequate light, and appropriate ventilation. Gloves should be worn to avoid contaminating both the object and your hands. Mask out any non-glass or ceramic elements such as wood, ivory, or metal components with thin polyethylene wrap to protect them during cleaning. The following materials will be needed:

- cotton cloth (clean diapers or washed lint- free fabric)
- cotton swabs (loose surgical cotton, non-sterile)
- gloves (latex or vinyl)
- distilled or deionized water
- denatured alcohol (ethanol)
- household ammonia (non-foaming, non-perfumed)
- small soft natural bristle paint brushes
- small glass bottle for mixing the cleaning solution
- pH test strips

Procedure:

1. Mix the glass and ceramic cleaning solution as follows:

   Combine equal parts of distilled or deionized water and ethanol. Slowly add drops of 3% household ammonia and stir after each addition. Use a pH test strip to measure the pH of the solution. Add ammonia until the pH measures 9. (Follow the instructions provided with your strips.) Page: 3
   Ammonia may still evaporate depending upon how tight the lid might be. Recheck the pH if using at a later date. The solution should remain effective for up to a year if kept in a tightly sealed glass container.

   If the object to be cleaned has any gilt decoration, the cleaning solution above should be used **without the addition of the household ammonia**. (The cleaning solution does not need to be at a pH of 9 if there is no ammonia added.)

2. Remove any loose dirt or dust by brushing lightly with a soft brush. If the brushes have metal ferules, cover them with cloth tape to prevent scratching. Dusting cloths should not be used as they will not get into small crevices, and can scratch objects if released grit is rubbed over object surfaces. Cloths will also snag on protrusions.

3. Wearing gloves, apply a small amount of the cleaning solution to a cotton ball or cotton swab and clean the object surface to gently remove dust and soil. Agitation with a very soft brush dipped in the cleaning solution can help remove dirt and debris from crevasses and decorative elements. Care must be taken to avoid scratching the object. The cotton and swabs should be replaced as they become soiled.

4. A final cleaning with a damp cotton ball should be followed by drying with a clean, lint-free cotton cloth. The object should be clean, dry, and free from spots or streaks, as the cleaning solution is designed to be spot-free.

WARNING: When working with solvents, be sure to follow all recommended safety precautions noted on the containers. Both denatured alcohol and ammonia are strong, reactive chemicals, and their fumes are harmful to your health when the solvents are not used as instructed**. Always be aware of the location of the nearest fire extinguisher when working with flammable solvents like denatured alcohol (ethanol).**

Emergency Procedures for Ceramics and Glass:

Objects that have become wet during an emergency should be rinsed with clean, distilled or deionized water as soon as possible. The rinsed objects should be dried with clean cotton or paper towels. Be careful not to scratch objects by wiping off grit or soil by using towels that are dirty or gritty. Porous ceramics should not be left wet or submerged in liquid. The permeable body will draw dirty water and other stains into the ceramic. If you are not certain about the condition of your ceramics and glass, or if you think there may be a chance that your porous ceramics may be contaminated with soluble salts, contact a conservator for advice before proceeding.

Special Problems of Ceramics and Glass:

One major problem with ceramics is the use of spring loaded brackets for hanging. These brackets usually exert too much pressure on the edge of the object and cause cracks and chips to the edge. This can be avoided by using a two-part bracket that slips over the plate or object and relies on gravity and does not exert undue pressure. It also helps to pad the prongs of the bracket with a synthetic felt of other inert material to prevent scratching and chipping.

Movement of items on display due to vibration, jarring, or earthquake can cause serious breakage and damage to objects. Securing the items to their display surfaces with pin-sized beads of soft wax can prevent this damage.

Leaving liquids in glass and ceramic vessels for long periods of time will damage the glass, glaze, and body. Some constituents of glass (and glazes) will dissolve into the liquid leaving and etched and weakened surface behind. The surface will appear cloudy. Many often confuse this appearance and think that there is a residue or film on the surface. All attempts to remove this "residue" will fail because the surface is actually already etched away.