

## Caring for Ceramic and Glass Objects

Many special objects are made of ceramics or glass. These materials include porcelain, earthenware, “crystal,” pottery, and art glass to name just a few.

Jewelry, dolls, sculpture, tableware, tiles, kitchenware, and many other items can be made from ceramics and glass. Ceramics are often classified by their body type. Earthenware are porous ceramics that have been fired at relatively low temperatures. Stoneware are fired at a high enough temperature that the stoneware body is impermeable to water. Porcelain are very fine bodied ceramics that are fired at very high temperatures to create a vitrified, or glasslike, body.

Ceramics are often decorated with colored slips and glass slurries and are then glazed for decorative purposes or, in the case of earthenware, to provide water impermeability.

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 a molten glass. The molten glass is formed by a variety of methods, including moulding and blowing into a shape that is allowed to slowly cool and harden. If a glass object is not allowed to cool slowly and properly by a process called annealing, it will crack or shatter from uneven internal stresses.

The primary means by which ceramics and glass objects deteriorate is through accidental cracking and breaking. This is often a result of improper handling, shipping, storage, or display.

Other sources of deterioration for ceramics and glass can include deterioration of the clay body or the glass as result of poor manufacturing methods or materials. Porous ceramics can also deteriorate due to the presence of soluble salts deep within the ceramic body itself. The salts dissolve and re-crystallize as the relative humidity fluctuates. When the salts re-crystallize they expand in size and crush the surrounding ceramic structures. You may have seen this happen with a flowerpot that has become saturated with fertilizer salts over time.

Freezing water within the ceramic body may also damage porous ceramics that are left outdoors during winter. Leaving liquids inside vessels for long periods of time can damage glass. Some constituents of the glass dissolve into the liquid, making the interior of the vessel appear cloudy or appear to have residue inside. All efforts to remove this “residue” will fail because the inside of the vessel has actually been etched away and may have a very fine network of surface cracks.

One might guess that earthenware are more subject to deterioration than other ceramics due to their higher level of water permeability. Porcelains can be extremely fragile due to their highly vitrified nature. They are often made to have paper-thin, delicate walls and thus are subject to cracking and breakage.

## Handling Ceramics and Glass

A major source of damage to ceramics and glass can be improper handling and carelessness. A thoughtless tap of a glass goblet on the storage shelf can result in a chip or complete breakage. Careless handling can also lead to the formation of

internal cracks that weaken the ceramic or glass structure. It is always best to overestimate the brittleness and underestimate the strength of an artifact. Of course, anyone who has poured hot water into a cold glass or mug and heard a delicate “chink” sound will recall the heartache of breaking a favorite piece. When moving ceramic and glass objects, always carry one object or one part of an object at a time. It is best to place your hands around the body of the object rather than using an existing handle, rim, or spout for support. Be sure you have a level space of adequate size available to place the object, and a clear path to move, before removing the piece from its original location. Carry objects from room to room or up and down stairs in a padded basket or box rather than in your hands. If you were to trip or fall with your hands full, you would crush the object and most likely injure yourself as well. Use soft padding to prevent ceramic and glass objects from clinking against each other during transport or in overcrowded conditions.

## Storage and Display

Ceramics and glass, in general, should be stored and displayed on sturdy, level surfaces that are secure from bumps and jarring. Objects should be covered or enclosed to protect them from dirt and dust. If this is not possible for storage, pieces can be wrapped in acid-free, lignin-free tissue and stored in acid-free cardboard boxes. Newspaper and acidic newsprint paper can cause discoloration and stains and should not be used for wrapping or long term storage of ceramics and glass. Any box used for storage should be strong enough to support the weight of the objects inside and should have a secure bottom. The container should also

be large enough to enclose the entire object. Objects should not be allowed to bump or fall against each other.

Ceramics are often displayed vertically on walls with spring loaded mounting brackets. These brackets may exert too much pressure on ceramic plates and often cause cracks and damage. Other vertical plate racks are made that do not exert undue pressure and are much safer for your prized objects. Separate prongs can also be used in place of either type of mounting device. It helps to pad the part of the mount with a synthetic felt to prevent any scratching onto the surface of the object.

Another common problem in the display of ceramic and glass pieces involves the gradual, incremental movement of objects on surfaces due to underground vibrations. The movement can be caused by any constant, transmitted vibration source like traffic, trains, underground equipment, and normal building vibration. Objects in museums are often carefully secured to their display surfaces with very small dots of soft wax to prevent them from “walking” off their display cabinets. Caution should be used, however, when using wax. One must take into consideration whether the wax may be safely removed from the object.

## Cleaning Practices

Ceramics and glass objects should be kept free of dust, debris, and oily residues. In general, it is not a good idea to routinely wash these pieces. Each time a piece is handled for cleaning there is a greater risk of breakage through accidents and mishandling. It is better to protect pieces from soiling and dust in the first place, rather than wash them too often. Porous ceramics, like earthenware, should never be immersed in water. They will absorb

the water into the body like a sponge and draw surface stains of residues deeper into the ceramic body if left to soak. For cleaning any important ceramic or glass artifact, a conservator should first be consulted to ensure the objects stability and recommend safe cleaning methods.

## Old Repairs and Restorations

A very common problem found with ceramic and glass objects is the presence of old repairs and restorations. Be very wary of previous repairs and restorations. They are sometimes very difficult to detect. Sometimes shining a black light on the object may help in distinguishing areas of previous repair. Older glues are weaker and more brittle than glues used today, and as a result, old restorations may have aged enough that they no longer support the broken pieces of the object. They often yellow and peel and become unsightly, as well as dangerous. Objects can sometimes just fall to pieces by themselves. Be extra careful when lifting or handling repaired ceramics and glass. Also, think very carefully before you decide to take a repaired object apart yourself. If the object is important to you, you might consider having a professional objects conservator examine it first and provide advice. A conservator can also carefully remove the old repairs and replace them with more stable and visually acceptable adhesives and paints.

## When Disaster Strikes

For ceramic and glass objects, the most serious threats during disaster situations are scratching and breakage. Objects that have

become wet during an emergency should be rinsed with clean, distilled or deionized water and then 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. If conditions are such that dry towels are not available, objects can be placed in the warm sun to dry. Porous ceramics should not be allowed to remain wet or submerged in liquids. The permeable body will draw the dirty water and stains into the ceramic. If earthenware is already submerged or waterlogged you should contact a local conservator for advice about rinsing and drying the object.

### When to Call a Conservator

If you have questions about the care of your objects, call a professional conservator to get answers and additional information. If your object requires special intervention like cleaning, repair, restoration, or replacement of missing parts, you should contact an objects conservator. They will give you advice about the safest means by which to preserve and restore your special items. The AICCM website can give you list of conservators in your area or state, If you have trouble locating a suitable person, please contact us direct.