

# Caring for your ceramic objects and floor tiles

Produced by the V&A Ceramics and Glass Conservation Studio

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The logo consists of the letters 'V', '&amp;', and 'A' in a large, teal, serif font. The 'V' is tall and narrow with a sharp point at the bottom. The '&amp;' is a classic ampersand with a loop. The 'A' is tall and narrow with a sharp point at the top and a wide base. The entire logo is rendered in a solid teal color.

This guide contains advice from V&A Conservation specialists on how to look after ceramic objects at home. It highlights common problems, tells you what to avoid and provides practical, step-by-step instructions on how to care for ceramics.

## What are ceramics?

Ceramics include all objects originally made from soft clay that have been hardened by heating (firing) to a high temperature, usually in a kiln. The incredible versatility of clay as a material has ensured that its fired products have found a diverse range of uses since prehistoric times. Ceramics are commonly used as everyday domestic items and as collectable decorative objects.

The temperature a ceramic object was fired at plays an important role in determining the durability of the object. The low-fired wares, including earthenware and terracotta, are relatively soft and porous, and therefore more fragile, while high-fired wares, such as stoneware and porcelain, are stronger and harder.



Glazes add a decorative glassy finish to the surface of the ceramic, which both seals and strengthens the object, making it suitable for containing liquids. Further decoration, such as coloured enamels, lustre and gilding, may be added as a thin layer on top of the glaze. This final decoration is usually fired at a lower temperature, which makes it vulnerable to wear and abrasion.

## Handling

One of the most common causes of damage to historic ceramics is from clumsy handling. Making careful preparations and taking some simple steps can reduce the risk:

- Keep handling to a minimum.
- Remove jewellery that might scratch or snag, such as rings, bracelets or watches. Beware of loose clothing such as sleeves and ties.
- Before lifting the object, prepare a clear space at the destination, making sure it is clean, firm and level.
- Most ceramics can be handled without gloves, provided hands are clean and dry. However, residues from skin can be transferred and absorbed, damaging certain decorative finishes. Disposable thin rubber gloves are recommended when handling unglazed ceramics or pieces with unfired, gilded or lustre decoration.



- Support the body of the object evenly using both hands, considering the weight and size.
- Avoid lifting an object by the rim or parts that protrude, such as handles, spouts, knobs or the limbs of figures: these are likely to be the weakest points and may have been repaired in the past.
- Lift one item at a time, avoiding lifting over another object, in case you knock it.
- When moving an object to another room, use a padded container to give protection against trips or collisions.

## Cleaning ceramics

Household dust together with atmospheric pollution will gradually accumulate on the surface of ceramics. Dusting will remove some of the loose particles, but a residue can build up over time. Cleaning is not without risks to the object, particularly when it involves handling and contact with cleaning materials. Ideally, it is preferable to protect objects from dust and pollutants in display cabinets, to avoid the need for frequent cleaning and risk of damage.



Before starting to clean a ceramic object, it is important to take a moment to examine the ceramic in good light to check for any potential problems. Remember, it isn't always necessary to remove all dirt or stains. They may have historic interest or may be impossible to remove without damaging the object.

It is a good idea to consult a conservator for advice if you are considering cleaning objects with complex issues.

## What to look out for before cleaning your ceramics

Before cleaning a whole piece, it's a sensible precaution to test-clean a small discrete area to check the surface won't be damaged.

- Low-fired ceramics with porous bodies will absorb water, and if the water contains dirt, this may cause staining. Therefore, avoid water contact with unglazed or partially glazed earthenware.
- Flaws such as firing cracks, crazing or pitting in the glaze, may provide a point of entry for dirt and water particularly on low-fired wares with porous bodies.
- Consider other materials attached to the ceramic (such as metal mounts, ivory or wooden handles); they might be damaged during the cleaning. Exposure to water can cause, or increase, corrosion of metal parts, which may then damage the glaze and body and cause cracks.
- Structural damage, such as chips and cracks, can allow access for dirt and water to enter the pores of the ceramic, leading to staining. If you tap the ceramic lightly with your fingernail it should give a clear ringing tone. A dull sound often indicates a structural flaw.
- A flaking, lifting or unstable surface might be further damaged by cleaning.

- Some glazes are fired at a comparatively low temperature, which makes them vulnerable to abrasion. For example: gilding and lustre glazes are easily abraded by repeated cleaning.
- Enamel decoration is slightly 'raised' on the surface and can flake during cleaning, particularly if the edges are already damaged. In such cases, water should be avoided during cleaning.
- Restorations and repairs are always more sensitive to cleaning than the original ceramic. Care needs to be taken to avoid weakening or damaging the repair, particularly as some old adhesives dissolve in water. It may be possible to carefully clean the undamaged areas, keeping water away from the repair.
- Unfired decoration, such as painted or metal-leaf decoration, that has not been hardened by firing in a kiln, is very vulnerable to damage from handling and cleaning. Ideally, any objects with delicate unfired decoration should be cleaned by a conservator.

## What to avoid when cleaning your ceramics

- Do not use a dishwasher to clean valued ceramics. Hot temperatures, high pressure water and aggressive detergents can permanently damage glazes and coloured enamel decoration.
- Avoid using household bleaches, or proprietary cleaning products, because they can cause irreversible damage. Cleaning liquid can penetrate the ceramic, taking dirt with it. This can cause new stains or make old stains worse. Often the effect is not noticeable until the object has dried. Abrasive creams and cleaners will damage delicate decoration such as gilding, lustre or enamels and in the worst case, dull the glaze itself.

## How to clean your ceramics

Dusting offers the safest approach to removing loose particles and fibres. The surface of the object can be gently brushed using a soft brush (such as an artist's soft sable paint brush or soft goat or pony hair dusting brush). It is a good idea to wrap tape around the ferrule (the metal band between the hairs and the handle) to make sure you don't accidentally scratch the surface. Avoid cotton wool because the fibres can snag on a rough unglazed surface.

Dirt may be removed from **high-fired glazed wares in good condition** with dampened cotton wool. It is still advisable to take a cautious approach in case of any imperfections or undetected damage.

1. Fill a small plastic container with warm water. Add a mild detergent (about one drop of detergent per litre of water).
2. Dampen a small swab or pad of cotton wool. In general, use a swab of cotton wool wrapped around the tip of a cocktail stick or bamboo skewer for small objects, and a cotton wool pad/ball for larger surfaces. Blot any excess water on a paper towel so the swab is not dripping.
3. Carefully roll the cotton wool lightly over the surface, lifting off the dirt. Avoid wiping or scrubbing. Change the swab as soon as it becomes dirty to avoid the risk of pushing dirt into any cracks.
4. When the surface is clean, repeat with a clean swab dampened in water (to remove any detergent residues).

5. Blot dry with a paper towel or leave to air dry.

## Cleaning and care of Victorian floor tiles

Floor tiles are common in the hallways and paths of Victorian and Edwardian houses.

These are usually of two different types described as encaustic tiles or quarry tiles. Encaustic tiles are decorated with coloured clay inlays. The leather-hard clay was stamped with an impression of the design, which was then filled with a contrasting coloured liquid clay 'slip'. Once dried, the excess fill was scraped away to reveal the design. Encaustic tiles may be glazed or unglazed. Quarry tiles are unglazed and often laid in a geometric pattern of contrasting colours.



Unglazed tiles have a matt surface that tends to hold the dirt. Over time, layers of floor polish, wax, varnish, paint or lino adhesive may have built up, obscuring the original rich bright colours of the tiles.

1. Remove loose dirt and dust by brushing with a soft-haired dusting brush or by vacuuming.
2. Add a little mild detergent (one drop of detergent per litre of water) to a bowl of warm water.
3. Use an artist's stencil brush or nail brush with natural bristles to apply the water to a small area (about 10 sq cm) using a circular motion.
4. Blot the surface with a paper towel to remove the dirt.
5. Repeat this process, then blot dry before moving on to the next area.

Abrasives can damage the tile surface. If there are stubborn stains and deposits it is best to consult a conservator who can offer advice on further treatments.

Protecting tiles from dirt is best achieved through good housekeeping. Regular sweeping or using a vacuum cleaner will keep dust down. Mats placed at doorways will reduce the spread of dirt from shoes and paws. Generally, it is best to avoid applying protective coatings or sealants because they don't allow tiles to 'breathe', trapping damp below and encouraging mould growth. A build-up of silicone sealant can be almost impossible to remove.

## Removal of salts

Porous ceramics may occasionally contain water-soluble salts absorbed from various sources. In dry conditions, the salts are visible as loose white crystalline powder. Salts can occur in low-fired porous ceramics such as:

- architectural ceramics, due to contact with cement, plaster and other building materials
- archaeological ceramics, because of contact with soil or salty water

- ceramics used to store foodstuffs or medicines

In some cases, salts were part of the original constituents of the clay body itself. In others, materials used for repair in the past, such as plaster, or inappropriate cleaning materials, may react and cause salts to form in the ceramic.

Repeated cycles of changing humidity will cause the salts present within the pores of the ceramic to alter their state from solution (in damp conditions) to crystals (when dry). As the crystals tend to take up more space in the pores of the ceramic than when in solution, the pressure this exerts can disrupt the ceramic causing the glaze to flake, or the body to crumble.

Surface salts, visible as a white crystalline 'powder' can usually be gently brushed away with a soft brush, though they may reappear (and cause damage) if relative humidity fluctuates. Relative humidity measures the amount of moisture that is in the air relative to the maximum amount of moisture that the air could hold at a given temperature.



Conservators use poulticing or immersion techniques for removing salts from severely affected pieces. An object with extensive salts or a flaking and crumbling surface should be referred to a ceramics conservator.

## Breakages and repairs

The most common cause of damage to ceramics is from impact damage where the object hits, or is hit by, something hard with force. Damage can also arise from faults that occur during manufacture. This may be due to the constituents of the clay or glaze, poor fabrication techniques (for example: poor attachment of a handle) or inconsistencies in the firing process. Areas of inherent vulnerability include firing cracks, crazing or pits in the glaze. Many inherent problems in ceramics are directly related to the type of ceramic body and decoration (for example the porosity of earthenware means that it is prone to staining if it gets wet).



## Restorations and repairs

Old repairs often indicate structural weakness and can disguise problems underneath. Some modern resins allow breaks to be joined almost invisibly. If the join hasn't been retouched, it should be visible using a magnifying glass. Areas of loss will have often been filled with plaster or resin materials and then painted to disguise them. Many paints and varnishes will discolour over time.

In some cases, the whole object may have been coated with paint or lacquer as the last step in its restoration - at first glance this may look like the glaze but feels like 'plastic'. Some porcelain restorations can be revealed by holding the object up to the light; repaired breaks or filled areas may appear denser and darker than the original.

## Accidental breakage

If you are likely to make an insurance claim, photograph the scene of the accident immediately before anything is moved. Then collect all the fragments, no matter how small. Fragments can travel a distance after impact, so look carefully to find all the pieces.

- Place large pieces into a tray or box, padding or loosely wrapping them with clean acid-free tissue paper.
- Use self-sealing bags for small pieces.
- Avoid sticky labels, which can be difficult to remove.
- Try not to touch the broken edges, as fingers can transfer dirt causing problems later.
- Resist the temptation to try to fit any pieces back together - edges are always fragile.
- Consult a ceramics conservator for the best possible repair.

## Repairing ceramics

In theory, bonding a broken ceramic back together may appear simple, but in practice, much can go wrong: misaligned dirty joins, the improper use of adhesives causing stains or disfiguring smears. Sometimes the damage caused by amateur repairs can be irreversible. If you value your object, it is advisable to consult a conservator.

One of the reasons for difficulties with home repairs is that common household adhesives are inappropriate. Some are too thick or rapidly discolour, whilst others bond almost instantaneously, giving a brief chance to get it right. All such products are difficult to remove and will make any future repair work more complex and time consuming. Ceramics conservators use specialist adhesives that are not readily available to the public.

## Storing and display

Ceramics can usually tolerate a wide range of environmental conditions without being damaged. There are some notable exceptions, such as ceramics containing dormant salts that may be affected by fluctuating relative humidity.

In rare cases, certain manufacturing faults that can cause cracks to develop in the body or crazing to appear in the glaze. Sudden changes in temperatures, for example, from direct sunlight or spotlights may

trigger such a response. Old restorations or repairs may be more vulnerable to the environment. For example, some restoration materials used to fill or retouch a loss may discolour if exposed to strong light, or alternatively, if stored in the dark.

Try to avoid displaying ceramics in areas where people frequently pass, or where access might be needed behind them, for example window sills in front of an opening window.

Display cabinets are a good option. If several pieces are displayed together, make sure they are not too crowded or touching each other. Avoid hanging pieces by their handles, as these are often a weak point, particularly if they have been damaged or repaired in the past.

Vibration can be a problem when displaying ceramics. A busy road outside, or foot falls on a springy floor can cause ceramics to 'creep', knocking into other pieces, or falling from the shelf. One way to prevent creep is to place a piece of chamois leather under the ceramic. This is also a good way of stopping ceramics with an uneven base from wobbling. Avoid placing an object on a rough surface as it may scratch the base.



## Mounts for ceramics

Museums often use inert plastic (e.g. Perspex®) for mounts, but there are many other safe options. Proprietary adjustable acrylic wall plate hangers, wooden display stands and grooved shelves in display cupboards are all suitable. Mounts need to be the right size for the piece - if they are too tight, they can chip the edges, whilst if they are too large they won't hold the piece securely. Padding a mount with a thin cushioning material where it is in contact with the edge of a ceramic is a good idea. Plastic-coated metal sprung plate hangers should only be used if the dish is in good condition. Do not use bare metal hangers as these can cause scratches or chips and may stain the ceramic if corroded. Avoid mounts with hard sharp edges. Similarly, using metal pins to stop plates sliding forward should be avoided as they can chip or scratch the ceramic unless they are padded. Be aware that commercially available mounts are not always suitable for damaged or restored pieces.

Images:



Plate, Spode Ceramic Works, 1818, Staffordshire. Museum no. C.231-1934. © Victoria and Albert Museum, London

Tile, 14th century, England. Museum no. 382-1905. © Victoria and Albert Museum, London. Red earthenware tile inlaid with a depiction of St Paul. The tile was broken, probably when it was removed from its original location, and has an old repair.

Cleaning a ceramic. © Victoria and Albert Museum, London

Floor tile, A.W.N. Pugin, red earthenware, 19th century, England. Museum no. C.1:2-1985. © Victoria and Albert Museum, London

Glazed earthenware tile, Mexico. Salts are visible as long white needles around the unglazed edges. © Victoria and Albert Museum, London

A poorly repaired English tin glazed earthenware bowl, late-17th to mid-18th century. © Victoria and Albert Museum, London

Display cabinet, 1780 (Qing dynasty), China. Museum no. FE.56 to B-1983. © Victoria and Albert Museum, London