

Silver Treatment Advice

Anya McDavis-Conway, March 2007, with updates by Lauren Fair, Winterthur Museum, June 2026

Silver metal tarnishes easily and is vulnerable to both high relative humidity (RH) and damaging compounds in the air. Silver objects are commonly polished for aesthetic reasons to remove tarnish layers, but it is not always necessary since tarnish is not damaging to silver. Every time an object is polished, a certain amount of original silver is removed from the surface. This becomes even more critical when the silver surface is a fine plating over another metal, such as a copper alloy. Silver objects should be polished as infrequently as possible and only after they have been thoroughly examined to ensure that polishing will not harm the object. It can be aesthetically desirable to leave tarnish to highlight grooves or recesses. Moreover, some objects would have intentionally applied dark patinas; it is always important to first do historical research to know the intended appearance of your silver.

Keep in mind, most commercial polishes, cleaners, and chemical dips should not be used due to their abrasive and uncontrollable nature, and they often have additives such as ammonia/ waxes/ silicones that can complicate future stability or treatments. Commercial products can strip all tarnish including subtle areas of shadow or toning in grooves.

Why Does Silver Tarnish?

Sulfur-containing compounds in the air such as hydrogen sulfide cause silver to tarnish, forming a layer of black silver sulfide on the surface. Thinly deposited layers lead to an iridescent appearance of the tarnish that becomes darker over time as the layers build in thickness. High RH increases the rate that silver tarnishes. The tarnish rate slows as the layers thicken and inhibit diffusion of sulfur to the underlying silver metal. Other pollutants such as car exhaust can cause silver to tarnish (see **Storage** section for more information on chemicals that can tarnish silver).

Identification and Examination of Silver

Silver objects should be examined thoroughly before cleaning or polishing. One should look for any marks that may indicate if an object is solid sterling silver (925 parts silver to 75 parts copper) or silver-plated. Silver metal is often plated over other metal alloys. Common base metals for silver plating include: brass (copper and zinc alloy), “nickel silver” (copper, zinc, and nickel alloy), and Britannia (tin, antimony, and copper alloy). Silver objects can feature stamps that can help identify their maker, composition, or the plating process that was used. Silver-plated layers can be quite thin and should therefore only be polished with extreme care. Over-polishing can result in the removal of silver plating.

When examining a silver object, look for any joins or hollow sections that could collect water if the object is not washed carefully. Trapping water inside an object can increase tarnish and corrosion. Look for structural damage such as cracks, weak areas, old repairs, and loose or missing parts. Look for the presence of previous lacquer coatings as well. Coatings are not always easy to identify; however, a badly applied coating may have visible brush strokes or the presence of iridescence in the coating itself. A properly applied lacquer coating can be detected using a continuity tester. Uncoated silver will conduct electricity (cause the tester’s light bulb to illuminate), but a properly coated object will block an electric current. The presence of a coating may explain why an object does not have more significant tarnish. Polishing will disturb any previously applied coatings. Consult a conservator for more on the identification or removal of coatings.

Handling

In general, metal objects should always be handled using clean cotton gloves or nitrile gloves (fig. 1). Oils and salts from one’s hands can cause metal to corrode. Over time, fingerprints can etch the metal surface. With historic objects, one should be careful of projections such as handles, spouts, or finials. They may have weak solder joins or may have been repaired in the past. Therefore, objects should be handled from the main body using two hands.



Figure 1. Nitrile glove box

Storing Silver

Tarnish is not damaging and does not need to be removed prior to storage. Wait to polish until the object will be displayed or used. Ideally, silver objects should be stored in environments with RH levels below 50% as is reasonably achievable. If necessary, silica gel or dehumidifiers can be used to decrease the RH.

Scavengers such as 3M Anti-Tarnish Strips can be used to remove pollutants or tarnishing gases, and Pacific Silvercloth® can be used to remove atmospheric sulfur. The active components in these products work by trapping pollutants such as hydrogen sulfide and sulfur dioxide. Silver objects can be stored in plastic (polyethylene) bags, acid-free boxes, or even drawers or storage cabinets. The best way to completely protect a silver object is to seal it, e.g., wrapping first in acid-free tissue, then in Pacific Silvercloth and seal inside a plastic bag. If using the 3M strips, these can sit inside the sealed bag next to the tissue-wrapped silver. Freezer bags from your local grocery store can work. The most important thing is that **the silver should never be in direct contact with the scavenger** (fig. 2).

It is important to use chemically stable storage materials such as powder-coated metal shelves, polyethylene, clear food-grade polystyrene boxes, and acid-free tissue paper. The use of wood should be avoided because it can off-gas sulfur and acidic vapors, both of which can cause metals to corrode. Oil and alkyd-based paints release volatile materials and should be avoided. Objects should never be wrapped in commercial plastic wrap because it usually contains damaging compounds as well. Lastly, silver objects should not be placed directly on shelves. Sheets of polyethylene foam or acid-free tissue should be used as isolating layers.

Cleaning

Silver objects should be dusted lightly with a soft brush. Cover any metal ferrules with tape to avoid scratching. Old wax can be removed from an object, such as a candlestick, using mineral spirits. Objects should be washed before polishing to remove any unwanted particulates or old polishing residues. Silver can be safely washed with water and a few drops of detergent. Conservators commonly use a lab-grade nonionic surfactant; however, a few drops of a gentle unscented dish soap can also be used. During washing, use soft-bristle brushes, such as a toothbrush, to remove dirt and residues from crevices (fig. 3). Be careful not to use hard brushes that might scratch a silver surface. Silver objects sometimes contain materials that cannot get wet such as ivory, wood, or basketry components. These types of areas can be protected by covering them snugly with Parafilm M or thin sheets of polyethylene. After washing, silver objects should be dried immediately with a soft cloth or compressed air to prevent spotting.

Polishing

Remember, polishing always results in the removal of silver. Therefore, it should be done as infrequently as possible. Over-polishing can wear away at areas of fine detail over time. Commercial polishes are abrasive and can cause fine scratches in the surface of an object. They may also contain corrosive chemicals such as ammonia. Polishes for other types of metal, such as brass or chrome, are too abrasive for silver. Polishing cloths such as Selvyt® that contain no imbedded abrasives are safer and most useful for buffing lightly tarnished silver (fig. 4). Chemical dips should never be used. They dissolve tarnish and underlying silver, are uncontrollable, and can affect the color of an object. They also remove all darker tones found in recessed areas, which are used as intentional toning and shading by silversmiths.



Figure 2. Silver wrapped first in acid-free tissue, then Pacific Silvercloth (the brown fabric underneath). Image courtesy of Porteous 2016.



Figure 3. Washing uncoated silver in a plastic bin with dilute soapy water and a soft bristle brush.



Figure 4. Light polish with a Selvyt cloth.

Conservators usually use lab-grade calcium carbonate (precipitated chalk) for polishing. Always use a lab-grade source, as this will be free from filler materials and varied particle sizes that will cause too much scratching. It should be mixed with water to form a slurry and applied to a metal surface using a soft cotton cloth and gently rubbed using a circular motion. Cloths should be changed often so as not to rub tarnish around on a silver surface. Cotton swabs (like Q-tips) can be used to polish small areas or crevices. Polishing should be done in a clean work area with gloves and protective clothing. Work areas should have proper ventilation to avoid inhaling abrasive particles. If more abrasive methods are required for thick and heavy tarnish, consult a conservator.

After polishing, dry residues should be wiped away. Objects should then be washed with water and detergent first and then rinsed thoroughly. Take care to remove all residues from crevices. Objects should then be dried and buffed with a Selvyt cloth.

Coating

In special cases, conservators apply protective lacquer coatings to silver objects to slow down or prevent tarnishing. Although sometimes a good choice for some museum artifacts, it is not appropriate to apply coatings to all objects. Most objects in the home, especially those that are worn as jewelry or used with food, should never be coated. Lacquer coatings are difficult to apply evenly and contain extremely harmful solvents and vapors that should only be handled by a professional. An insufficiently coated object can quickly develop localized areas of tarnish due to lacunae in the lacquer layer. Additionally, the appearance of a lacquer coating is not always desirable. Please consult a conservator for more information regarding coating silver.

Conclusion

Silver objects can be cleaned and polished safely using mild detergents and lab-grade precipitated calcium carbonate. Polishing always results in the removal of some original silver and should only be performed when necessary. Commercial polishes can be quite abrasive and chemical “silver dips” should be avoided. Examine objects before treatment to ensure polishing is both safe and aesthetically desirable. Special care should be taken with silver-plated objects. Due to the reactivity of silver with the environment, where possible, objects should be stored in low RH conditions and in enclosed containers using stable, acid-free materials, preferably with scavengers.

Sources for Materials

- **3M Anti-Tarnish Strips, acid-free tissue, acid-free boxes, Pacific Silvercloth®, polyethylene bags**
Gaylord Bros
customerservice@gaylord.com
- **Precipitated Calcium Carbonate, Parafilm M**
Fisher Scientific
Phone: 1-800-766-7000
www.fishersci.com
- **Selvyt Polishing Cloth (without embedded abrasives, e.g., Selvyt PR)**
Selvyt
www.selvyt.com

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For a listing of conservators in your area please use the "Find a Professional" tool from The American Institute for Conservation: <https://www.culturalheritage.org/about-conservation/find-a-conservator>.