

FINISHING TIPS FOR ARGENTIUM SILVER by Cynthia Eid

FILE, SAND, and POLISH completely, using the usual processes and methods that you are accustomed to.

- If you like a tumbled finish, then tumble as usual. Take the silver to a rouge finish, if that is your preference.
- Some satin finishes are: a brass brush or steel wool *with soapy water*, or scotch brite, or radial bristle discs.
- For the best *tarnish resistance*, keep separate tools for AS if that tool could smear the prior metal onto the surface of the Argentium Silver. In my studio, that means that I keep separate buffs for Argentium Silver.
- *Tips for finishing fused work:*
 - Cup burs can round off a granule that is not as spherical as desired.
 - Radial bristle discs are excellent for smoothing around fused wires or granules, and getting an even finish.
 - If you plan to have a polished finish, use radial bristle discs after each fusing and pickling,
- *Setting Stones*
 - If the stone is a synthetic or diamond, you can generally set the stone(s) and finish completely before heating for hardening and/or tarnish resistance
 - For other stones, you can choose to harden before setting. Prongs and bezels are not brittle from hardening. They are stiffer than annealed AS, but softer than 14KYG.
 - You can skip hardening, and simply heat gently after all the finishing, to increase tarnish resistance.
 - If the stone is very heat sensitive, use a *thiol-containing cloth or liquid to increase tarnish resistance, and protect the surface. GeO_2 will form underneath the thiol, over time, adding further tarnish resistance.

HEAT TO INCREASE THE TARNISH RESISTANCE

At temperatures over freezing, the Germanium atoms get excited, and grab oxygen, creating a layer of germanium oxide on the surface. Germanium oxide is invisible to the naked eye. GeO_2 prevents oxygen from passing through silver, thus preventing tarnish and firescale.

- If stones have been set, then use any heat that is safe for the stones to encourage the creation of germanium oxide. It is ideal to heat at 210°F (100°C) for 16 hours, but even 100°F for an hour is helpful. These temperatures do not usually cause discoloration.
- **HARDENING** is not a requirement for AS, but it is an option that will make the metal sturdier, while increasing the tarnish resistance at the same time. Clean the AS, and do not touch with fingers before hardening.
 - Hardening works on air-cooled silver, but maximal hardening is achieved if the AS is annealed, quenched at black heat (see annealing handout), and then hardened.
 - Kitchen or toaster oven, or kiln can be used. Ideal temperature & time: 428°F/220°C for 16 hours. Air cool.
 - AS can also be hardened by heating for two hours at 572°F/300°C. Air cool. The GeO_2 created at this higher temperature is thicker, but not as durable as the oxide layer formed with the longer time at lower temperature.
 - Do not enclose the Argentium® Sterling when heat-hardening. Exposure to oxygen is needed to create the germanium oxide that prevents tarnish.
 - The hardening process will not have any harmful effect on fine silver, sterling silver, gold or copper alloys that are used in combination with Argentium® Sterling Silver. Discoloration is removed with pickle.
 - Should the need arise, the alloy can be annealed and then re-hardened.
 - Pickle after hardening to remove discoloration, and copper from the surface.
 - Re-brighten the surface if necessary, by lightly repeating the final finishing step (lightly rouge, or use an Argentium Silver Care Cloth, or re-tumble briefly, or brass brush with soapy water,)

PATINAS

Any chemical normally used to darken silver will work on Argentium Sterling. Use your normal procedures. It is possible that it might take longer than traditional SS, or need a slightly stronger solution.

TARNISH RESISTANCE

Neither pure silver, nor any silver alloy is tarnish-proof.

With heat however, we can make Argentium Silver highly tarnish-resistant.

***ADD THIOL to the surface for additional tarnish resistance.**

This chemical seems to bond with AS, to prevent tarnish.

Thiol is in Argentium Silver Care Cloth, Goddards Long Shine Silver Cloth and polishes, and Tiffany mitts.