

How To Silver Curved Glass

with a Drip Silver Kit from AngelGilding.com

A mirror is made by depositing a thin layer of metal on a sensitized, transparent substrate, usually glass. With a Drip Silver Kit and a supply of Spray Silvering chemicals (included in the Kit), you can mirror concave or convex shapes using hand operated siphon bottles instead of an air compressor and spray guns.

Because mirroring is a chemical process, the following procedures are *important*.

- Cleanliness: The glass must be absolutely clean, including the edges.
- Careful measurements: Too much or too little can make a big difference.
- Distilled Water: Always use steam distilled or de-ionized water. The minerals in tap water will ruin the mirror.
- Timing: Use a clock with a second hand to time the tinning process
- Concentration: Arrange your time so you can work without interruption.

SAFETY:

- Storage: Store the chemicals in a cool, dark place away from children and pets.
- Staining: Silver creates brown stains. Wear rubber gloves and cover your bench with several layers of newspaper.
- Disposal: These chemicals contain heavy metals. Follow the instructions in the Waste Treatment Kit to keep heavy metals out of the public sewer system.

Mirroring Tray:

Because the Drip Silver Kit is designed to silver a wide variety of shapes, it does not include a way to catch the mirroring run-off or support the glass. You should use a clean tray that is large enough to catch the silver as it drips off the glass and your glass supports should hold the glass at least ½” above the bottom of the tray.

A Drip Silver Kit contains enough silver to mirror about 120 square feet of glass. You will need to supply:

- ✓ A mirroring tray and glass support system
- ✓ The glass to be mirrored
- ✓ A few gallons of steam distilled water
- ✓ Two clear plastic quart bottles for Waste Treatment
- ✓ Sheets of old newspaper
- ✓ A clock with a second hand

NOTE: The silver siphon system was invented by Phil Trast, master glass beveller, brilliant cutter and mirror maker at Armand Lee in Chicago. We deeply appreciate his willingness to share this remarkably versatile invention with us and our customers.

Thank you, Phil.

Part 1 – Set Up the Siphon System:



Step 1: Place the Glass In a Tray

Place your glass on supports in a clean tray. The supports should hold the glass at least $\frac{1}{2}$ ” above the bottom of the tray. You do not want the glass to touch the used chemicals that will flow into the tray.



Step 2: Place the Siphon Shelf Up High

A siphon works by gravity. Place the siphon table with the attached silvering bottles on a box so that it is higher than the top of the glass in the tray. When you start the siphon you want the liquids to flow “down hill”. (See “About Flow Rates” below)

Step 3: Practice Starting the Siphon



Pull the top of the tube to disconnect it from the bottle. Fill the bottle with distilled water. Push to re-attach the tube.

To start the siphon:

1. Place the wand in your glass tray (downhill)
2. Open the white plastic clip
3. Cover the hole in the bottle cap with your finger
4. Squeeze the bottle until water runs out of the wand
5. Remove your finger from the hole
6. Release the bottle – water should continue to flow out of the wand.

Step 4: Practice Ending the Siphon



To draw the liquid back into the bottle and end the siphon:

1. Rinse the end of the wand with distilled water
2. Hook the wand onto a back leg of the siphon table
3. Open the white clips
4. Squeeze the bottle to force out the air
5. Cover the hole in the bottle cap with your finger
6. Release the bottle to vacuum the liquid up the tube
7. Remove your finger from the hole.

Step 5: Temporarily Stopping the Flow



You can stop the flow temporarily by closing the white clips or by hooking the wand onto the back leg of the table. The hook holds the wand above the water level in the bottle.

Use distilled water to practice using the siphon and then empty the bottles.

Part 2 – Mix the Chemicals:

Step 6: Measure the Activated Silver



1. Pull the top of the tube to disconnect it from the “Activated Silver” bottle.
2. Fill the bottle ½ full with distilled water.
3. Measure out **20 ml** of Concentrated Spray Silver Solution and pour it into the bottle.
4. Measure out **20 ml** of Concentrated Spray Silver Activator and pour it into the bottle.
5. Measure out **460 ml** of distilled water and pour it into the bottle. The bottle holds 500 ml (1 pint)
6. Rock the bottle to mix the chemicals.
7. Reconnect the bottle to its tube.

Step 7: Measure the Silver Reducer



1. Pull the top of the tube to disconnect it from the “Silver Reducer” bottle.
2. Measure out **20 ml** of Concentrated Spray Silver Reducer and pour it into the bottle.
3. Measure out **480 ml** of distilled water and pour it into the bottle. The bottle holds 500 ml (1 pint)
4. Rock the bottle to mix the chemicals.
5. Reconnect the bottle to its tube.

Step 8: Measure the Tin for Silver

Note: Diluted Tin for Silver has a shelf life of 6-8 hours. Mix up fresh tin every day.



1. Use the following formula to sensitize **5 square feet** of surface area.
2. Measure out **10 ml** of Tin for Silver and pour it into the Tin for Silver squeeze bottle.
3. Measure out **300 ml** of distilled water and pour it into the bottle.
4. The Tin for Silver bottle does not have a siphon tube.

As of 4/29/2012 our Drip Silver Kit (item #1111B) includes (5) 25 ml cylinders and (1) 500 ml measuring cylinder. Using a separate 25 ml cylinder for each chemical – Silver Solution, Silver Activator, Silver Reducer, Tin for Silver and Wetting Agent – makes this kit more efficient and avoids the risk of cross contamination.

Part 3 – Silver the Glass:

Step 9: Clean the Glass



Clean the glass very thoroughly with Concentrated Glass Cleaner, the European Sponge and hot tap water. If you are re-silvering, you might find the Extra-Fine Pumice useful. Wear gloves to keep fingerprints off the glass.

Clean glass is *essential* to successful mirroring. Water must “sheet off” the glass without beading up even at the edges.

Step 10: Rinse the Glass



Place the glass in the tray, supported above the level of any liquids. Rinse glass thoroughly with distilled water to remove all traces of tap water.

Step 11: Tin the Glass



1. Hold the Tin for Silver bottle in your hand and squeeze it to deposit an invisible layer of sensitizer (tin) all over the glass.
2. Wait 30 seconds for the sensitizer to attach to the glass
3. Rinse the glass thoroughly with distilled water.
4. You will not be able to rinse off the sensitizing layer.

Step 12: Silver the Glass



1. Make sure the Activated Silver and Silver Reducer are flowing out of the wand
2. Move the wand around to drip the silver all over the glass
3. Wait 30 – 60 seconds and then inspect the thickness of the silver. A good silver layer is almost opaque.
4. If necessary, add more silver. You can hook the wand on the table between passes.
5. When you are finished, close the white clips to end the flow.

Step 13: Rinse the Glass



Rinse the glass well with distilled water and set it aside to dry. You can touch the silver gently with gloved hands without damaging it.

Part 4 – Finishing Up:



Step 14: End the Siphon

End the siphon (see Step 4) and pour any unused Tin for Silver into your waste bottle or bucket. Diluted activated Spray Silver and Spray Reducer have a shelf life of 2 – 3 weeks.



Step 15: Empty the Tray

Empty the tray into a dedicated bottle or bucket. When you have filled the bottle, treat the waste according to the instructions in the Waste Treatment Kit.

It is irresponsible and potentially illegal to pour heavy metal waste into the public sewer.



Step 16: Paint the Glass

When the silver is completely dry, paint it with Black Mirror-Backing Paint or a clear lacquer such as Clear Permalac.

Unprotected silver will soften, get scratched, rub off and tarnish over time.



Step 17: Admire Your Handiwork

That's it! You have created a perfectly reflective silver surface without using any electricity thanks to the wonders of gravity – and we hope you are pleased with your handiwork.

*About Flow Rates:

The speed at which the liquid flows through the tubes depends on the pressure on the liquid in the bottle. To slow the rate of flow, lower the siphon table and/or partially empty the bottle. To speed up the rate of flow, raise the siphon table and/or add more liquid to the bottle. The siphon will stop working when the bottles are near empty.

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