

## How to create the aged copper patina look for copper tubing



**The aged copper patina look:** A web site visitor sent me a procedure to artificially age copper to provide the patina appearance. The procedure works very well and pictured on the left are the satisfactory results. Be patient with this procedure, it can take several days to complete but the results are terrific.

You will need two commonly available chemicals to complete this process. The first is a rust remover that contains phosphoric acid. A couple of sources are Naval Jelly® or Rust Killer™. Secondly, a toilet bowl cleaner that contains either hydrochloric or sulfuric acid. Some choices are Zep® Inc. Toilet Bowl Cleaner, The Works® Toilet Bowl Cleaner, Misty® Bolex 23 Percent Hydrochloric Acid Bowl Cleaner and LIME-A-WAY® Toilet Bowl Cleaner. Read the content labels carefully and look for any brand of rust remover that contains phosphoric acid and a toilet bowl cleaner that has either hydrochloric or sulfuric acid in your local store

These are dangerous chemicals. Wear safety glasses, old clothes, rubber gloves and follow all manufactures safety recommendations. If the chemical gets on your skin wash immediately with a liberal amount of water. Use in a well-ventilated area.

1. Begin by cutting your chime tubes to length and make any length adjustments necessary for tuning. De-burr and remove any sharp edges from both ends and the support hole.
2. Decide how you are going to support the chime, using either end caps or a support line at the 22.42% location. Attach a temporary line to support the chime vertically. This temporary line will get messy and can be discarded at the end of this procedure.
3. Clean the chime using a soapy solution of dishwashing detergent like Dawn™ or equivalent. I also used a fine grade steel wool to lightly scrub the surface. Dry completely.
4. Hang the chime vertically.
5. Soak a small soft paintbrush or dry rag with the rust remover and completely coat the chime. Allow to drip-dry. This could take from a few hours to three days depending on your local humidity. This step slightly etches the surface of the copper in preparation for the next chemical step.
6. When the chime is completely dry remove the dried rust remover from the chime using a dry cloth. Do not use water.
7. Soak a small soft paintbrush or dry rag with the toilet bowl cleaner and completely coat the chime. This could take from a few hours to a few days to dry depending on your local humidity. A second coat will help to improve the patina look. This step causes the bluish green patina to develop in the etched surface and will darken the smooth surfaces.
8. Allow a few days to dry and the chime should be ready for handling to install the final support lines.
9. The finished chime may not look like the picture above when newly completed. It can take a few weeks to completely darken and turn green in spots. Re-application of the toilet bowl cleaner may be necessary.
10. I have had this patina set of chimes for several years and the patina look gets better every year and holds up well in all kinds of weather.

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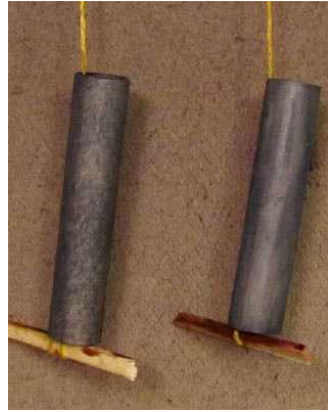
Time lapse for completing the patina process above.



Cleaned and ready for the process. The tube on the left was sanded with 150 grit sand paper while the right hand tube was cleaned with steel wool



First coat of rust remover applied



Rust remover dried in two days



Dried rust remover wiped with a rag



First coat of toilet bowl cleaner containing hydrochloric acid has been applied. Dried in about two days



Second coat of toilet bowl cleaner dried. At this stage it doesn't look like much has happened but be patient, it gets better with time and weather



After a few weeks in the weather



Left hand picture after about two months. Right hand picture after another coat of toilet bowl cleaner