

How to Clean Quartz

By Charles Carter

The following is put together from several sources and is by no means complete.

It seems to work for me.

- 1) Make sure the sample to be cleaned is quartz.
- 2) Use water to clean dirt. Soap may do some good but will generally not help as this is used to get rid of oils and fats, which are not normally on quartz that is collected. A fast stream from a hose works well but is a little messy. Also now is the time to trim samples if needed.
- 3) If the quartz was collect in an area that has organics, such as on the surface or in a creek. Place the sample in a bleach (used to wash white clothes) and let dry for at least a day. This is to kill and get rid of the organics, which will cause problems latter if they are left. Bleach does very well for algae and moss.
- 4) Oxalic acid (wood bleach). This will remove iron oxide (red stains), hematite (some black stains), and other metallic stains. Also calcite if present. There are at least 2 ways to use Oxalic.

4a) If you are in a hurry, make a solution of about 2 tablespoons of oxalic to 1/2 gallon water. The reason that not much is said about the amount of oxalic to use is that it depends a lot on the sample(s) to be cleaned. If too much oxalic is used then the sample may turn yellow. More about that later. So it is best if too little is used and then the amount increased until the stain is removed. This is heated until a light boil (or less 180) and then left until the stain is gone or more oxalic is added. This is about 4 hours or so. Please be careful to always use rubber gloves and avoid inhaling the fumes as they are TOXIC. This means this MUST be done outside. Once the samples appear to be clean or has turned gray, then let the solution cool. Remove and place in a bucket where you can use a hose to spray clean. Mainly what you are trying to do at this point is to remove the gray film that is left behind by the oxalic. Keep cleaning until the water runs clean. If there is an internal pocket in the sample you will find out about it at this point, as it will take a lot to get it to run clean. It may be time to consider breaking the sample to get to the vug for further cleaning. Once the sample is clean, then let dry and see how it looks. If the sample is clean enough then stop. If the sample still has a film and or stain then further cleaning needs to

be done.

4b) If you are not in a hurry, then make the solution as above in a 5-gallon bucket and place samples in with the solution. Place bucket in sun and try to get temperature above 70. You can place a black plastic bag on top to help make it hotter. Check on samples at least once a day until stains are gone or turn gray. Remove and use the cleaning as described in 4a. You can use a bubbler (air pump) from a fish tank to keep the water moving. This will help a lot in keeping the sample from getting a yellow stain and also the gray film. Also since the bubbler helps prevent the yellow stain from getting on the samples, a stronger solution of acid can be used and so speed up the process.

5) If at this point the sample has had too much oxalic and has turned yellow, here are a few things to try. First, just place the sample in water and let soak for a very long period of time. One week and see if the yellow will fade out. You can also try a wash with muriatic acid. As always, make sure you clean the muriatic acid off before continuing, as mixing acids may be dangerous.

6) If you are still not happy with the cleaning you can use vinegar as the final cleaning. Keep in mind the stains in and under quartz points cannot be cleaned. To use the vinegar, place the samples to be cleaned

in a 5-gallon bucket. Then pour the vinegar on the places to be cleaned. You will need a lot of boiling water. Pour the very hot water around the samples and to the backs of the samples. If you pour the hot water

7 directly on the samples you take a chance of heating too quickly and cracking the samples. The same is true of cooling the samples. Keep adding the water until the sample is covered. Let the sample sit until it has cooled to room temperature. Remove samples and clean with water as described in 4a. Let dry. If the sample is still not clean then it is probably a hopeless case. You can also just place the sample in the vinegar and just let it soak for a long time.

Background: The first thing that has to be decided is what is to be done with the sample. If the sample is to be cleaned up for a show piece, then extra care is needed. A sample is almost never perfectly clean and if you attempt to get it perfectly clean you may harm the sample. So how much is enough? There is no answer and a decision must be made. The first thing to do is get rid of the dirt and slime that may be on the sample. Fast water from a hose gets a lot of this (of course one needs to be careful). The bleach will kill and remove most slime that is attached to the sample. Because it is

unknown how bleach and oxalic will interact, it is best to let the bleach dry off the sample. If you are in doubt about the bleach being gone, simply smell and you will know.

How Oxalic Works: Most are familiar with how soap works from high school chemistry. The soap attaches to the fat which in turn disconnects it from what it was attached to. There still has to be a mechanical process to remove the soap and fat though. This is why you must rub your hands while washing. The same is true of how oxalic acid works. It attaches to most metals by surrounding them. Because oxalic attaches to most metals, it is important NOT to use a metal pot to hold the samples. Use ceramic or plastic. Once the Iron (or Iron oxide) has been surrounded by the oxalic acid, it is no longer attached to the sample. This is the good news. The bad news is that it is no longer soluble in water and so will precipitate at this point. Once this has settled into the cracks and crevices of the sample it is hard to remove as it will not dissolve in water. If you keep the water moving, then it is more difficult for the stuff to precipitate and cause the gray film. Also there is a form of concentrated iron that is a lot less soluble in water than normal iron and this is where the yellow stain comes from. This is what in the end forms the yellow stains as the iron redeposits on the

sample. Keeping the water moving will help with this also. When the water becomes yellow, it is time to change the cleaning solution. So the keys to great cleaning with oxalic are keeping the solution moving and to keep it above 70 degrees. Boiling the oxalic can be very dangerous and should be avoided. Heat just speeds up the reaction. Good Luck with your quartz cleaning. Charles Carter is a member of The Georgia Mineral Society

