

How To Re-Dry (Re-Generate) Silica Gel – the official line

There are two methods used for re-drying silica gel. One method uses the oven, and the other uses the microwave. Before you use either method please read all the safety precautions described below:

1. Oven drying method: This method gives the best results even though it takes longer. Set the oven for 275 deg. F. Place the silica gel in an appropriate container and dry the gel until it turns medium blue. The oven drying method takes approximately 1 ½ hours per quart of gel. One quart of gel weighs approximately 30 ounces.

2. Microwave drying method; Place the silica gel in an appropriate container and set the microwave power to the medium to medium high setting. Dry for approximately 3 to 5 minutes and inspect the gel for color change. If the gel has not dried, stir it with a spoon and heat it for another 3 to 5 minutes. Stir the gel each time it is inspected. Approximate drying time is 8 to 12 minutes per pound of gel. The actual heating times will vary according to the type of microwave. You may set the power setting on high but please be careful not to overheat the gel.

Safety Precautions

- You are responsible for the safe and proper use of this product. Do not use this product in a way that it was not intended, or without following the precautions below.
- Use only a very thick pyrex baking dish to dry the gel. A 9" X 9" baking dish works well. The glass should be approximately ¼" thick. Do not use a Pyrex pie plate, or other than glass, which may shatter if overheated. As a precaution, do not handle or move a hot Pyrex dish. Do not use plastic or microwave dishes for drying silica gel because the hot beads may cause the dish to melt.
- Silica gel gets very hot during the drying process. Do not attempt to handle silica gel, or the container, until it has cooled to a safe temperature. We do not recommend moving hot silica gel. If you must move it while it is hot, use a hot pad. Be aware that glass may shatter if it is of the wrong type, is too thin, or is unevenly heated.
- Do not overheat the gel. If you overheat the gel you may ruin it, and it will take longer and longer to re-dry the gel. It is better to under-heat it, than overheat it. It is better to re-dry small batches than large batches. One indicator of overheated silica gel is the presence of black or blue-black silica beads.
- You may notice a light odor when drying the silica gel. The manufacturer states that this is due to organic volatile compounds which are absorbed into the silica gel during the drying process. These volatiles may be released as the silica gel is re-dried. Extreme over-heating may cause the release of a stronger odor, possibly related to the breakdown of the gel. If there is odor, we suggest using the oven method for drying. Use adequate ventilation as a sensible precaution.
- Do not transfer silica gel to another storage container until the gel has thoroughly cooled. If the gel has not cooled you'll notice the presence of condensation on the walls of the storage container. Canning jars make good containers for storing silica gel.
- According to the manufacturer, silica gel is chemically inert, non-corrosive, non-toxic, and odorless. Silica gel is often found in household products. For example it is often packaged with vitamins to keep the contents dry. It is also commonly packaged with shoes and electronic instruments. Even though silica gel is non-toxic, even if accidentally ingested, we suggest that you keep it away from small children.

(over for the silica gel experience at Bountiful Gardens)

The Silica Gel Experience at Bountiful Gardens

First of all, we generally agree with the information on the other side, and heartily endorse its cautions. A further caution is the danger of silicosis, a lung-disease usually associated with miners, caused by inhalation of crystalline silica dust. Once silica dust gets in your lungs it is virtually impossible to get out. As an occasional user this may not apply to you, but we use and re-use a lot of silica gel at BG and so we either: use an inexpensive dust mask, or pour/disturb silica gel where there is a constant breeze or air current (outside in a light wind or using a fan blowing away from you). We are most concerned about this after heating and drying the silica gel – this seems to cause the most dust.

How We Dry Silica Gel

We prefer to use a shallow metal cookie sheet with sides that are at most 2” high. Keeping the silica gel to a layer less than 2” allows it to dry quite fast. Another advantage is that a metal sheet does not break like glass. This allows us to take the hot sheet (using a pot holder or two) and carefully pour the re-dried silica gel onto several sheets of newspaper on the floor. I hold up one side of the newspapers to prevent the gel from rolling off onto the floor. A properly sized cardboard box would also do well. I then immediately pour the gel into an inexpensive gallon glass jar* (the type that pickles or mayonnaise come in for restaurants). We generally dry a gallon at a time, and this is about four cookie sheets. If you do this, be prepared for the jar to break, but in 25 years of drying silica gel this way I have never broken/cracked a jar. Perhaps a better alternative is when I do a small batch, I will pour it into a cheap metal cakebox, the type that commercial cookies or fruit cakes come in. It fits tight enough to keep most moisture out and does not crack – but be careful that it is HOT and handling it with bare hands can result in scalds/burns.

If you wait for the silica gel to cool before putting it away, this allows it to partially re-hydrate and lose some drying efficiency. If you are not going to use it immediately I strongly recommend putting it in a jar with a good seal – a Mason-type jar is best. Double-bagging with zip-lock plastic bags is adequate for a month or two – that is how we send it to our customers.

When we dry the silica gel in a gas oven (200 degrees max) it is recommended that you prop the oven door open a little. Do not use your microwave oven – there is a little metal in the indicating dye and it will eventually ruin your microwave. Putting it on a wood stove works really well, if you put a spacer underneath the drying sheet because direct heat is too hot. I put a wok base that keeps the cookie sheet about 3” over the wood stove and has openings that allows air to circulate. This takes a little longer than a gas stove but is essentially a “free” by-product of heating your house. I can leave it on the stove over night and even if the stove has significantly cooled the silica gel is still quite blue. Where it is dry (humidity under 40%) and sunny you can dry it in the sun. Using our inexpensive portable “The Solar Cookit” works well, but we subsequently found simply putting it on a sunny-hot concrete slab against a wall in a sheltered location works almost as well. You might have to “finish” the silica gel but it gets the gel fairly blue.

* I maneuver the silica gel into the middle of the newspaper sheets, then I lift the sides so that the silica gel is like in a sling. Then I tilt up the two open ends a little to keep the silica gel from accidentally pouring out. When pouring the beads I lower that side down “flat”. We now use silica beads so you have to be even more careful – perhaps pre-concave the newspaper in a box or bowl.