

<http://livingprepared.blogspot.com/2013/05/make-you-own-full-strength-bleach-from.html>

If after a disaster event and there's no safe drinking water available, no one would dispute the need for bleach used for Water Disinfecting, Clean Clothing and General Surface Sanitation. The down side of long term storing typical unscented type liquid bleach is it has a short shelf life. After 6 months of sitting on the shelf even unopened it's been losing up to half its strength and continues to degrade and eventually become so weak it's useless. The long term option is the other bleach, 'Pool Shock' dry granulated bleach. It has a full strength shelf life of 10+ years. "Granular Calcium Hypochlorite" is commonly sold as swimming pool 'Pool Shock' treatment and it's available where ever pool supplies are sold. Purchase Pool Shock that contains "Calcium Hypochlorite" in a 60% to 73% concentration range with the rest being inert ingredients. 68% is very common on the retail web and is what I use.

Here's how to do it:

Caution; do not breathe the pool shock dust and wear glasses to protect your eyes.

Here's the box of 12, 1 lb. bags I received mail order. This 12 lb. is for my long term storage and this amount will make 15 gallons of household strength bleach.



The label should read like this one. Just two ingredients in the make-up of the pool shock, Calcium Hypochlorite and inert or other ingredients.



Make your own Full Strength Bleach from Pool Shock

2 of 7

The measuring tools used; Cups, spoons and a scale.



The gallon of plain tap water I started with.



One gallon of 6% liquid bleach just mixed. The inert ingredients make the freshly mixed granular chlorine look like milk.



The same one gallon of clear water after about 3 hours settling out of the inert ingredients of the pool shock. You can see the inert ingredients have settled to the bottom and the bleach has the similar amber/green color of liquid bleach you'd buy at the supermarket. I did wait overnight for more to settle out then poured off the clear bleach into another container and discard the settled inert ingredient. Note be very careful where you discard the settled material because it will kill everything it comes in contact with including animals.



How to test the strength of the bleach you've just made:

Chlorine Test Strips

Chlorine test strips are an inexpensive and easy method for testing bleach. Dozens of companies manufacture chlorine test strips. Most are intended to test swimming pools and municipal water supplies. Many of these test strips are not suitable for testing household bleach.

Test strips suitable for testing bleach should test for FAC. No single test strips can test for FAC over all possible concentration ranges. Most can only test for chlorine within a fairly narrow range.

Chlorine test strip manufacturers state the effective range of their strips in units of parts per million (ppm). Typical ranges for test strips are 0-100 ppm, 0-1000 ppm, or 1000-10,000 ppm.

A problem arises in that a 6-percent hypochlorite solution, such as household bleach, translates to a concentration of 60,000 ppm, far in excess of what a swimming pool test strips can effectively test for. You will need to purchase FAC test strips that can test to concentrations up to 10,000 ppm.

Testing Your Home Made Bleach's Actual Strength

To effectively test the chlorine in household bleach with the strips, the bleach must first be diluted. This means that the bleach must be measured and mixed with water before it is tested.

In this case, the concentration of the hypochlorite in bleach 52,000ppm to 60,000ppm must be brought under 10,000 ppm.

Carry out the dilution in a standard kitchen measuring cup by filling the cup to exactly 1 oz. of bleach and then adding water until the cup contains 8oz total. This is a 1:8 dilution which will bring the hypochlorite concentration to $(60,000\text{ppm} / 8 = 7500 \text{ ppm})$ which is well within the range of a 10,000ppm test strip.

Stir the bleach solution in the measuring cup and then dip the test strip into the solution. The test strip will come with a correlation chart that will relate the color of the strip to the FAC level.

Remember, that the concentration given by the test strip must now be multiplied by 8 to give the concentration of the original bleach before it was diluted. Thus, if the test strip indicated a FAC level of 6,500ppm, then the original undiluted bleach solution would actually contain $6,500 \times 8 = 52,000\text{ppm}$.

(6,500ppm or 52,000ppm is 5¼% bleach)

(7,500ppm or 60,000ppm is 6% bleach).

The measuring cup used. I like this 1½ cup size because it is small in diameter which makes the graduations further apart and therefore more accurate compared to the typical large diameter measuring cups.



Here are the results of my home made bleach. It turned out to be a little better than 7,500 ppm ($7,500 \times 8 = 60,000$ which is 6% bleach concentration)



Testing old bleach:

This same test is also useful for testing bleach you've had in stock for a while and you're not sure what the strength is. If the test showed that it is only 3% strength due to its age then you would know to double the dosing compared to full strength bleach.

Formulas for different quantities:

Formula for making 1/2 gallon of 6% liquid bleach:

- 7½ cups water.
- 1/2 cup plus 1 tablespoon plus 1/2 teaspoon 68% Pool Shock.
- Mix until granules are dissolved.
- Wait 2-3 hours for the inert ingredients to settle out and use.

Formula for making 1 gallon of 6% liquid bleach:

- 15 cups water (or 1 gallon minus 1 cup).
- 1 cup plus 2 tablespoons plus 2 teaspoons 68% Pool Shock.
- Mix until dissolved.
- Wait 2-3 hours for the inert ingredients to settle out and use.

Formula for using a 1 lb. Bag of Pool Shock to make 6% liquid bleach:

- 5 quarts plus 1/2 pint of water.
- Add the entire 1 lb. bag of 68% Pool Shock.
- Mix until dissolved.
- Wait 2-3 hours for the inert ingredients to settle out and use.

Pool Shock Storage:

Granular Calcium Hypochlorite is the only choice for long term storage compared to liquid bleach because it will retain full strength over its shelf life of 10+ years! Just store it like you would any long term food; sealed in plastic jars or in heat sealed Mylar bags and keep it at room temperature.

Caution:

Do not purchase Pool Shock that includes any additives such as algaecide's, anti-fungal's or clarifiers. All you want is "Calcium Hypochlorite" and the rest being "Inert Ingredients".

Caution:

There are a number of other very common Pool Shocks on the market today that are not "Calcium Hypochlorite". Those should not be used to make your own bleach. ["Chlorine Free" is another one of these pool shock treatments that contain Potassium Monopersulfate, this type should also not be used. Read the label carefully when buying pool shock!](#)

The safest drinking water:

Boiling Your Drinking Water is Always Best!

Bleach will destroy most 'but not all' disease causing organisms in water. Boiling is the surest method to make water safe to drink and kill all disease causing microorganisms like Giardia, Lamblia and Cryptosporidium, which are frequently found in rivers and lakes. These disease-causing organisms are less likely to occur in well water as long as it has not been affected by flood waters. If not treated properly and neutralized, Giardia may cause diarrhea, fatigue, and cramps after ingestion. Cryptosporidium is highly resistant to

'disinfection'. It may cause diarrhea, nausea and/or stomach cramps. People with severely weakened immune systems are likely to have more severe and more persistent symptoms than healthy individuals. So boil your drinking water if you are one of these people!

Clorox:

http://www.clorox.com/pdf/5813-100_service-bulletins.pdf

This is the most complete bleach water information I've found. Download and save!