

Chlorination of Domestic Wells

First of all ... DO NOT pour bleach directly into a well!

- severely corrosive to metal parts (well casing, pumps, pitless units, etc), & makes PVC brittle
- it won't get to the bottom of the well where bacteria can harbor

Chlorine, **The good** . . . **The bad** . . .

1. liquid chlorine, common household bleach (5.25% available chlorine)

The good

- easy to mix as a liquid, sodium base
- readily available in nearby retail stores

The bad

- very corrosive when just poured into well
- loses 20% of effectiveness every month.
How old is it?
- more you use, the less biocidal it becomes, alkaline base, with no control of pH

2. granular or pellet chlorine (65% available chlorine, 35% calcium)

The good

- less is needed as higher % of available chlorine

The bad

- is calcium base, won't mix easily in water with more than 3 grains of Hardness
- can actually plug a well with calcium paste
- more you use, the less biocidal it becomes, alkaline base, with no control of pH
- very corrosive when poured directly into well
- pellets don't go into solution, will just lie on bottom of the well for years

3. Sterilene, the new chlorine (55% available chlorine)

The good

- sodium base, mixes easily in all water
- pH is auto controlled, no premixing w/vinegar
- no shelf life problems, non-corrosive
- NSF 60 Certified
- 200 times more effective than standard chlorine
- price competitive with standard chlorine

The bad

- not as readily available as bleach

Info on coliform & E. coli

Coliform bacteria

- very common environmental organism, present everywhere in the environment
- actually, not a real health threat, only an indicator there may be other bacterial problems
- labs often use a Present/Absent test. If "Absent" is great. If "Present", severity is unknown

E. coli or fecal coliform

- is a health concern and will cause issues like diarrhea, stomach cramps, etc.
- requires a source **DO NOT chlorinate**. Chlorine may not remove the source of contamination. Pump the well for several days, retest. If continues, have a contractor airlift the well from the very bottom of well in an attempt to remove the source. If the problem continues, you have a physical problem in the well allowing a continuous source. Chemistry may not be the answer.

5920 Covington Rd., Shorewood, MN 55331 Toll Free 888.437.6426 (888 4 dsn h2o)
Phone 952.474.4657 • Fax 952.470.6637 • Email designh2o@aol.com or

“Easy method” for chlorinating domestic wells

This is a very effective and safe method for chlorination of your well with Sterilene.

1. **Pre setup:** Obtain approved sampling containers from your local health department, or well contractor. Get an 8 oz container of Sterilene from your contractor or water laboratory. Since Sterilene is a new product, your contractor may have to contact their well products distributor for more information. Go to our web site for literature or for a listing of wholesale, stocking Master Distributors for purchase.

Physical site setup: Mix 1/2 of the 8 oz container (4 oz) of Sterilene into 4-5 gallons of water. Stir until there are no granules present. Loosen and remove the well cap on well.

Treatment of well and piping: Pour the 4 gallons of chemistry into the well. Open the faucet where you want to test for coliform (kitchen sink?). Pump water until there is a chlorine odor and immediately shut off the faucet. Let set for 4-5 hours or overnight.

Removal of chlorine: You don't want chlorine going into your septic system. Attach a garden hose to an outside faucet from the house. Open the outside faucet and pump to waste through the garden hose to an area of little concern for grass/plants. Note if there is a chlorine odor which indicates the presence of chlorine (good). If there is no chlorine odor, the chlorine may have been used up with large amounts of bacteria (possibly not so good?). Pump to waste through the garden hose until there is no chlorine odor. This may take 30-40 minutes. Once the odor is gone from the garden hose, move to the sampling faucet (kitchen sink?). Turn on the faucet. There should be a chlorine odor for a short period of time.

4. **Sampling/results:** Pump at this faucet until there is no chlorine odor and then pump for an additional 15-20 minutes beyond that to assure there is no chlorine residual in the sample. Take your sample. Take or Send to the laboratory for testing.

Sample results: [IF sample is “Absent”](#), you have succeeded! Congratulations!

[IF sample is “Present”](#), it's just that, Present for coliform bacteria. You don't know the severity of the issue. Is it 1/colony per 100 ml or 25 colonies per 100 ml? Counts less than 15 colonies may indicate a minor issue that may be treatable. Where are you sampling? Move closer to the well to a sampling port in the basement or at the well. Pump the well for several hours. Retest.

Counts greater than 15 colonies may indicate a serious issue such as a continuous source of bacteria due to a physical problem in the well, such as a failure in the well casing or the grout between the casing and the original borehole. Ask the lab if they can do Coliform Counts.

If coliform persist after 2 simple chlorinations with this “Easy Method”, follow the next, more enhanced treatment process or call a contractor to do a more advanced disinfection of your well. We are happy to provide well contractors with a step by step field procedure for any treatments or provide technical services at no charge.

“Enhanced method” or chlorinating domestic wells

If you had a “Present” for coliform using the simple chlorinations, it may be due to part of the well (lower) not being covered with a chlorine solution. This is a more involved process that increases the coverage area in the well by using two times the volume of the well. Mix Sterilene into a tank at the surface, and pour it into the well. Use only if there is < (less than) 200’ of water in the well. If > (greater than) 200’, contact a contractor for placement of Sterilene evenly throughout the well.

1. Product calculation: Dosage is based upon diameter of the well and total footage of water in the well. If you don’t have the well information, get it from your contractor. Use Fig 1 for volume calculations.

Well Diameter	Volume of water in well x 2 in gal/per foot
2”	0.12 gal/ft
3”	0.74 gal/ft
4”	1.30 gal/ft
5”	2.10 gal/ft
6”	3.00 gal/ft

Example: 4” well, 130’ total depth with a 25’ static level (level of water without pumping) equals 105’ of water in well. Multiply 1.3 gal/ft x 105’ of water in well = 136 gallons. Use a single tank with 140 gal of water (200 gal stock tank) or multiple tanks (3, 55 gallon drums w/ 45 gal each) or (6, 30 gal clean garbage cans w/20 gal each). Multiply the total gallons to use (140 gal x .0015 lbs/gal (100 ppm) = 0.21 lbs of product (0.21 lbs x 16 oz/lb = 3.3 oz) or slightly less than 1/2 of the 8 oz Tub. Since pH is controlled, you can use more, if desired. Mix in the single tank or equally in the tanks for an approximate 100 ppm.

This procedure does require some planning, mixing, and potentially multiple tanks of water. You will need to pump water into a single tank or multiple tanks at the well before mixing Sterilene. Follow the example above. Pour Sterilene into the water in the tank (tanks) and stir with a paddle in the container to mix. Pour or pump into the well. Follow Steps 2 through 3 from the “Easy Method” on Page 1. Ask the laboratory for counts of coliform. We need to understand severity.

If a there is again a “Present” or counts of coliform, we suggest, the problem may be in buried piping to the well or a physical problem in the well. Contact your contractor. Options are, 1. lift the pump discharge to the surface and test for coliform at the well. 2. while the pump discharge is raised, do “Timed Testing” at the well to determine if there is a physical problem in the well and the potential for a continuing source of bacteria. Don’t be alarmed if your contractor has never heard of “Timed Testing”. This is a new procedure to understand where the problem is and if it is treatable. It is much better to understand the problem rather than to continue to pour chemistry at it and continually fail.

“Timed Testing”: This is outlined in two of our brochures on our web site, Coliform & E. coli in Wells and Understanding Your Well Problems. The idea is to determine if bacteria are coming from a continuous source (untreatable with chemistry) or contained in the well (treatable). Brochures can be sent out to contractors at no charge. Both brochures outline procedures for you or your well contractor to follow. If there are any questions, problems, call our Toll Free number or email us.