

International Water Management Systems

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Instructions for the CPU

The CPU (Chlorine Producing Unit) [Khlor Gen 3000](#) is designed to produce a mixture of chlorine and water, by passing a saltwater brine solution, at room temperature, through a 12 – volt Direct Current electrified grid. As a byproduct there will also be a small amount of hydrogen gas emitted at the top portion of the CPU. Tests by the manufacturer have shown no serious problems with the limited amount of hydrogen gas produced during normal operations; but to be entirely safe you should not use the CPU in an enclosed space, or near an open flame or burning tobacco products. The CPU has no moving parts. When you are ready to produce the chlorine mixture, connect it to a 12 - volt power source, and pour saltwater brine through it to produce a chlorine solution similar to bleach. You can pour the resulting solution back through the CPU, four more times. Each time the solution passes through the CPU it becomes stronger. The final solution can then be safely used to disinfect potable water. The larger the quantity of water to be disinfected the more chlorine solution you will need to use. Please refer to the Limited Warranty and warning label on the CPU, and abide by those. In particular you must avoid breathing any fumes emitted, or contact between the chlorine mixture and your eyes, mouth, nose, and other sensitive body parts.

What makes the CPU work is the age-old method of electrolysis using some specially coated anodes. The power source makes little difference to the production of chlorine solution, as long as it is Direct Current 12 volts. The electrical source can be a battery, solar panel, a 10 amp battery charger, or a converter reducing the voltage to 12 volts dc. When the CPU is powered it produces significant heat. And you need to be cautious to avoid burning yourself or others. Occasionally the CPU, when first powered up, will produce a small amount of smoke around the electrodes. There should be no concern about this unless it lasts for more than a minute. The reason for this is very basic. When the brine solution is passing over the electrode you are actually shorting across the electrodes with the brine solution. And the heat produced will oxidize any contaminants on the electrodes. This condition should resolve itself, with no problems for the process.

The formula for the salt brine solution, which will be poured into the CPU, is the only “complicated” part that you might have to experiment with. We generally start with about ¼ cup of salt in a 16 - ounce bottle. We suggest you use a suitable measuring cup and plastic bottle to make the saline mixture. With the CPU turned on and supported so it does not fall over, and with a clean suitable container to catch the chlorine mixture, which will come out the bottom, pour your mixture into the top. After a vigorous shaking to mix it well, pour the resulting chlorine solution through the CPU, using the same technique, another time. It only takes a few seconds to run through. Repeat the process once more. We have found that after 4

or 5 passes through, the chlorine solution is about as strong as it can get. In other words, all the salt is used up and converted to chlorine. When you have finished, disconnect the battery wires, and then pour a bottle of clean water through the CPU to wash it out.

About 10 drops of the chlorine solution produced can then be added to a gallon of water to kill the bacteria and make it safe to drink after it sits for an hour. It needs to sit for 2 reasons: first to give it time to kill all the bacteria, and secondly to let some of the chlorine dissipate so that the smell and taste is not noticed. After an hour of sit time, residual chlorine may be down to 1 PPM. For reference a liter of chlorine solution in a 1500 - gallon tank of water should produce about 1500 gallons of potable water.

Always take care in using the chlorine solution, as you are producing a caustic chemical, about half the strength of household bleach. Remember too that if your feed salt brine solution is colder than room temperature, or if you pour the finished chlorine product into your supply of water to be disinfected, and it is colder than room temperature, more time will be required to produce the desired effects. You will find also that the water you intend to disinfect will react most effectively to the chlorine solution that you have produced, if you first filter the potable water as completely as you can. This is because chlorine is used up by matter floating or suspended in the water. **ALSO DO NOT ATTEMPT TO OPEN OR ALTER THE CPU.** Contact us at jcluney@iwmsystems.com with any problems or questions.

Step Summary

- 1 Mix salt & water solution (approx. ¼ cup salt to 16 oz water);
- 2 Connect wires to 12 volt source negative (black) to negative; positive (red) to positive;
- 3 With CPU supported, place appropriate clean container under CPU to catch liquid product;
- 4 Pour the saltwater solution through the CPU;
- 5 Carefully repeat the pour through process 4 more times;
- 6 Unhook the battery wires;
- 7 Rinse the CPU by pouring clean water through it;
- 8 Add 10 drops of the solution for each gallon of filtered drinking water;
- 9 Wait at least one hour before drinking.