

Instructions for Mixing Hypochlorite (Chlorine) for Solution Feed Pumps

General instructions:

These instructions are designed to help you efficiently mix solutions and adjust the feed pump in new installations. These instructions assume you are familiar with the operation of the feed pump, the pump has already been installed and the pump has been primed with a small amount of water in the bottom of the solution tank. Using the following instructions, the process of adjusting the system should be accomplished in less than 30min.

When checking chlorine residual, take the sample while the pump is running. This will make sure you are collecting a sample directly from the injection point not from the old mixture in the pressure tank. If you are testing the chlorine near the pressure tank and there is no static mixer, take at least a sixteen ounce sample to prevent abnormally high or low reading due to the feed pumps pulse type injection. When drawing the sample, collect it in the container slowly enough so the feed pump has pulsed at least 6 times during the collection period. Be careful not to run excessive amounts of water and over work the well.

To adjust the residual, first try to adjust pump stroke before changing the concentration of the solution. Do not turn the knob on the pump unless the pump is running as you may damage the pump. If the stroke has to be adjusted so it is less than 30% or greater than 70%, change the solution concentration so the stroke of the pump is not outside this range.

If it becomes necessary to change the concentration in the solution tank during this procedure, you will need to wait until the new concentration has made it through the solution feed pump tubing to the injection point. If you recorded this time when you first primed the feed pump and could see the liquid move to the injection point, you will know how long you need to wait.

If the system uses a jet or centrifugal pump, make sure the pressure gauge shows a steady increase through the entire pump cycle. If it does not, the cut out pressure of the well pump will have to be reduced. If the cut out pressure is not reduced, the solution feed system will continue to inject solution while the well pump is pumping very little water. This will cause the addition of excessive amounts of solution during the upper end of the well pump cycle.

Once these initial adjustments are made, you will need to take the measurements of the chlorine residual at a designated tap(s) in the system which is(are) after the retention tank(s). You should check with a system operator to obtain help with the selection of the tap(s) that may be used for this purpose.

To mix solutions and to adjust feed pump:

1. Check the well pump capacity using the average pump test method.
2. Set feed pump stroke to 50%



3. Use the following table and the water test results to help determine the demand for each of the three contaminants listed. Add the chlorine residual desired in mg/L to the total of all the demands determined in the table below to calculate the dose of chlorine in mg/L.
Chlorine Demand:

Test Result	Multiply by	Demand
___ mg/L Fe	X 1	___mg/L
___ mg/L Mn	X 2	___mg/L
___ mg/L H ₂ S	X 4	___mg/L

4. The amount of 5.25% bleach needed to make 5 gallons of chlorine solution is found by using the formula below -remember that 50% stroke on a 30 gpd solution feed pump gives a feed rate of 15 gpd.

$$\text{___ mg/L(chlorine dose)} \times \text{___ gal/min (well pump)} \div \text{___ gal/day(feed pump)} \times 18 = \text{___ oz. (bleach)}$$

5. Add the number of ounces of bleach calculated in 4 to the solution tank and then add enough water to obtain 5 gallons of solution.
6. Check the concentration of chlorine residual at the pressure tank or closet faucet after the pressure tank. Be sure to follow the guidance in the general instructions on taking this sample and adjusting the pump. Adjust the stroke of the feed pump if necessary.
7. Fill the solution tank 2/3 full with the concentration determined in steps 4+6.
8. Record the concentration(s) on the solution tank with a waterproof marker.
9. Record the concentration in your records for the water system.