

Eliminating *Pseudomonas*



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Procedure for Eliminating *Pseudomonas aeruginosa* Bacteria in Spas

The bacterium *Pseudomonas aeruginosa* has a particular affinity for whirlpools. The high water temperature, the high content of organic materials, and the aeration and agitation provide conditions conducive to the survival and growth of *P. aeruginosa* and, at the same time, cause a rapid breakdown and dissipation of the disinfectant in spa water.

Once *P. aeruginosa* has shown up in a spa, it can be difficult to eliminate. Therefore, it is particularly important that this procedure be closely and thoroughly followed. This procedure may have to be repeated to eliminate the problem, as re-check samples are often positive for *P. aeruginosa*.

1. Drain the tub.
2. Thoroughly clean and scrub the tub and all adjacent surfaces including the spa cover.
3. Disinfect all tub surfaces. Air jet fixtures may be disinfected by using a syringe to squirt disinfectant solution in all parts of the nozzles.
4. Disinfect all surfaces adjacent to the spa and any other surfaces which may have been exposed to spa water, including the spa cover.
5. Refill tub with cold water and leave the heater off.
6. Super-chlorinate or shock treat the spa water to a level of 50-100 ppm disinfectant and backwash the filter with disinfectant at this level. If a cartridge filter is used, the cartridge should be removed and cleaned and disinfected in accordance with the manufacturer's recommendation. Be certain that the cartridge housing is also cleaned and disinfected before the cartridge is replaced.
7. Circulate the super-chlorinated water through the entire system for at least 8 hours.
8. Lower chlorine concentration to normal operating range of 2-6 ppm (4-13 ppm bromine).
9. Reestablish normal operating chemistry (pH 7.2-7.8).
10. Send another sample to your laboratory. Keep the spa closed to bathers until the lab reports that the sample was safe.

A 100 ppm chlorine solution can be made using one of the following proportions:

- a) 1/2 tbsp liquid household bleach per gallon of water
- b) 1 tsp liquid pool chlorine per gallon of water