



PROCEDURE FOR ELIMINATING PSEUDOMONAS AERUGINOSA BACTERIA IN SPAS

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.

***Disinfectant solution may be made using one of the following proportions to provide 100 ppm chlorine:**

½ tablespoon liquid household bleach per gallon of water
1 teaspoon liquid pool chlorine per gallon water

Use disinfectant with caution; it may cause bleaching and discoloration of some materials, including fabric and wood. Always use any commercial cleaner/disinfectant in accordance with manufacturer's instructions.

5. Refill tub with cold water and leave the heater off.
6. Superchlorinate 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 superchlorinated 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.

Pseudomonas aeruginosa is a common bacterium which can cause skin rash, urinary tract infection, and pneumonia, especially in individuals who may be debilitated or otherwise susceptible. The bacterium 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 *Pseudomonas* and, at the same time, cause a rapid breakdown and dissipation of the disinfectant in the spa water.

Once *Pseudomonas* 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 *Pseudomonas aeruginosa*.