

Understanding Pool and Spa Systems Interaction with Hydropath

When considering how the capacity of a pool system's pump and filtration affects the level of success in dealing with chloramines and other issues, Danny Stefanini provided a great way to see and better understand the process involved by conducting a simple experiment.

To conduct the experiment, you will need the following items:

1. Two clear glass containers of equal size and volume, 8oz. to 12oz. will do fine. (mentally label them container #1 and container #2)
2. Water supply
3. Milk (in an amount of half the container being used)
4. Sink or bucket to catch the overflow.

Method:

1. Fill container #1 half way with water. - This represents the water in a pool or spa system.
2. Top off container #1 with milk and set it in the sink. - This represents induced contamination such as chloramines, etc.
3. Now, fill container #2 with clear water. - This represents the water which is being cleaned by the filtration system.
4. Pour the contents of container #2 (clear water) into container #1 (cloudy water), allowing the excess fluid to run off the top. - This represents the filter system supplying clean water back to the system **in an equal amount of volume as the volume of the first container**.
5. Consider the first volume of clear water supplied to the original volume as being 1 "turn". (an amount equal to the first volume re-supplied to the system.) - This simulates the time the pool or pump takes to circulate the total volume of the pool or spa **one time**, and the **mixing** which occurs as the water is introduced.
6. Continue to provide volume "turns" to the "system" by filling and pouring container #2 into container #1.
7. Note how many "turns" are required to achieve clear water once again in container #1. (you may be quite surprised! **We counted 10.**)
8. Repeat the experiment beginning with lower ratios of milk to water if you like.
9. Note how low the ratio of milk to water is, to get clear water with 2 turns or less. (again, quite surprising)

Keep in mind that typically a pool or spa system is designed to turn the volume once every 8 hours or so. According to ANSI/NSPI-5 2003, a 20,000-gallon pool requires that the same amount of water be moved through the system **every 12 hours**. Also keep in mind that it doesn't take many humans to induce quite a bit of contaminants into a pool, and even less in spas having lower water volume to humans ratios.

Now let's consider a pool or spa's filtration system's ability to cope with high levels of "usage contamination". You will discover quite quickly that if a pool or spa is designed to spec, it may not be able to provide the level of flow capacity needed to adequately provide **treated** water back to the system under the high loads which may occur in public pools or spas. **Our clients need to know, and understand up front, that our equipment is only able to treat the volume of water which the existing equipment can provide to our unit for treatment.** This will help eliminate having to explain these issues after a trial has begun!