SAFE WATER TECHNOLOGIES, INC.



Field Notes By Rusty Waters

"Unscientific wisdom from a collection of the greatest minds in water guality improvement" (We ain't passin' judgement,...we're passin' ideas!)



Tannin vs. Oxygen Potential of Water

I prefer to treat water without the use of chemicals whenever possible, but it ain't always easy. ('course, it's a heck of a lot easier than my gettin' a raise around this joint, but I digress.)

The following test is one of those quick, down, and dirty, field tests we learned out of desperation many years ago when we had a lot of unexplained iron removal system failures in the field. For the longest time, we had absolutely no idea what was going on. (If I was a fast learner, I s'ppose I wouldn't have had to live so long.) When we did figure out what was going on, we determined that it was tannins (organic matter) going on to the iron, and preventing oxidizing. (Remember that you currently use carbon to remove chlorine, an oxidant, from water. And also remember, that all organic life forms are carbon based. You would have learned this from Dr. McCoy ("Bones") on those early Star Trek episodes if you were paying attention. "Damn it Jim! I'm a space doctor, not a water treatment specialist!")This is the cause of heme (or organically bound) iron.

This test has no formal lab protocol, but has been used with a high success rate among some dealers. It is only an indicator to be used a "rule of thumb" rather than an absolute. This test will help you determine if the amount of tannins in the water is low enough in relation to the oxygen potential of a MetalEase^M bed for the MetalEase^M to work without the use of additional oxidants in the water supply. You're going to do this by adding "colored oxygen" to your water sample. The theory is based on the simple assumption that the more tannins existing in a water supply, the greater the amount of free oxygen (dioxide) that must be made available from the water treatment system. The test is simple, and low cost to perform:

Mix: 0.75 oz of potassium permanganate crystals with 1.75 oz of water.

Take: Two drops of this concoction, and add it to 1 quart of the subject water. The water will turn pink.

Stir Briefly: If the pink color remains, you should be able to use MetalEase™ without using additional oxidation.

If the water sample turns clear (permanganate is reduced to a clear state), you will have to add additional oxidation, or remove the organic with an organic resin such as ProSelect[™] Tannin installed as either a stand alone unit, or using it as the top layer in a mixed bed softener.

The following are common methods of oxidation (from most concentrated to least concentrated): *Peroxide, Potassium Permanganate, Chlorine, Ozone, Metal Ease™, Air Injection.*

Rusty

If you have an unscientific idea that you would like to share with your fellow water quality improvement professionals, by all means let us hear it so we can pass the information along. Design by experience and evolution can be more reliable than what the eggheads can do in the lab or on a computer. We here at SWT believe that knowledge is meant to be shared. We do not presume to know more than our customers, and we really enjoy the exchange of ideas.



