## SAFE WATER TECHNOLOGIES, INC.



Field Notes By Rusty Waters

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



## Tannins

This field tip on ProSelect Tannin<sup>™</sup> was taught to me by a Cajun friend of mine from just South of "N'Orleans" way, who learned his water treatment installing RO systems on oil platforms 80 feet below sea level in the Louisiana gulf. Clyde worked for Texaco, and several water treatment manufacturing companies before becoming a private consultant. Clyde possesses a degree in chemical engineering, but I was able to overlook that, and we have remained friends anyway.

## Real Life Solution #2:

Once in a while, the organic(s) in water can lock iron in solution ("dissolved" or "ferrous iron"). This is often referred to as "organic iron." A more accurate term would be "organically bound iron." To the best of our knowledge, "organic iron" is caused by clear water iron in solution entering into an area in the water supply that is heavy with decayed vegetable or animal matter.

Since all life on this planet is carbon based (remember your Star Trek episodes), carbon molecules from the decayed matter attach themselves to the iron molecules. The extra attached carbon molecule prevents the iron from rapidly oxidizing. (This is also why we use carbon to remove oxidizing agents like chlorine from the water). Iron can exist in a mono carbonate, bicarbonate, or even tricarbonate state. The more organics (carbon) that you have binding the iron, the slower the oxidation process. That is how you get iron filter bleed through when your filter relies on oxidation to bring the iron out of solution before it deep bed filters it.

Organic(s) can clog up a filter faster than a weed sprouts. If you are having problems with your iron filter not working when it should be, you may have an organic problem. One solution is to use a tannin resin (such as ProSelect Tannin<sup>TM</sup>, our favorite brand, thank you very much!) as a pre-filter. A good tannin resin can solve a lot of problems and can be added to an existing softener, or set up as its own filter the same way you would set up a softener. Tannin resins are regenerated with chloride (as in "sodium chloride," or you may simply call it "salt") and a little soda ash. This is why tannin resin works well when added into an existing softener. When you regenerate the softener, the sodium will regenerate the softening resin and the chloride will regenerate the tannin resin. Normally the chloride would just be wasted in a standard softener. Most household applications would only need to use 1/3 cubic foot of ( $6^2$  to  $10^2$ ) tannin resin on top of 1 cubic foot of softening resin (3 to 1 ratio), and you do not have to increase your salt dosage. Many water treatment technicians install low cost combination softener/tannin systems using fine mesh softening resin with a top layer of tannin resin to remove iron. In some areas, this softener/tannin system can remove more iron than iron filters if there are organic(s) present in the water supply.

## 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.

