MILANCO INDUSTRIAL CHEMICALS

WASTE TREATMENT TROUBLESHOOTING

You should now be routinely thinking; Precipitation-Coagulation-Flocculation-Separation. Well, people often erroneously feel that flocculation most influences separation. When the solids aren't separating right, the polymer flocculant is often suspected. But, you already know there is more to it than that.

So what do you do when a industrial operator points out that there are solids in a clarified water sample, no clarification in the clarification stage, or no flocculation in the flocculation stage? What if the operator says "...the floc (polymer flocculant) isn't working"...

Think it through logically. The operator may feel that the quality and appearance of the treated water is the problem and the polymer flocculant is causing it. But in poor flocculation or separation you really see symptoms of the problem. First find the real problem, then what is causing it. Always start with the basics of the treatment system.

Many problems have symptoms that show up in the quality and appearance of the treated water. The polymer flocculant choice could be the problem, so could the chemical choice for precipitation or coagulation. But, most often a problem with those symptoms is either a system malfunction or a change in the untreated water that has rendered the treatment procedure ineffective.

THE SYSTEMS APPROACH

Consider a systems approach. When surveying your operating procedures, address the whole system, even if it's running well.

Let's use some common sense. Every system in some make, shape or form, is trying to make your technical concept work. Remember; Precipitation, Coagulation, Flocculation, Separation.

So, a good common sense approach is to:

1) Identify where and how these functions occur.

The engineer or the operator should know how to run the system. There also may be an operating procedure manual that contains invaluable details laid out by the engineers that first put the system together. Nail down all of these design criteria. Check the pH of the system ***daily*** with a calibrated pH meter!!! Clean the pH probes often. Clean and calibrate them on a strict schedule!!

2) Determine if those functions are occurring properly.

Ask around. "How does this stage look when the system runs well?" "Just what is wrong with the way this stage is running now?" (The stage is where the function occurs.) Ask for visual and even analytical input.

Your operator might respond..."Usually we get a popcorn-sized floc(culant)."

Or, as we mentioned earlier, these questions may produce visual symptoms of the problem..."The floc(culant) isn't forming. See how murky the water is?"

3) Ask what is done to maintain or resolve the condition.

"What do you do, at this stage, to keep the system running right?" "When this stage hasn't functioned right, what have you tried?"

4) Check for recent changes in the production process.

Changes in the production end of operation could be influencing the nature of the untreated water.

5) Assess the treatment chemicals in use.

Check out the chemicals that you are using. You know some ordinary things to do: kick the drum--maybe it's empty, check the chemical feed pumps--they could be inoperable or set incorrectly, maybe the lines are plugged or broken. Make sure that the chemicals are being prepared, diluted and generally used the way they've been specified.

Now let's get to where the real action is. You can play chemist. You can test the untreated water to determine what the appropriate chemical selection and usage rates should be. In this way you determine the treatability of the water.

ADVANCED TROUBLESHOOTING

This Troubleshooting Guide was developed based on professional publications and years of Milanco experience with industrial pretreatment systems.

The factors addressed are evident in industrial treatment systems of a non-biological nature discharging directly to a POTW or to natural receiving water. Many of factors are even evident in biological treatment systems.