

# WATER TREATMENT TECHNOLOGY FOR INDUSTRIAL, COMMERCIAL & ENVIRONMENTAL APPLICATIONS

NOVEMBER 2016 - WATER TREATMENT NEWSLETTER

## Florescence Monitoring—A Swiss Army Knife Tool for Water System Management

Water treatment professionals need to provide accurate measurement of many operating parameters. These include knowing system flowrates, tank volumes, identifying water sources and determining chemical concentrations. These parameters and many others can be determined with fluorescent dye monitoring. Some dyes can be monitored to the ppb level with fluorimeters.

PTSA, P-toluenesulfonic acid, for example, fluoresces in water and can be read by hand held instruments or process controllers in the range of 0-200 ppb. The accuracy of this testing makes florescence monitoring of PTSA a multiple-use tool .

Some examples of its uses include:

1. Tracer for water treatment chemicals. Monitoring and controlling chemical dosages such as in cooling towers is economical and accurate by adding known concentrations of PTSA in the formulations. Chemical dosage is critical to control treatment effectiveness and costs.
2. Accurately testing for system volume. Adding a known quantity of PTSA in a tank or recirculating system, mixing the system and testing for PTSA concentration allows for accurate calculation of system volume. This is often used to determine biocide feed rates in complex cooling systems.
3. Accurately testing for system flowrates. Adding a metered quantity of PTSA in a stream or pipe allows for determination of system flowrates and variations in flowrates.
4. Determining chemical distribution after static or mechanical mixing. Chemical "spiked" with PTSA before mixing and distribution allows for determination of mixing effectiveness. An example is spiking an RO antiscalant with PTSA in front of a distribution header to determine that each RO skid receive the proper and equal antiscalant dosage.
5. Tracing waste water stream sources and quantities. Adding a known metered quantity of PTSA to a stream allows a calculation of the volume and variability of the stream's impact on the total waste water system.
6. Identifying the source and severity of system or tank leaks.
7. Specialized fluorimeter monitoring has also been used to monitor and control algae and hydrocarbons including crude oil and DOM (dissolved organic material).
8. Monitoring of groundwater or surface water flow for environmental purposes.



**VISIT OUR WEBSITE!**



Kansas Water Tech  
[kansaswatertech.com](http://kansaswatertech.com)



Remediation Services Co.  
[remediation-services.com](http://remediation-services.com)



## Kansas Water Technologies improves its Cooling Tower Treatment Formulations

Kansas Water Technologies has reformulated chemicals for open recirculating cooling tower treatment. The formulations provide “Best in Class” components to give improved corrosion and deposit control for each product.

The formulations include the following components.

1. “Best in Class” terpolymers that provide excellent dispersancy for phosphate inhibitors, iron and suspended solids particulates.
2. “Best in Class” polymaleic acid / phosphonate inhibitors for calcium carbonate inhibition.
3. “Best in Class” copper corrosion inhibition.
4. Each formula is traced with PTSA fluorescent dye for simplified and improved monitoring and control.

The formulations are named KWT CoolTrol 6XXX.

The formulations are modified as needed to be used with or without pH control. The effective range of LSI (Langelier’s Saturation Index) for these formulations is for LSI’s from 1.5 to 3.0.

Performance data including data on our new terpolymer and the polymaleic acid components is available upon request. SDSs on specific formulation are available.

## Filming Amine Technology has Proven Successful for Boiler Water and Closed Loop Treatments

In 2014 we introduced new filming amine products for boilers and closed loops and have been having great success with it.

We are pleased to announce that our products which have been successfully used in numerous systems for the last two years and will now be sold as KWT SteamTrol 5XXX and KWT LoopTrol 4XXX. These products are film forming amines (FFA) which provide corrosion and deposition prevention in numerous types of systems. These film forming amines prevent corrosion of the metal by creating a “monomolecular film.” These FFAs provide corrosion protection of all types of metal including mild steel, stainless steel, copper alloys, and aluminum.

The KWT LoopTrol 4XXX treatment chemicals for closed loops have advantages over traditional treatment programs such as molybdate or nitrite mixes. These advantages including better corrosion protection, better protection for mixed metallurgies, and better protection in systems susceptible to water loss. When water loss is an issue, such as in blow molding operations, or systems that are not completely “closed,” the monomolecular film protects the system even if residual levels drop. This technology is also great in systems with tight pH tolerances such as aluminum high efficiency heat generators, since the film provides an additional protection.

The KWT SteamTrol 5XXX products protect the entire boiler system, from the boiler itself to the condensate and back to the feed tank or deaerator. The KWT SteamTrol 5XXX products are volatile enough to leave the boiler with the steam and create a film throughout the system. This means you only need one boiler chemical rather than the traditional two or three. These products have been successfully used at steam pressures up to 1200 psig and in power generation with high efficiency turbines. We also have an FDA approved version if your steam contacts food or animal feed products. Systems with periodic down time up to a few weeks remain protected without dry or wet standby treatments. Systems that require extended “out of service” storage can be treated with an additional SteamTrol product to maintain the protective film for longer periods.

Our Filming Amine Treatment options provide an advanced, simplified and effective treatment for boilers and closed loops. Contact us if you would like more information on these products.



**VISIT OUR WEBSITE!**



Kansas Water Tech  
[kansaswatertech.com](http://kansaswatertech.com)



Remediation Services Co.  
[remediation-services.com](http://remediation-services.com)

## RO Antiscalants Make a Difference in Lead Element Fouling

During recent testing comparing RO antiscalants at a Midwestern municipal RO plant we have shown that antiscalants can affect fouling on lead elements as well as the tail end elements. Using Avista Technologies' advanced Black Box monitoring tool we compared the membrane flux for two different antiscalants over two several month trials. The difference in lead element flux between the two antiscalants was significant. (See attached graph)

Plant personnel determined that the difference in flux correlated to important operating parameters including:

1. First stage differential pressure increase was slower with the antiscalant with the highest flux rate. This resulted in fewer required CIP events during the course of the trial.
2. Plant personnel also indicated CIP events with the higher flux antiscalant showed quicker, better cleaning. This has resulted in better post CIP membrane performance and is expected to increase membrane life.
3. In these trials both antiscalants provided adequate tail end deposit control as determined by flux monitoring and subsequent Black Box membrane autopsies.
4. The best performing antiscalant was Avista's Vitec 1400 chosen using Avista's Advisor Ci modeling software.



**VISIT OUR WEBSITE!**



Kansas Water Tech  
[kansaswatertech.com](http://kansaswatertech.com)



Remediation Services Co.  
[remediation-services.com](http://remediation-services.com)

### Lead Element Flux Comparing RO Antiscalants

