

WATER TREATMENT TECHNOLOGY FOR INDUSTRIAL, COMMERCIAL & ENVIRONMENTAL APPLICATIONS

APRIL 2014 - WATER TREATMENT NEWSLETTER

“Black Box” Monitoring by Avista offers Convenience in Membrane Autopsy and RO Troubleshooting

Avista Technologies of San Marcos, California (KWT’s partner in providing RO chemistry and monitoring technology) has developed a new way to get membrane autopsy results without interrupting production. The “Black Box” is a standalone RO device that simulates the operating conditions of the membrane element closest to its installation. It can be used to monitoring colloidal, biological, or organic fouling on the feed end of RO skids. It can be used simulate the effects of oxidants such as residual chlorine which can damage TFC (thin film composite) membranes. In interstage membranes or tail end concentrate membranes the Black Box can be used to identify scale forming compounds, evaluate antiscalants, and to optimize recovery rates.

The black box can be easily installed on streams at existing fittings used for pressure gauges. The black box can be left in service as long as is necessary to identify the problem being studied. The membrane in the black box can be matched (manufacturer and model) to the membranes being used in the RO.

[CLICK HERE](#) - to see the Black Box Bulletin on our website



KWT Compares KS Municipal Water Chemistry and Costs

KWT has published a spreadsheet which compares some key water chemistry parameters for municipalities in Central and Western Kansas. The spreadsheet also compares current costs for drinking water and wastewater charged at each of the municipalities. The spreadsheet is useful for those using these water sources to identify treatment concerns in industrial or commercial processes.

We have compiled water data for over 20 municipalities in Central and Western Kansas. We have recorded the major constituents that can lead to scaling and corrosion including: hardness, calcium, pH, alkalinity, conductivity, chloride, iron, copper and sulfates.

We also have collected estimated rates for water and sewer for these municipalities to help make informed decisions and to consider alternative sources for water. The following is a list of the municipalities for which we collected information: Arkansas city, Augusta, Colby, Concordia, Derby, Dodge City, El Dorado, Emporia, Garden City, Great Bend, Hays, Hutchinson, Junction city, Lawrence, Liberal, Manhattan, McPherson, Newton, Salina, Strother Field, Topeka, Wellington, Wichita, Winfield.

[CLICK HERE](#) - for a copy of this spreadsheet.



Aaron Terry Joins KWT & RSC

We are pleased to have Aaron Terry join KWT and RSC as a Technical Sales Representative. Aaron will be assisting with all sales and service efforts of our two companies.

Aaron is a recent graduate from Brigham Young University with his bachelor’s degree in chemical engineering. While at the university Aaron worked with a research group designing a nano circuit using gold plated DNA as the backbone. His focus was on the polymer substructure the DNA rested on. To solve the problems the group was experiencing Aaron and another student spent a summer at the Max Planck Institute in Potsdam, Germany to work with some great polymer scientists. Aaron’s research was published in the Journal of Physical Chemistry in 2010. Aaron is also experienced with process development and troubleshooting, he designed multiple test procedures while working at Moxtek as a process engineering intern.

When Aaron isn’t working to solve your water problems he enjoys board games, target shooting, reading, and corny jokes. He and his wife just bought their first home in Hutchinson. Both Aaron and his wife love travelling. They have both visited Western Europe and Aaron even lived in Canada for two years.

Steam Purity–Steam Quality: Definitions and Examples

The term steam purity is a measurement of contaminants in the steam. The contaminants may be either organic or inorganic materials. Some contamination is inadvertent (e.g. design carryover) while some is intentional (e.g. neutralizing amines).

A related term is steam quality. Steam quality is term that refers to the amount of wetness or dryness of steam leaving the boiler steam drum.

Typical values for steam purity for boilers operating below 400 psig are 1 ppm solids, whereas for boilers operating up to 600 psig the value is reduced to .3 to .4 ppm. For higher pressure boilers operating 900 to 1200 psig the value may be as low 50 ppb of solids in the steam. Higher pressures and superheated steam systems must have even better steam purity and quality.

There are many factors that affect steam purity and steam quality they include:

1. Boiler design
2. Boiler pressure
3. Drum sizes
4. Internal steam separation equipment
5. Boiler Water Chemistry (Refer to ASME and ABMA guidelines)
6. Boiler Feed water pretreatment design
7. Operating Conditions (see examples below)

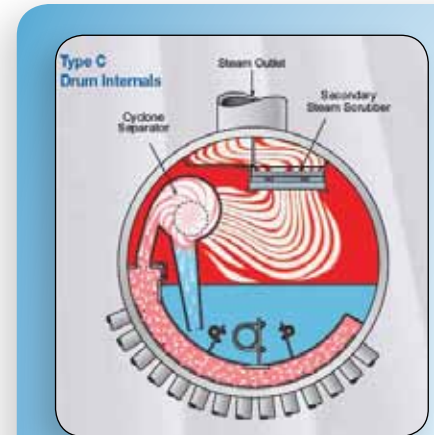
When steam purity has been compromised the troubleshooting should consider:

1. High and low water levels in the steam drum
2. Variable and rapid load swings
3. High cycles of concentration of boiler dissolved solids (conductivity)

Examples of where boiler water purity and quality are critical and may be compromised include:

1. High pressure steam where volatilized silica can deposit on turbine blades.
2. High pressure steam which is superheated prior to use.
3. Steam used in pharmaceutical plants and hospitals may require dedicated "clean steam generators" to eliminate contaminants in process stream or steam sterilizers.
4. Steam used in chemical processes using catalysts which may become fouled with contaminated steam.
5. Steam used in food plants is susceptible to contamination by animal or vegetable oil or greases causing foaming and carryover.
6. Food processing applications where FDA guidelines for steam purity may apply.

Each steam user should consider their own steam quality and purity requirements and routinely monitor their steam.



Steam drum Internal with Cyclone and Chevron Separators



Steam Separation Equipment

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