

WATER TREATMENT TECHNOLOGY FOR INDUSTRIAL, COMMERCIAL & ENVIRONMENTAL APPLICATIONS

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Cooling System Mathematics - Acid Feed Calculation

If you operate an open recirculating cooling systems you need to determine if you need to add acid to control the pH. You may want to lower the pH to prevent mineral deposits. You may want to lower the pH to increase cycles of concentration. What pH do you want to achieve and how much acid will it take? What do you need to know to calculate sulfuric acid feed for this application? How do you size the acid feed pumps? Review the following case history and calculations for help with this important procedure.

[CLICK HERE](#) for complete document.

Out of Service Boiler Storage

All boilers will be necessarily be out of service for a period of time during their operating history. Some boilers providing creature comfort heat and will be out of service seasonally. Other boilers may be in “warm or wet standby” as a backup for providing process steam. Other boilers providing process steam may be out of service as production schedules are not always continuous. All boilers are required to be inspected regularly and of necessity are shut down periodically. Occasionally boiler outages or plant turnarounds cause boilers to be off line. During these outages boiler metal waterside surfaces are especially susceptible to rapid corrosive attack and damage. This corrosion occurs because of the presence of the following conditions:

1. Warm, moist conditions
2. Presence of oxygen
3. Low pH levels (pH of 8.5 or less)

There are protocols for the prevention of out of service boiler corrosion. Review these protocols in this document at our website. [CLICK HERE](#). For information about vapor phase corrosion inhibition in out of service boiler storage [CLICK HERE](#).

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**Recovery wells
are often
fouled with
microorganisms,
hydrocarbons, &
iron deposits.**



Closed Cooling and Heating Loop Treatment Considerations and Options

Closed loop cooling and heating loops are found in many commercial and industrial systems. Controlling Corrosion in these systems is important for operating, engineering personnel and water treatment specialists. Factors affecting the treatment of these systems include the metallurgy, the recirculating fluid, the cooled or heated process, environmental restrictions, the water makeup rates and the treatment economics. Considering these factors the treatment options may be limited. A discussion of the treatment of closed loops and the types of chemical treatments available are included in this article at our website at this link kansaswatertech.com.

Estimating RO Permeate Quality - A Simplified Engineering Calculation

Estimating RO permeate quality is a useful tool when engineering an RO system or troubleshooting an existing system. Although projection software (ie Dow ROSA) can give accurate estimates of permeate quality a quick calculation can often provide an estimate adequate for preliminary engineering or field troubleshooting. If you know the design salt rejection value of the element (published or actual) the estimated system recovery and the feedwater conductivity you can quickly calculate the estimated average permeate quality.

For example in your system if you have feedwater of 1500 micromhos, a projected salt rejection of 97% and a 75% recovery you can estimate the average design permeate quality for your system.

For this system the average concentrate conductivity will be the average of 1500 micromhos and 6000 micromhos (feedwater conductivity X the Concentration Ratio) or 7500 micromhos/2 or 3750 micromhos of average of conductivity. The permeate quality on average will be $(100\% - 97\%) \times 3750$ micromhos or 112.5 micromhos.

Kansas Water Technologies provides advanced mechanical and chemical water treatments designed to meet our customers' requirements.

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Hydraulic Fracturing of Oil and Gas Wells in Kansas

Kansas Geological Survey has published a “Public Information Circular” about “Fracking” in Kansas.(Updated May 2012) The report discusses the history and technology of this practice. The report written by Daniel Suchy and Daniel Newell of the KGS discuss the potential for groundwater and surface water contamination in Kansas. The report discusses how “fracking” is currently being managed in Kansas by the production companies and the Kansas regulators. The authors have summarized, “In short, Kansas’ favorable geologic setting, its regulatory process, and its successful history of hydraulic fracturing and fluid management make it one of the safer regions of the country to employ the practice.” To read the entire article [CLICK HERE](#).

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