WATER TREATMENT TECHNOLOGY FOR INDUSTRIAL, COMMERCIAL & ENVIRONMENTAL APPLICATIONS

MARCH 2018 - WATER TREATMENT NEWSLETTER

KWT has its "Duck" in a Row – When it comes to Helping to Provide Safe Drinking Water for the World

At the last AWT convention in September 2017, KWT participated in a charity duck race on the Grand River in Grand Rapids, Michigan. Many AWT companies contributed by purchasing plastic ducks for the race. The proceeds of the race went to support the Pure Water for the World initiative, which provides home water filters for families in Haiti and the Dominican Republic.

The winning duck (there were over 200 entered) was KWT's "Kansas Quacker"! Boy were we proud of our little duck. The company with the winning duck won a great painting of the event and free convention fees at next year's AWT convention in Orlando Florida. Here is the painting of the duck race which highlights Kansas Quacker. He is leading the pack on the Grand River. The painting is proudly displayed at our Valley Center, Kansas office.

In addition to participating in the AWT duck race KWT makes charitable contributions to Pure Water for the World. The website for pure water for the world charity is purewaterfortheworld.org.

KWT also contributes to WHOlives.org who has developed the Village drill, a hand powered water well drill which has provided a safe, convenient source of drinking water to over a million people in remote parts of the world. You might want to take a look at the You tube video about the amazing development of the Village Drill. The video can be found at www.byu.edu/village-drill.

Adding Biocide to your RO Flush Cycle Improves Microbiological Control

Reverse Osmosis systems operators can use the flush cycle to improve microbiological control. Using a non-oxidizing biocide or a biostatic inhibitor in the flush water provides a means of disrupting biofilm on the membrane surfaces and prevents further biogrowth while the skid is idle. The advantages of this simple and economical process includes:

1. Reduces CIP requirements.
2. Reduces Biocide treatment costs when biocides are used continuously or "shot fed".
3. Allows for the use of lower quality RO feedwaters including recycled wastewater or waters which have higher amounts of TOC or bacteria contamination.
4. Flexibility in extending the "idle time" of skids when skids are operated in a rotating que.
5. Provides pretreatment option for skids that may be put into temporary storage.

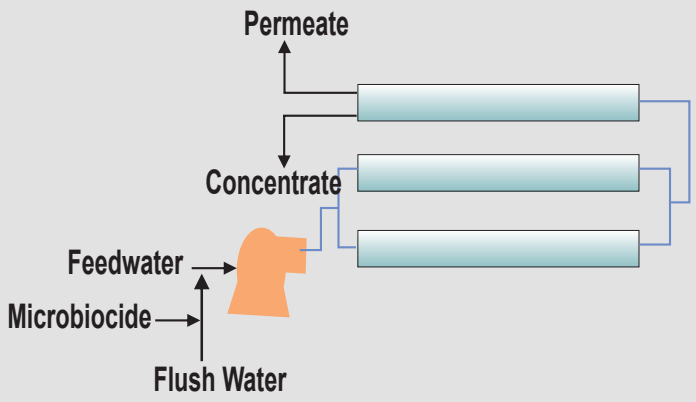
Of the commonly used microbiocides in industrial RO operation isothiozoline is the preferred non-oxidizing biocide for use in the flush cycle. This is because isothiozoline remains stable and effective for longer periods of times and gives protection during extended "out of service" time. DBNPA another commonly used biocide in industrial RO systems is an effective biocide but has a short half-life and would not be as effective during extended system idle times.

Operationally the addition of the biocide to the flush water is simple. Often the flush water is provided by a separate feed pump (which may be RO feed or RO permeate) and the biocide treatment can be automated by interlocking the chemical pump with the flush water feed pump. If there is no separate flush water pump the system PLC controller can be programmed to provide biocide feed with the flush water.

Establishing the cost effectiveness of adding biocide to the flush water can be evaluated by running system trials of biocides at different dosages. Improvements in operating performance can be determined using normalized data. Biomonitoring including ATP testing can be useful in determining biological control over an extended time in RO systems.

Municipal RO systems which generally can not use non-oxidizing biocides would be restricted to EPA approved biostatic products. Oxidizing biocides which may damage RO membranes should be avoided.

Improve RO Microbiological Control Add Microbiocide to Flush Water



KWT Publishes Digital RO Handbook

KWT has compiled over 30 articles and documents regarding RO Operation. The handbook discusses technology acquired during KWT's several years of providing RO service and chemistry for a variety of industries. RO troubleshooting, monitoring and optimization are the major focus of the handbook. The majority of the documents were originally published by KWT in our company's newsletters. We have also included useful technical literature provided to us by our RO chemistry supplier, Avista Technologies. Avista is a world class supplier of RO chemistry and services. KWT represents Avista Technologies in our Midwest market area. The following Table of Contents provides links to the documents in our Digital Handbook of RO Operation.

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DIGITAL HANDBOOK OF RO OPERATION

- Troubleshooting
- Monitoring
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Kansas Water Technologies, Feb 2018

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