



KEMCO SYSTEMS

WATER & ENERGY SOLUTIONS
industry leader since 1969

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CALENDAR:

IPPE Expo
Jan. 31 - Feb. 2
Atlanta, GA
Booth #C776

MAINTENANCE TIP:

Are you ready to fire up your Kemco Direct Contact Water Heater for the winter? Below is one of the Monthly Preventative Maintenance procedures recommended for your Kemco Direct Contact Water Heater.

Monthly Preventative Procedure Checking Safeties for Proper Operation

All safeties can usually be checked in 30-45 minutes. Checking safeties on a regular basis ensures safe operation of the Kemco heater. The basic procedure is to simulate the condition that the safety monitors are looking for. If any of these safeties are proven defective, Kemco must be notified and the heater shut off immediately.

Begin the safety check procedure when the hot water tank is full and up to temperature. With the heater "CONTROL POWER" and "BURNER" switches both "ON", adjust the set point of the recirculation temperature switch to a point well above the current hot water temperature.

*Note: this switch is usually mounted on the hot water storage tank.

This higher switch setting should trigger a "CALL FOR HEAT" in the recirculation mode. The heater should immediately start its firing sequence.

WINTER 2016

ADVANCES IN WASTEWATER TREATMENT

In our 40+ years of existence, Kemco Systems has developed a multitude of new technologies. Some of our latest advancements are in water and wastewater treatment technology. Results from these advancements have saved our customers thousands of dollars and enhanced the performance of their treatment systems. These advancements include the following.



Kemco's CMF system uses highly effective cross flow filtration technology. Wastewater runs through ceramic elements in the filter modules, passing through pores in the filter element, to produce a product water filtrate. Cleaned filtrate is diverted to a storage system for recycling and contaminants are removed in a small concentrate stream.

Ceramic Microfiltration to Remove Heavy Oil & Grease and Total Suspended Solids

Until we showed how it was done, membrane filtration had not been successfully used to remove Oil & Grease (O&G) and Total Suspended Solids (TSS) from wastewater. Those who tried ended up with plugged membrane filters, poor effluent quality and high operating costs.

Kemco has successfully applied Ceramic Microfiltration (CMF) to industrial laundry and food wastewater. We are able to remove both emulsified and non-emulsified O&G. Our cross-flow surface velocity and unique membrane structure allow this to be done on a variety of wastewaters, including meat processing wastes which have over 10,000 milligrams per liter (mg/L) O&G. CMF can be used to treat O&G without the use of coagulant chemicals. This results in reduced waste residual, and the potential for beneficial product recovery.

Development of High Temperature Reverse Osmosis Membranes to Treat Wastewater

Currently Reverse Osmosis (RO) membranes are limited on the water temperature they can tolerate. That limit is 113°F (45°C). This is due to the polymeric composition of the membrane filters, the membrane spacers, permeate tubes, and their glues and adhesives. Working together with Hydranautics, one of the leading manufacturers of RO membranes, Kemco has installed special high temperature membranes in laundries, dairies and other industries. These membranes are able to tolerate 176°F (80°C) at pressures up to 300 psi.

This adds greatly to the benefit and savings potential. Energy savings are added to the savings on water and sewer disposal when hot wastewater can be reused as utility or process water. (cont'd pg. 2)



Reverse Osmosis added after Ceramic Microfiltration increases recycle rate and TDS levels of the permeate are less than 300 ppm.

ADVANCES IN WASTEWATER TREATMENT

(cont'd pg. 1)

Selected Membranes for Removal of High Biochemical Oxygen Demand

In wastewater treatment, as in life, not every problem can be solved with the same solution. At Kemco we seek to optimize the solution for the customer, depending on their exact situation and needs.

This logic applied recently to our work for a customer needing to remove Biochemical Oxygen Demand (BOD) from their wastewater. The exact need: They did not need to produce zero BOD. They simply wanted to comply with the local discharge limit of 300 mg/L. The customer did not need to remove every salt molecule or waste constituent. He only needed to remove those sugar compounds that created the high BOD.

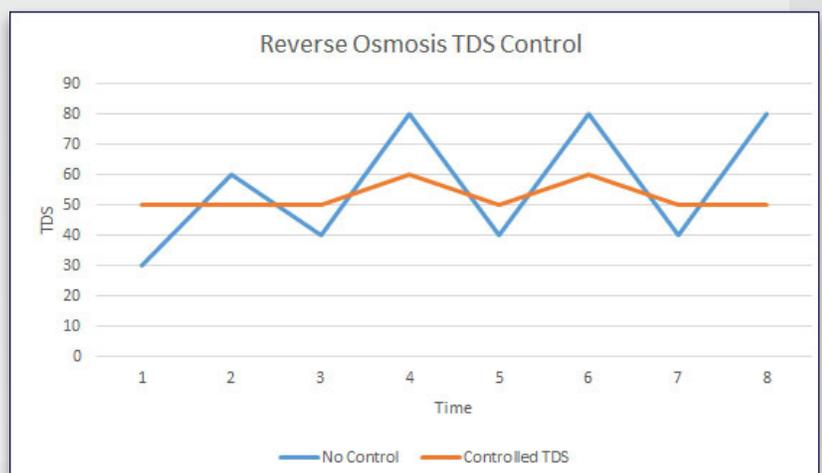
Working with our membrane suppliers, Kemco was able to develop a smart Nanofiltration system that removes the sugar compounds which, in relative size, are larger than most common salts. In this way, we are able to provide a system that operates at a lower pump pressure and higher membrane flux rate, giving our customer just the quality of water they need.

Total Dissolved Solids and Recovery Optimization for Reverse Osmosis Systems

Industrial wastewater has varying levels of contaminant strength. In RO systems this is commonly measured as Total Dissolved Solids (TDS). When TDS levels increase, RO membrane flux rates (permeate flow) will decrease. When TDS levels increase, the concentration of TDS in the permeate also increases, giving the operator a varying degree of purity in the product water.

To solve this issue, Kemco's Controls engineering group has developed a control method for RO systems to address the varying feed TDS. Using the controls and instrumentation provided with our RO skids, we have developed a program which continuously monitors and controls the RO recovery and recirculation loop TDS levels. The result is a near constant system flow rate, plus TDS levels in the product water (permeate) that are consistent and not varying.

Kemco is continually working to improve our treatment systems and to provide the world's best solutions for industrial customers.



Typical Wastewater Recycling System Data

PROVIDING INDUSTRY SAVINGS FOR OVER 40 YEARS

DO YOU KNOW ABOUT THE SECTION 179 DEDUCTION?

Section 179 of the IRS tax code allows businesses to deduct the full purchase price of qualifying equipment and/or software purchased or financed during the tax year. Visit the website for more information.



KEMCO NEW HIRES

Welcome! We look forward to many anniversaries with you!

Mandy Nauman
Hannah Jones
David Nevin
Justin Rogers
Joel Avita
Eugene Barry
Tom Vanden Heuvel

KEMCO ANNIVERSARIES

Thank you to our dedicated employees for your continued hard work and contributions to Kemco's success!

Jason Smith	1 year
Randy Hartman	1 year
Brandon House	1 year
Tina Abentroth	2 years
Fred Foster	2 years
Piotr Ozog	2 years
Nour Brahim	3 years
Mirko Vlacic	12 years
Sonny Mora	13 years
Michael Gesualdo	18 years
Bob Roberts	18 years
Bill Gallagher	22 years
David Irland	22 years

