



Case Study



KRO CIP 10A and KRO CIP 10B Enhance Cleaning Results While Increasing Membrane Lifespan

OPPORTUNITY:

The customer is a North American university. The university utilizes a Reverse Osmosis (RO) membrane as a part of their water treatment process to remove inorganic salts and organic compounds from the water. RO filters operate by flowing water through a synthetically produced membrane. The membrane catches most contaminants, purifying the water that passes through.

Overtime, RO membranes experience of build-up of contaminants that can lead to a loss of function. Though different treatment options are available to remove scale and fouling from the membrane surface, the customer employs an offline treatment. When treating an RO system offline, a clean-in-place (CIP) system is utilized to apply cleaners to the RO. Systems typically first utilize an alkaline cleaner to combat organic compounds and biofouling, then an acidic cleaner to remove scale.

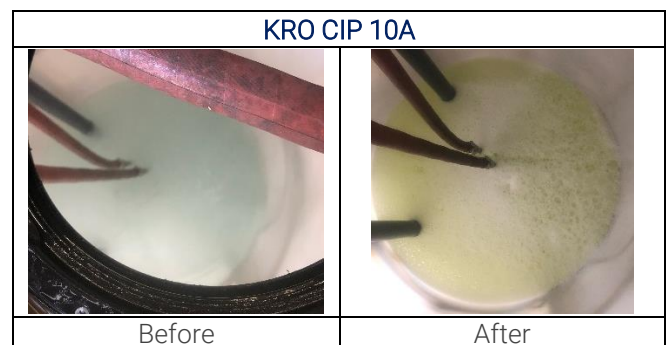
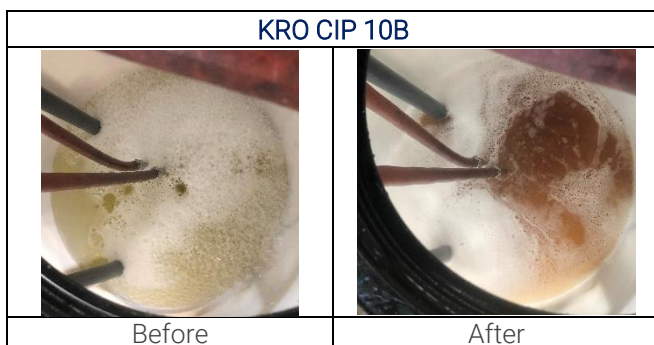
When collaborating with their DuBois Technical Team on this project, the customer requested chemical solutions that would be simple to implement, enhance their cleaning process, and minimize damage to the membranes to extend their lifespan as much as possible.

THE DUBOIS SOLUTION:

The DuBois Technical Team recommended **KRO CIP 10B** and **KRO CIP 10A** as the alkaline and acidic cleaners, respectively. The products both utilize a unique blend of chelants and polymers to assist the alkaline and acidic chemistries in thorough contaminant removal, and are liquid based for easy implementation, as opposed to other powdered options considered. Both products are also safe on steel and stainless steel, as well as thin-film composite and cellulose-acetate membranes.

RESULTS AND BENEFITS:

As the two products were utilized, the customer noticed the intense color change between the fresh and spent product in the tank, indicating the amount of soil they were effectively removing from the membranes. This improved cleaning allowed the customer to increase the time between required cleaning, optimizing their process, and improved the lifecycle of the membranes by a factor of 2.5.



Fresh solutions of KRO CIP 10B and 10A (before) and after CIP processing (after). The darkened colors show the soil load being picked up by the products, indicating a very successful cleaning.



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