

Case Study

Steel Manufacturer

The Client

A Fortune 500 industry leader in the production of flat-rolled carbon, stainless and electrical steel products with a finishing mill located in Midwestern U.S.

Client's Needs

The client's reverse osmosis system utilized coagulants, antiscalants and cleaners to produce high quality water. With the current chemicals, the reverse osmosis system was cleaned every 90 days due to scaling or deposits. Pressure drops would rise and permeate quality would be adversely affected if not cleaned within this timeframe.



Technologies & Solutions

Working with the client, the coagulant, antiscalant, and cleaning chemistries were evaluated and testing was conducted onsite for several days to develop the best overall coordinated program. A new chemical strategy was developed replacing the old chemical products with Hydrex products: Hydrex CS-949 was chosen as the coagulant; Hydrex 4102 replaced the antiscalant; Hydrex 4702 and Hydrex 4501 were selected as low and high pH cleaners, respectively.

Results

To the client's satisfaction, the reverse osmosis water system experienced longer run times between cleanings with improved permeate quality and reduced pressure drops once the switch was made to the Hydrex program. While the client used to run 90 days between low and high pH cleanings, run times were extended to 150 days between low pH cleanings and over 200 days between high pH cleanings using the Hydrex products. The Hydrex cleaning products brought the membrane performance back to like-new condition, impressing both the client and membrane service representative. The client used to replace membranes routinely every 3 years, but with the new performance due to the Hydrex program, the membrane service representative estimated the current 3-year-old membranes could last 5 years or more.

Key Components

Hydrex Series:

4000: Membranes

Hydrex Chemicals:

- CS-949
- 4102
- 4702
- 4501

Savings

By utilizing the superior Hydrex chemical products, permeate quality improved by 55%, the 90-day run times between low and high pH cleanings were increased to over 150 and 200 days respectively, cleaner usage was reduced by over 83%, and the reverse osmosis chemical operating costs were reduced by 61%.

Creating Water Solutions



Solutions & Technologies

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