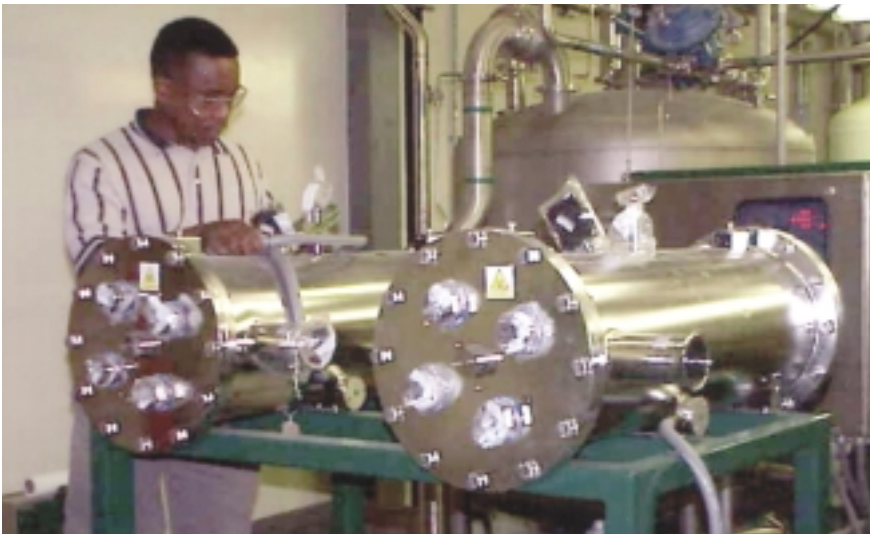




# Ultraviolet Dechlorination Technology

## Reverse Osmosis Membranes Maintenance Costs Reduced



### Just the Facts

**Location:** Procter & Gamble, Greensboro, North Carolina  
**Problem:** High maintenance costs due to dechlorination chemical damage.

**Solution:** Hanovia ultraviolet dechlorination equipment.

**Results:** Membrane fouling reduced; therefore, dramatic reduction in reverse osmosis membrane wash frequency. Savings in maintenance costs of approximately \$70,000 annually.

**A**t the Procter & Gamble manufacturing plant in Greensboro, N.C., an Aquionics ultraviolet (UV) dechlorination unit was installed before two banks of reverse osmosis (RO) membranes. Before this system was installed, dechlorination was achieved using sodium bisulfite.

Chlorine is widely used for water disinfection in many difference process industries. Because of its properties, however, it can damage delicate process equipment such as RO membranes and deionization (DI) resin units and must be removed once it has performed its disinfection function. To date, the two most commonly used methods of chlorine removal have been granular activated carbon (GAC) filters or the addition of neutralizing chemicals such as sodium bisulfite.

Both of these methods have their advantages, but they also have a number of significant drawbacks. GAC filters have a porous structure and nutrient-rich environment, which become a breeding ground for bacteria. Dechlorination chemicals such as sodium bisulfite, which usually are injected just in front of RO membranes, also can act as incubators

for bacteria, causing biofouling of the membranes. In addition, these chemicals are hazardous to handle and there is a danger of over- or under-dosing due to human error.

An increasingly popular dechlorination technology with none of the drawbacks the chemicals may have is UV treatment. High intensity, broad-spectrum UV systems dissociate both free chlorine and chloramine compounds (mono-, di- and tri-) into easily removed byproducts. UV has the added benefit of providing both high levels of microbial disinfection and total organic carbon (TOC) destruction.

Trials that ran soon after the UV system's installation showed a dramatic reduction in the RO membrane wash frequency—down from an average of eight cleanings per month to only two per month.

"We are very pleased with the UV system," said Kurt Loughlin, utilities process engineer at Procter & Gamble. "Not only have we saved money since it was installed, but the disruption caused by plant shutdowns as a result of RO membrane fouling also has been significantly reduced. UV provided a high standard of dechlorination without any of the drawbacks we faced with chemicals of GAC filters."

With the dramatic reduction of cleanings came savings of approximately \$70,000 annually. The number of shutdowns for RO membrane maintenance also was significantly reduced. **WQP**

#### About the Contributor

Aquionics offers more than 20 years experience in the manufacture, application and development of UV equipment for progressive, nonchemical disinfection and contamination control. For more information, call 800-925-0440; [www.aquionics.com](http://www.aquionics.com).

For more information on this subject, write in 1011 on the reader service card.

For reprints of this article or any other article in this magazine, contact

Adrienne Miller,  
 380 E. Northwest Hwy., Suite 200,  
 Des Plaines, IL 60016  
 847-391-1036  
 Fax 847-390-0408  
[amiller@sgcmail.com](mailto:amiller@sgcmail.com)



### Finance Experts in the Water Treatment Industry

Aquafinance offers dealers Nationwide the most innovative credit plan in the industry with the following program features:

- Non Recourse program to all dealers
- 7.00% financing for all "Prime-Credit" grade customers
- Immediate funding for all "Prime-Credit" grade customers
- Toll-free Automated Credit Decision System available to all dealers 7 days a week from 6:00am to 11:00pm CST
- Fixed term credit with low monthly payments at competitive rates.







6701 W. Stewart Ave. • Wauwatosa, WI 54402  
 Toll-free 1-800-234-3663, Enter "2" for Credit Department  
[www.aquafinance.com](http://www.aquafinance.com)