



AMERICAN WATER CHEMICALS

MEMBRANE CHEMICALS • MEMBRANE AUTOPSY • ANALYTICAL SERVICES

www.membranechemicals.com TEL: +1-813-246-5448

MEMBRANE PRODUCTS AND SERVICES

American Water Chemicals (AWC) is an international ISO 9000 certified company dedicated to providing its clients with leading technology in membrane related water treatment programs and operational services.

Our scientists are continuously involved in research and development to create products that resolve the most challenging membrane scaling and fouling issues. Our broad range of analytical and on-site services allow our engineers to identify the most elusive problems and design effective solutions.

Over the last two decades, we have helped our customers worldwide to reduce their operating costs, eliminate hazardous acid dosing and reduce frequency of their membrane cleanings.

"American Water Chemicals has provided a quality product at a great price. In addition, they have provided excellent service and have always delivered the product as promised on time",
Andy Fenske, Chief Water Plant Manager, City of Cape Coral



MEMBRANE ANTISCALANTS

Scale formation on membranes will result in reduced permeate production and higher feed pressure requirement leading to increased energy consumption. Improper antiscalant selection will result in a higher cleaning frequency which will shorten the lifespan of the membrane.

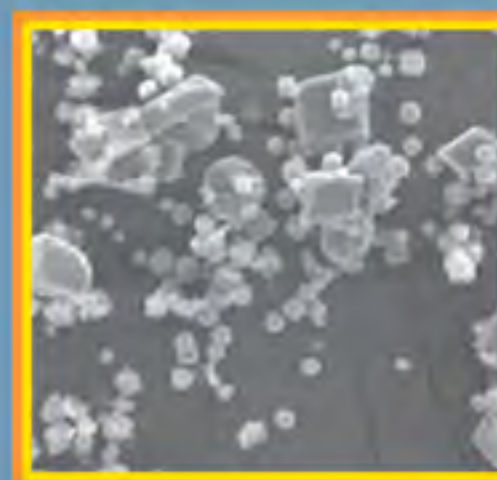
AWC manufactures powerful antiscalants that allow RO system operation at higher recoveries while using cost effective dosages. In many cases, RO plants are able to significantly reduce their operating costs by decreasing or completely eliminating acid addition with the help of AWC antiscalants.

"We have completely eliminated sulfuric acid in our feed side and are dosing only AWC's antiscalant for complete scale control. We have moved the sulfuric acid dosing point to the permeate side to decrease the pH prior to the degasifier for optimal H₂S removal. As a result, our overall sulfuric acid consumption has been reduced to 1/10th."

Derek Furness, Water Resources Supervisor, Fort Pierce Utilities Authority.

"Since the start-up of this plant in 2003, we have experienced biofouling issues that required us to clean every 28 days. However, since we started using AWC antiscalant, we have been able to extend the frequency between the cleaning of membranes from 28 days to 20 weeks."

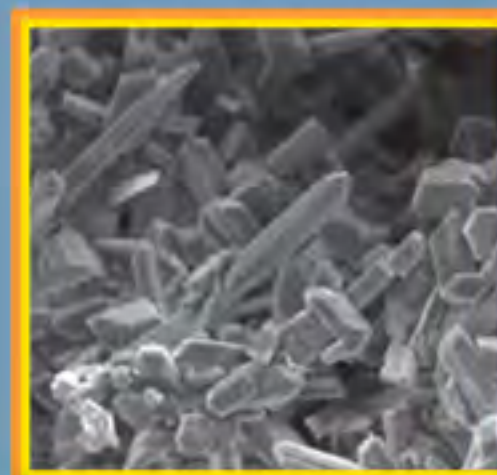
Greg Turman, City of Clearwater Production Coordinator



Calcium Carbonate Crystals



Distortion of CaCO₃ Crystal



Calcium Sulfate Crystals



Dispersion of CaSO₄ Crystal

All our membrane antiscalants are NSF / ANSI Standard 60 approved for use with potable water systems and approved by leading membrane manufacturers.

MEMBRANE AUTOPSIES

Many membrane autopsy reports only present a list of elements and percentages but cannot positively identify scalants, foulants or the root cause of the problem.

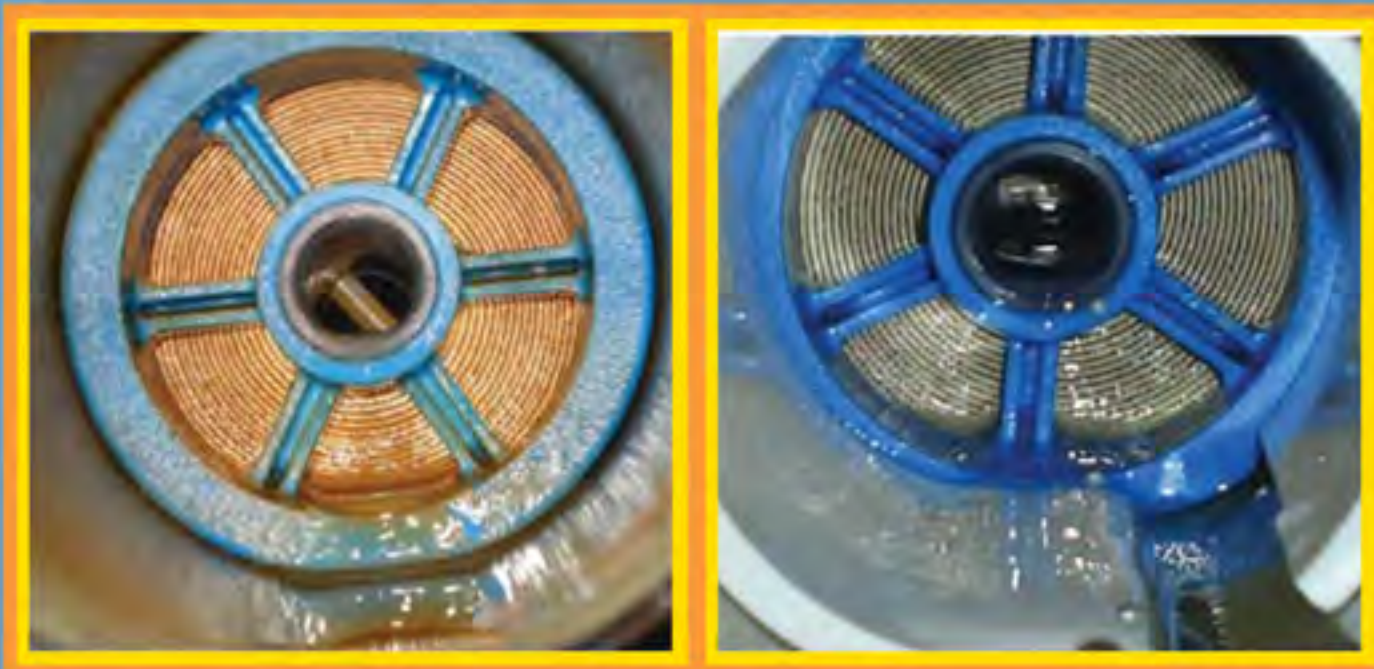
AWC employs state of the art microscopy and spectroscopy to identify elements, chemical bonds and crystal structures, and determine the exact nature of specific scalants and foulants on the membrane surface. AWC then conducts a full investigation, reviewing water analyses, system configurations and operational history to compose a comprehensive and conclusive report. A cleaning methodology can then be developed for the system and recommendations can be provided to prevent recurrence of the same problem in the future.



MEMBRANE CLEANING CHEMICALS

Commodity cleaners only partially penetrate membrane foulants resulting in frequent recurrence of fouling. In some cases, the chemicals are completely ineffective at restoring membrane performance.

AWC specialty cleaners penetrate and remove the most stubborn foulants from membrane surfaces, reducing cleaning frequency and chemical costs. We manufacture liquid and powder cleaning chemicals for RO, NF, UF and MF applications.



Biological Fouling Removal



Chemical Disintegration of CaSO_4 Scale

"AWC's cleaning chemicals have performed outstandingly in cleaning our ceramic microfilters and RO membranes at various industrial wastewater recycling facilities throughout the US and around the world. Although we have tested numerous other chemicals under many different conditions, we have not found any products that perform as effectively as AWC's cleaners."

GVG, OEM for industrial wastewater recycling systems

CORROSION INHIBITORS FOR RO PERMEATE

RO permeate and lime softened water are known to be corrosive to metals. The use of inadequate corrosion inhibitors frequently results in red water complaints and possible violations of the EPA's lead and copper rule.

AWC corrosion inhibitors decrease potential for THM formation from chlorination, eliminate red water and protect lead and copper to ensure compliance with regulations. In order to identify the best product and dosage, we study the water analysis and then perform corrosion coupon studies. Once an AWC corrosion inhibitor is online, we set up a corrosion coupon rack for continuous monitoring, allowing us to anticipate any corrosion issues that may result from a sudden change in conditions. All our corrosion inhibitors are NSF approved for dosing into potable water systems.

"Since we switched from dosing a poly/ortho type product into our permeate and started using the AWC corrosion inhibitor instead, we have seen tremendous improvements in corrosion control. What was especially impressive was that the houses that used to repeatedly fail the lead/copper test actually passed for the first time. We have never had any red water complaints while using the AWC Corrosion Inhibitor."

Jim Ramer, Plant Manager, Flagler Beach RO Plant.

ADDITIONAL PRODUCTS AND SERVICES

PRETREATMENT CHEMICALS

RO feed element fouling can occur regularly without proper pretreatment. Suspended solids such as silts, clays, metal oxides and sulfides can deposit in the lead elements and may be very difficult to clean.

AWC coagulants and flocculants improve performance of multimedia filters, resulting in higher quality feedwater to the RO. Our backwashing chemicals remove grease, oil and other hydrocarbons from filter media, effectively preventing channeling and inhibiting biological growth.

AWC biocides are non-oxidizing and EPA approved for continuous or intermittent control of bacteria, algae and fungi in membrane systems.



LABORATORY SERVICES

AWC has the capability to conduct water analyses and membrane antiscalant projections for Reverse Osmosis and Nanofiltration systems. AWC can also conduct chemical dosage determinations for our antiscalants, coagulants, and flocculants. For clients with extreme scaling or inorganic fouling conditions, AWC can synthesize identical water chemistries in the lab to determine optimal pretreatment and control limits.



MEMBRANE EVALUATION AND CLEANING STUDIES

AWC can perform single and multiple membrane element cleanings at our facility to identify optimal cleaning chemicals and procedures for each situation. Testing of each element is done before and after each cleaning to document the cleaning efficacy. Once completed, a final report will be provided outlining the membrane condition and our cleaning recommendations.



MEMBRANE PILOT RENTALS

AWC carries a line of automated R.O. pilot units with data loggers programmed to collect all data necessary for normalization. These pilot plants are mobile and can be dispatched to the customer's plant site on short notice.





HEAD OFFICE:

1802 Corporate Center Lane, • Plant City, Florida 33563, USA

Telephone: 813-246-5448 • Fax: 813-623-6678

Email: inquiries@amh2ochem.com • www.membranechemicals.com