



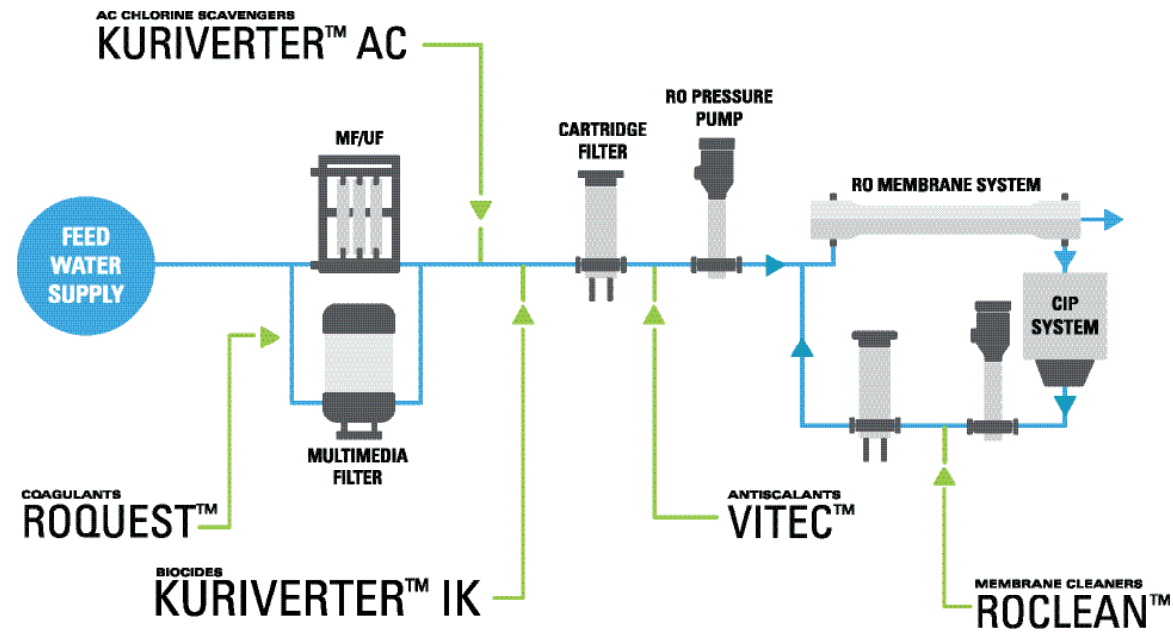
Membrane Treatment Solutions

Specialty products and services that support reverse osmosis (RO), nanofiltration (NF), and micro/ultrafiltration (MF/UF) membrane system optimization, providing operational savings and positive environmental impact.



Our comprehensive approach determines the best chemical treatment program to maximize the reliability and productivity of membrane systems.

Avista membrane treatment solutions are easily designed into systems using our proprietary dosing software, Avista™ Advisor™ Ci Online. Our chemicals are formulated to optimize membrane system recovery while simultaneously reducing environmental and operational costs, thereby laying a strong foundation for any system design.



For existing systems, our expert engineers and technicians support system operators by collecting and analysing data in order to:

- Diagnose issues
- Evaluate and improve system efficiency
- Extract maximum value from assets
- Deploy environmentally sensitive treatments

For new systems, we help designers to:

- Optimize design operating conditions
- Predict and select the optimum chemical treatment
- Create economically and environmentally friendly systems

IS YOUR PLANT MEETING ITS SUSTAINABILITY GOALS?

Our value calculators can help determine benchmarks and measure small changes over time, which can impact your operating costs, optimize your system, and help you meet sustainability goals.



SAVE WATER
Increase recovery
Reduce backwash
Reduce cleaning frequency



SAVE ENERGY
Reduce fouling
Increase recovery
Reduce cleaning
Cut greenhouse gas emissions (GHG)



SAVE WASTE
Increase membrane life
Increase recovery
Reduce chemical consumption
Reduce toxicity

VITEC™ ANTISCALANTS

Vitec antiscalants inhibit a comprehensive range of scales and provide colloidal particle dispersion, allowing high RO system recovery rates to minimize effluent discharge.

The blends of active ingredients act synergistically to give high performance despite low-applied dose rates. This minimizes chemical load in the effluent while providing cost effective system operation.



High recovery rates
Reduced fouling/cleaning



Increase membrane life
Low chemical consumption
Phosphorous-free, nitrogen-free options
Low chemical oxygen demand (COD)

PRODUCT	SCALE OR FOULANT INHIBITION							ROQUEST COMPATIBLE
	CARBONATE	SULPHATE	PHOSPHATE	FLUORIDE	SILICA	METALS	CLAYS	
Wide Spectrum Capabilities								
Vitec 1600					●	●	●	
Vitec 3000	●			●		●		✓
Vitec 3025	●			●		●		✓
Vitec 5100	●	●	●			●		
Wide Spectrum Plus High Specific Capability								
Vitec 4000	●	●	●	●	●	●	●	
Vitec 7000	●	●	●			●		✓
Vitec 7400	●	●	●		●	●	●	
Wide Spectrum Capability Plus Environment Sensitive Features								
Vitec 6400	●	●	●			●		
Vitec 6500		●						

● GOOD ● VERY GOOD ● BEST ✓ YES

Vitec 1600

- Effective antiscalant to inhibit carbonate and silica scale up to two times saturation
- Good clay dispersion (aluminium silicates)
- Good for use on most applications, including seawater and municipal systems

Vitec 3000

- Effective all-round antiscalant to inhibit all scales particularly carbonate and phosphate scale
- Concentrated product suitable for high levels of dilution on site where necessary
- Good cost in use for most applications, including surface, well, and waste waters

Vitec 3025

- Effective antiscalant to inhibit carbonate and phosphate scale
- Generally does not require dilution for low flow rate systems
- Good cost in use for most applications, including those on industrial and human consumption applications

Vitec 5100

- Effective antiscalant to inhibit carbonate and phosphate scale
- Effective on waters containing high levels of metal, such as iron, aluminium, or manganese
- Good for well waters with high metals and seawater systems

Vitec 4000

- Highly effective antiscalant to inhibit silica scale, aluminium silicate scaling, and calcium phosphate, allowing up to 2.8 times silica saturation
- Effective on waters containing high metals, such as iron, aluminium or manganese
- Good for high recovery applications, including brine concentrators

Vitec 7400

- Highly effective against silica and sulphate scaling, preventing calcium sulphate scale precipitation at up to 6.5 times saturation along with silica scale up to 2.8 times
- Effective on waters containing carbonate scaling potential in addition to high levels of sulphate and silica
- Good for highly challenging well waters, mining waste waters, leachates, and brine concentrators

Vitec 6500

- Effective against calcium sulphate scale, allowing up to four times saturation
- Effective on waters containing carbonates, metals, and colloidal particles
- For use in generally recognized as safe (GRAS) applications for animal feed applications, see letter of assurance for details

Vitec 7000

- Highly effective against silica and sulphate scaling, preventing calcium sulphate scale precipitation at up to six times saturation along with silica scale up to 2.8 times
- Effective on water containing carbonate scaling potential in addition to high levels of sulphate and silica
- Good for highly challenging well water, wastewaters, leachates, and brine concentrators

Vitec 6400

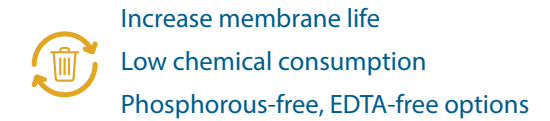
- Highly effective against calcium sulphate scale, allowing up to six times saturation
- Phosphorus-free formulation with good carbonate inhibition and good organic dispersion properties
- For use in GRAS applications for animal feed applications, see letter of assurance for details

AVISTA™ ADVISOR CI ONLINE CHEMICAL PROJECTION SOFTWARE



Preventing scaling is critical to RO and NF system operation. Avista Advisor CI online, our industry leading proprietary chemical projection software, uses cutting-edge complex ion calculations to accurately determine the types and quantities of scale that are at risk of precipitating. The software provides the dose rate for the appropriate Vitec antiscalant to meet the challenge. It also allows system designers to select products and define dose rates or batch quantities for the Avista range of coagulants, biocides, dechlorination, and membrane cleaning products. Together, these products serve to maximize membrane life.

RoClean™ cleaners provide powerful, highly effective solutions formulated to quickly remove the complex blends of foulants and scalants that are deposited in RO and NF membrane systems. RoClean cleaners are highly buffered to maintain safe pH levels for membranes and those handling the solutions. The unique blends of ingredients restore membrane systems to healthy operating conditions, reducing energy requirements and often significantly extending the period of operation possible between cleans.



PRODUCT	METALS			SCALE			ORGANICS	
	IRON, MANGANESE, ALUMINIUM	CARBONATE, PHOSPHATE	SULPHATE	SILICA*	COLLOIDAL MATERIAL	NON BIOLOGICAL	BIOLOGICAL	
Low pH - Use first unless risk of oil								
RoClean L403	●	●						
RoClean P903	●	●				●		
High pH - Normally applied after acid cleaner								
RoClean P192				●	●	●	●	
RoClean P111					●	●	●	
RoClean L211			●		●	●	●	
RoClean L212				●	●	●	●	
RoClean L612					●	●	●	
RoClean L811		●	●					

PRODUCT	LIQUID/POWDER	FREE FROM EDTA	FREE FROM PHOSPHOR
Low pH - Use first unless risk of oil			
RoClean L403	LIQUID		
RoClean P903	POWDER	✓	✓
High pH - Normally applied after acid cleaner			
RoClean P192	POWDER		
RoClean P111	POWDER		
RoClean L211	LIQUID		
RoClean L212	LIQUID	✓	✓
RoClean L612	LIQUID		
RoClean L811	LIQUID		

● GOOD ● VERY GOOD ● BEST ✓ YES

*Includes silica scales and in situ formed alumino silicate clays

LOW pH | LIQUID

RoClean L403

- Can be applied to well and surface water carbonate scale removal or moderate metal removal
- Efficient product for the removal of mild metal fouling, calcium carbonate scale, and calcium phosphate scale
- Most commonly used low pH cleaner for maintenance cleans

HIGH pH | POWDER

RoClean P192

- Provides organic and biological fouling removal and particulate dispersion in all water types
- Superior results in the removal of organics, silica scale, aluminum silicate clay, and carbon fines that can cause high differential pressure and/or low flow
- Successfully applied to systems operating on seawater, brackish water, and wastewater

HIGH pH | LIQUID

RoClean L211

- Provides surface water organics, humic, and fulvic material removal
- Efficient product for the removal of mild biological fouling
- Most commonly used high pH cleaner for maintenance cleans

HIGH pH | LIQUID

RoClean L612

- Effectively removes organic fouling solids, biological materials, and silt/clay
- Can be applied to UF membranes as well as NF and RO
- Good for use on surface and well waters

LOW pH | POWDER

RoClean P903

- Provides fast iron, manganese, and carbonate removal in all water types, including where complexed with organics
- Efficient product for the removal of significant metal fouling and phosphate scale
- Unique formulation that includes a non-odorous reducing agent to remove high concentrations of iron and manganese
- For use in GRAS applications for animal feed applications, see letter of assurance for details

HIGH pH | POWDER

RoClean P111

- Well water, surface water, and seawater organic fouling and particulate removal
- Highly efficient in reducing feed and differential pressure by the removal of biological as well as humic and fulvic acid organics
- Successfully applied to a wide range of industrial and

HIGH pH | LIQUID

RoClean L212

- Can be applied to well water silica scale and surface water biological fouling removal
- Efficient product for the removal of humic and fulvic acids, high colloidal fouling, and aluminum silicate scale
- Unique formulation that reduces differential pressure by removing foulant from feed spacer material

HIGH pH | LIQUID

RoClean L811

- Well and industrial water sulphate scale removal
- Superior removal of sulphate scale and efficient removal of calcium complexed scales
- Primarily applied as a remedial cleaner where sulphate scaling has occurred

MEMBRANES HAVE ONE LIFE: MAKE THE MOST OF IT

Our expert-led support services include optimization and troubleshooting from site audits to membrane investigation autopsies and membrane offsite regeneration.



MEMBRANE AUTOPSY

An autopsy provides a detailed analysis of a membrane's condition to identify specific challenges. Chromatic Elemental ImagingSM (CEI) is used for accurate, high-resolution imaging that identifies the exact location and concentration of elements in a foulant sample.

- Membrane condition
- Full foulant analysis
- Damage assessment
- Cleaning potential
- Expert system evaluation and optimisation recommendations



DATA NORMALIZATION SERVICE

All operators need to monitor system performance. My Kurita Portal allows operators, site managers, and our membrane experts to share, normalize, trend, and review all system data allowing for:

- Fast identification of operational issues
- Rapid action to rectify negative changes
- Measurement of effect of optimization actions
- Measure and maintain efficiency
- Minimize environmental impact



OSCAR

Establish the condition of every membrane in your system with our factory tests and recover every membrane to its maximum potential using our optimized membrane cleaning facilities. All membranes are returned with a performance test report and packaged safely for storage until required for operation.

- Avoid the need for a clean-in-place (CIP) system
- Eliminate cleaning solution handling and discharge
- Minimize membrane disposal and save on waste

BIOCIDES

Biofouling is one of the most challenging issues faced by RO systems, especially those with high organic load, such as wastewater recovery plants, seawater desalination plants, and industrial food plants. Our biofouling solutions include the innovative Kuriverter IK series, which has the power to penetrate and disrupt existing biofilms while featuring significantly lower aquatic toxicity than traditional oxidizing and non-oxidizing biocides. All products are certified for use by the U.S. Environmental Protection Agency (EPA) and details of the application limits are available on request.



Reduced fouling/
cleaning



Increase membrane life
Low chemical consumption
Phosphorous-free options

Kuriverter™ IK-110

- Unique formulation of stabilized chlorine compounds, which will not deteriorate polyamide membranes when used as recommended
- Can be used continuously or intermittently
- Penetrates the biofilm layer deeply to inactivate bacteria, slowly break up foulant, and prevent additional biogrowth

Biotrol 103CF

- Stable biocide for continuous or intermittent injection that kills a wide range of microorganisms
- Compatible with polyamide and cellulose acetate membranes
- Can be used to preserve polyamide membranes

Biotrol 536

- Concentrated, fast-acting, non-oxidizing liquid biocide that provides instant antimicrobial action
- Degrades rapidly and naturally to comply with strict environmental discharge regulations
- Used intermittently either online or before cleaning to kill microorganisms for easier removal

BENEFITS OF KURIVERTER IK SERIES OVER TRADITIONAL NON-OXIDIZING BIOCIDES

- Low aquatic toxicity formulation, primary action to inhibit microbial growth
- Does not stimulate microbes to produce biofilm
- Inorganic formula does not contribute to total organic carbon (TOC)
- Can improve system performance without shutting down for cleaning

CHLORINE SCAVENGERS

Our chlorine scavenger line offers cost-effective options for chlorine removal compared to other methods.



Increase membrane life
Phosphorous-free options

Kuriverter AC-427

- Efficient product to remove free and combined chlorine from RO feedwaters
- Unique odorless formulation that eliminates the pungent off-gassing of regular bisulfite solutions
- Certified for use in systems producing potable water

Dechlor 104

- Efficient product to remove free and combined chlorine from RO feedwaters
- Membrane preservative for long-term storage

ROQUEST™ COAGULANTS

RoQuest™ coagulants are membrane compatible and improve the efficiency of multimedia filtration (MMF) equipment. Studies show that MMF equipment without coagulant addition will only remove approximately 35% to 50% of particulates. A nominal dosage of RoQuest coagulant may remove over 97% of particulates on MMF equipment.



Reduced fouling/
cleaning



Increase membrane life
Low chemical consumption

RoQuest 3000

- Unique formulation that is a proprietary blend of organic polymers
- Injected into the feedstream of multimedia or sand filters, where it enhances filter performance by reducing turbidity and color
- Produces an improved filtrate that reduces RO and NF membrane fouling downstream, decreasing cleaning frequencies, and increasing system run times
- Compatible with polyamide RO membranes and many Avista antiscalants

RoQuest 6000

- Blend of organic coagulants and ferric sulfate used to reduce turbidity and remove humic and fulvic acids in multimedia filters
- Formulated for waters with high color and turbidities higher than two NTU
- Compatible with polyamide RO membranes and many Avista antiscalants

RoQuest 4000

- Organic polymer and ferric sulfate blend used to enhance the removal of a broad spectrum of silt, organics, and colloids in multimedia filters
- Formulated for waters with high organics and turbidities higher than two nephelometric turbidity unit (NTU)
- Compatible with polyamide RO membranes and many Avista antiscalants

GLOBALLY RECOGNIZED QUALITY PRODUCTS

Our products are compatibility tested with the major RO and NF membrane manufacturers and manufactured globally under strict quality controls for reliability and to uphold the conditions of the many drinking water and other industry sector registrations that are maintained.



Please consult your sales and technical consultant.

Kurita America Inc.
6600 94th Avenue North
Minneapolis, MN 55445
☎ +1 866 663 7633



www.kuritaamerica.com
KAI_info@kurita-water.com

The information contained herein reflects our current level of technical knowledge and experience. It does not constitute a legal warranty of particular characteristics or of fitness for a specific purpose and, due to the abundance of possible influences, does not exempt the user from making its own examinations and taking appropriate precautionary measures. It shall be the responsibility of the recipient of our products to respect any intellectual property rights and comply with any laws or other provisions.
© 2024 Kurita Water Industries. (202005)