





A comprehensive Avista approach determines the right chemicals required to maximize the reliability and productivity of membrane systems.

SOLVE

Avista™ | Advisor™Ci

- Complex ion technology
- Robust calculation engine
- Metal dosing factor
- Rate of reaction
- High recovery applications

TECHNOLOGIES, FEATURES, AND APPLICATIONS

The Avista product range specifically targets contaminants that would otherwise impact system operation.

All products are membrane compatibility tested and dosed using Avista™ Advisor™Ci software. Our global product line is supported locally and blended regionally by Kurita companies.

A line of regional products are primarily blended by Avista Technologies and available through the Avista distributor network.

Below is a full list of product categories available globally and/or regionally.

Avista technical and laboratory services support a thorough evaluation and diagnosis of site-specific challenges. This analysis provides a clear strategy to solve customer issues and properly apply the right chemicals. Once Avista chemicals are applied, ongoing data normalization is used to validate chemical performance and set cleaning procedures.

By following this approach, we drive operator confidence and help to achieve peak system performance.

RO MEMBRANE TREATMENT GLOBAL SOLUTIONS

Troubleshooting and Optimization

To understand and assess system requirements, the Avista Technical Support team developed a systematic approach to audit operating conditions, performance objectives, infrastructure constraints, pre/post treatment, and membrane condition. The results of the audit are used as a basis for product selection and a recommended support package to achieve customers' goals.

Avista technical engineers work with customers and our partners to maintain and improve system performance. We use the results of modeling and autopsies to adjust system configuration and work closely with operational staff during process upsets.

Diagnose

Avista | Membrane Autopsy

The Avista™ Membrane Autopsy autopsy service is customized to target specific customer 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. CEI is excellent for analyzing mixed foulant samples when other analytical tools provide limited results. The technical team reviews operating data and cleaning strategies prior to membrane disassembly, inspection, and comprehensive scientific analysis. We assist customers in understanding the findings of our autopsies and identify any operational or system changes. On larger membrane plants we encourage proactive membrane autopsies to establish a baseline membrane condition which can be monitored over time.

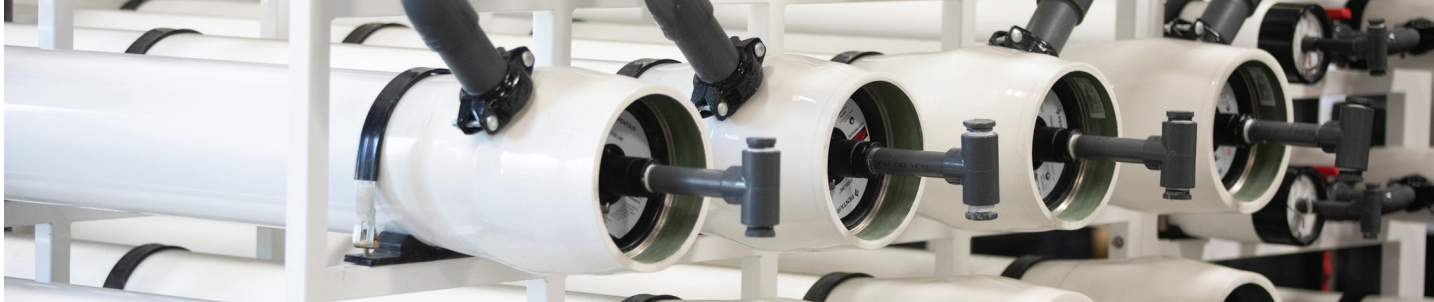
Avista | OSCAR

When cleaning on-site is not practical or possible, off-site cleaning and restoration is available to restore membrane performance to original membrane manufacturer specifications. OSCAR was developed by Avista™ Technologies using equipment specifically designed to provide ideal flow rates, water temperature, and cleaning pressures.

Evaluate

Avista | Black Box

The Avista™ Black Box is a proprietary, stand-alone monitoring device that replicates membrane performance without interrupting the operation of the full-scale system.



AVISTA MEMBRANE TREATMENT CHEMICALS

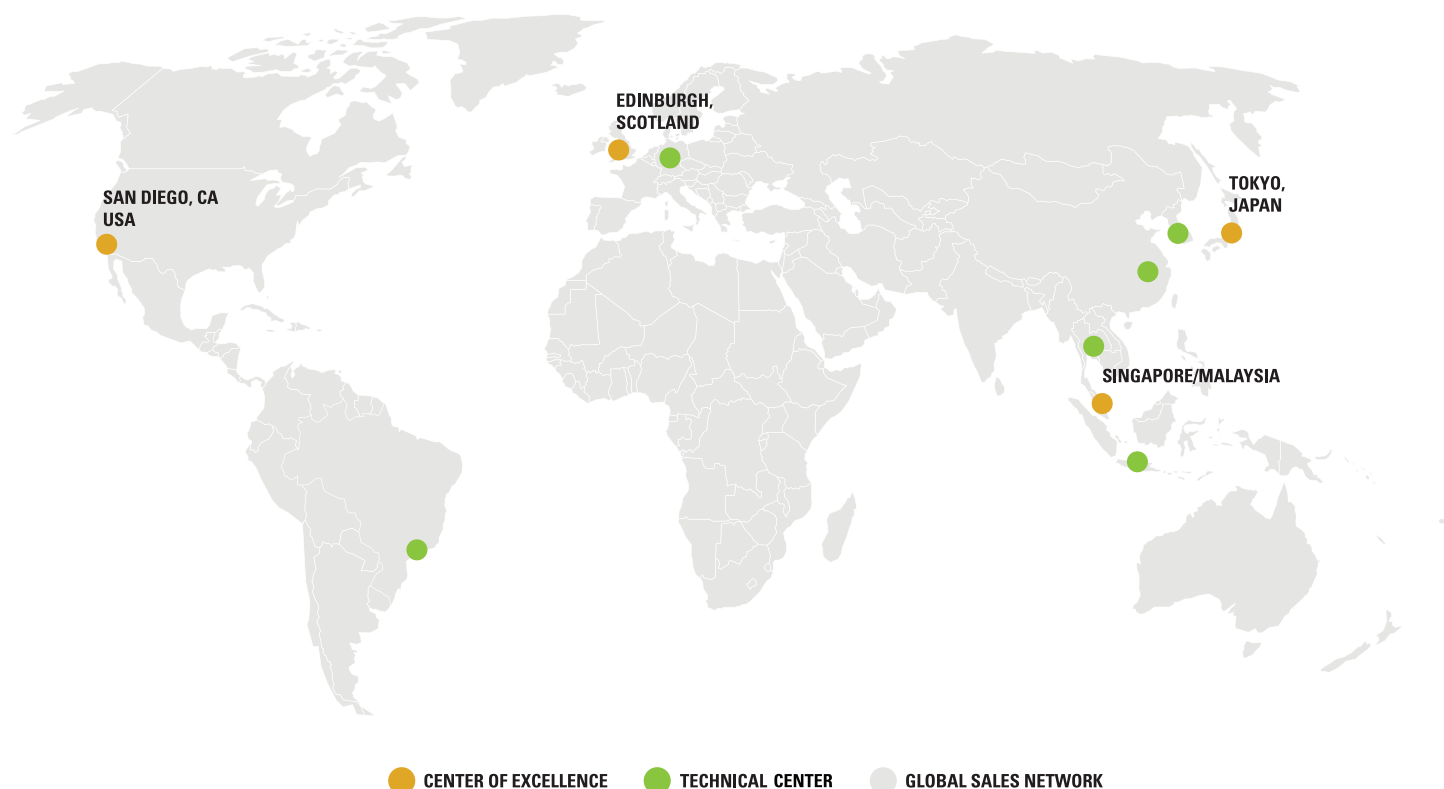
ANTISCALANTS Scaling within reverse osmosis (RO) membranes is a serious matter, as scaling can drastically reduce system performance, and the abrasive scale deposits may cause irreversible damage to the rejecting membrane surface.	Specific programs against precipitation of salts, based on:	<ul style="list-style-type: none"> • Calcium and magnesium hardness deposits • Calcium phosphate and calcium fluoride • Calcium, barium and strontium sulfate • Iron oxide • Silica and manganese
	Phosphorus-containing and phosphorus-free treatments:	<ul style="list-style-type: none"> • In dependence of local legislation
	Products certified to NSF/ANSI 60:	<ul style="list-style-type: none"> • Preparation of drinking water
RO CLEANERS Cleaning membranes in RO systems removes mineral scale, organic matter, biological growth, colloidal particles, and/or insoluble constituents, which build on or in a membrane element.	Specific cleaners for different types of deposits or contamination:	<ul style="list-style-type: none"> • Optimized combinations of complexants, alkali, caustic soda, potassium hydroxide, anionic and non-ionic anionic and non-ionic detergents, and phosphates.
		<ul style="list-style-type: none"> • Alkaline and/or enzymatic cleaners
		<ul style="list-style-type: none"> • Products certified to NSF/ANSI 60 for the preparation of drinking water
BIOCIDES Biological fouling of RO membranes is one of the most challenging issues faced by operators of polyamide membrane separation systems. This is because effective biocides must be non-oxidizing to avoid permanent damage to the polyamide membrane.	Biocides and disinfectants:	<ul style="list-style-type: none"> • Fast-acting biocides • Environmentally friendly non-oxidizing biocides • Chlorine and oxidizing biocide removers • Products to protect the membrane from the attack of aggressive biocides
COAGULANTS Colloids and silt fouling are major causes of performance decline in RO membrane systems. As a result, many system designs include upstream multimedia filtration (MMF) to enhance particulate removal and improve the feedwater quality to downstream membrane systems.	Membrane compatible coagulants:	<ul style="list-style-type: none"> • Improve efficiency of MMF equipment by increasing particulate removal • Provide a higher quality feedwater to downstream membrane systems • Reduce cleaning frequencies • Increase system run times
CHLORINE SCAVENGER Membranes can last for days or years depending on the care they receive. Chlorine in feedwater can permanently damage membranes, requiring them to be replaced.	Unique formulations to remove free and combined chlorine from RO system feedwaters:	<ul style="list-style-type: none"> • Protect membranes from oxidation damage • Certified for use in systems producing potable water • Odorless and stabilized to prevent off-gassing, making it ideal for indoor installations
MF/UF CLEANERS Membranes in microfiltration/ultrafiltration (MF/UF) systems require more frequent cleaning than those in RO systems. As a result, generic chemicals are commonly used to mitigate costs. However, when generic cleaners no longer restore a membrane's performance, their benefit to operational cost efficiency is lost.	MF/UF specialty formulations:	<ul style="list-style-type: none"> • Applied in place of generic cleaners • As a periodic recovery cleaner between cleanings with generics

**Use biocides safely. Always read the label and product information before use.*

Avista™ | Center of Excellence

To truly make an impact on the challenges faced daily by membrane system plant operators, managers, and design engineers, Kurita established the Avista Center of Excellence (CoE). The Avista CoE's first task was to evaluate and combine the best of both companies' RO membrane chemicals, technologies, services, and best practices to create one industry-leading platform. The global leadership team set focused research and development investment for RO membrane treatment chemicals, technologies, and applications.

The Avista CoE leadership team is located in the United States, Japan, Malaysia, and the United Kingdom to support each region's technical centers and global sales network.



GLOBAL HEADQUARTERS

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