

Total Water Quality Management

A Layered Approach

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By Greg Reyneke, CWS-VI

The 21st century is a vastly different water marketplace than the pioneers in the water treatment industry faced a half century ago. Today's consumer is highly educated, has access to vast information resources through the Internet and is concerned about net environmental impact.

Strong opinions abound in our industry on which technologies are best for various applications. Many dealers become so entrenched in a particular method that they lose sight of other technologies that are available for use, as well as potentially ignoring the needs and wants of their customers.

In today's market, one must be prepared to present a layered approach to water quality management. Allow your client an *à la carte* selection of tailored water quality management options instead of pushing them onto your favorite product.

Due to economic and environmental concerns, a multi-layered approach is necessary to provide the best balance of performance and cost, while satisfying the needs of the customer. An abundance of technologies are currently available for the savvy dealer to fulfill consumer needs in a cost-effective and environmentally sustainable manner. These technologies can be applied incrementally in layers or individually as needed by the customer.

Dechlorination

Dechlorination includes the removal of chlorine and its carcinogenic byproducts. While chlorine serves a useful purpose in delivering water safely to your customer's home, it becomes a disadvantage and potential health hazard when used inside the home. Most good dechlorination systems include activated carbon and REDOX media to maximize performance and minimize bacterial contamination.

Scale-control technologies

While not true water softeners, these devices are extremely effective at controlling the accumulation of hard-water scale. Scale-control technology has become extremely popular recently, especially with an increased awareness of brine discharge issues.

Properly designed scale-control systems effectively prevent hard water scale buildup without

using traditional ion exchange technology. Many customers will elect to incorporate scale-control technology and forgo a traditional water softener if they don't want to deal with salt or restrictive local ordinances. The only scale-control technologies that I ever specify or recommend are those that have been properly validated against the DVGW W512 test protocol.

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Water softening

Ubiquitous in application, traditional ion exchange softening is the most commonly recognized and misunderstood residential water treatment technology. Softeners completely remove hardness ions from water,

addressing both hardness scale and soap interactions.

Ion exchange water softening is the best-value water quality improvement that most homeowners can currently make. A well-designed water softener includes metered, on-demand regeneration, adaptive electronics and a mechanism for automatic disinfection.

Table 1.

	Comments	Ideal applications
Utility water	Water is treated to remove chlorine. This still-hard water is the minimum standard for residential use.	Non-critical usage like watering plants.
Working water	Water is treated to eliminate hard-water scale formation.	Toilets, evaporative coolers and all other applications, where hardness scale must be addressed.
Bathing and washing water	Inorganic metals and minerals have been removed from working water. This water is 'soft.'	Water that is best suited for applications where soaps and detergents are used, like dishwashing and laundry.
Drinking water	Water has been filtered and/or purified to remove organic and inorganic contaminants.	Human consumption.
Specialty water	Water is treated to meet specific quality criteria.	Steam showers, humidifiers, misters, fish tanks and health concerns.

Drinking water filtration/purification

More than half of Americans are currently dissatisfied with their municipal tap water and almost a quarter of refuse to drink tap water. There is a definite demand for appliances to address tastes, odors, conductivity and other concerns.

There are other issues in the US and globally that require other solutions. Activated carbon, ceramics, ultrafiltration and RO technologies are all available and appropriate for use in residential drinking water applications.

Specialty applications

Numerous technologies exist for specialty applications, like ultrafiltration, nanofiltration, distillation, ozonation and electro-oxidation. Educate yourself on how they all work and where they can be integrated to give your customers the best water that they can afford (see Table 1).

By adopting a layered approach, the most appropriate technology is used for each part of the home. Why waste money softening water to flush toilets, when scale control technology will do a fantastic job without the environmental impact of legislative entanglements?

The layered approach will help your customer choose the appropriate technology or combination of technologies that is the very best for their situation.

About the author

◆ *Greg Reyneke, CWS-VI, is currently General Manager at Intermountain Soft Water in Lindon, UT and serves on the WC&P Technical Review Committee. He also serves on the advisory board of the Smart Dealer Network, a trade association dedicated to helping independent water treatment dealers succeed in today's changing world and reach their full potential.*