



Water for Restaurants

Recent studies show that one of the victims of the current economic recession has been restaurants. While many people have been dining out less this past year, the restaurant industry itself remains relatively healthy in many areas of the U.S.

By Tom Cartwright

According to the National Restaurant Association's 2009 Restaurant Industry Forecast, overall restaurant industry sales will increase in current U.S. dollars by 2.5% over 2008 figures, translating to an inflation-adjusted decline of 1%. Despite the economic downturn, the industry will remain a cornerstone of the economy, representing 4% of the U.S. gross domestic product, employing 9% of the U.S. workforce, and restaurants will continue to adapt to the latest menu trends and consumer preferences.

Providing added value, reducing operational costs and promoting environmental awareness are three major objectives for the restaurant industry today. One key area where restaurants can successfully achieve all three of these objectives is with their water. The costs associated with water-using appliances such as water heaters, coffee and tea brewers, beverage stations, steamers and ice machines represent a significant annual operational cost to any restaurant. Couple that with the importance of water quality in food preparation and beverage taste, along with the environmental ramifications

from conventional water treatment, and it is easy to see why so many restaurant owners today are looking for alternative solutions.

Water Woes

The water treatment industry defines "problem waters" as those supplies with high concentrations of hardness (calcium or magnesium carbonate), high salt concentration defined as total dissolved solids (TDS), chlorine, iron, manganese, or hydrogen sulfide contamination. High hardness levels, above 100 parts per million (ppm), and high TDS (above 250 ppm), can be found in 80% of the water supplies around the world. Iron, manganese and hydrogen sulfide are more commonly found in well water supplies.

Most restaurants today utilize water softeners (salt-exchange systems) to address issues related to water hardness and low levels of iron and manganese on hot water only. They then add individual water filtration systems to ice machines, beverage stations, steamers and coffee and tea brewers. These filtration systems typically consist of a sediment filter to remove large suspended particles from the water, a carbon filter to remove chlorine and sometimes a sequestering filter that adds polyphosphate or another type of sequestering agent to reduce the effects of scaling. These filters generally need to be replaced every three to four months.

The initial investment for this equipment is relatively expensive, costing on average more than \$5,000 for a full-service restaurant, while the annual maintenance costs often exceed \$3,600.

There is also strong push-back from local governments and

environmental agencies against these technologies for several reasons. Water softeners, for instance, add significant amounts of salt to water supplies. In the city of Las Vegas alone, water softeners add on average 250 million lb of salt to Lake Mead and the Colorado River each year.

Many restaurants also have up to three individual filtration systems in front of their coffee machines, ice machines and beverage stations. With an average of three filters per system being replaced every four months, the net result is 27 filters per year being added to landfills.

In addition, environmental issues facing restaurants today include:

- **Bottled water.** Local governments are looking for ways to reduce the strain on landfills and many have targeted bottled water. Although bottled water sales represent an important source of income for many restaurants, the waste from the plastic bottles is creating stress on our landfills and generating more than 2.5 million tons of carbon dioxide each year.
- **Cleaning chemicals.** Cleaning chemicals for dishwashers, coffee brewers, ice machines and other water-using appliances represent not only a significant operational cost to a restaurant but also end up in drinking water supplies.

Finding a Solution

Finding a solution that addresses all of these issues would be the silver bullet that would help restaurants in both the short and long term.

A solution is available that addresses issues relating to water quality while adding profit to a restaurant's bottom line and dramatically improving the overall value and quality to its customers. The system is a point-of-entry (POE) water purification system designed to treat both hot water and water for appliances. It utilizes sediment filtration, carbon filtration, reverse osmosis (RO)

POE water treatment for restaurants

Table 1. Conventional Water Treatment vs. PureOFlow System

Cost	Previous Monthly Costs	Monthly Cost with PureOFlow	Monthly Savings
Filters	6	7	-
Filter Life (Months)	3	24	-
Replacement Cost/Filter (Avg.)	\$60	\$80	-
Monthly Filter Replacement Cost	\$120	\$23.33	\$96.67
Salt	\$100	-	\$100
Beverage Syrup	\$1,100	\$935	\$165
Rinse Aid	\$150	-	\$150
Cleaning Chemicals	\$200	\$100	\$100
Ice Machine Maintenance	\$33.33	-	\$33.33
Monthly Totals	\$1,763.33	\$1,138.33	\$645

and ozone. The system is designed to remove between 90% and 95% of all contaminants from water, eliminating the need for all other water filtration equipment as well as eliminating or greatly reducing soda syrup, cleaning chemicals, rinse aid for dishwashers, salt, filter replacements, ice machine and water heater maintenance, all while improving the quality of food and beverages.

Treating Restaurant Water

A full-service restaurant in Las Vegas was using conventional water treatment to address their water issues. Their incoming water quality was:

- TDS: 750 mg/L;
- Total hardness: 359 mg/L;
- pH: 7.2; and
- Total water usage: average of 1,200 gal per day.

The restaurant had a commercial water softener to treat hard water as well as three filtration systems to treat the cold water for the ice machine, beverage stations and coffee brewers. Table 1 demonstrates the average monthly water-related costs for the restaurant.

To meet the quality requirements of the restaurant, the TDS level of the water was reduced from the incoming levels of 750 mg/L down to 60 mg/L. This unit not only improved the water quality to the level of bottled-water quality, it also eliminated the need for a water softener and all other filters.

The PureOFlow system represented the only technology available to meet all of the water requirements of the restaurant. After installing the system, the resulting water analysis was:

- TDS: 60 mg/L;
- Hardness: <17.1 mg/L; and
- pH: 7.

The restaurant opted to lease the system at a monthly lease price of \$280. As a result, the restaurant experienced an immediate monthly savings of \$365.

With cleaner water, not as much syrup is required to make the same quality beverage. The syrup savings is a result of adjusting the syrup versus water concentration. By adjusting the syrup concentration to align with the better quality water, the restaurant not only reduced its cost of syrup per beverage but also experienced a 30% increase in beverage sales in just two months' time.

By removing the existing filtration system and treating the water with

one complete purification system, the restaurant experienced immediate cost savings, was able to promote itself as being environmentally conscious as a result of eliminating salt and 75% of its filter replacements and provided a better quality product for its customers. *wqp*

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