



Challenges And Solutions To Treating Beverage Wastewater

Beverage manufacturers are increasingly tasked with reclaiming and treating their effluent. As water gets more expensive and access to clean source water becomes more difficult, this trend is expected to grow. But these businesses are not water treatment experts and can often struggle to meet stringent and ever-changing effluent standards.

Beverage makers can face harsh consequences if they fail to properly treat their wastewater, including:

- **Fines.** These can range from just a few thousand to several hundred thousand dollars depending on the specific regulation and the severity of the case.
- **Bad publicity.** Negative press can drive away customers and business partners, such as distributors or suppliers.
- **Brand degradation.** Companies that make products

branded as healthy or which tout themselves as being environmentally conscientious can see their reputations harmed, jeopardize customer loyalty, and potentially lose market share as a result.

- **Mandatory shutdown.** In the worst cases, the local, state, or federal authorities may order a business to be closed until it can meet the required standard, or even be shuttered permanently.

Finding The Right Technology

There are a range of processes and technologies that a beverage company might need to consider in order to [treat their wastewater](#). Depending on the makeup of the waste stream, it may require chemical treatment, such as pH adjustment or coagulation and flocculation. Biological processes and aeration may be needed to consume biodegradable organic pollutants. Membrane filtration, such as ultrafiltration and reverse osmosis (RO) systems, are

often used to remove salts and other dissolved compounds.

Pre- and post-treatment [chemical adjustment](#) is particularly important, as it often requires injecting precise quantities of chemicals into the system in order to disinfect, as well as to adjust the acidity and alkalinity. Adding too much or not enough of a chemical can have an adverse effect on the total treatment process.

For example, wastewater must often meet strict pH requirements — often between 6 and 9 — in order to avoid corroding pipes or causing deposits. Injecting too much sodium hydroxide or other alkali can increase the pH beyond the acceptable range. Similarly, injecting too much chlorine up front can damage a membrane filter, requiring more frequent changeouts, which in turn costs money and downtime.

Balancing Focus

Putting it all together, beverage companies need to keep in mind

what business they are in, and it's not wastewater treatment. However, there are ways to balance effluent management while maintaining focus on business operations. One is to hire consultants or bring a dedicated water treatment specialists on board. Another is to send dedicated personnel to water and wastewater trade shows.

It is also imperative to work with suppliers and business partners to identify the most user-friendly technologies available. For example, [peristaltic metering pumps](#) are low maintenance and easy to use compared to many diaphragm pumps and thus may be a better choice in some systems.

Stone Brewery: A Case Study

[Stone Brewery, Co., LLC](#) prides itself on its commitment to environmental responsibility and sustainability. Based in Escondido, CA, the company sought to ensure it could produce an environmentally friendly product before officially opening its doors.

The biggest part of this commitment meant meeting state and county effluent standards. This required reclaiming all

its wastewater and treating it before discharging it into sewers. Breweries produce a lot of wastewater, averaging about 10 gallons of waste for every gallon of product. Stone Brewery was no exception, producing about 100,000 gallons of effluent every day.

Without a water treatment expert on staff, the company sent personnel to water industry trade shows to learn about the various technologies and determine which solutions could help them meet their benchmarks. It took nearly three years of research before settling on a solution that produced compliant wastewater.

Ultimately, Stone Brewery chose to install a membrane bioreactor (MBR) followed by a reverse osmosis (RO) system. Chemical metering is critical to the entire system, so the company worked diligently to find metering pumps that could inject precise quantities of chemicals into the system. The pumps had to be easy to use and extremely accurate.

Stone Brewery purchased four [Blue-White A2 peristaltic pumps](#) (Figure 1). Two of those are used to inject



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Figure 1. The use of low-maintenance peristaltic metering pumps help Stone Brewery achieve its water treatment goals while allowing employees to focus the bulk of their efforts on brewery operations.

sodium hypochlorite into the MBR filter backwashes. A third injects sulfuric acid into the stream between the MBR and RO system. The final pump adds sodium hydroxide to the filtered effluent to raise the pH and avoid corroding public wastewater pipes. ■

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