

Monitoring your Waste

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The importance of water quality cannot be overlooked in the food and beverage, and overall processing industry, which is why many manufacturers continually make investments in personnel and equipment—to lower the risk of contamination and improve product quality.

However, the task of ensuring whether water used in manufacturing is high quality can still seem daunting. Fortunately, electronic monitoring capabilities can provide real-time water quality data, therefore reducing the burden on plant staff. In fact, plant managers can be instantly alerted via an alarm or, in some instances, an alert sent to their hand-held device, when an error situation occurs.

New advances in water quality-monitoring capabilities include wireless remote options, which ensure even the most difficult-to-access equipment is being properly maintained, and telemetry services, which report operating parameters and status to qualified service technicians and plant managers. With performance monitoring and telemetry applications in place, manufacturers have access to actionable information that makes it easy to quickly address quality issues before they impact equipment, product supply or consumers.

In the food and beverage industry, water is used in nearly every stage of production. Manufacturers rely on it to clean and sanitize equipment, and prepare raw product; it's often incorporated into the finished product, too. Because of its significance in the manufacturing process, even the slightest disruption to water quality can affect plant performance, and even the taste, texture and odor of the final product. For this reason, continuously monitoring water treatment equipment

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performance and maintenance needs with electronic applications delivers significant advantages.

Monitoring Specific Parameters

With regard to water quality, food and beverage manufacturers have specific parameters they must meet—pH and conductivity levels, for example—in order to ensure product quality and system efficiency. High water pH levels can result from changes in incoming municipally treated water, or contamination from an overfeed of pretreatment chemicals or cleaning agents, which can lead to decreased water equipment efficiency and flavor issues. Similarly, water with high levels of specific ions, such as sodium and chloride, increase the conductivity of water, can lead to corrosion of water treatment equipment or impact the product of low sodium-labeled products. Constant monitoring of important water parameters like pH, specific dissolved ions and conductivity can ensure products are safe for consumption and water treatment equipment performance is reliable.

It's also possible to set parameters that are specific to a plant's individual operating needs. For instance, in plants where equipment sits idle for long periods of time it's critical to flush any stagnant water from membranes and filters to decrease the risk of microbial contamination. With electronic monitoring, it's possible to establish automatic system flushes based on a plant's unique parameters (hourly or daily).

Likewise, electronic monitoring applications can assess average water usage, and bring additional equipment online or offline as the flow demand changes; parameters can be set depending on a plant's intermittent or periodic high flow rate.

High Standards of Product Quality

In an industry regulated by stringent FDA guidelines, the ability to provide data reports that prove specific parameters, such as the pH and conductivity levels mentioned above, are being met is invaluable. Today's electronic monitoring applications generate detailed reports on water quality and system performance that can be used to validate final product quality and support one's quality control program.

Additionally, these reports can prove priceless should a breach in quality occur at the plant. Because product quality parameters are being constantly monitored, plant managers and quality department personnel can determine where and when the contamination occurred, thus reducing the time delays associated with retesting all of the product stock and eliminating the need to discard stock that was not adversely affected. Most importantly, contamination events can be proactively identified before product goes to market to avoid costly product recalls that can harm consumer perception and result in fines from regulatory agencies.

Historical Operating Data Improves Efficiency

Perhaps one of the most beneficial aspects of performance monitoring applications

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is automation. By electronically monitoring system performance and quality parameters, manufacturers are able to minimize the chance of human error. The equipment becomes a second set of eyes for the quality department, alerting personnel to negative situations that may have otherwise gone unnoticed. Additionally, plant trends can be monitored over time, creating historical operating data that can help plant managers proactively address equipment or quality issues before they cause disruptions.

And, with access to accurate real-time trending data, plant managers can predict when equipment maintenance needs to occur, such as changing filters or cleaning membranes. Maintenance sessions can then be scheduled without interrupting plant operations. Predictive plant maintenance ultimately leads to a leaner, more efficient plant, and one that is not stymied by production delays associated with equipment failures.

A New Frontier in Electronic Monitoring

The next generation of advanced electronic monitoring applications can enable plant managers to monitor any and all water treatment equipment, regardless of its accessibility within the plant. With wireless capabilities, plant managers can monitor equipment up to 200 feet away from the installation using a remote display to detect potential problems before they occur. Equipment can also be remotely monitored for maintenance issues, such as salt regeneration and software updates.

Along with wireless remote capabilities, some forward-thinking food and beverage manufacturers have begun to embrace telemetry services to streamline their equipment monitoring and maintenance processes. When using a telemetry service, plant managers can connect water treatment equipment to trained service technicians. As a result, equipment monitoring is left in the hands of experts in a central location, freeing up plant personnel to focus on their core competencies. And, should an error occur, both the service technicians and plant manager are made instantly aware—allowing the equipment to be serviced locally.

Minimizing risk and reducing process downtime is a significant factor to the success of today's food and beverage manufacturers. Electronic monitoring applications, and advanced remote and telemetry options can help avoid system failure, reduce potential production delays and decrease overall operating costs, all the while ensuring high-quality water continuously flows through the plant.

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