

6.1 billion gallons of non-revenue water are wasted every year-

Just to measure chlorine

No Waste Stream - A Game Changer in Water Treatment

In the world of water treatment, efficiency and environmental impact are paramount, and the Halogen MP-5 sensor is making significant waves. This innovative sensor, designed by Halogen Systems Inc., does not just measure chlorine levels; it revolutionizes how we monitor water quality without the unnecessary waste of resources.

Traditional methods for monitoring chlorine in water systems, such as online DPD reagent systems and other amperometric sensors, have long faced criticism due to their substantial waste streams. These systems typically require between 70,000 to 138,000 gallons of water annually just to operate, leading to considerable non-revenue water loss. This waste stream not only represents a loss of treated water but also poses practical challenges:

- **Disposal Difficulties:** Many sites are not equipped to handle the disposal of such volumes of wastewater. In rural areas or small facilities, finding a place for this waste can be both difficult and impractical.
- **Septic System Impact:** If this waste is directed into septic systems, the high chlorine content can kill beneficial microorganisms, rendering the septic system less effective or even causing damage. A volume of 70,000 gallons per year can quickly overwhelm such systems.
- **Infrastructure Costs:** Some municipalities have reported that the cost to install additional sewer lines to manage this waste can exceed \$100,000, a significant investment for any water treatment facility.

Enter the Halogen MP-5 sensor, which introduces a new paradigm in water quality monitoring. Here's how it changes the game:

- **No Waste Stream:** Unlike its predecessors, the MP-5 sensor does not require a waste stream. This feature alone is groundbreaking, as it eliminates the need to manage or dispose of large volumes of treated water.
- **NSF61 Certification:** Only the MP5 is certified for direct exposure to drinking water under NSF61 standards, ensuring it meets stringent public health and safety requirements.
- **Install Anywhere:** since the MP5 is Flow and pressure Independent, it can be inserted directly into pipes or tanks without the need for flow or pressure regulation, offering flexibility in installation that previous sensors could not match. The sensor reads accurately in zero flow or 4 meter per second velocity. Pressure from 0 to 145 PSI has no effect on accuracy.

- **Economic and Environmental Benefits:** By not requiring a waste stream, the sensor significantly reduces non-revenue water losses. Depending on local water rates, municipalities can see savings ranging from \$200 to \$1000 per year per sensor, translating into substantial long-term financial benefits.
- **Measures 5 critical water parameters:** Free chlorine, Monochloramine, pH, conductivity, temperature.
- **Maintenance Free for 6 to 12 months:** this is a significant reduction in labor and materials. There are no membranes that require replacement. The sensor is self-cleaning and also uses electrochemical cleaning to achieve very long interval calibration checks. In some cases, amperometric sensors must be calibrated weekly.
- **Reagentless:** No reagents are required or tubing replacement, saving roughly \$1000 per year. This does not require a truck roll or manpower for monthly changes of reagents and parts or “cell cleaning.”
- **No memory:** The MP5 has no “memory” if exposed to zero chlorine levels for hours or even days. When chlorine residuals return, the sensor detects them rapidly. Amperometric membrane sensors cannot achieve this without complicated systems that add cost and complexity.

Christopher Alvarado, from LaCumbre Mutual Water Treatment Company, shares his experience, highlighting the practical benefits of the Halogen MP-5: "I did some flow measurements with our reagent DPD system and discovered that we were using 138,000 gallons of water per year. Your system is on a side stream and only uses 14,000 gallons. Our next installation will use your Wet Tap Sensor which has zero waste stream. We've been very happy with the Halogen MP5 sensor, and it has been holding up really well."

According to Derwin Dy of City of Lakewood, CA: "There are some sites that cannot be monitored due to the need for a waste stream. Halogen MP5 solves this problem."

Safety and customer satisfaction can be improved with a chlorine monitor that can be installed anywhere.

Non Revenue water costs can amount to \$1000 or more. Water rates (Tier 2) range from \$0.003 to \$0.01 per gallon. This ranges from \$400 to \$1,400 per year NRW.

Some areas are under “drought restrictions” and reduction of water usage is mandated.

The Halogen MP-5 doesn't just measure five key parameters including chlorine, pH, temperature, conductivity, and ORP; it does so with a maintenance-free, self-cleaning feature that further reduces operational costs. This sensor can be used in immersion directly in tanks or pipes, offering a versatile solution for various water treatment scenarios.

By eliminating the waste stream, Halogen Systems not only helps in conserving water but also ensures that water treatment facilities can operate more sustainably and cost-effectively. This technology is a clear step forward in the quest for more environmentally friendly and economically viable water management solutions. As more water treatment facilities adopt this technology, we

can expect a significant reduction in water waste, a decrease in operational costs, and an overall improvement in water quality monitoring practices.

The Halogen MP-5 sensor, available at www.halogensys.com, stands as a testament to innovation where environmental consciousness meets practical application, making it a true game changer in the water treatment industry.

References:

- Halogen Systems Inc. technical documentation on the MP-5 sensor.
- Testimonial from Christopher Alvarado from LaCumbre Mutual Water Treatment Company.
- City of Lakewood White Paper

Assumptions

Community Water Systems-EPA	45,973
Percentage using chlorine	64%
Number of sites using chlorine	29,423
Number of analyzers per plant	3
Number of analyzers operating	88,268
Gallons of NRW used per analyzer	70,000
Total Non Revenue Water losses due to chlorine analyzers in gallons	6,178,771,200

