

Let Science drive our AI Agents to unlock your beverage factory potential

5 AI Agents that accelerate your processes and detect mistakes early

At H2Ok Innovations, we build purposeful ML Models that feed on accurate sensor data to build unique signatures of every condition of liquid in your pipes and equipment. Our AI Agents use this to make accurate sub-second decisions to accelerate CIP, line startups, changeovers and batch processes to help reclaim precious production uptime and reduce product loss. Our sensors also act as watchdogs to monitor inline quality to prevent mistakes that lead to frustrating downtime.

The result is the best version of your production lines and factory that runs faster and more sustainably, eliminating starts/stops while reducing “human-in-the-loop” delays.



CIP Acceleration Agent

Our patented sensors capture a million data points from the supply and return locations on a CIP skid and feed that data to our proprietary CIP ML Model, which instantly identifies clean water and chemicals from soiled states. Within sub-seconds, our AI Agent advises the PLC to switch or sometimes extend cycles to create a closed-loop, fully automated process that optimizes each wash cycle. Typically, our CIP ML Model saves 15% time, 5%-15% reduction in energy/water, and 15% or more reduction in chemical usage - even on lines that have conductivity meters and “experience” based static timer logic.



Line Startup/Shutdown Optimization Agent

A daily occurrence on each production line between shifts is a startup and a shutdown procedure. Almost every startup cycle wastes not only valuable production time but also flushes out good product. It is not uncommon for good product to be left over at the end of a shift, only to be flushed down the drain at the start of the next. H2Ok's ML Models can detect the optimal time to switch over a line from startup state to production state by detecting when a pure product is ready to be filled. H2Ok's patented sensors continuously monitor the line and advise the PLC within sub-seconds to distinguish rinse water, soiled water, and fillable good product, thereby saving time and money on each startup cycle. Manufacturers reduce waste, increase yield, and transform what was once an invisible cost into reclaimed revenue and higher margins.





Inline Quality Control Agent

Quality control is crucial to maintaining line efficiency, profitability, and compliance with regulations. Quality issues can arise from mistakes like missing ingredients, incorrect dosing, raw material issues, and systemic variance in process/chemistry-related parameters that need to be controlled tightly in real-time. Grab sampling, tasting, color matching, etc., are necessary but not sufficient to prevent downtime. H2Ok's inline sensors feed purpose-built quality control ML Models that can detect even the smallest variance or errors in the condition of raw materials, intermediates, and final products, allowing for real-time detection of mistakes and helping to avoid costly downtime.



Wastewater Agent

While wastewater treatment efficacy is critical to a factory's profitability, the process almost always relies entirely on one or two experts who orchestrate a complex operation on a daily basis. With rising regulatory pressure and costly capital improvements, relying only on individual judgment increases the risk of penalties. H2Ok's Wastewater ML Model integrates spectral and conventional sensor inputs specifically at the start of primary treatment to issue immediate alarms to wastewater personnel. Decisions that once required skilled judgment now happen automatically within seconds. The result: a lesser load on the multi-stage wastewater process and more proactive alerting, which gives the process and experts more time to react and avoid costly penalties. When coupled with H2Ok's CIP Optimization Agent, every plant can immediately take a big step towards meeting its sustainability goals.



Product Loss Prevention Agent

Product changeovers are almost always a process that hides notable product loss and reclaimable production time. Regardless of the type of changeover, whether direct product push or hot water rinse, selecting a fixed "worst case" set point not only wastes precious production time but also discards good products that could be bottled. H2Ok's Changeover ML Model detects safe cutover points at the head and tail of the process and advises the PLC to utilize good product instead of flushing it down the drain. Typically, H2Ok's Product Loss Prevention ML Model accelerates changeovers by 15% to 22% which means your filler line can reclaim almost all of that savings.



Sense

H2Ok's patented spectral Sensors continuously monitor your fluids and recommend the smart action to your PLC.



Validate

H2Ok's baseline ML Model instantly start recommending time, water, energy savings and are validated by your experts with actual samples.



Fix

Once validated, H2Ok runs on "Smart Mode" to run a golden process cycle - closed loop, self-correcting process that helps reclaim production time.