

Know Thy Dose: Guaranteed Delivery of the Required Dose

Using UV Light to Pasteurize Cold Water

The only way that UV light can give you pasteurized equivalent water is to expose the water to a strong enough UV dose that is uniformly distributed throughout the water. And the only way you can be sure is to measure a UV system's dose by benchmarking it based on third party standards. That's done in a 3rd party validation process that accurately measures the dose in a three dimensional matrix and determines the values between the measured points.

Does it Seem Complicated?

It is, unless you task a multi-disciplinary team of physicists, microbiologists, mechanical engineers, optic and hydraulic engineers and software gurus together with GUI designers and environmental evangelists.

Thanks to Atlantium's multi-disciplinary approach, its system accurately measures and controls UV using advanced algorithms, hydraulics, optic simulation and modeling tools for reliable, measurable disinfection.



The monitor displays the status of real-time data, including actual dose delivered

Software Measures, Tracks and Reports

Atlantium's system meets all the FDA criteria thanks to its operating and monitoring software suite. The software assures a measured, minimum dose that adjusts based on real time reports of water UV transmission (UVT), water flow rate and lamp efficiency. The control systems reports all the variables and raises or lowers lamp power to ensure that the unit provides the minimum regulated dose, or alerts you to an impending problem.

Atlantium's System Changed the Paradigm

In 2009 the FDA and the National Conference of Interstate Milk Shippers, who regulate the dairy industry in the US through the Pasteurized Milk Ordinance, studied the potential of UV for energy saving water pasteurization without heat and high level reliable disinfection without by-products.

Inspired by Atlantium demonstration projects that showed how UV could be engineered to measure and control UV light, the FDA implemented new criteria for UV use.

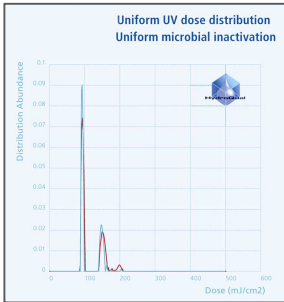
Automatic Monitoring & Control

The right UV dose depends on three parameters: UV intensity, water UV transmittance and water flow rate. Since these parameters are dynamic and fluctuate, they need to be measured continuously. The Atlantium system measures these critical data in real time, which it feeds to its operating algorithms. The algorithms are developed from full-scale third-party validation challenge testing of target pathogens' responses to UV.

The software enables the reactor to self-adjust, and manages a "safety zone" so that the unit is always providing at least the minimum dose – a key FDA criteria for UV compliance.

Minimum Dose, Not Average Dose

With an average dose, not all the water receives the required UV dose, therefore not all the microbes are inactivated. You can't afford to take that risk! With Atlantium systems, there is no risk. All the water receives at least the minimum regulated dose, all the time.



Validation tests conducted by Hydroqual Inc. used dyed microspheres to characterize different UV systems' true UV dose distribution. The tests consistently demonstrated that the Atlantium system – more than any other UV system in the market – delivers a uniformly-distributed UV

dose throughout the reactor with no low-dose tracks. This prevents waste of energy and ensures all target pathogens are inactivated.

Monitor Shows Actual Dose Delivered

You get real time status display of critical parameters such as actual delivered dose, water flow rate, lamp intensity and water UVT. An alarm is triggered if any of the parameters is not within the required range.

Appendix H Compliant

The software is built to fully comply with the Electronic Reporting criteria of the PMO. It has been audited and certified by the 3rd party expert, Craig Nelson. You get database structures and software integrity as well as the exception reporting the PMO requires. Built specifically to adhere to the PMO standards, Atlantium's system provides the quality assurance and documentation you need.

Pre-Programmed

Atlantium's advanced algorithms have several application-oriented configurations that make setup, installation and commissioning simple: each regulatory and market application has a default group of settings that pre-program the key control and regulatory features needed. The user can also customize the settings for special needs.

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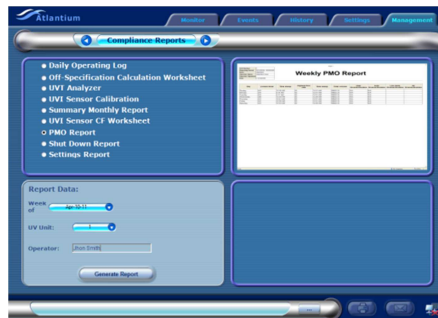
2 Sensors per Lamp for Total Accuracy

Though PMO 2009 criteria specify one sensor per lamp, Atlantium supplies two in many systems.

One sensor measures the UV intensity that the lamp is beaming into the water (where most systems look at a spot on a lamp and extrapolate from there). The other sensor measures how much actual UV light the water transmits, as specific water chemistry can impair the water's UV transmittance, and divert the UV photons. The software takes this value and automatically adjusts lamp energy according to conditions in real-time, ensuring the minimum regulated dose. The system provides integrated sensor calibration so you can be sure the sensors are reading accurately.

Easily Generated Reports

The data logging system enables traceability over time of all monitored data such as delivered dose, power consumption, UVT and flow rates among others, for analysis and proof of compliance. View the data from your own computer and print out reports at the touch of a button.



Monitor from the Comfort of Your Office

No need to walk around the production facilities to check up on current data status. The system comes with the option for external on-off to synchronize the unit with facility processes including thin client networks. There is a remote control module too that provides real-time access and control of up to nine Atlantium systems. The system is secure with password protection and can be connected to your alarm system.