



Disinfection



Swimming Pools



Tel Aviv, Israel

Pool Water Safety with HOD™ UV: Large Multi-Sport Facility

Background

The swimming pool industry faces challenges in maintaining public pool water quality to meet health regulations and the public's expectations to swim in a clean pool. Chlorine-based disinfection is not effective enough against resistant microorganisms such as *Cryptosporidium* intestinal parasites.

In addition, using chlorine for water disinfection creates chloramines (bound chlorine) that result in a pungent odor, eye irritation, and health risks.

A large university sports center, founded over 50 years ago, began as a facility for students and has since expanded to serve the wider public. Covering 62 acres, it features an Olympic pool and two heated semi-Olympic covered pools. About 2,500 visitors visit the center daily; 40% use the swimming pools.

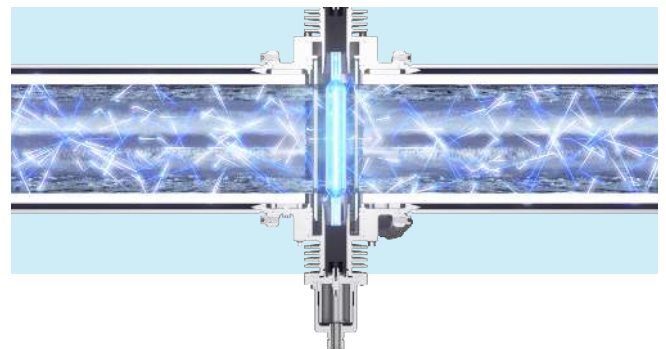
The Challenge

The center struggled to meet Health Ministry water standards in its ground-floor covered pool. Standard chlorination and circulation could not control trichloramine, leading to strong chlorine odors, eye irritation, breathing difficulties, and cloudy water. Following repeated complaints, the Ministry required the center to resolve the odor and turbidity issues.

The Solution

In October 2024, in partnership with Hydropharm, an authorized distributor of Atlantium swimming pool systems, the Sports Center installed Atlantium's HOD™ (Hydro-Optic Disinfection) UV system. The system was placed after the filtration facilities and before the residual chlorine addition stage to ensure optimal water treatment and effectively address the challenges they faced.

The system was selected due to its proven ability to effectively inactivate microorganisms, including pathogens and bacteria. This is achieved by combining ultraviolet water disinfection technology with hydraulic and optic principles. The HOD UV system features unique Total Internal Reflection (TIR) technology that recycles UV light energy, ensures homogenous UV dose distribution, provides superior power (kW) efficiency compared to traditional UV, and achieves unprecedented micro-organism inactivation.



HOD UV ensures the inactivation of waterborne microorganisms, including Cryptosporidium in swimming pools, meeting the Ministry of Health (MOH) specification and UV disinfection guidelines:

“To inactivate microorganisms including intestinal parasites and reduce bound chlorine concentrations, medium-pressure lamps operating in a wide range of wavelengths between 200–400nm with a minimum power of 60 mJ/cm² will be installed.”

The system’s medium-pressure lamps provide an efficient solution for reducing and breaking down bound chlorine in the pool, in contrast to low-pressure UV lamps, which are much less efficient.

To ensure full regulatory compliance, Atlantium systems have undergone the most stringent validation tests by an independent third party per the testing protocols of the American EPA Regulatory Agency.

Results

Since the installation of the HOD UV systems, the Sports Center has experienced a dramatic decrease in bound chlorine levels. Bound chlorine concentrations decreased fourfold, the chlorine odor disappeared, and swimmers are not experiencing burning eyes, resulting in significantly higher customer satisfaction and noticeably improved pool air quality.

The water turbidity index dropped significantly, from 0.8 to 0.2–0.3 NTU. In addition, the use of HOD UV eliminated the need for increased chlorine use and therefore reduced operating costs.

“Atlantium’s HOD UV system has significantly impacted both the environment and user satisfaction at the pool. The significant reduction in chlorine odor and improvement in air and water quality enhance the swimmers’ experience. The protection the system provides against pathogens such as Cryptosporidium and Legionella is critical in swimming pools, providing an additional level of safety. These improvements not only protect the infrastructure but also promote a healthier and more pleasant environment, demonstrating our commitment to quality and customer care.”

Shai Rosner,

VP of Operations and Infrastructure, University Sports Center



HOD UV Technology Delivers Pure Performance

Atlantium’s HOD UV system provides efficient breakdown of bound chlorine (trichloramine) that causes pungent chlorine odor, eye burning, and poses a health hazard, while delivering 99.9% inactivation of chlorine-resistant microorganisms and 3-log inactivation of Cryptosporidium intestinal parasites. The system offers exceptional energy and operational efficiency, requiring only one UV lamp per system, which leads to a significant reduction in electricity consumption while reducing both operating and chemical costs.

About us

For more than two decades, Atlantium Technologies has helped to ensure water safety with its innovative HOD™ (Hydro-Optic Disinfection) UV technology and novel approach to performance, monitoring, and control. Atlantium’s superior, environmentally friendly water treatment solutions ensure stable, efficient, and dependable production.

With thousands of full-scale installations for leading brands in various industries globally, we’re committed to consistently meeting our customers’ water quality needs, ensuring pure results.

Pure Performance