liquisens.

Transforming Water Quality Management
with Predictive Intelligence

CASE STUDY

AGFA

Proactive Legionella Risk Management with Liquisens Predict

Overview

Industrial cooling towers are essential for heat management but can also harbor Legionella bacteria, posing serious health and regulatory risks.

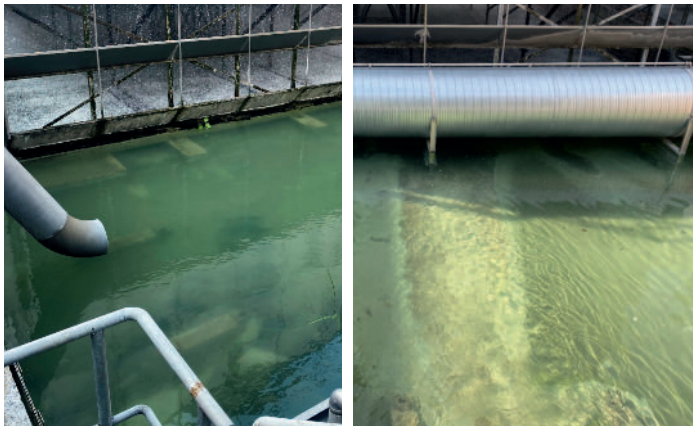
At Agfa-Gevaert N.V., a multinational leader in imaging and IT solutions, Liquisens implemented its Liquisens Predict platform to transition from reactive Legionella monitoring to predictive risk control, in collaboration with GDP Biotech's Eco-Cat technology to enhance water quality and system hygiene.

By integrating AI-powered analytics with real-time operational data, Liquisens Predict and Eco-Cat enabled proactive interventions that reduced Legionella risk, optimized chemical use, and improved water quality, without adding new hardware.

Approach

The system ingests and correlates multiple data streams:

- SCADA parameters: more than 100 process variables such as temperature, flow, and chemical concentration.
- Laboratory results: Legionella counts and immuno-flowcytometrie (rqmicro).
- Operational logs: cleaning, biocide dosing, and maintenance interventions.



Visual process water quality before and after treatment

Using these inputs, Liquisens Predict identifies key risk factors and generates a real-time Legionella risk score, allowing operators to act before problems escalate.
A dedicated model classifies tower conditions as low, moderate, high, or very high risk and can be applied through both offline and live API environments.

At Agfa's KT531 cooling tower (210 m^3), the predictive model guided a series of targeted interventions, which were followed by GDP's treatment strategy of Eco-Cat, to achieve:

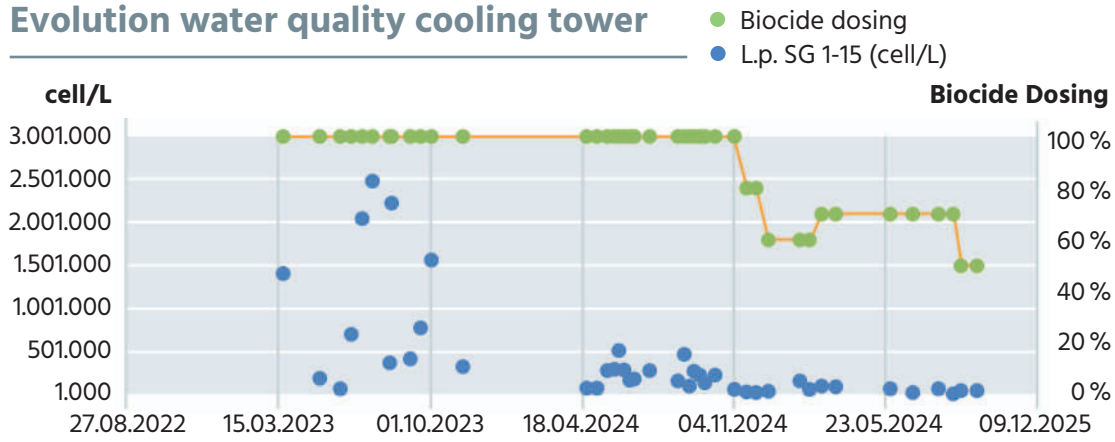
1. Cleaner system surfaces and enhanced water quality via higher DO, organic breakdown, and improved aeration efficiency;
2. Ensured Legionella compliance, mitigating associated regulatory risks; and
3. Reduced environmental footprint via Controlled reduction of isothiazolinone dosing – achieved from 20 to 50 % decrease in biocide consumption while maintaining microbiological safety.

Legionella levels were monitored using flow-cytometry rapid testing (rqmicro), providing results within two hours and capturing both culturable and viable-but-non-culturable cells.

Key Results

- 100 × reduction in Legionella concentration in cooling towers.
- Up to 50 % lower biocide usage, maintaining full regulatory compliance.
- €10,000 annual chemical cost savings through optimized dosing.
- Structural reduction of Legionella risk levels and improved water quality.

Evolution water quality cooling tower



Conclusion

This project demonstrates how predictive, data-based risk management can make industrial cooling tower operation safer, cleaner, and more sustainable. Through early detection and targeted intervention and Eco-Cat implementation Agfa achieved measurable improvements in both water quality and cost efficiency, while reducing dependance on biocides.
This synergistic collaboration between Liquisens and GDP Biotech enabled a transition from reactive control via manual sampling to proactive, sustainable water management. The results underscore how Liquisens Predict and Eco-Cat set a new standard for reliable Legionella prevention and responsible water management.

liquisens.

Liquisens BV
Uitbreidingstraat 84
2600 Antwerp
Belgium

www.liquisens.be