

CASE STUDY

HOW TO USE CHEMICAL TREATMENTS AND DIGITAL solutions to optimise a brewery's water footprint

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In this case study, you will discover how SUEZ helped the plant optimise its water footprint even further, while boosting its operational efficiency, thanks to appropriate chemical treatments and digital solutions.

1 | GOAL

TO REDUCE THE WATER RATIO DEMAND AS MUCH AS POSSIBLE

Plant managers in this sector know it all too well: breweries are one of the most water-demanding Food & Beverage plants of all, as most of the final product is made out of water.



With this challenge in mind, the Portuguese plant's goal was clear: to bring its water ratio demand (the ratio between the water consumption in the plant and the beer produced) down to as close as possible to one.

3

million hectolitres per year:
that is how much beer this Portuguese brewery produces every year. Its location, in a water scarcity area where every drop of water counts, has led its managers to set up a long history of projects to help them reduce the plant's water footprint.

BEST-IN-CLASS CHEMICAL TREATMENTS AND DIGITAL SOLUTIONS TO REDUCE WATER CONSUMPTION

To meet the plant's goal, SUEZ decided to divide the project into two water reduction phases:

- ⇒ First, a project seeking to increase the water cycles inside the plant's cooling towers
- ⇒ Then, another project aimed at installing a tertiary treatment plant, to recycle part of the wastewater and reuse it in the cooling towers

SUEZ took action to resolve these issues by:



Conducting an analytical campaign, as well as membrane autopsies and technical studies to understand the issue fully



Combining this analysis with the right chemical treatments, e.g. coagulant, biocide and anti-scaling agents, to protect the membrane system



Stabilising the water feed variability that was endangering the tertiary plant's operational efficiency, by deploying TrueSense® and InSight® digital solutions at the new plant

1. INCREASING WATER CYCLES INSIDE COOLING TOWERS

For this phase of the project, SUEZ deployed its best-in-class customised chemical treatment to increase the water cycles inside the cooling towers. It included:

- > **Corrosion inhibitors,** to prevent corrosion of the equipment metallurgy and in the heat exchangers
- > **Biocide treatment,** to reduce microbiological growth inside the utility
- > **Anti-scaling treatment,** to protect the utility from scale

To ensure these chemical treatments met the plant's utility water needs perfectly, SUEZ also installed a **remote monitoring system comprising sensors (TrueSense®) and a data monitoring solution (InSight®)**. Its goal was to monitor 24/7 the solution's operational and chemical parameters. The monitoring system has proved crucial in maximising water reuse, by optimising the chemical treatment on a daily basis.

2. SETTING UP AN EFFICIENT TERTIARY TREATMENT SYSTEM

In a second phase, SUEZ installed a combined filtration-membrane system inside the wastewater plant that was already in place before the project. The intention was to reuse part of the effluent water to feed the cooling towers with the right water quality and quantity.

While studying the project, SUEZ experts **found several design flaws and operational issues**. As a consequence, the tertiary plant suffered from low performance and production, short running times and frequent shutdowns, as well as extreme variability and microbiological issues in the water it produced.

GREATER OPERATIONAL EFFICIENCY, FOR BETTER SUSTAINABILITY

By combining its technical capabilities in customised chemical treatments and membrane systems with remote data monitoring, SUEZ was able to increase the cooling tower cycles, as well as improve the new tertiary treatment's operational performance that led to cost savings.



More than 80,000 m³ of water waste is now avoided each year, and reused in cooling towers



More than two million beer bottles are produced each year with these global savings



1.14 man days per week are saved in maintenance activity



The cooling tower projects led to savings of **€20,000 per year**, while the tertiary treatment project helped the plant save **more than €50,000 per year**, all including the costs of membranes, treatments and the digital solution.

SUEZ is a global leader in essential environmental services present on 5 continents with more than 450.000 customers worldwide. Through the reliable and safe total management of water, and waste, our integrated and collaborative approach offers wide possibilities to meet resources & asset preservation challenges you face.

Combined with our unique and differentiating offering covering a broad portfolio of advanced technologies, innovative solutions, and digital services, our dedication is to improving your performance, competitiveness while ensuring the highest level of compliance with regulations in force in each country. Supported by decades of experience with large industrial clients, SUEZ brings added value to Food & Beverage industry delivering sustainable water treatment and waste treatment including packaging recycling solutions.

Our solutions cover the whole value chain from the utilities, process water to waste management in many sectors such as dairy, brewery, soft drinks, distilleries, meat & poultry, grain milling, sugar, processed and prepared food.

We can also support you with consulting services regarding resources management & climate change adaptation, construction, site management or environmental studies & permitting. And help you on packaging management, from eco-conception, recyclability certification, recycling solutions, as well as recycled material supply.

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