

CATALYSIS AND SUSTAINABILITY: A TECHNOLOGICAL ADVANCEMENT FOR OPTIMIZED WATER MANAGEMENT IN COOLING TOWERS

Jan Koppe¹, Yves Peeters², Alexander Reichert³, Christophe Vanschepdael⁴

¹MolAquaTech GmbH, Leverkusenstr. 4, DE-06258 Schkopau | ²MARITECH CV, Sint-Jansbeekveld 33, BE-2880 Bornem

³MOL Katalysatortechnik GmbH, Fritz-Haber-Str. 9, DE-06217 Merseburg | ⁴Process Water Services SRL, Rue Masy 26, BE-7063 Soignies

Summary

Water management with MATpure concept has proven its effectiveness in various industrial and real estate sectors, providing sustainable solutions and optimizing the performance of cooling systems. Thanks to this innovation, major projects such as the Wendelstein 7-X fusion reactor, the power plants in Schkopau and Rostock, as well as the Proferro foundry in Ypres, have seen significant improvements in their operations with a drastic reduction in chemicals and maintenance costs.

Key Achievements in Industrial and Real Estate Projects

Schkopau Power Plant: The MATpure concept completely eliminated the use of biocide in the cooling system, optimized system performance, and reduced maintenance intervals. Additionally, the technology improved flocculation and coagulation in pretreatment, leading to substantial savings on iron salts.

Rostock Power Plant: Since 2016, the application of the MATpure concept has prevented the need for annual manual cleaning of the 8 km of pipelines by preventing zebra mussel deposits. The system now operates continuously without biocide, while maintaining exceptional water quality and reduced operating costs.

Wendelstein 7-X Fusion Reactor: Thanks to the MATpure concept, the efficiency of the cooling system has been significantly improved, allowing the plasma to stabilize for over 10 minutes. The reduction of deposits extends the lifespan of critical equipment, and the need for chemicals has been reduced while maintaining the highest standards of safety and sustainability.

Proferro Foundry – Ypres, Belgium: In this high-temperature industry, the MATpure concept improved cooling, doubling production without requiring infrastructure modifications. This demonstrates the technology's ability to increase efficiency in industrial processes.

Legionella Prevention – Public Buildings and Residential Complexes: The MATpure concept has also been successfully used to prevent Legionella in public and residential buildings, ensuring occupant safety while reducing the need for manual chemical cleaning and aggressive biocides.

How it works:

Water management with the MATpure concept relies on a mineral catalyst that stimulates the formation of microbubbles of water vapor within the circuit. These bubbles prevent deposits, reduce corrosion, and promote the self-cleaning of surfaces, thereby improving system efficiency and reducing the need for chemicals.

Key benefits:

- Optimized system performance
Reduced maintenance costs due to fewer deposits and less corrosion
- Increased energy efficiency thanks to improved water quality
- Sustainability and environmental friendliness through reduced chemical usage

Start the Conversation



If you would like to discuss the possibilities that MATpure can offer for your industrial or real estate projects, feel free to contact me at Jan.Koppe@MolAquaTech.com

We would be happy to explore the most suitable solutions together for sustainable and efficient water management.

