

Optimizing Lab Efficiency with On-Site Water Purification

Access to Consistent, High-Quality Water Is Essential for Reliable Results in Scientific Research and Manufacturing

For JAFRAL d.o.o., a contract manufacturing and research organization (CMO/CRO) specializing in bacteriophages, plasmid DNA (pDNA), mRNA, LBP and protein production, the ability to produce ultra-purified water on-site has become a key part of their laboratory workflow.

Application Context: Supporting Analytical Method Development

At JAFRAL, purified water plays a critical role in the development of analytical methods. Previously, the company relied on two primary sources: in-house deionized (DI) water and externally supplied Water for Injection (WFI) in bags. While functional, this setup meant water was not always immediately accessible in the lab, leading to inefficiencies in day-to-day operations.

To address this, JAFRAL installed a Sartorius, Arium® Pro VF Ultrapure Water System, designed to provide reliable ASTM Type 1 water for sensitive laboratory applications.



Why the Arium® System

The Arium® system appealed to JAFRAL for several reasons: its compact footprint, ease of use, and ability to produce water in the quantities required for their work. Crucially, having purified water available directly in the lab has improved time efficiency and helped streamline processes.

"It provides purified water in the quantities we need without taking up too much space," a JAFRAL representative shared. "The device is simple to operate and works well. The water quality is sufficient, and it helps minimize environmental impact, which aligns with our environmental policies."

By removing the need to transport water from other areas of the facility – or rely on external supply – the system has helped create a more efficient and self-contained working environment.

Table 1: Product water quality of Arium® Pro VF. Arium® Pro VF supports general, analytical and life-science applications for e.g.: Trace Metal Analysis, PFAS (Poly- & Perfluoro Alkyl Substances) Analysis, IC (Ion Chromatography), ICP-MS (Inductively Coupled Plasma Mass Spectrometry) LC-MS (Liquid Chromatography coupled with Mass Spectrometry), Endotoxin Analysis, DNA Sequencing, PCR (Polymerase Chain Reaction) Analysis, Blotting Analysis.

Conductivity	0.055 µS/cm compensated to 25 °C	Measured value output adjustable to 25 °C, compensated or uncompensated
Resistivity	18.2 MΩ x cm compensated to 25 °C	Measured value output adjustable to 25 °C, compensated or uncompensated
TOC	≤ 2 ppb	Feedwater < 50 ppb TOC
Bacteria	< 0.001 CFU/mL	When using an Arium® Sterile Plus final filter
Particle Content	No particles > 0.2 µm	When using an Arium® Sterile Plus final filter
Endotoxin	< 0.001 EU/mL	
RNase concentration	< 1 pg/mL	
DNase concentration	< 5 pg/mL	

Water Quality and System Functionality

The Arium® system produces water that meets the needs of analytical workflows, supporting activities where consistency and purity are non-negotiable. In addition to improving daily operations, the system aligns with JAFRAL's environmental goals by reducing packaging waste and energy usage associated with transporting or outsourcing water supply. This also aligns with Sartorius' commitment to advancing sustainable research through its portfolio of eco-conscious laboratory essentials.

The system's design also reduces installation challenges. While space is always at a premium in fully outfitted labs, the Arium® system integrates effectively without requiring major modifications to existing infrastructure.

"Having a source of water located in the lab greatly increases time efficiency over outsourcing it," they added. "We would recommend the Arium® system for its laboratory scale and convenience."

Conclusion

For organizations like JAFRAL the Arium® Ultrapure Water System provides a practical solution. By delivering highly pure lab-grade water directly where it's needed, the system supports faster workflows and contributes to a more sustainable lab environment. As demands for reproducibility and efficiency grow across the life sciences, reliable water systems remain a foundational part of high-performing labs.

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