

Imperial College London, Department of Life Sciences - multiple water purification systems for undergraduate and postgraduate research

Scientific | Case Study (Issue 5/final version/9 May 2017)

The Client

Imperial College London is one of the leading universities for Life Sciences in the UK. Located in the Sir Alexander Fleming Building, a showcase for life sciences and medical research in South Kensington and also the Sir Ernst Chain Building/Wolfson Laboratories on the main campus. Together these facilities deliver a blue print for excellence in the teaching and research of Biochemistry, Biotechnology, Cell and Molecular Biology.



Key Features

- 18 laboratory water purification systems installed
 - Type I water for molecular biology/cell culture prep
 - RO grade water for glassware washing
 - Ultrapure water for mass spectrometry & LC-MS
 - Gen lab grade for buffer & media prep
- 5 year AQUAservice contract for preventative maintenance including 24-hour response

The Client's Needs

The college needed to replace ageing laboratory water purification systems, from multiple suppliers, with a new range of advanced systems to meet the more demanding research applications of the 21st Century. The tender process identified a variety of purity requirements for the laboratories in the Sir Ernst Chain Building (where 15 systems would be installed) and the requirement for one new system in the Sir Alexander Fleming Building. The additional two units would be installed at the Silwood Park Campus in Ascot, which focuses on research and teaching in ecology, evolution and conservation.



The laboratories in the Sir Ernst Chain Building are spread over 8 floors with ultrapure Type I water systems required on 5 of those floors and pure water needed for more routine glassware washing on the ground floor. The quality and reliability of the pure water systems is very important to the college to ensure the efficacy of its academic work.

Summary

Purchasing 18 new water purification systems for a suite of laboratories is a major undertaking and it is important that the right supplier is chosen. Senior Laboratory Technician Fiona May is pleased with the result: "Veolia demonstrated through the quality, accuracy and flexibility of its standalone units that it could deliver a comprehensive solution for a wide range of applications." The AQUAservice Secure contract takes this reassurance one stage further and ensures the college has back-up for every conceivable eventuality both now and in the future.

The Solution

The researchers and students utilise a wide range of scientific techniques during their work, which requires varying quality and quantities of pure water.

To deliver a flexible and cost-effective solution for each location, Veolia recommended a package of standalone systems that would ensure each laboratory was self-sufficient for its pure water needs. For maximum convenience and to save space in busy areas, the water purification systems could be bench or wall mounted.

Overall eight PURELAB flex 2 systems with biofilters were installed to produce Type I water for the laboratories most demanding molecular biology and cell culture preparations. These advanced ultra-pure water purifiers incorporate ease of use with precision dispensing to give researchers and students the accuracy they need for their most complex applications.

A standalone PURELAB Option Q provides 15 l/hr of 18.2 MΩ-cm water, which is free from Endotoxins, RNase and DNase, for Mass Spectrometry and LC-MS. In addition to these systems, Veolia has specified two PURELAB Pulse 1 & 2s plus four PURELAB Option S 7s for general laboratory applications including buffer and media prep, Crystallography and Drosophila work. The routine machine washing of glassware requires relatively high volumes of RO grade water and this is supplied by the PURELAB Chorus 3 which can deliver up to 120 l/hr.



PURELAB Option – R 15



PURELAB Flex 2

Delivering Service Excellence

Given the importance of the water purification systems to the work of the laboratories it was crucial that new systems maintained the highest water quality standards throughout the lifetime of each system. To achieve this, the purchase of the units was accompanied by a 3-year warranty and a 5-year AQUAservice Secure contract from Veolia, which has built in proactive calibration and maintenance to ensure reliability and availability.

AQUAservice Secure is providing Imperial College with regular preventative maintenance visits by highly trained engineers to ensure the water purification systems are delivering accuracy and that all components are operating within specification. This service and support contract reduces the risk of breakdown and ensures there is no reduction in the quality of pure water. Should a breakdown occur the contract guarantees a response from Veolia within 24 hours, with all labour and parts free of charge.

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