From source to science: Veolia's end-to-end pure water solution for premier pharmaceutical facility in Paris

CASE STUDY I Scientific

| The clients needs

The Faculté de Pharmacie de Paris is a leading institution for pharmaceutical education, research and innovation. As well as training pharmacists and public-health professionals, the organisation is a major research hub for drug development, toxicology, biochemistry and environmental sciences, shaping practice and policy in France and beyond.

Upgrading the laboratory infrastructure demands precision, speed, and absolute confidence in the quality of every supporting system. At the heart of the challenge lies one essential resource: pure water. It underpins almost every scientific workflow so choosing the right purification solution, especially across multiple laboratories and applications, can be as complex as the science it enables.

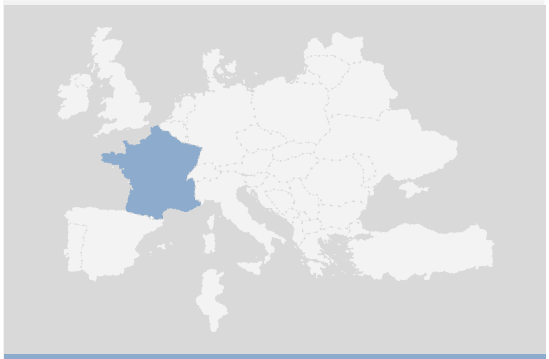
Researchers and technicians depend on stable high purity water levels for everything from routine glassware rinsing to the most demanding analytical and pharmaceutical procedures. Primary grade water keeps day-to-day operations running smoothly, whilst ultrapure water safeguards the accuracy of research projects where even microscopic impurities can skew results.

The Faculté's water purification system required a major upgrade and some specific technical and physical requirements had to be addressed as part of the installation.

Limited lab space accommodating under-bench, wall-mounted and stackable systems meant that a space-saving design with a compact footprint was a necessity.

To cater for multiple buildings and rooms, a decentralised pure water system with local storage was required. Similarly, a diverse range of activities (washing, analytical research, molecular biology and general lab work etc.) required a dedicated purification solution for each task.

Furthermore, variable incoming water quality demanded robust pre-treatment and monitoring. Hygiene and contamination control was a prerequisite, so continuous recirculation, UV treatment and a low-dead-volume design needed to be built in to minimise leftover or stagnant water that could compromise purity.



Paris, France

There were also precise water quality requirements to be consistently achieved:

- Multiple water quality grades, from reverse osmosis to ultrapure water (up to 18.2 MΩ.cm)
- Very low TOC levels (down to < 5 ppb)
- Extremely low bacterial levels (< 0.1 CFU/ml)
- Continuous quality monitoring at point of use
- Stable quality even during low usage periods, critical for research reproducibility
- Compatibility with washers, autoclaves and analytical instruments. Direct feeding of washers required integration of booster pumps and pressure management.

Meeting stringent regulatory and environmental certifications was crucial, including: ISO 3696 (Grade 1 & 2); ASTM D1193 (Type I & II); CLSI CLRW; USP & European Pharmacopoeia (EP) purified water standards and ACS (Attestation de Conformité Sanitaire) for materials in contact with water.

| The solution

Veolia specified and installed a fully integrated, multi-point pure water production and distribution system tailored to the diverse scientific and healthcare requirements of the Faculté. This comprised:

- **Purelab* Chorus 2, Chrous 3 systems**
- **Purelab* Flex 2 ultrapure water system**
- EDI, RO, UV (254 nm & 185 nm), mixed-bed resins
- Secure storage tanks and booster pumps
- Centralised and local distribution points

With proven expertise in scientific and pharmaceutical research environments led to its selection by the Faculté de Pharmacie de Paris for the ability to design a multi-technology, high-performance solution featuring modular and scalable architecture. This enables each laboratory area to receive the exact water quality required, without overspecification and with flexible capacity to adapt to future needs.

| Results

Veolia's a multi-level solution that delivers purified, demineralised, reverse osmosis and ultrapure water production with dedicated systems tailored to each individual research application. The installation delivers a consistently reliable source of ultrapure water whilst meeting stringent environmental standards and regulatory compliance.

This approach has resulted in significant improvements in a number of key areas:

- Reduced operation, maintenance and consumable costs
- Improved laboratory efficiency
- Enhanced protection of sensitive analytical processes, with improved pure water reliability minimising contamination risks
- Lower environmental impact compared to distillation-based solutions
- Full traceability of water quality data via datalogging
- High user satisfaction due to intuitive interfaces and automation

The Purelab* range, specified for the Faculté de Pharmacie de Paris, comprises a selection of innovative water purification technologies constructed from the highest quality components to ensure optimal water purity. These can be tailored to and implemented in any laboratory environment as part of a rapid yet simple sanitisation program and can be modified and expanded in line with changing work requirements.

Veolia acts as a single partner covering design, equipment, installation and lifecycle. All installations offer real-time quality assurance up to the point of use, simplified maintenance with automatic alerts for consumable replacement, as well as seamless transition from old to new equipment through Veolia's full-service support.

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