



CUSTOMER [AEMITEQ](#) is specialized in quality chemical control, offering services such as analytical testing, UV/Visible spectrophotometer calibration, pharma analysis, and technical consultancy. It is accredited for providing services in chemical quality control, adhering to national and international standards.

CHALLENGE Despite purchasing high-purity acids, the laboratory experienced inconsistent results when dealing with trace metals analysis using ICP-MS, leading to difficulties in obtaining reliable blanks and compliant results for critical analyses. Moreover, the high cost of purchasing ultra-pure acids significantly impacted the laboratory's operational expenses

SOLUTION AEMITEQ adopted the duoPUR acid purification system and it quickly became an essential part of their daily workflow, running continuously for 4-5 hours daily to produce ultra-pure nitric acid for trace element analysis, leading to significant financial savings and enhanced analytical reliability.

BACKGROUND

AEMITEQ
Associação
para a Inovação
Tecnológica e



Qualidade – is a non profit institution of public utility, founded in 1991. Based in Coimbra, Portugal, AEMITEQ serves as a technological interface center, supporting industry and the community in the fields of chemistry, environment, quality, energy, and innovation.

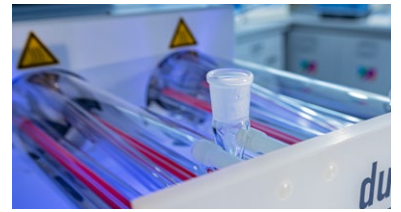
The organization specializes in quality chemical control, offering services such as analytical testing, UV/Visible spectrophotometer calibration, pharmaceutical analysis, and technical consultancy. AEMITEQ is accredited for providing services in chemical quality control, adhering to national and international standards or proprietary methodologies.

The laboratory is structured into three main units: chromatography, atomic absorption/emission, and classical chemical analysis. A dedicated UV-Vis calibration lab complements these units. AEMITEQ handles a diverse range of analytical tasks, including ICP-MS, ICP-OES and chromatography (liquid and gas).

CHALLENGE

AEMITEQ faced significant challenges in maintaining the quality of their analytical results, especially when dealing with trace metals analysis using ICP-MS. Despite purchasing high-purity acids, the laboratory experienced inconsistent

LAB PROFILE CLEAN CHEMISTRY | QUALITY CONTROL



results due to variations between acid batches, leading to difficulties in obtaining reliable blanks and compliant results for critical analyses.

Moreover, the high cost of purchasing ultra-pure acids significantly impacted the laboratory's operational expenses, with some acid batches costing between €200 and €500 per 500 ml. This financial burden, combined with the risk of unreliable results, made it clear that a more efficient and consistent solution was needed.

IMPLEMENTATION

In 2021, AEMITEQ adopted Milestone's duoPUR acid purification system, integrating it into their ICP and ICP-MS laboratory, following a need and demand for a clean chemistry strategy, not only in trace metals, but also the difficult analysis of low levels of Calcium and Magnesium in very challenging matrixes like brines.

The system was immediately recognized for its ease of use and seamless integration, operating on a "plug-and-play" basis without requiring extensive training for the laboratory staff.

According to João Gonçalo Lourenço, Coordinator at AEMITEQ, the duoPUR system quickly became an essential part of their daily workflow, running continuously for 4-5 hours daily to produce ultra-pure nitric acid for trace element analysis. The laboratory now consistently achieves high-quality, contaminant-free acids at a fraction of the previous cost, leading to significant financial savings and enhanced analytical reliability. The system significantly improved trace element analysis and reduced costs by €20,000 annually.

A testament to the system's efficacy occurred when another laboratory struggled with low-level metal detection using a different distillation system, utilized acid produced

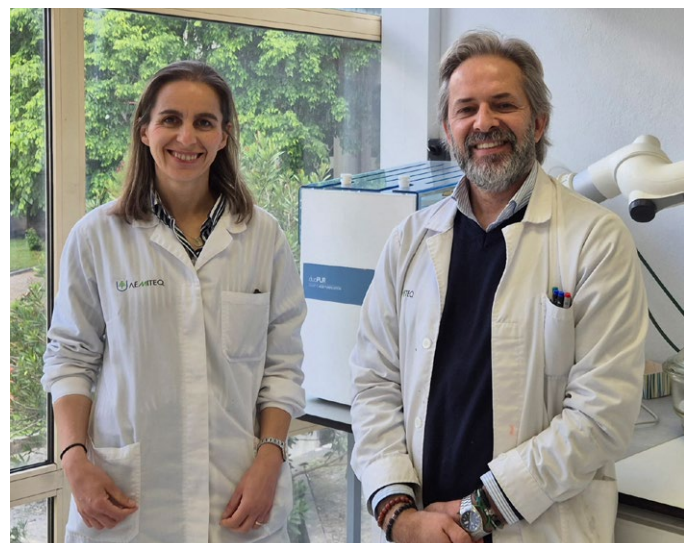
by AEMITEQ's duoPUR. The results were immediately consistent, highlighting the superior quality of acid produced by the duoPUR system.

João Gonçalo Lourenço, shared his satisfaction with the system, stating: "Extremely easy-to-use equipment. The production of ultra-pure acid is essential for our work in the determination of trace metals in pharma samples. In general, in our laboratory, production is carried out uninterrupted throughout the week, which demonstrates the robustness of the equipment. The acid produced complies with all the requirements of the monographs and analysis methodologies used, making it an extremely important part of the quality results reported. Absolutely recommended."

"Workhorse machine, Absolutely recommended"
– João Gonçalo Lourenço, AEMITEQ

CONCLUSIONS

The adoption of Milestone's duoPUR acid purification system has transformed AEMITEQ's workflow, providing them with a consistent and reliable source of ultra-pure acid while significantly reducing operational costs. AEMITEQ's team emphasized the system's robustness and user-friendly design, which allowed the laboratory to maintain high-quality results without the need for expensive commercial acids.



ABOUT MILESTONE

With over 50 patents and more than 35,000 instruments installed in laboratories around the world, Milestone has been widely recognized as the global leader in metals prep technology for the past +35 years. Committed to providing safe, reliable and flexible platforms to enhance your lab's productivity, customers worldwide look to Milestone for their metals digestion, organic extractions, mercury analysis and clean chemistry processing needs.



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H E L P I N G
C H E M I S T S

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