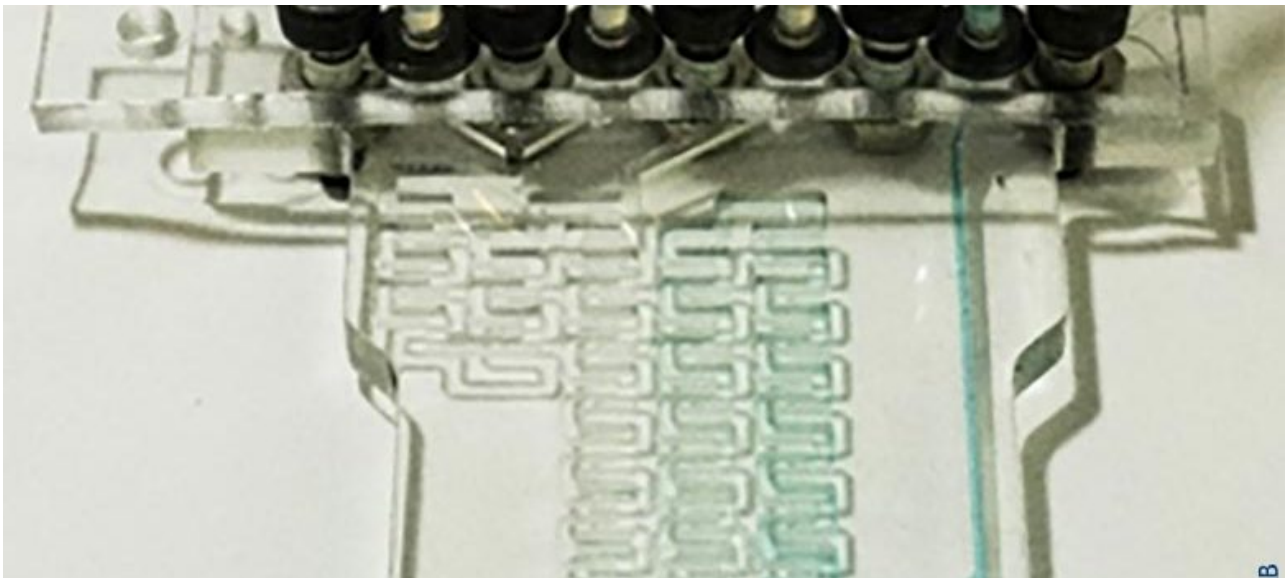




On-line Ammonium Analyzer (OLAA)



SENER AEROSPACE & DEFENSE / SPACE / ELECTROMECHANICAL SYSTEMS / DEVICES AND ELECTRONICS FOR SCIENTIFIC PAYLOADS / INTERNATIONAL

*ON-LINE AMMONIUM
ANALYZER (OLAA)*

Cliente: ESA

País: International

The On-line Ammonium Analyser (OLAA) emerged from ESA's need to have an on-line system for monitoring ammonium in the ISS in order to verify that the various water recycling processes meet the quality requirements imposed by ESA.

To this end, the goal of the OLAA project is to determine, following a feasibility study to apply in space the various techniques used on Earth, the ideal analysis technique for the on-line measurement of ammonia in the water recycled in the ISS.



The project was led by Sener Aeroespacial, which relied on contributions from the Autonomous University of Barcelona (UAB) and the University of Porto. Sener Aeroespacial was responsible for specifying the system requirements, for leading the phase to identify/select the techniques for measuring the ammonia, and for the space feasibility study, as well as for carrying out the conceptual design of the flight equipment on the basis of the ammonia monitoring technique selected.

SPECIFICATIONS

- During the study, demonstrators were developed using spectrophotometry and potentiometric methods to evaluate the viability of the analysis techniques for monitoring ammonium.
 - The best results were obtained using the potentiometric method. This analysis technique was shown able to quantify ammonium in water in a concentration range of 0.1-100mg/L, to within an accuracy of 10% and an average response time of six minutes.
 - Its feasibility in microgravity environments was validated on a parabolic flight with a rocket. Tests confirmed that the system worked correctly in zero gravity.
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