

Analytical instrumentation datasheet

Summary and figures

The Ecotron IleDeFrance offers access to a full range of instrumentation dedicated to water microbiology and biogeochemistry analysis and experimentation in one dedicated laboratory. All instruments are managed by an expert engineer who can provide guidance for the development of protocols, specific training for users and assistance for data collection and interpretation. Current analytical facilities are a two laser beams flow cytometer, a state-of-the-art continuous flow analyzer for nutrients measurement, a titration station, a double beam spectrophotometer, an ecoplate for the metabolic characterization of microbial communities as well as customized fluorometer for chlorophyll a and dissolved organic carbon quantification. Standard services include data provision according to the users' need and our fees include all standard consumables and data delivery products.

Figure 1. Photographs of some analytical facilities including (from top to bottom, and left to right) the flow cytometer, the compact titration station, the double beam spectrophotometer, the segmented flow auto-analyzer and the ecoplate.



Specification table of the analytical instrumentation facility at Ecotron IleDeFrance

Aquatic microcosms - Ecotron IleDeFrance	
Flow cytometer	
Model	Thermofisher Scientific - Attune NxT
Characteristics	Two excitation lasers: 488 nm and 635 nm. Detection of 5 colours of fluorescence and of the size and granularity of particles ranging from viruses up to 50 µm cells. Absolute count and autosampler for multi-wells plates available.
Operation	Average 50 samples/day in manual mode, and 500 samples/day in auto-sampler. Calibration is specific of each series of samples. Analysis settings have to be determined before each sample series.
Datasheet	https://www.thermofisher.com/us/en/home/life-science/cell-analysis/flow-cytometry/flow-cytometers/attune-acoustic-focusing-flow-cytometer.html
Compact titration station	
Model	Metrohm - Titrino
Characteristics	Acid/base, redox, precipitation, and compleximetric titrations. Sample changer for up to 11 automated measurements/
Operation	Average 60 samples/day. Calibration with two electrode solutions required at the beginning of each day.
Data sheet	http://www.metrohm.com/en-us/products-overview/titration/titrino-plus/product-filter/
Double beam spectrophotometer	
Model	Analytik Jena - Specord 200 PLUS
Characteristics	Double beam, adjustable wavelength, standard measurement of optic density of natural samples, and of dissolved elements in fresh and seawater
Operation	Average 20 samples/day + 4-6 calibration standards. Standards need to be prepared analytically immediately before each analysis session
Data sheet	https://www.analytik-jena.de/en/analytical-instrumentation/products/uvvis-spectrophotometers/double-beam/specordr-plus.html
Continuous segmented flow analyzer	
Model	SEAL AA3 HR
Characteristics	Six analysis modules allowing the simultaneous analysis of nitrites/nitrates, phosphates, ammonium, silicates, total nitrogen and total phosphorous
Operation	Average 180 samples/day + 6-20 standards and reagents that need to be prepared analytically just before the analysis
Datasheet	http://www.seal-analytical.com/Products/AA3HRAutoAnalyzer/tabid/59/language/en-US/Default.aspx
Ecoplate	
Model	BIORAD - iMark Microplate absorbance reader
Characteristic	Wavelength range: 400-750 nm for different application such as microbial metabolism analysis, ELISA and protein assays
Operation	Up to 20 96-wells plates/day and no need of special solutions or chemicals.
Datasheet	http://www.bio-rad.com/fr-fr/product/imark-microplate-absorbance-reader?ID=58cca7aa-d943-4e32-9bea-0fe5d140fb9e