Respirómetro BM-Advance Pro2 for Societá Metropolitana Acque Torino (Italy)

BM-Advance Pro2

The Societá Metropolitana Acque Torino (SMAT) has purchased from Surcis a BM-Advance Pro2 laboratory breathalyser.

This respirometer will be destined to the SMAT Research Centre Laboratory, which is directed by Pr. Marco Simonetti, who is also a distinguished Professor at the Politécnico de Torino, with several important publications in various media related to wastewater treatment.

Headquarters of the Metropolitan Water Company of Turin

SMAT Research center

The new Research center is one of the main European references in the field of research and control of the integral water cycle:

The research activity is mainly devoted to projects on the following topics:

- Drinking water and wastewater.
- Chemical and microbiological treatment and organoleptic quality of drinking water.
- Monitoring the quality of water resources.
- Innovative devices and materials, which are often studied jointly with universities, organisations and large companies.

This Centre consists of three modern laboratories: Biological Laboratory for drinking water, Chemical Laboratory for drinking water and Bio-Chemical Laboratory for waste water (which is where the BM respirometer will be installed)

SMAT Research center SMAT

In this Centre, the quality control activity in drinking and waste water consists of some 42,000 samples analysed annually and more than 600,000 parameters determined.

An important feature of the SMAT Research Centre is its connection with different organisations, institutes, universities and other groups: University of Turin, Politecnico di Torino, Politecnico di Milano, University of Genoa, University of Brescia, University of Rome, Sperior Institute of Health, Federutility, AMGA Research Foundation, EUREAU, Hydroaid, Veolia, AWWA Research Foundation (USA), Centre for Advanced Water Technology (Israel), Whuan University (China), Luoyang University (China), Shenznen University (China).

With the intervention of the Research Centre, SMAT was selected to supply drinking water to the International Space Srtation (ISS), which is supported by the Aerospace Agencies of the United States, Russia and Europe.

BM-Advance Pro2 purchase

The purchase of this respirometer was obtained thanks to the direct relationship of Surcis with Pr. M. Simonetti.
The interest in the purchase of a top-of-the-range BM-Advance2 type BM-Advance2 respirometer was born with the probable relationship of a SMAT team with the company A2A Ciclo Idrico (Italy), which has been working with a BM-Advance2 type BM-Advance2 respirometer since 2021 and which received an excellent opinion from the people who use this equipment in the laboratory.

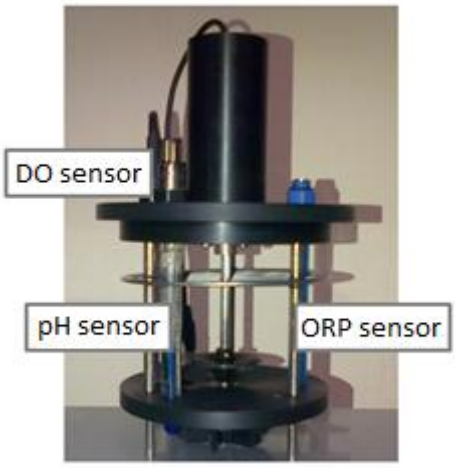
Another key factor in this acquisition is the important technical support that Surcis offers to its customers on a permanent basis, who can send the test files to the Respirometry specialist for review and interpretation of the results, and of which SMAT was duly informed by A2A.

The BM-Advance Pro2 respirometer

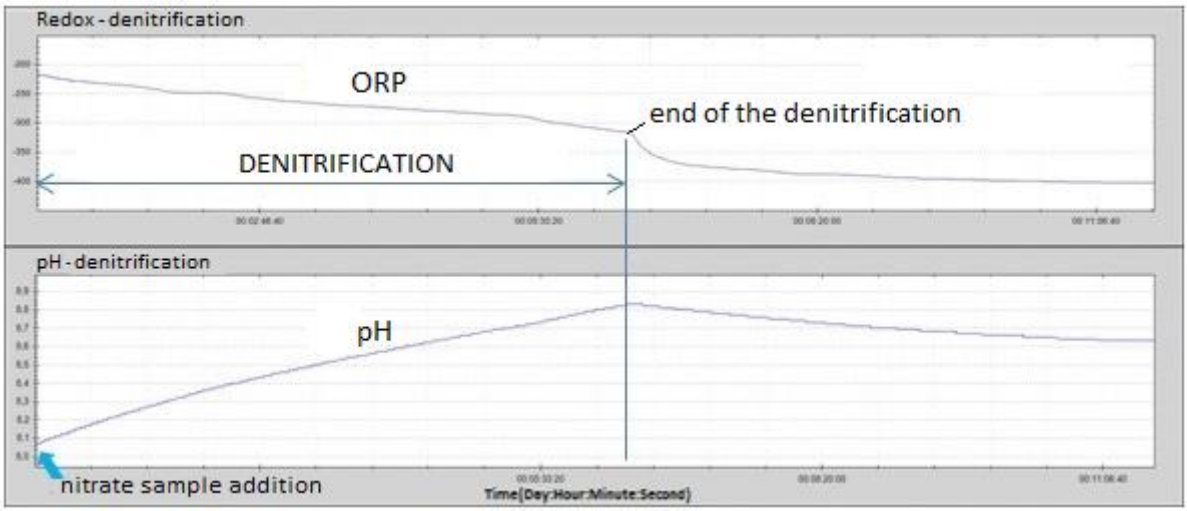
It is the newest and most advanced model of the BM-Advance series of dual reactor respirometers at Surcis.

The BM-Advance Pro2 is specially designed for research in wastewater treatment and resource recovery technologies. For this purpose, the BM-Advance Pro2 is equipped with significant software resources that allow it to address all applications with full flexibility to test under different conditions and, if required, to change them during respirometry tests.

As with the BM-Advance Pro (single reactor), it is the only model in the Surcis BM line of respirometers that, in addition to dissolved oxygen (maintenance-free) and pH, includes ORP monitoring. In addition to aerobic respirometry applications, this capability allows it to address anoxic (e.g. anoxic denitrification) and anaerobic processes by monitoring the evolution of the redox potential.



Detail of the dissolved oxygen pH and ORP sensors in the BM-Advance Pro2 reactors



Simutaneous respirograms of ORP and pH during anoxic denitrification

Like the rest of BM Breathalysers, the temperature and pH control is fully automatic.
The software also allows the programming of sample volume, sludge volume, solids, recirculation, aeration and others.

Thanks to this high settings program capacity, the system is able to address a wide range of parameters and applications.

Main applications

- Oxygen requirement and energy optimisation
- COD fractionation and activated sludge-specific biodegradability
- Activated sludge toxicity: global and specific to nitrification
- Optimisation of operational parameters in the context of energy savings
- Nitrification: Nitrification rate (AUR), Oxygen and Minimum sludge age for nitrification
- Denitrification: Nitrate Removal Rate (NUR), COD for denitrification
- Influence of conditions (pH, Temperature, DO, Operational parameters) on biological activity and treatment capacity
- Bioaugmentation monitoring
- Analysis of the nutrient ratio (C/N/P)
- Stoichiometric and kinetic parameters
- Respirometry for MBBR and granular biomass processes
- SBR process cycle times
- Support to simulation programs such as GPS-X, BioWin, ...
- Other ....

On the other hand, as it is an open system, the user is given sufficient capacity to be able to design his own applications specifically to his needs (with the support of Surcis).

Surcis respirometers in Italy

With this new respirometr for this important group, there are now eight Surcis BM units in Italy, a country where Surcis equipment seems to be acquiring a very positive reputation and where the market is offering good prospects for the future.

This BM-Advance Pro2 joins the multifunctional Surcis BM systems already installed in several institutions, universities and wastewater treatment groups, both nationally and internationally, where municipal and industrial wastewater treatment systems are being investigated and evaluated.

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