aquaBio analyzer

Adasa Sistemas S.A.U.

DESCRIPTION:

The aquaBio analyzer is designed for the automatically determination of *Escherichia coli* and total coliform in water. The measuring principle is based on the technology of DST® (defined substrate technology), and a detection system for measuring fluorescence and absorbance.

Colour and fluorescence appear as soon as the specific substrate is being metabolized. The *E. coli* and total coliforms determination is based on the correlation between bacteria concentration, and at the time that the fluorescence and / or colour appear.

APPLICABILITY AND PRE-REQUISITES:

E. coli is a bacteria widely used as an indicator of faecal contamination. Its presence, warns of a potential sanitary risk. This aspect is reflected in the Directive 2006/7/EC on the quality of **bathing water**. The *Escherichia coli* and total coliform parameters are also key indicators and essential for determining the potential uses of **reclaimed water** from the tertiary treatment of a WWTP.

BENEFITS

Increasing the ratio of water reuse in EU, this challenge is one of the key priorities for the EC in the upcoming years, as well as ensuring the health and environmental safety of water reuse practices and the free trade of food products. Nevertheless, this priority faces several barriers that prevent the adoption of the reclaimed water for different uses: agriculture, urban, industrial and recreational.

In this context, the online monitoring of microorganisms with aquaBio can provide the following benefits:

- Early warning in case of the water reclamation plant malfunctioning.
- Efficient production of reclaimed water, avoiding overdosing of disinfection chemicals and excess of UV power consumption.
- Production of fit-for-purpose reclaimed water, according to the intended water quality for the reuse in irrigation of vegetables, wood crops, golf courses or other industrial uses.

ADVANTAGES AND DISADVANTAGES:

• Simultaneous measurement of *Escherichia coli* and total coliforms.

• Calculation of NMP in 3 h for highly contaminated water.
• Reduced maintenance.
• Flexible Programming.
• Capacity of integration with local controllers, transmission to a control centre, and for sending alarms.

OPERATION AND MAINTENANCE:

aquaBio can be programmed daily at a concrete time or the analysis can be done consecutively, providing a graphic representation of the cumulative values. Data can be transmitted to a control center automatically for analysis and exploitation. In parallel, it performs the local operation of the measures, it is capable of

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sending alarms to other equipment or control networks.

The analyser is completely autonomous during 15 days. And it takes less than 1 hour to do the maintenance. These interventions are limited to fortnight reagent replacement and, on a monthly basis, a semi-automatic cleaning is performed.

CONTACT

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COSTS

Price of the analyser: 23,325 €.

Cost of maintenance for 1 year: 2011.46 € (one analyse per day).

REFERENCES:

The analyser has been developed in the framework of following R&D projects:

- Safebeach: Automatic information system for the monitoring of beach water quality. 2003. Project funded by CDTI.
- Safecoast: Coastal water quality monitoring system . Project Nº 04-0182.2004-2005. Funded by CDTI.
- HE0703 Rapid bacteriological monitoring of bathing water quality. CIRSEE.

The aquaBio prototypes were tested in:

- Guadiana River Basin (Spain) in the Benavides quality station, as a bathing waters case.
- In the outlet of the secondary treatment at Girona WWTP, as a water reuse case.

Within the R3Water project, the aquaBio analyser is demonstrated in **Castell d'Aro (Spain)** (175,000 P.E., 35,000 m^3/day, with 15,000 m^3/day production capacity for reclaimed water), and in **Hammarby Sjöstadsverk (Sweden)** (IVL testing facility), in both cases for the monitoring of reclaimed water.

For more details about the demonstration sites, please visit: http://r3water.eu/demonstration-sweden/ and http://r3water.eu/demonstration-spain/

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