

The customer application

Laboratoire d'Analyses des Eaux des Yvelines, Versailles, France: Integration of a turbidity meter into a completely automated water analysis system



The completely automated water analysis system in the Laboratoire d'Analyses des Eaux des Yvelines.



The flow-through cell of the Hach 2100AN IS Turbidimeter.



Ms. Piel's laboratory personnel, represented here by the technician Amélie Thomas, are happy about the labor-saving system.

Introduction

The **Laboratoire d'Analyses des Eaux des Yvelines** is one of the most important laboratories for checking the water quality in the Versailles area. Apart from the standard drinking water samples, foodstuffs as well as samples from swimming pools and industrial waters are analyzed and evaluated. For more than 20 years these determinations have been carried out day after day. In order to cope with the ever-increasing number of samples in the field of drinking water analysis and determine as many parameters as possible with a single system, the laboratory manager, Ms. Piel, decided to evaluate an automated solution. In 2003 she therefore contacted Metrohm France.

The automated water analysis system in detail

The analysis system consists of a 730 Sample Changer, a 719 SET Titrino, a 712 Conductometer, Metrodata TiNet 2 software and a turbidity meter from Hach Company (Hach 2100AN IS Turbidimeter). 16 x 120 mL samples can be analyzed in a single run.

In addition to the well-proven determination of the standard parameters pH value, conductivity and alkalinity, the chief concern was to integrate the existing turbidity meter into the automation system, so that the turbidity of the sample could also be determined quickly and efficiently, as this parameter is nowadays used in many water laboratories for assessing the water quality.

The cuvet used as standard with the turbidity meter was replaced by a flow-through cell obtained from the manufacturer. This meant that connecting the instrument to the Metrohm automation system caused hardly any additional costs. Using peristaltic pumps, for example 772 Pump Units, the flow-through cell is first rinsed with a total of 60 mL sample solution. The subsequent turbidity measurement is then carried out on the stationary sample, in order to reduce the influence of air bubbles to a minimum. Before the measured value is accepted and documented, it must satisfy the specified stability criteria. For this check and the subsequent transfer of the measured value to the database, a special TiNet program is used together with a Visual Basic application. As the measuring data is stored in a common database, the user always has an overview of all the sample parameters that have been determined.

Summary and preview

The automated analysis system has been operating in the Laboratoire d'Analyses des Eaux des Yvelines since September 2003. The extremely positive experiences with it have led to the installation of a further 13 water systems with turbidity measurement in France.

Since the introduction of the innovative *tiamo*[™] control and database software it has been possible to do without the Visual Basic program mentioned above. Third-party instruments that are equipped with a serial RS 232 interface can now be controlled and integrated into a Metrohm automation system without any problems. This means that it is possible to make systems like the one described here even more simple, compact and customer-friendly.