Case Study: Improved Data Management

SL1000 for Improved Data Management

Problem

A public laboratory, which tests drinking water experienced problems managing data from two instruments used to conduct a full panel of testing. Current sample ID lists were complex to create, delete, or export. These challenges add time to the overall process and create opportunities for user error.

Solution

The Hach® SL1000 Portable Parallel Analyser™ (PPA) consolidates water analysis tests and offers rapid, real-time results as well as tools for data logging. Technicians can test four colorimetric and two probe-based measurements simultaneously using the same water sample.

Benefits

The SL1000 offers better tools for data management, saving time and reducing the potential for errors. Furthermore, the SL1000 consolidates multiple water analysis tests, previously executed by two testing instruments, into a single device.

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Background

La Drôme Laboratoire is one of the leading laboratories in France conducting analysis in hydrology and environment, in food safety and in biology. With around 100 employees, La Drôme Laboratoire serves both public and private sectors with drinking water sample analysis, consulting and education. In 2016 they increased their analysis by 8%.

La Drôme Laboratoire works with several government agencies in South-East France. In doing so they must fulfill COFRAC requirements for onsite measurements of chlorine, pH, redox, oxygen, conductivity and temperature. COFRAC is the French accreditation required when working for government agencies. One of these agencies is the Rhone-Mediterranean and Corsica Water Agency, which requires onsite measurement, sampling and laboratory analysis.

To execute this job, La Drôme Laboratoire employed six field technicians to make sampling and on-site measurement using two instruments: a photometer with DPD reagents for total chlorine, and a portable meter for pH, conductivity, redox and oxygen. Including spare equipment, they have 10 photometers and 10 portable meters for pH, conductivity, redox and oxygen.

After a day of on-site measurements, the team records their readings back at the office. Technicians encountered common problems that stem from managing data sets across multiple device types. These problems added time to their overall process, create situations for user error, and made data management exceedingly difficult.

Problems include:

- Technicians found it hard to manage data with the portable meter.
- Sample ID lists were complex to create, delete, or export.
- Exporting data was not easy or timely.
- It was impossible to export data from the photometer and to track production numbers with DPD powder pillows.

Solutions & Improvements

La Drôme Laboratoire, which relied on two testing instruments, implemented the SL1000 Portable Parallel Analyser™ (PPA), which replaced a photometer with DPD reagents used for testing total chlorine, and a portable meter used for testing pH, conductivity, redox and oxygen, thus streamlining data management to a single device. The Hach SL1000 offered rapid, real-time results as well as tools for data logging in a single hand-held device, allowing users to easily import and export data. The SL1000 allowed personnel to run four colorimetric and two probe-based measurements at the same time using one water sample, including result traceability for chlorine, pH, conductivity, and oxygen.



SL1000 with Chemkeys and Probes attached



Chemkey reagents

Available Parameters

- Copper
- Total Chlorine
- Free Chlorine
- Monochloramine
- Nitrite
- Total Ammonia
- Free Ammonia
- Dissolved Iron
- Low Range Total Alkalinity
- High Range Total Alkalinity
- Low Range Orthophosphate
- High Range Orthophosphate
- Low Range Hardness
- pH
- Fluoride
- Zinc
- High Range Manganese

Available Probes

- Standard Conductivity
- Nitrate (ISE)
- Rugged Dissolved Oxygen (LDO)
- Dissolved Oxygen (LDO)
- Ultra Refillable pH Electrode
- Standard Gel Filled pH Electrode

New parameters will continue to be added to the platform.

To conduct a test, the user inserts the Chemkey™ reagents and probes into the device. The user then dips the Chemkeys into the sample cup and shortly thereafter the SL1000 displays the reading for each test. In addition to reduced test time, sample results experience reduced variability because the SL1000 performs the same test with less than half the manual steps compared to other methods. To collect data, technicians connect the SL1000 to their computer and export the Excel file to their laboratory information management system. This process reduces mistakes and saves time, because all their data can be exported in the same file.

Conclusion

One Tool for Multiple Tests

La Drôme Laboratoire encountered common problems that stem from managing data sets across multiple device types. These problems added time to the technicians' overall process, created situations for user error and made data management exceedingly difficult.

The SL1000 performs multiple standard tests and make data management easy. For a company that conducts testing with teams of technicians, standardizing on one device removes the hassle of training, maintenance, and the added cost of multiple instruments. In addition to reduced testing time, sample results benefit from reduced variability because the SL1000 performs the same tests with less than half the manual steps compared to other methods.

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