Laboratory software

Enhanced lab data insights

Introduction

Laboratory information management systems (LIMS) such as Thermo Scientific™ SampleManager™ LIMS provide scientists a pragmatic way to get actionable insight from existing lab data. The Data Analytics Solution in SampleManager LIMS includes a set of pre-configured dashboards, providing key business and laboratory insights on resource availability, stock information, location status and lab performance. The dashboards are designed to add context to the lab's data and deliver clear insights to make accurate informed decisions.

Managing laboratory resources

The instrument dashboard generates an up-to-date picture of the lab's overall instrument usage. The identification of underutilized instruments can lead to space optimization, energy savings, and eventual recuperation costs if correctly identified. The instruments dashboard will help laboratories in identifying the key metrics on instrument usage.

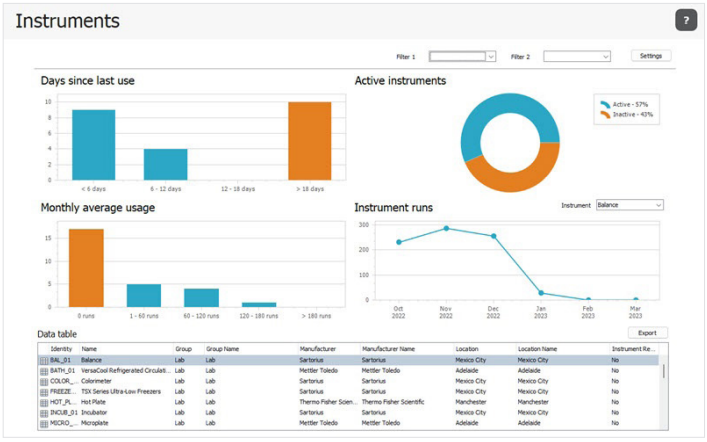

Figure 1. Instruments dashboard

The laboratory compliance dashboard provides users with updated information about the instruments, stocks and personnel status. It facilitates the timely maintenance and calibration of the laboratory equipment, the efficient usage of the stock batches by monitoring the expiration dates, and aids in the compliance of scheduled personnel trainings.

Figure 2. Laboratory compliance dashboard

Reagent and consumable management

The Data Analytics Solution features enhanced stock management capabilities. The stock overview dashboard displays the resources availability, including reagents and consumables. For larger sites, the stock overview dashboard can show stock levels across multiple locations. This visibility helps staff intelligently source and reallocate supplies as needed. Tracking supplies using the stock overview dashboard supports improved understanding of stock usage and distribution, resulting in better equipped labs. An effective stock overview dashboard drives advanced procurement, enabling the business to accurately plan and spend only on resources which are required when and where they are needed.

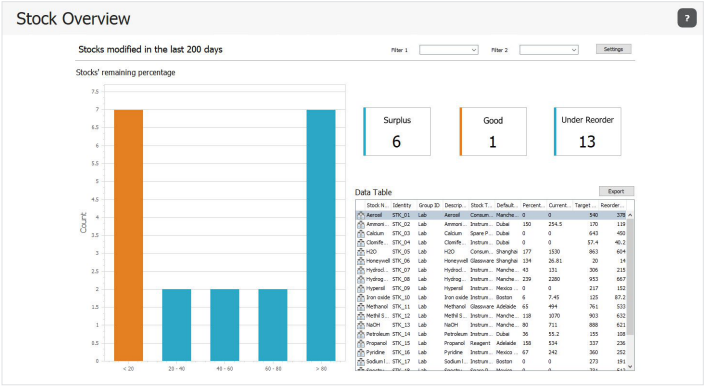

Figure 3. Stock overview dashboard

Location insights

All the dashboards have the capability to aggregate the data at the location level. They provide the visualization of key statistics and indicators per site, specifically the location and their associated test results. For a selected location or sampling point the location is displayed and the user is provided with interactive views to:

- Show updated results as each location is selected
- View multiple analyte results by a sampling point
- Filter to show results over a specified time period

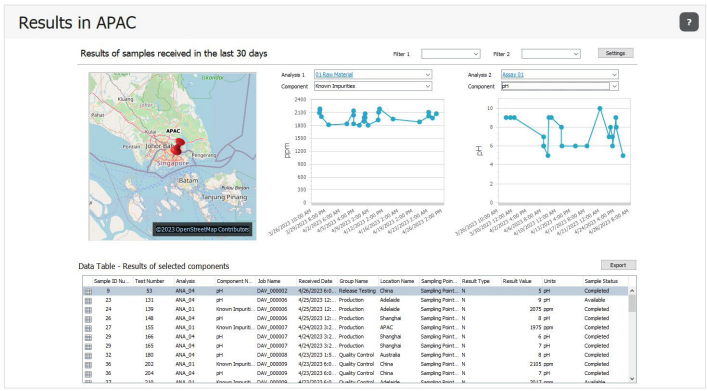

Figure 4. Results in APAC dashboard

Laboratory performance dashboards

Lab performance dashboards in the Data Analytics Solution display key performance indicators such as the volume of samples at different stages of a process, percentage of on-time analyses, or average time taken at each stage. The volume of incoming samples can also be used to enable resource planning and allocation as new work comes into the lab. This information helps instantly identify process bottlenecks, so issues can be investigated and resolved quickly.

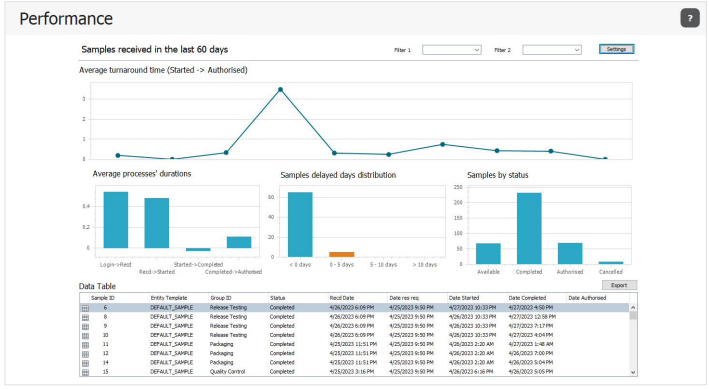

Figure 5. Lab performance dashboard

Sample times dashboard

The sample times dashboard provides a breakdown of cycle time by laboratory group over the specified number of days (e.g., last 60 days). At a glance, a laboratory manager can determine how efficiently each lab group is functioning. This dashboard provides the data necessary to determine whether lab resource adjustments are needed to meet the manufacturing demand. Knowing the number of samples that the department tested in a quarter aids in planning of both resources and materials. Using the sample time dashboard ensures staffing is adequate for routine operations and helps predict bandwidth for upcoming projects and volume fluctuations.

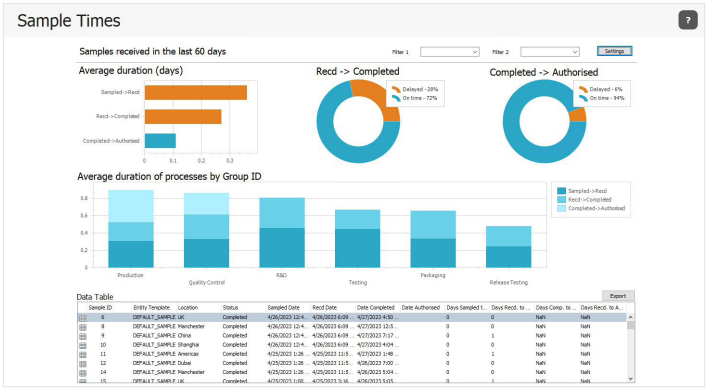

Figure 6. Sample times dashboard

Job backlog dashboard

The job backlog dashboard highlights jobs where all associated samples and testing have not been completed and authorized by the assigned due date. A job's due date is set to maintain the product release schedule. Having this information readily available allows for removal of systemic roadblocks and completion of investigations to support on-time product release.

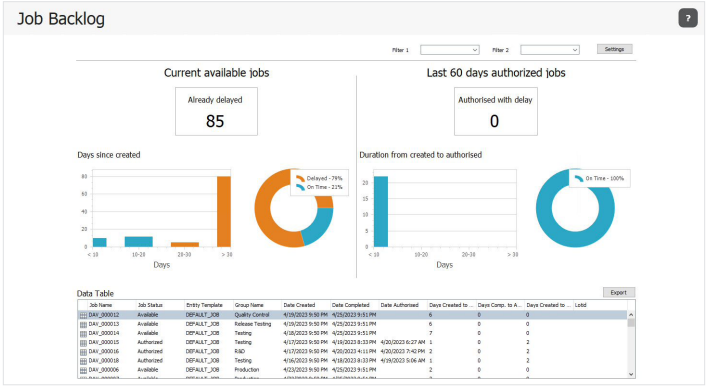

Figure 7. Job backlog dashboard

Sample status dashboard

The sample status dashboard provides a breakdown of the samples within the laboratory and their current status (received, completed or authorized). These metrics showcase the efficiency and predictability of the laboratory while highlighting opportunities for improvement within the laboratory testing and approval process.

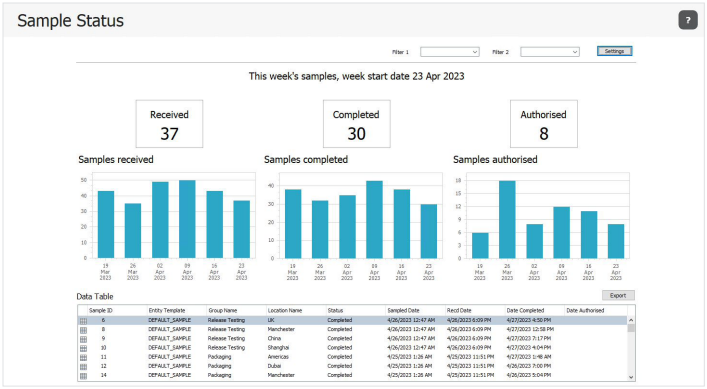

Figure 8. Sample status dashboard

Retests dashboard

The retests dashboard allows the laboratory to follow important metrics, and disaggregate them by different groups such as analysis, personnel, and instruments providing information that can point to the cause of the retest and thus lead to an efficient retests process. Maintaining an efficient retest process ensures accurate results, streamlining operations and enhancing productivity. Retests are a cause for inefficiency in the lab as each test incurs in a raise in the overall costs.

Figure 9. Retests dashboard

Incident control dashboard

The incidents dashboard offers comprehensive analytics about incidents occurring in the lab, in real-time. This enables users to identify recurring issues, pinpoint root causes, and implement proactive measures to prevent similar incidents from taking place again in the future. This data-driven approach helps improve the overall quality and safety of laboratory procedures, fostering a culture of continuous improvement.

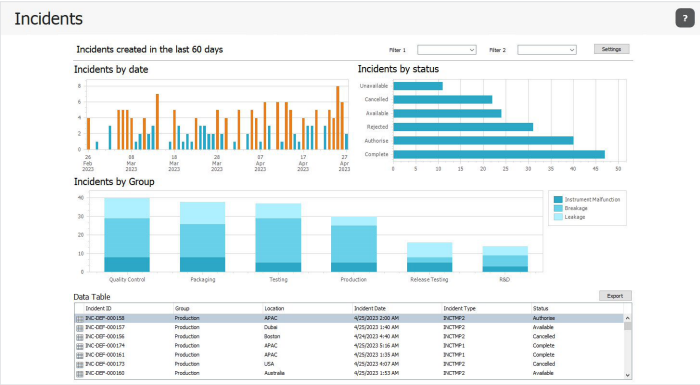

Figure 10. Incident control dashboard

Gaining insight and taking action

In addition to the pre-configured dashboards in the Data Analytics Solution, any data stored in SampleManager LIMS can be displayed using graphs, charts or tables and collated together in dashboards to provide relevant information to key stakeholders. This data has the potential to further inform and advance the business using **Artificial Intelligence or Machine Learning to drive deeper insight**.

Tools like the Data Analytics Solution in **SampleManager LIMS software** provide a practical way for laboratories across all industries to get more from their data. To learn more about the **Data Analytics Solution** reach out to our experts.

Learn more at **thermofisher.com/dataanalytics**