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A Guide to Lab Inventory Tracking & Management Software

How to Choose a Laboratory

Information Management System
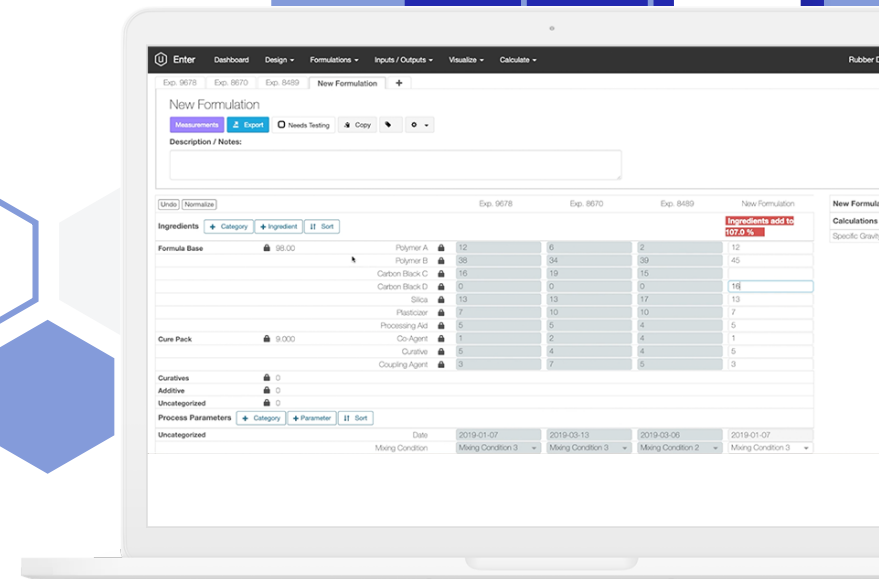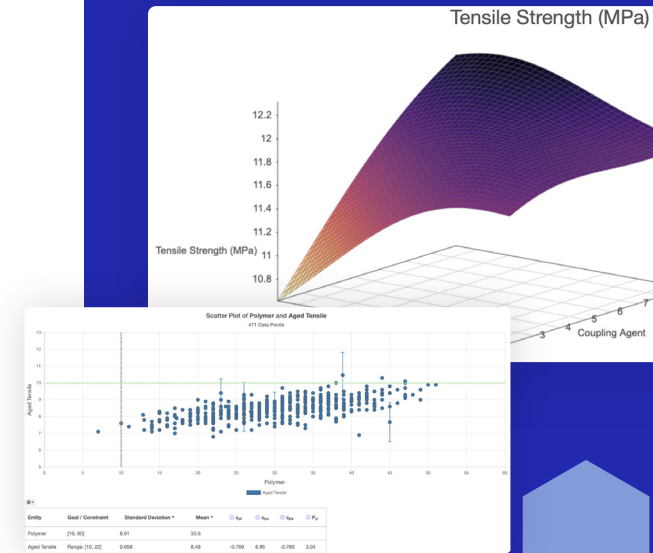
GUIDE

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Introduction

As the pace of innovation continues to accelerate, more companies are investing in technology that speeds up development, increases operational efficiency, and informs fast decision-making at the executive level. In an era where machine learning and scalable data infrastructure can affordably be woven into every department's toolset, R&D teams must join this movement and leave outdated, manual processes behind for good.

Most materials labs want to do more efficient research and get competitive products out faster. However, they can only improve so much while using the same tools they've been using for years. Teams still recording experiment data in assorted notebooks, spreadsheets, and legacy systems must standardize and streamline their workflows if they want to remove the bottlenecks that slow down product development.

The good news is that there are digital tools that are designed to support exactly this. They're called lab information management software (LIMS) solutions. With an LIMS in place, research teams can move considerably faster than competitors that still rely on old-fashioned workflows — enabling them to conduct better research faster and get new products to market in less time.

Common problems and challenges with lab inventory management

Historically, labs have relied on paper tracking systems to manage inventory levels. Many legacy enterprises are still using these same traditional methods today, letting paper-based processes and manual workflows guide their R&D efforts — which makes R&D needlessly more complicated. Not only is it impossible to standardize research data and methodologies with this approach, it's difficult to collaborate effectively, as colleagues lack visibility into each other's work. Tracking inventory levels in real time or knowing where a certain material is at any given moment is also out of the question.

In addition to lending itself to human error, this approach can cause aggravation as researchers scramble to track down documents and items they misplaced. Paper documents can also be stolen, which could lead to a loss of trade secrets and other privacy concerns.

Some research teams found a slightly better path forward by moving away from paper-based systems, relying on programs like Excel and Google Sheets to get the job done. While these approaches may be a step up from a pad and paper, they leave much to be desired. For example, organizations that use either of these tools are often derailed by the lack of collaboration and standardization that come with them.
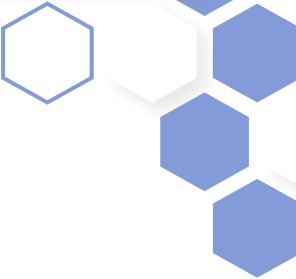
To overcome the challenges associated with all of these approaches and keep up with a world that moves faster every day, today's leading R&D teams are increasingly investing in modern lab information management solutions, or LIMS, that include the ability to manage inventory. Purpose-built to support research processes across many scientists, locations, and projects, these tools retain the core functionality of earlier solutions while speeding up workflows immensely.

What is lab inventory management?

LIMS systems are digital lab information management solutions that enable researchers to manage inventory in real time, keep track of their work, and bring more efficiency to their experiments. When we talk about lab inventory management, we're referring to a specific feature of any good LIMS (since a LIMS may also include capabilities for capturing experiment outcomes and collaborating with scientists across the organization).

At a core level, LIMS solutions enable research teams and scientists to efficiently collect, organize, and share data from lab experiments in a way that accelerates materials development and gets new products to market faster. By consolidating all relevant data in one central platform — accessible via any device, including a smartphone — researchers generate a digital footprint for each experiment, quickly access and analyze findings, and understand which materials are relevant to each.

Lab inventory management is one of the biggest value drivers of a LIMS. This feature provides visibility into and control over inventory levels, ensuring researchers have the appropriate materials and supplies on hand to continue moving groundbreaking research forward. For each purchase of raw materials, inventory relocation, or experiment, inventory is updated to reflect the remaining quantities and upcoming orders needed.

Popluar laboratory inventory management options

Not every solution is the same, which means that choosing which inventory management system to go with is a major decision.

While the right system will speed up your efforts and help your organization operate more efficiently, the wrong solution can lead to errors and waste that extend research timelines and slow down go-to-market strategies.

With that in mind, here are five different types of laboratory inventory management solutions research teams are using today.

● Pen and paper

'The pen-and-paper approach to inventory management is the easiest and most affordable. All you need is some ink and a notepad, and you're good to go. But if you want to standardize data or expect your team to collaborate effectively and operate with any sense of agility, this solution will not meet your needs. Plus, paper can easily get misplaced, stolen, or thrown away — stifling productivity at best and making you reinvent the wheel at worst.

● Excel or local files

Moving to Excel or a comparable program that lives on a desktop is certainly a move in the right direction. But in the event a file gets corrupted, all of your data is lost, and you have to start from square one. Excel also isn't built for scientific workflows. While you might be able to make a laboratory inventory management system work in Excel, it's certainly not the best tool for the job — particularly as your organization starts to scale.
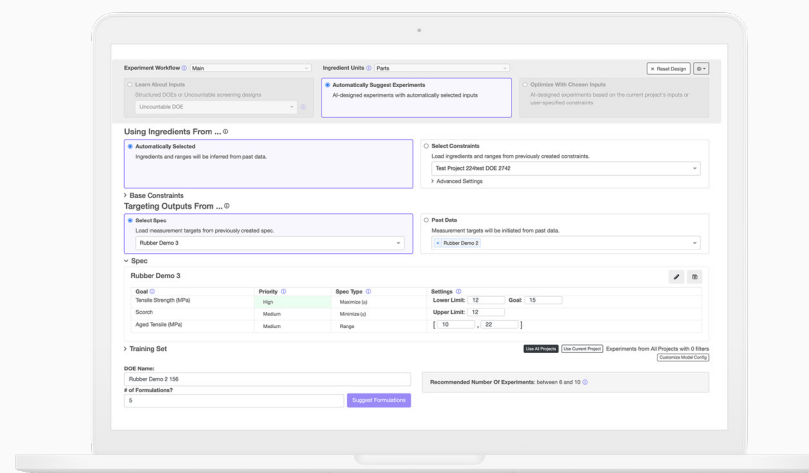
Google sheets

Moving on from Excel, we arrive at Google Sheets, the cloud-based implementation of the previous solution. Thanks to the cloud, your data is persistent, and it's easy to share and collaborate on research and data assets. But like Excel, Sheets isn't built for scientific workflows. It is also known to struggle when it comes to delivering high performance with data-heavy workloads.
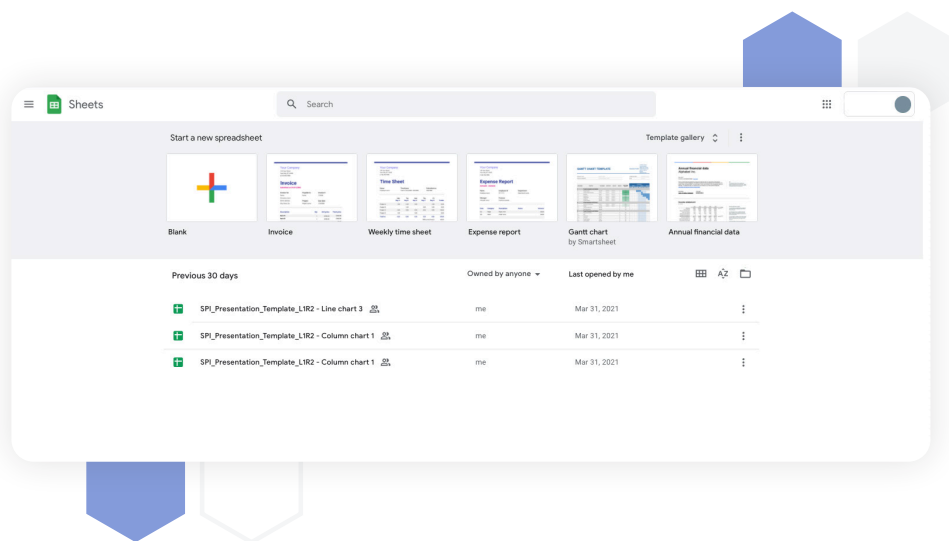
Enterprise-grade LIMS solutions

Because tracking lab inventory and research is so important to the R&D function's success, more and more shrewd organizations are investing in purpose-built LIMS solutions designed specifically to support scientific workflows on a highly secure, cloud-based platform. This streamlines collaboration across cross-functional teams, giving all authorized individuals access to real-time and historical data through a user-friendly interface. Researchers will always know where inventory levels stand at any point in time, helping them keep projects on track. Add it all up, and leading LIMS systems enable research teams to supercharge productivity and maintain a single source of truth while ditching paper and spreadsheets forever.

As we mentioned before, a LIMS does more than just inventory management. In the next section we'll turn our attention to some of the main features of modern LIMS solutions, including those related to inventory and those that tie together the entire R&D process.
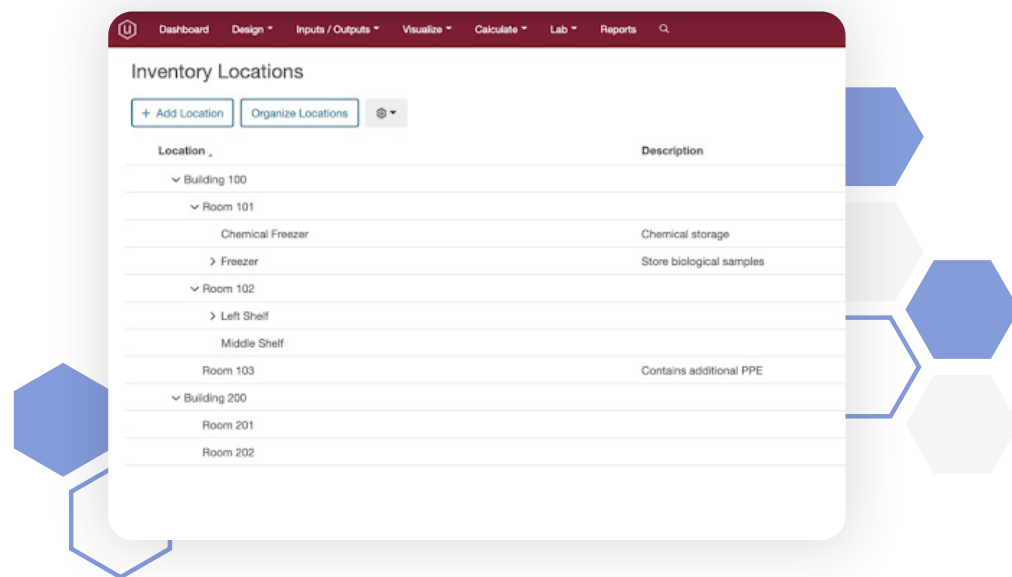
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The features and benefits of a modern lab inventory management system

Uncountable customers can drill down into specific locations to easily track where inventory is held and see which locations need to restock soon.

There's a reason the LIMS market is expected to grow [70 percent over the next five years:](#) the technology delivers a number of benefits to researchers across all disciplines. Not all enterprise LIMS are created equal—the best are powerful and flexible to support organizations that need to quickly adapt as their markets and customer needs evolve. Let's look at some of the defining features of a modern, enterprise-ready LIMS.

● Real-time monitoring of laboratory resources and equipment

Leading LIMS platforms are highly searchable and also incorporate regulatory and pricing information from existing systems. They can track granular details on inventory locations, organizing them by lab and specific location.

This data must be available in real-time as well as be easily searchable for users who need historical data. This allows lab managers to ensure compliance and manage budgets effectively while ensuring that proper inventory levels are always maintained. These reliable inventory management features help researchers avoid unexpected delays from missing inventory and get their final results faster.

Visibility into experiment and inventory data on the same platform

A modern LIMS should platform connect experiment and formulation data from across the organization with inventory for a full picture of expected inventory at any time. This functionality can be viewed as combining the best features of an [electronic lab notebook,](#) that keeps detailed notes on formulations and experiments, with a lab inventory system that tracks equipment and ingredients.

The integration of these traditionally separate types of data means a LIMS can automatically deduct inventory based on experiments currently being run, or reserve it based on upcoming lab requests. This eliminates the tedious task of manually updating inventory each time it is used within an experiment.

Uncountable users don't need to worry about manually updating inventory when they run an experiment. All of the data is connected on the platform.
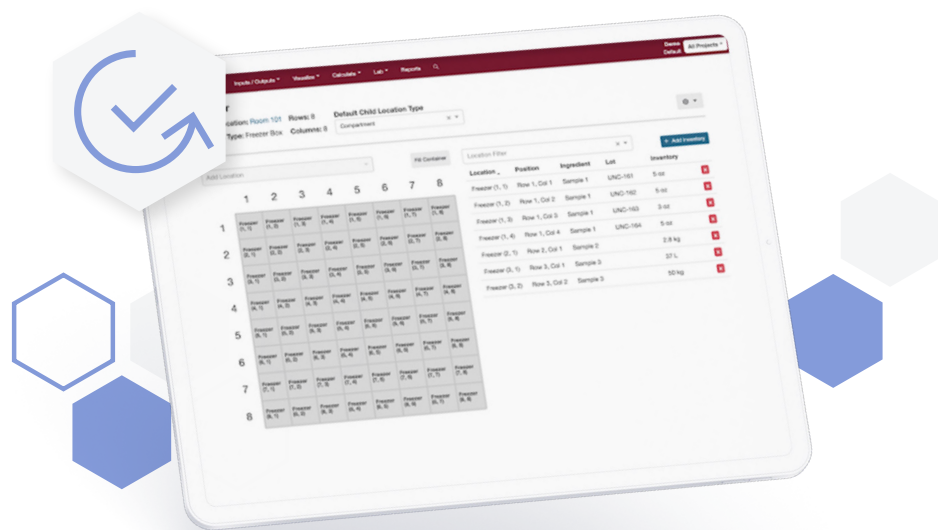
Knowledge base that preserves history and drives future predictions

One of the biggest challenges research organizations face is losing institutional knowledge when employees leave for other opportunities or move onto new projects in other departments. With a unifying LIMS solution in place, everyone work on the same platform, preserving detailed formulation data from past experiments. Researchers can access historical data down to the raw ingredient level, seeing past inventory levels and prices, which formulations each was included in, and how each experiment was conducted.

This data should also be provided in the form of analytics researchers can use to optimize and speed up future experiments. Instead of revisiting the same questions as colleagues did previously, they can learn from easy-to-digest visualizations and insights about what might work best.

End-to-end solution for the entire R&D process

A LIMS should give research teams the ability to easily capture all formulation and experiment data in a single, secure cloud-based platform that's accessible across devices. This helps speed research cycles up while also giving organizations more control over procurement, auditing, and regulatory compliance with a single, shareable workbook with a searchable repository of every project and experiment.

While these systems provide all the features necessary for R&D teams at large, multinational enterprises, they shouldn't have heavy upfront implementation costs or require on-prem deployments that take months. When it comes to LIMS, it shouldn't take more than a few days to get up and running.

A modern LIMS should also allow researchers to integrate their data to other tools that power their R&D efforts. For example, you may want to push pricing information from your ERP to your LIMS in order to give your scientists tools to understand the costs of their formulations. This can be done either via a flexible API, or a custom integration by your platform provider.

Which lab inventory management system is right for you?

As you begin your search for an LIMS solution, you'll soon find out there are a lot of options at your disposal. With so much riding on the line, it is critical that you make the right decision and pick an LIMS solution that has the right inventory management features for your use case.

To make your decision-making process easier, we put together this helpful guide on choosing a LIMS for your team. Check it out to learn more about what to look for in a lab management system, how to manage lab resources, record experiment data, and run analyses on one platform, how AI and machine learning are changing the way researchers work, questions to ask vendors before you buy, and more.

We built Uncountable to meet the needs of highly adaptive, fast-moving materials developers. To learn more about how Uncountable can accelerate your R&D efforts, request a personalized demo from our sales team today.