

Efficient Laboratory

Nine Ways to Optimize Workplaces
and Workflows



METTLER TOLEDO

1. How Efficient is Your Laboratory?

The term "Lean" was introduced in 1990 in relation to the highly successful Toyota production system. Since then, lean principles have been adopted in many sectors in order to:

- Eliminate mistakes
- Reduce delays
- Lower costs
- Improve the overall quality of a product or service

Our innovative **competence tools** and **solutions** support this approach.



Lean Lab Checklist

Assess how lean your laboratory currently is and identify improvement potential.

► www.mt.com/lean-lab



Efficient Automation

Fully automated dosing for XPE analytical balances increases productivity, accuracy and safety.

► www.mt.com/quantos

2. Continuous Improvement

It is critical to build a culture of continuous improvement to sustain business benefits. This extends from the analyst to the end-customer, drawing on new and innovative ideas. The impact of lean changes must be sustained with mindset and behavior transformations across the laboratory.



Lean Lab Guide

A lean laboratory focuses on continually delivering results in the most efficient way, in terms of cost, speed and resources, without compromising quality.

► www.mt.com/lean-lab



Gravimetric Solutions

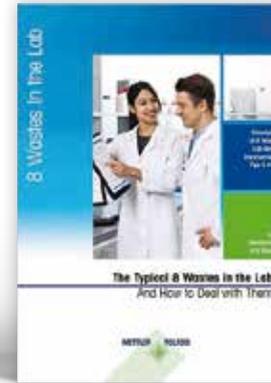
Increase Accuracy

Gravimetric liquid dosing on XPE analytical balances delivers accurate and efficient solution preparation.

► www.mt.com/liquid-dosing

3. Minimize Waste

Lean principles describe the eight wastes that typically exist in a business – independent of the industry – such as defects, waiting time and transportation. These wastes in a process do not add any value for the end-customer and therefore should be reduced or eliminated wherever possible.



Eight Wastes Guide

Describes how to recognize and eliminate the eight wastes in a laboratory environment, using typical laboratory workflow and equipment examples.

► www.mt.com/lean-lab



Smallest Sample Sizes Minimize Waste

With precious samples available only in the smallest quantities, it is important to get analyses right first time with XPR microbalances.

► www.mt.com/xpr-microbalances



4. Avoid Recurring Errors

Lean principles are applied to the laboratory with the aim of increasing quality and efficiency. "Jidoka" represents empowering machines or operators to stop a process as soon as a problem is detected, to avoid propagation of errors through the workflow. This allows quick resolution of problems, root cause establishment and avoidance of recurrence.



First-Defect-Stop Guide

A troubleshooting tool to help identify and resolve the root causes of any weighing errors, and to prevent them from recurring.

► www.mt.com/lean-lab



Self-Testing Avoids Errors

Test your own balance between service intervals. WeightLink™ is an innovative weight identification system for guaranteed traceability of test weights in the laboratory.

► www.mt.com/weightlink



5. Completeness is Key

GLP/GMP and GAMP-regulated laboratories must ensure that complete data is recorded and available for inspection during audit to achieve compliance. In 2016, 80% of the FDA warning letters were issued due to lack of data integrity. The main cause was incomplete data, which could be prevented by using the right solutions.



Data Integrity Poster
Illustrates the ALCOA+ principles and describes the nine steps needed to ensure data integrity in your lab.

► www.mt.com/lab-data-integrity



Achieve Data Integrity
LabX software ensures full data integrity and security via user- and data management which fulfils the latest guidance from FDA, MHRA and 21 CFR part 11.

► www.mt.com/labx



6. Visualize Your Improvement

The ultimate goal for laboratory managers is to be able to achieve analysis and daily lab work in a shorter time without compromising on quality, costs and productivity. Value stream mapping is a convenient way to analyze laboratory workflows and visualize where problems exist, allowing unnecessary steps to be eliminated.



Improve Productivity

This on-demand webinar focuses on value stream mapping and how to visualize, identify and eliminate unnecessary steps to optimize laboratory workflows.

► www.mt.com/lean-lab



Reduce Testing Costs

GWP®, Good Weighing Practice™, a unique METTLER TOLEDO method that optimizes the frequency of calibration and routine testing, eliminating unnecessary over-testing.

► www.mt.com/gwp

7. Increase Productivity

Laboratory managers need to simplify processes wherever possible to enhance productivity and quality. Combining One-Piece-Flow with the latest technology innovations, in a Lean Lab approach, enables daily lab procedures to be accelerated.



Application Note One-Piece-Flow

Explains how One-Piece-Flow applied to a batch release process, using innovative weighing and titration products, speeds up the process.

► www.mt.com/lean-lab



Automated Titration Workflow

OneClick™ delivers higher productivity and increased sample throughput, by reducing setup and change-over time and optimizing workflows in general.

► www.mt.com/titration



8. Avoid Transcription Errors

The traceability of transcribed data has a high risk of not meeting internal quality management or regulatory standards. A laboratory analyst's time can be wasted on gathering missing data, retranscribing results, documenting missing controls, and preparing reports. This results in lost time and revenue for the company.



Data Management Reference Paper

Understand lean principles such as three alternative approaches to data handling and management, which avoid errors due to recording results by hand.

Go Beyond Weighing

XPR precision balances support consistent processes and the highest requirements for data integrity and compliance with LabX.

► www.mt.com/lab-weighing-data

► www.mt.com/xpr-precision



9. Education Improves Quality

Laboratory managers are responsible for well-trained staff and continuous improvement requires periodic re-education. Regular training sessions on key topics, such as lean laboratory, laboratory equipment and processes are necessary. On-site and eLearning courses provide an opportunity for personal improvement, resulting in more motivated people and higher quality output.



Lean Lab eLearning

Educate yourself on the criteria for elimination of waste. Reduce non-added value steps and improve added value steps in the laboratory.



Data Integrity eLearning

Educate yourself on the criteria for data integrity, and recent guidance issued by FDA, MHRA and ISO.

► www.mt.com/lab-elearning

► www.mt.com/lean-lab



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