Formulation Solutions

Ensure Consistent Quality with Every Batch

METTLER TOLEDO

Ensure Consistent Formulation Quality

Only accurate, repeatable and error-free formulation processes in production ensure that you achieve the desired properties and performance of your product and help you avoid bad batches and customer complaints.

In this eBook we take a closer look at the four primary types of formulation processes and three considerations to ensure quality, consistency and efficiency:

- **Type of Formulation Processes**
  - Simple Manual
  - Advanced Manual
  - Dosing
  - Automatic Batching
- **Scale Selection**
- **Safety**
- **Calibration**

Review our formulation solutions and see why choosing the right equipment pays off!

We have now four solutions to increase efficiency and product consistency!

Covering the Full Range of Batch Sizes and Automation Levels

Choosing the optimal formulation solution for your operation is heavily dependent on factors such as automation requirements and batch sizes. To ensure accurate and repeatable results, choosing the right solution is key.

- **Advanced Manual Formulation**
  Preparation controlled by a networked software that helps manage complexity and provides full traceability

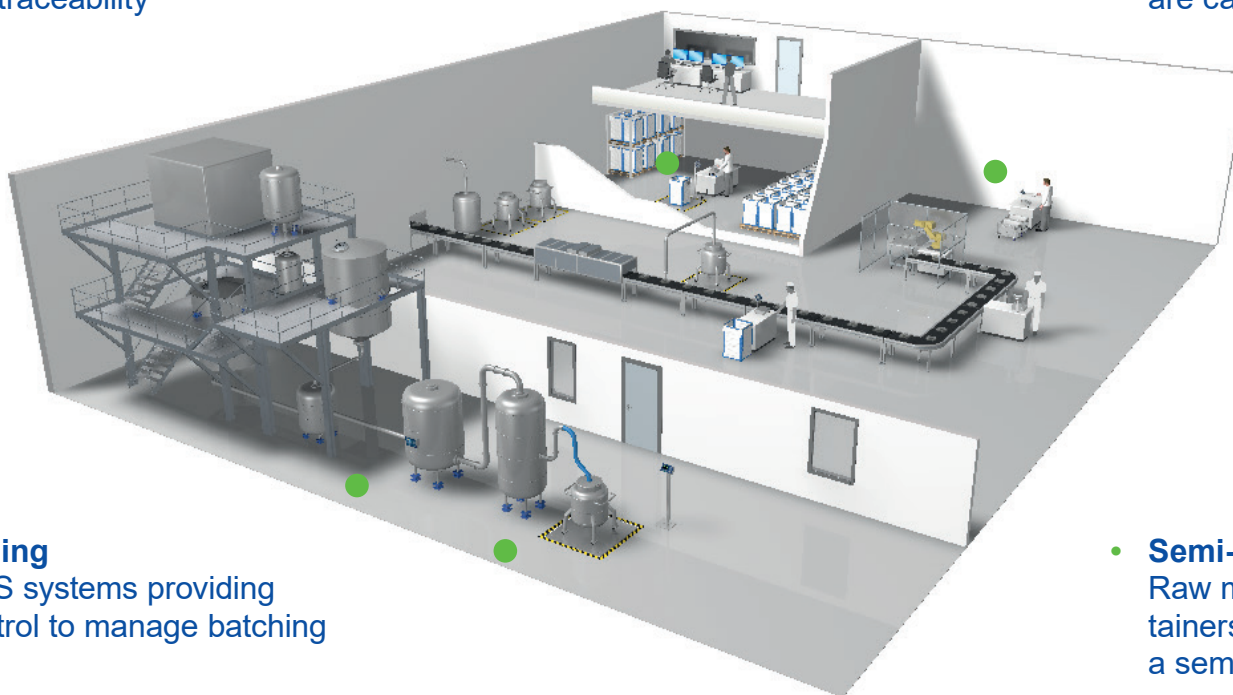- **Simple Manual Formulation**
  A standalone workstation where manual weighing of materials following a recipe are carried out by an operator

- **Automatic Batching**
  Connected to MES systems providing decentralized control to manage batching sequences

- **Semi-Automated Dosing**
  Raw materials are transferred into containers or reactors for blending/mixing in a semi-automated process

How can I prevent weighing errors for better quality?

Your Challenge

Less rework and bad batches by selecting the right scale

Each raw material has a decisive effect. Wrong measurements caused by unsuitable scales can result in quality problems that can easily be eliminated.

Prevent operator errors for consistent product quality

When weighing raw materials manually, errors and mix-ups can happen and result in poor quality or accidents. Simple tools can reduce the frequency of such errors.

Reduce paper-based processes for greater efficiency

Lost papers and handwritten documentation cause headaches. Printing, storing and automatically saving data helps to avoid errors and speed up batch documentation.

Speed up simple recipe weighing processes

Our Solution

A simple workstation can help improve your process. Step-by-step guidance on the screen, smart use of accessories, flexibility to connect multiple platforms and wireless options for mobile solutions ensure exact formulations every time.

ICS689: The stand alone solution

The formulation application for ICS689 scales speeds up manual formulation processes. The software guides an operator through a recipe, allowing traceable recipe weighing without costly network infrastructure.

▶ **www.mt.com/ICS689**

Better accessories for ease of process

Printers and barcode readers are simple tools to speed up your processes and avoid errors. Wireless connectivity with built-in WLAN options help you set up mobile systems that reduces walking time.

▶ **www.mt.com/industrial-printers**

Eliminate manual data entry
Data+ software allows you to control your data from a PC and create basic reports.
Download Data+ Lite:
www.mt.com/dataplus

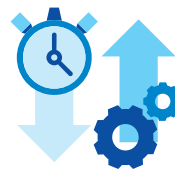# How can I ensure precise formulation control and full traceability?

Your Challenge

Tight process control for consistent product quality

Formulation management with tight process control maximizes ingredient usage and reduces waste. Ensuring tight control at multiple workstations can be a challenge.

Process efficiency improvement in a complex production set-up

Creating production orders, planning workflows and instructing operators is very time consuming. When done more efficiently, operators are freed up for more value-added tasks.

Simple automatic documentation with track-and-trace workflows

Having a recipe management system that tracks and traces raw material lots to each production batch helps in reacting faster to complaints.

Efficient recipe management

Our Solution

When working with sensitive ingredients and complex formulations, paper-based procedures can lead to inefficiencies, manual errors and costly rework. A recipe management software offers 100-percent process control over recipe weighing operations and ensures traceable and consistent product quality.

Recipe management software

Form+ is a recipe management software that guides operators through the recipe weighing process. It is installed on a robust terminal ensuring a paper-free process. Weigh-and-dispense operations are tailored to your workflow.

▶ **www.mt.com/Formplus**

High-precision scales

Our floor and bench scales can measure very small quantities with great precision even with a high pre-load. Scale consolidation allows for safer and more efficient workstation ergonomics.

▶ **www.mt.com/PBK-PFK**

Make every batch perfect
Visit our formulation page to see how our formulation software eliminates manual errors and reduces up to 100 percent of waste.
www.mt.com/Formplus

How can I dose ingredients faster and more precisely?

Your Challenge

Don't compromise on accuracy or speed while producing consistent quality

Automatic dosing depends on interplay between the scale, valves and material flow properties. With the right solutions, finding those sweet spots gets easier.

Flexible system integration for your automation needs

Dosing systems are often part of a plant-wide automation system. Standardized interfaces and protocols make integration faster and reduce training effort.

Meet tight specifications every day with better scale performance

Manufacturing proccesses require narrow product specifications and high throughput. Unnoticed equipment failure and wrong handling impacts production quality and costs.

Ensure accurate dosing for optimal quality

Our Solution

Material consistency, filling speed and sequence must all be taken into account when dosing ingredients. Our weighing solutions are fit for high-level automation and easily integrated into existing systems for improved efficiency and product quality.

Fast and accurate dosing with IND570

The IND570 offers easy-to-configure software routines, discrete I/O, material storage tables and more to enable accurate control of simple or sophisticated blending, filling and dosing operations.

▶ **www.mt.com/ind570**

Simple connectivity with ACT350

The ACT350 transmitter provides an exceptional 600 filtered weight values per second with high accuracy to a PLC. Fieldbus connectivity via EtherNet/IP, PROFINET IO or PROFIBUS DP is incorporated.

▶ **www.mt.com/ACT350**

Video: Powerdeck floor scale
Real-time operator guidance allows easy, fast and error-free dosing into drums or IBCs.

www.mt.com/powerdeck

How can I optimize my batching process?

Your Challenge

Save production costs and reduce waste and downtime

Long batching sequences can be the bottle-neck in your production. Optimizing speed and timing of dosing steps ultimately leads to higher throughput and better plant utilization.

Full traceability of batches with automated data recording

With increasing regulations, track-ing and tracing is required from delivery to packaging. Automated and manual processes can cover all tracking and tracing requirements.

Better maintenance planning with condition monitoring

In tank weighing, load cell failure is often discovered at calibration. The latest sys-tems provide status alerts so you can react to issues before they impact your product.

Ensure higher yield with faster and more consistent batching

Our Solution

Handling of automated batching processes, better sequencing and real-time sensor monitoring is challenging. Whether you use vertical or horizontal batching, our flexible solutions minimize product waste and improve batch consistency.

IND780 batch advanced terminal

Algorithms and discrete I/O options optimize automatic filling and batching processes. The terminal is programmable for tailored applications and multiple interfaces allow for simple data transfer to MES or ERP systems.

▶ **www.mt.com/ind780**

PowerMount™ weigh modules

The PowerMount™ system constantly monitors load cell performance and alerts the user prior to serious trouble. This keeps you in control of your process and avoids faulty batches and follow-up costs.

▶ **www.mt.com/ind-powermount**

Essential checklist for batching

This checklist outlines the main considerations to set up the right batch control system.

www.mt.com/ind-batching-checklist

Matching the right scale and components for your process

When the accuracy of your scales contribute directly to product quality, costs and compliance, it is essential to match scale performance to your process requirements. Whether you are designing a tank system or workstation, let our product and application expertise help you make the right choice.

GWP®: Good Weighing Practice™

GWP® recommendations are the benchmark to select weighing equipment and verify it is right for the process. GWP® provides documented guidance for ensuring reproducible weighing results.

▶ **www.mt.com/gwp-recommendation**

Guide: How to select the right scale

Learn what defines the performance of a scale, what differentiates models and how you can select the right scale for your process. Make a sound decision with your scale purchase.

▶ **www.mt.com/ind-scale-selection**

Component selector for tank design

Tank scale accuracy relies heavily on selecting the right components and optimizing tank design. Use our component selector to optimize and compare scale designs.
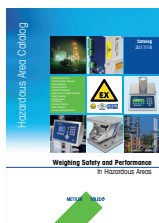
▶ **www.mt.com/Ind-component-selector**

Design your workstation with safety in mind

When handling explosive materials or working in hazardous areas, weighing equipment must comply with extensive regulations and be installed and maintained correctly in order to ensure safe operation. Choose solutions that help you fulfill your safety standards without compromising functionality.

Our hazardous area solutions

Weighing equipment in explosive areas must fulfill stringent regulatory requirements to ensure process safety. Our solutions combine proven safety in hazardous areas with uncompromised performance.

▶ **www.mt.com/ind-hazcat**

Dust risk info paper

Many are not aware of the explosion hazards of dusts and fine powders, but the consequences can be severe. Keep your operators and plant safe by learning about approved weighing equipment.

▶ **www.mt.com/ind-dust-risks**

Hazardous services

Our experienced, factory-trained service specialists make sure hazardous area weighing equipment is safely installed, in- spected, maintained, calibrated, and repaired when necessary.

▶ **www.mt.com/ind-ex-service**

Get the most out of your equipment

Your equipment is subjected to tough environments and high utilization in critical processes. Periodically scheduled scale calibrations in combination with frequent routine testing greatly enhance the longevity of your scale's accuracy, ensuring optimal operation of your formulation process.

GWP® Verification

GWP® Verification documents the measurement uncertainty of equipment in real operating conditions. In addition, it gives guidance on optimizing routine testing.

▶ **www.mt.com/gwp-verification**

Consulting and business support

As time and budgets are often limited, you may not always have the in-house expertise or capacity required to realize your business goals. Our experts help you get your formulation project done.

▶ **www.mt.com/business-support**

Care packages for planned maintenance

Our maintenance contracts allow you to operate with confidence. Scheduled checks assure equipment is operating at peak performance.
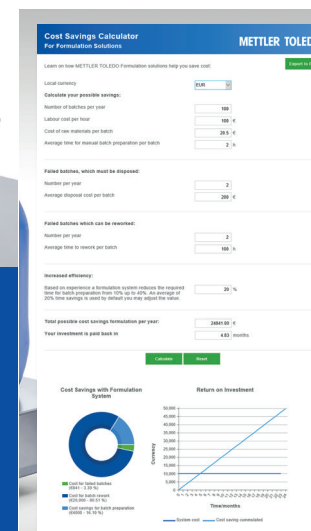
▶ **www.mt.com/carepackages**

Why investing in the right formulation solution pays off

Formulation solutions from METTLER TOLEDO prevent errors and increase efficiency, giving you the best return on investment. Quantify your savings with our on line tool to discover how your operation could benefit.

▶ **www.mt.com/ind-calc-formulation**

Reduce rework and quality claims

When a batch fails, raw material waste, rework time, claim handling and reputation damage can all be costly. Investing in the right formulation setup and processes is a step toward quality-by-design.

Save time and become more agile

Managing recipes & production orders, documenting processes, and training operators can be time consuming. Solutions that optimize workflows free up time for value-added tasks and increase your flexibility.

Ensure safety every day

Handling raw materials can be risky or harm operators. But safety measures shouldn't impact quality or your productivity. Choose solutions that help you fulfill your safety standards without compromising functionality.
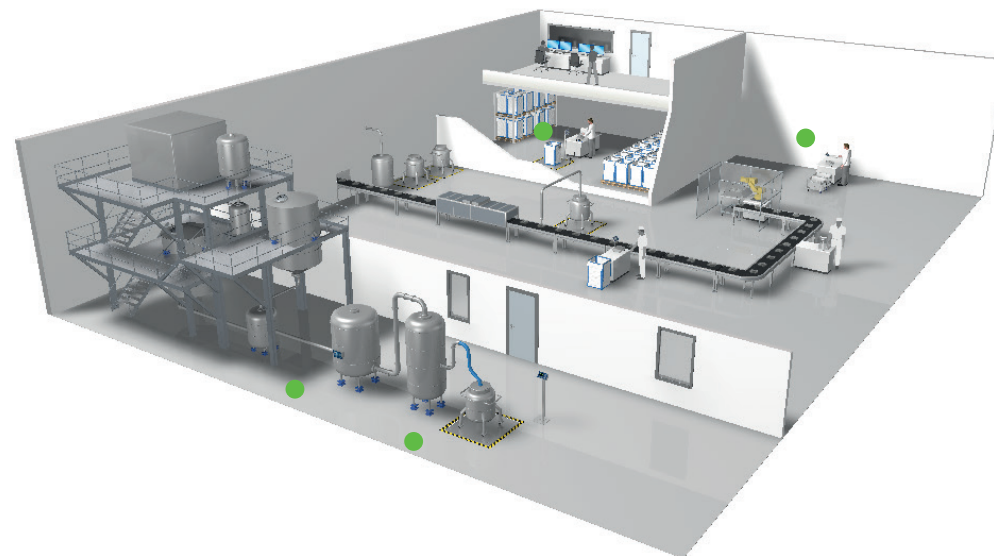
METTLER TOLEDO

Solutions for Consistent Formulation

Explore our formulation application page for food and chemical manufacturers.

By simply clicking on the right application on our formulation illustration, you will find more details, brochures and videos on:

- Simple Manual Batching with ICS689
- Advanced Recipe Management with Form+
- Precise Dosing with IND570
- Automatic Batching with IND780

▶ **www.mt.com/ind-formulation**

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