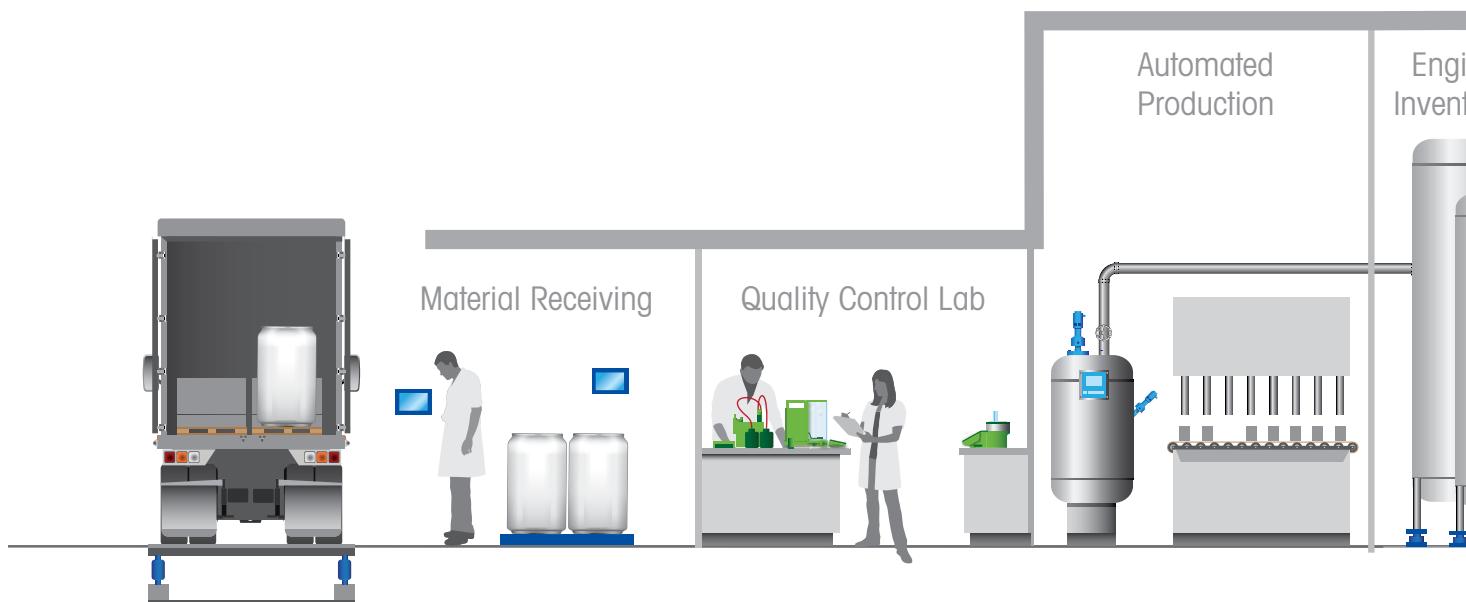




**Solutions to Improve**  
Food Safety, Quality and Productivity

METTLER TOLEDO

# Improve Processes & Quality Control While Reducing Production Costs



## Material Receiving

Efficient and fast raw material identification is a basic requirement for good tracking & tracing practice. Our solutions include ID points, such as weighbridges and scales with barcode readers, printers and software solutions for gapless control of your incoming goods.



## Quality Control Lab

Stringent quality control for the exact adherence of product specifications is made viable thanks to top-performing, innovative and rugged balances, titrators, moisture analyzers, density and refractometers, pH meters and sensors as well as other instruments.



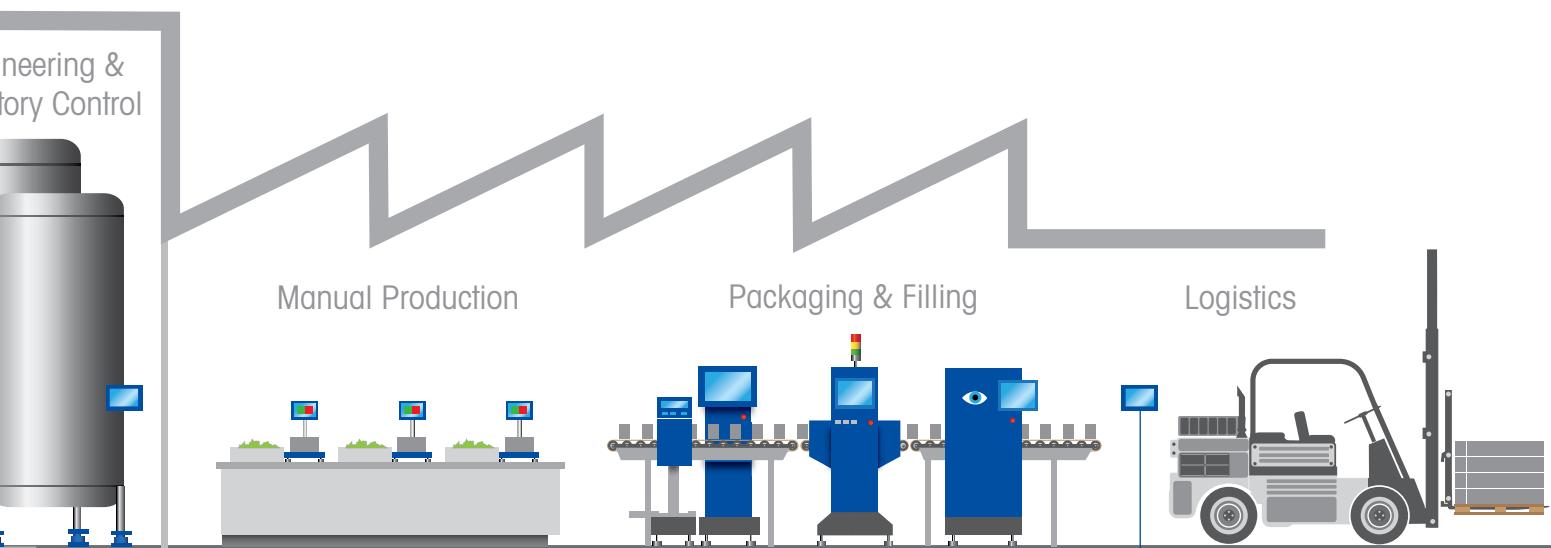
## Automated Production

Plant efficiency is a key differentiator. Control of critical production processes depends on precise measurement of dissolved gas concentrations, pH, turbidity, conductivity and material transfer values. Simple operation and highest reliability are main characteristics of our solutions.



**The food and beverages industry faces many challenges – responding quickly to fast-changing consumer demands, increasing requirements for food safety and regulatory compliance and improving productivity while increasing product quality. At METTLER TOLEDO, we create complete weighing and measuring solutions and services that help enhance your business excellence.**

► [www.mt.com/food](http://www.mt.com/food)



## Engineering & Inventory Control

Full transparency in material transfer and inventory control requires high-quality tank, silo and hopper weighing. Our easy-to-integrate weigh modules, transmitters and process terminals support safe, accurate and fast-filling material management from small tanks or hoppers up to several 100 tonnes silos.



## Manual Production

Many food products need delicate manual care and handling. Our full stainless steel IP69k protected over/under bench & floor scales support fast and accurate manual processes. The latest sanitary designs support efficient and thorough cleaning in hygienically sensitive areas.



## Packaging & Filling

World-class Product Inspection solutions help to safeguard product quality, safety and integrity, inside and out. Metal detection, checkweighing, x-ray and vision inspection systems provide total confidence that quality is maintained, brands are protected, and compliance with industry standards is achieved.



## Logistics

Scales are important ID points in your material flow. Large touch screen weighing terminals, connected to scanners, label printers and precise scales support fast and accurate order processing and short delivery time.



# Material Receiving

## Full Control of What You Get

**Efficient raw material receiving depends on accurate and fast weighing and analysis equipment. The latest weighing technology, material transfer software solutions and analytical instruments provide the right functionality to get full control over quantity and quality of your incoming goods.**

### Vehicle Scales



#### Latest technology for long service and unmatched accuracy

Optimize plant efficiency with transparent inbound material control. Our latest POWERCELL® PDX® load cells and OverDrive® vehicle scale software help to save time and money by giving you high uptime, precise results and complete control of your vehicle-weighing operation.

### Raw Material Identification



#### Fulfill basic requirements for good T&T practice

Efficient tracking and tracing and process visibility are important prerequisites for producing safe food. Scales are important identification points to collect traceability data such as product IDs, weight values, and for clear labeling of ingredients and semi-finished products.

### Moisture Determination



#### Guarantee shelf life, taste and texture

Halogen Moisture Analyzers are the ideal solution for fast and simple routine moisture determination. Easily check any food or beverage sample whether solid, pasty or liquid. Determine moisture along the entire process wherever required.



## Solutions for Material Receiving

Vehicle Scales  
Weighbridges  
Material Transfer Software  
Material Identification Points  
Bench & Floor Scales  
PC Application Terminals  
pH Meters  
Moisture Analyzers  
Density and Refractometers  
Precision Balances

### POWERCELL® PDX®

#### **Lightning protection, predictive diagnostics and simplified maintenance**

No other loadcells can match them for weighing vehicles accurately and reliably. Resistance against lightning strikes, flooding and rodents provide highest uptime, minimal maintenance costs and long service life.

# In-depth Quality Control

## Assure Food Safety & Quality

Analytical instruments and balances from METTLER TOLEDO are the base of food and beverage laboratories all over the world. At the touch of a fingertip, the instruments provide reliable and precise results to assure a high and consistent product quality. Here are a few examples of our technological leadership regarding high-level efficiency, time-saving features and lasting performance.

### Analytical and Precision Weighing



#### High resolution balances master all purposes

Our balances combine stable and high-resolution measuring cells with an array of features such as ErgoSens, ErgoClip or SmartGrid, in order to make weighing more precise, avoid errors and improve the ergonomics of weighing.

### Sugar and Brix Determination



#### LiquiPhysics™ instruments to replace manual methods

Densitometers and refractometers analyze liquid samples automatically and easily. The ideal routine testing instruments with short time to result and fully suitable for random spot checks near the line. Measure Brix, Oechsle, alcohol, wort, extract, density, specific gravity, refractive index.

### Measuring a Variety of Parameters



#### Measure the right values from pH to dropping point

Meters and instruments for pH, conductivity, salinity, dissolved oxygen, dropping/softening point and more all with the same easy way of operation. Designed for use in food and beverage samples, they provide stable readings in a short time, ruggedness and a long life.



## Solutions for Quality Control

Analytical Balances  
Micro Balances  
Precision Balances  
Titrators  
Refractometers  
Karl Fischer Titrators  
Dropping Point Instruments  
Density Meters  
pH Meters and Electrodes  
Moisture Analyzers  
Laboratory Software

Titration Excellence and Compact Lines  
G20 Compact Titrator

**Many applications from acid number to salt content and beyond**

Titration is one of the most frequently used analytical determination methods. METTLER TOLEDO supports this proven method with innovative instruments to simplify workflow, increase efficiency and diminish operator errors. One Click® titration, color touchscreen, clear user guidance and ergonomic design are just a few advantages of today's automatic titrators.

# Automated Production

## Precision and Uptime

**Consistent availability of your production equipment, best-in-class measurement technology and immediate control of all your process steps are key success factors in achieving manufacturing excellence. METTLER TOLEDO offers in-line sensors and transmitters for easy integration into the latest plant automation environment.**

### Oxygen and CO<sub>2</sub> Measurement



### Intelligent Sensor Management for dissolved gas measuring systems

Dissolved oxygen and CO<sub>2</sub> concentration in a beverage are directly related to taste stability and long shelf life. Being able to predict when consumable parts of a sensor are going to fail and therefore prevent unscheduled downtime is extremely useful. This, specifically, is one function of our Intelligent Sensor Management concept.

### Real-time Haze and Color Measurement



### Continuous and immediate information on brightness

Brightness and color of a beverage is as much a quality criterion as its fresh flavor. Our in-line haze (turbidity) and color measurement systems reduce the number of grab samples required and provide an early alarm in case visual quality parameters are out of specifications. These optical measurements play an important role in optimization of filtration, blending and filling processes.

### Batching Material Transfer



### Automated solutions, for fast and consistent batching

Our scalable range of solutions allow standalone, integrated and automated control of your process and related material transfer devices. Batch data are communicated via a variety of control interfaces such as Profibus, WLAN, Bluetooth, ControlNet or Ethernet. Your benefits – higher throughput and increased accuracy.



## Solutions for Automated Production

Analytical In-line Sensors  
Transmitters  
Process Housings  
Cleaning/Calibration Systems  
Batching Solutions  
Process Weighing Terminals  
Weigh Modules  
Bench & Floor Scales

ISM  
Intelligent Sensor Management

### "Plug & Measure"

METTLER TOLEDO's intelligent sensors can be calibrated conveniently in the safe and clean environment of a laboratory and then stored until they are required. When connected to a transmitter, the system is ready to measure in an instant which leads to fast and hassle-free system start-up and optimized maintenance routines.

► [www.mt.com/ism](http://www.mt.com/ism)

# Tailor-Made for Engineering

## Easy to Integrate

**High-speed, high-precision weigh modules from 0.1 mg up to several 100 tonnes engineered for easy mechanical and electrical integration into your machines, tanks or silos. Proven designs and ruggedness make them the ideal components for systems integration and OEM installations.**

Tank & Silo Weighing



### Rugged solutions for up to several 100 tonnes

Weighing is an accurate inventory control technology for tanks, silos and hoppers. It is independent of tank shape and perfect for non-self-leveling material. Weigh modules don't come into contact with the product (e.g. aggressive, hazardous or hot), providing long life and maximum precision.

Filling



### Fast and accurate filling processes

When filling intermediate bulk containers, totes, drums, sacks or vehicles, you need very fast, precise and repeatable results. METTLER TOLEDO's high-performance weighing terminals with precision scales, weigh modules and high-precision cells provide unmatched filling speed and accuracy.

High-Precision Weighing



### Tailor-made for automation – easy to integrate

Our weigh modules with the electro magnetic force restoration technology offer the highest levels of linearity, repeatability and speed. They are tailored to the needs of machine and equipment manufacturers for simple electrical and mechanical integration.



## Solutions for Engineering/Inventory Control

Heavy Capacity Weigh Modules  
High-Precision Weigh Modules  
Tension Weigh Modules  
Process Weighing Terminals  
Transmitters  
Fieldbus Modules

**PinMount®**  
Safety and Accuracy for Heavy Loads

**All safety-related features are present  
in duplicate.**

Its dual anti-lift protections withstand large wind forces. Integrated safeguards provide security in cases of extreme overload. A rocker pin automatically applies a vertical load at one point on the load cell and allows it to move so that high accuracy is achieved while temperature expansions are tolerated.

► [www.mt.com/pinmount](http://www.mt.com/pinmount)

# Throughput and Accuracy In Manual Production

**Many food products are delicate in handling and need manual care and attention. Ergonomic considerations and smart man-machine interfaces help to increase operators' throughput and accuracy. Human errors such as overfilling and bad batches are minimized.**

## Portioning & Checkweighing



### Higher throughput and less product giveaway

Ergonomically-designed and extremely fast over/under scales with hygienic easy-to-clean construction and ColorWeight® display technology provide throughput improvement up to 25% and increase profitability through minimized overfilling.

## Formulation / Recipe Weighing



### Improved production yield and traceability

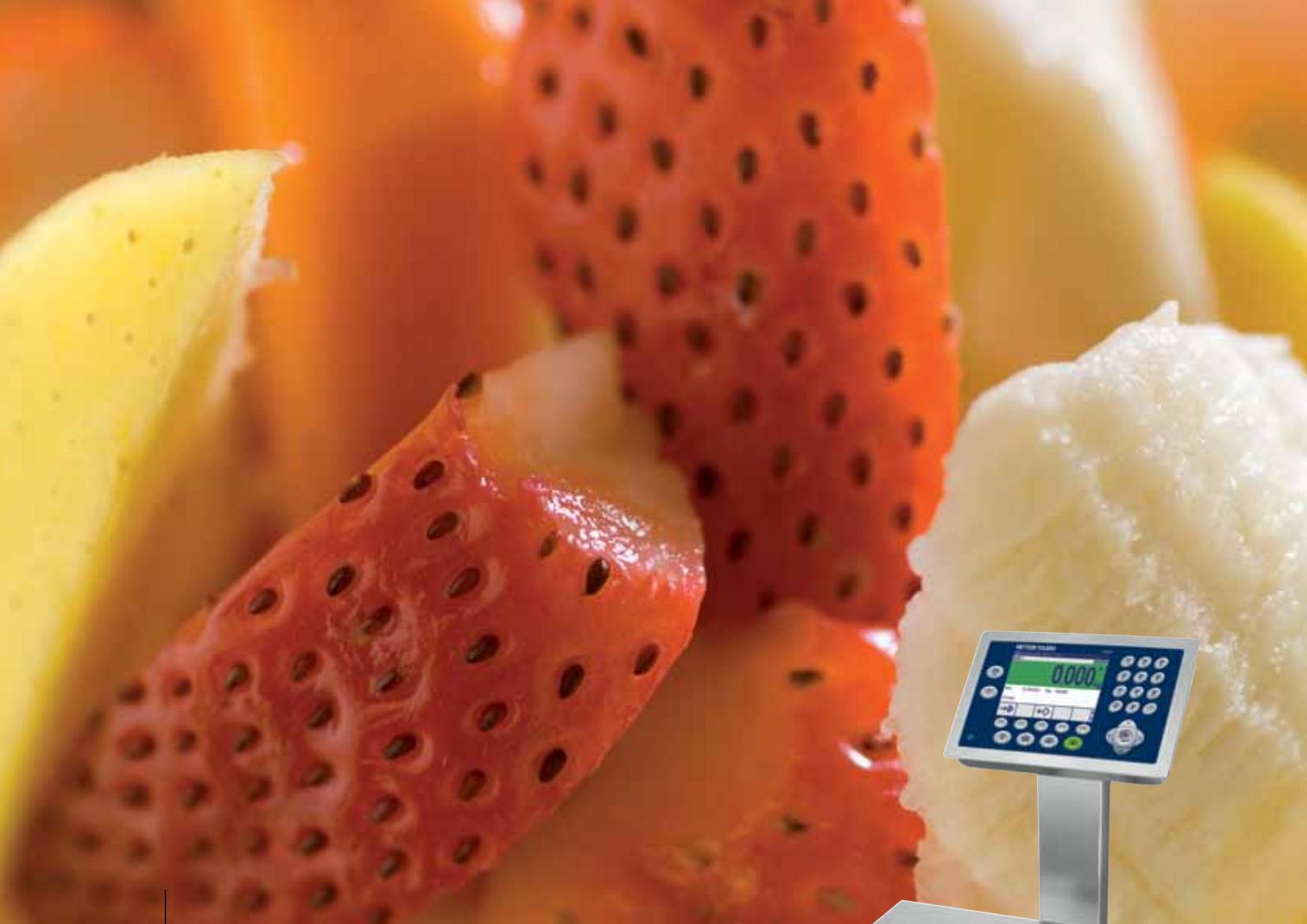
Accurate, reproducible mixtures and consistent taste are essential for product quality and safety. Component mixing points are critical for efficient tracking & tracing. Our standalone or fully-networked formulation/recipe solutions guide the operator securely and quickly through daily formulation work and help to minimize bad batches.

## Quality Data Management



### Net content legislation fulfillment and Q-attribute monitoring

Our networked quality data management solution FreeWeigh.Net collects, analyzes and archives your key quality attributes in real-time and provides alarms, statistics and reports for immediate process optimization and proof of regulatory compliance. It helps minimize overfilling in packaging and improve efficiency in quality assurance.



## Solutions for Manual Production

Over/Under Checkweighing Scales

Formulation/Recipe Software Solutions

Quality Data Management Solutions

Tracking & Tracing ID Points

Bench & Floor Scales

Filling & Batching Solutions

Counting Scales

Pallet Truck Scales

Precision Balances

pH Meters and Electrodes

Moisture Analyzers

ICS669

Over/Under Checkweigher

**Designed to speed up production where hygiene counts**

Full stainless steel, protected IP69k for harsh wash down and fast, efficient cleaning in hygienically sensitive areas. This scale provides extremely fast and accurate processes in manual portioning, checkweighing and classifying operations. Color-Weight® display technology helps to reduce operators fatigue and keep performance high.

► [www.mt.com/ics9-scales](http://www.mt.com/ics9-scales)

# Inspection Solutions to Ensure Product Quality and Safety

**In the food and beverage industries, it's vital that the product reaching the end consumer is exactly what it should be – no more, no less, correct, complete and safe, inside and out. Whatever your product inspection needs, METTLER TOLEDO provides stand-alone to fully integrated bespoke systems to address the challenges you face.**

## Highest Sensitivity Contaminant Detection



### Providing total product quality, inside and out

Whether using metal detection or x-ray inspection technology, contaminant detection systems from Safeline help to guarantee the safety of products. X-ray inspection systems are also able to perform a range of in-line quality checks to ensure product and packaging integrity.

## Fast and Accurate Dynamic Weighing



### 100% quality control and total peace of mind

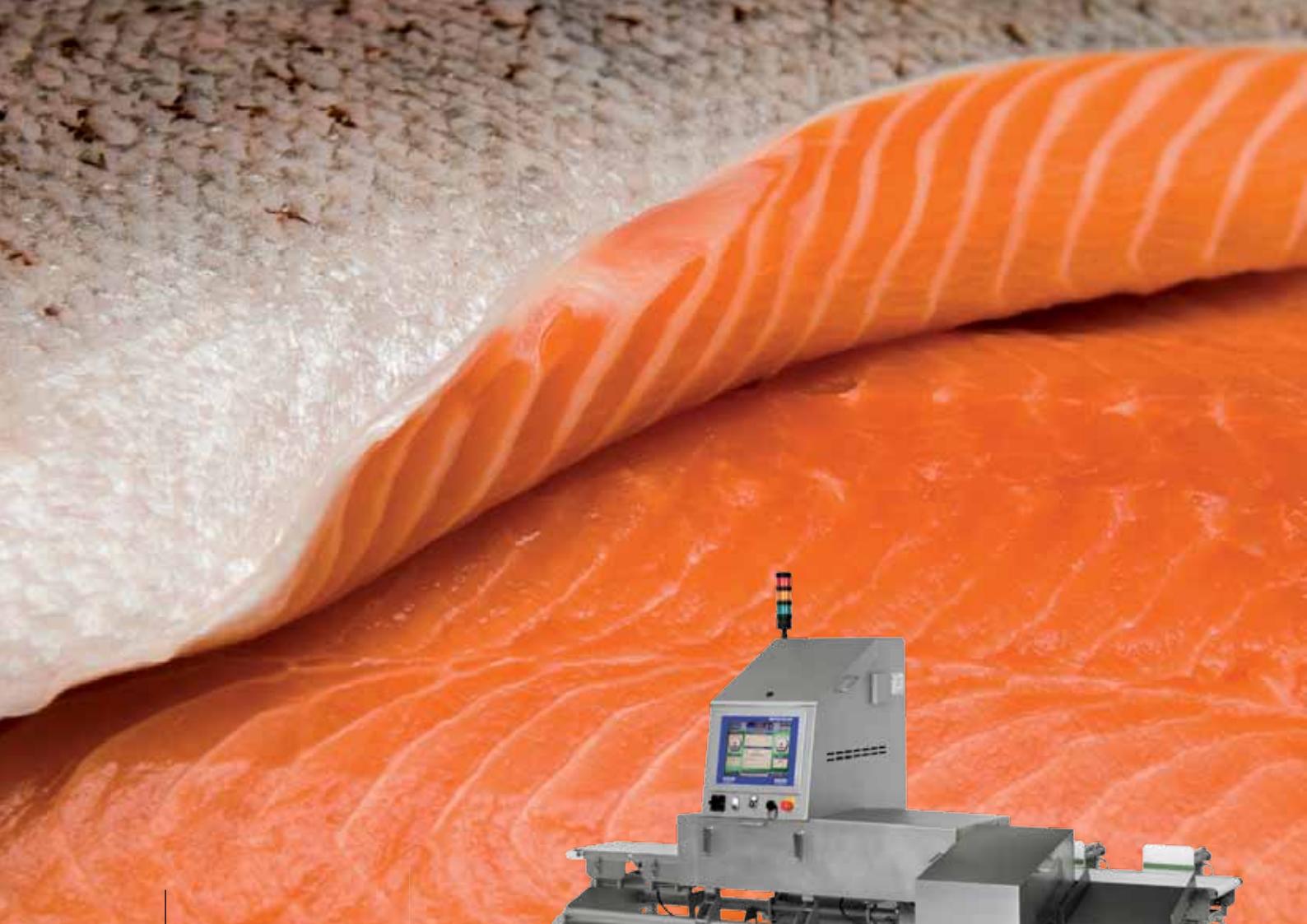
As standard or highly-customised, Garvens checkweighing systems are built to suit each manufacturer's specific application and environment. They help to ensure that quality standards are met and compliance with industry regulations is achieved.

## Perfect Product Presentation



### Minimising defects for consumer and brand protection

CI-Vision inspection systems ensure that products consistently meet manufacturers' highest quality standards and specifications. They can inspect a wide variety of products and packaging, examining containers, closures, labels and coding to deliver perfect product presentation, every time.



## Solutions for Packaging & Filling

- Metal Detection
- X-ray Inspection
- Checkweighing
- Vision Inspection
- Track & Trace
- Serialization
- Data Management Solutions

XS3 AdvanCheK  
X-ray CombiWeigher

**Precision weighing and reliable detection of foreign bodies**  
True weight measurement is combined with highest sensitivity x-ray inspection, offering not only accurate weighing results but also simultaneous checks of products for foreign bodies. Protecting not only consumers but also the good reputation of your brand, the X-ray CombiWeigher is a compact and cost-effective system, ideal for use in the food and beverages industry.

# Accurate Order Fulfillment

## For Satisfied Customers

**High delivery quality is essential for customer satisfaction and retention. Accurate scales and easy-to-operate order picking/commissioning places help to process orders quickly and accurately and help to make sure your customers return to you, their most reliable supplier.**

### Order Picking and Processing



#### **Large touch screens for error-free shipments**

Manually processing 10 000 order lines per day requires ergonomic man-machine interfaces. Our terminals for order picking solutions provide large touch-screen displays. Connect wireless barcode scanners and label printers to assure error-free shipment and satisfied customers.

### Case Weighing



#### **Automated completeness checks**

Before shipping, completeness control is vital to ensure that there are no missing items. Our smart case weighing solutions offer final monitoring prior to dispatch and help to avoid missing parts.

### Shipment Completion



#### **Final checks for error-free distribution processes**

To complete shipping, the right distribution documents and pallet labels have to be provided to assure traceability. Our weighing and traceability solutions are designed for fast and precise shipment completion and the support of efficient distribution processes.



## Solutions for Logistics

Tracking & Tracing ID Points  
Bench Scales  
Floor & Pallet Scales  
Pallet Truck Scales  
Case Weighers  
Metal Detection  
X-ray Inspection

IND890

Weighing PC

### **Clear, intuitive, efficient order processing**

Latest PC technology with high ingress protection for industrial application even in the fresh food production area. Full graphic 10" or 15" touchscreen PC terminal supports error-free and fast processing of the pick-list.

► [www.mt.com/ind890](http://www.mt.com/ind890)

# Decisive Success Factors

## Productivity and Quality

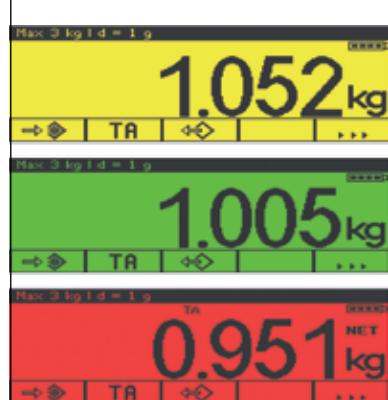
**Maximise uptime, throughput and manufacturing quality to protect your profit margins. Our ergonomically designed production and analysis equipment, cutting edge sensor technology and efficient data acquisition solutions help to speed up production, assure consistent high product quality and build up your brand image.**



### Cutting Edge Technology

METTLER TOLEDO is a recognized leader of integrating various measuring technologies with software into powerful lab, industrial and retail solutions. We are committed to translating our innovations into real value for our customers:

- Multi-parameter analysis systems determine several results in just one run.
- ISM sensors avoid interferences and provide preventive maintenance indication.
- 61 million resolution points of XP balances add utmost accuracy and precision to weighing.



### Manufacturing Efficiency

In today's economic environment of rising raw material prices and severe global competition, business executives must optimize all aspects of manufacturing operational costs. Key customer benefits resulting from weighing-, inspection- or measuring-based process optimization include minimized product giveaway and wastage through fast, precise material transfer and accurate filling and portioning solutions. Predictive maintenance programs help reduce equipment downtime and maintenance costs.



## Ergonomics

Ergonomic design of instruments, balances, scales and inspection equipment as well as easy-to-operate software solutions help to avoid operating errors and fatigue during routine tasks, improve efficiency and facilitate operator training. Here are a few examples:

- One Click® operation built in to many lab instruments and balances for simple and safe operation.
- The "ColorWeight®" check weighing solution provides unmistakable information if the weight is out of specs.
- The extra low tip ejection force (LiteTouch) of PipetLite XLS pipettes smoothes pipetting tasks and tip ejection.



## Quality Data Management

Efficient data acquisition, analysis functions and storage of all your key attributes from the plant, packaging line and laboratory are essential to control quality and profitability. Our software solutions, such as FreeWeigh.Net®, LabX and ProdX, allow easy integration of your measuring equipment, including scales, balances, titrators, pH meters, checkweighers, x-ray systems and metal detectors. They provide latest SQC or SPC analysis methods and deliver customized audit-proof reports of your KPIs.

- ▶ [www.mt.com/freeweighnet](http://www.mt.com/freeweighnet)
- ▶ [www.mt.com/prodx](http://www.mt.com/prodx)
- ▶ [www.mt.com/labx](http://www.mt.com/labx)

# Good Measuring Practices For Food Safety & Compliance

The regulatory and legal pressure on feed, food and beverage producers is constantly increasing, forcing manufacturers and industry organizations to take even greater ownership of food safety processes.



Food Regulatory Guide  
► [www.mt.com/ind-food-regulatory-guide](http://www.mt.com/ind-food-regulatory-guide)

**GWP®**  
Good Weighing Practice™  
**GTP®**  
Good Titration Practice™

## Good Measuring Practices for Weighing and Titration

Guaranteed better results through performance verification – balances, scales and analytical instruments must be inspected, calibrated and tested at regular intervals to ensure the accuracy and precision of measurement results. The METTLER TOLEDO Good Measuring Practices programs provide the right tools, procedures and services and thus give peace of mind to quality, laboratory and production managers and personnel responsible for instrument qualification procedures.

► [www.mt.com/gwp](http://www.mt.com/gwp)  
► [www.mt.com/gtp](http://www.mt.com/gtp)



## Tracking & Tracing

Food Safety regulations as well as retail-driven standards, require food suppliers to assure traceability on a one-up/one-down principle. Weighing equipment is often an important ID point in the flow of materials. A good traceability system not only helps a manufacturer comply with legal and regulatory requirements but helps to protect brand image by minimizing the number and impact of recalls. Additionally the right systems and equipment can contribute to production efficiency through better stock management and minimized waste.

► [www.mt.com/traceability](http://www.mt.com/traceability)

## 5. Routine Operation

Benefit from tangible recommendations for optimal performance verification, calibration and maintenance.

## 1. Evaluation

Analyze your process flow and associated criteria to consistently assure the highest quality for your application and your data.

## 4. Calibration & Qualification

Trust the METTLER TOLEDO trained Service Team and tools when it comes to calibrating and qualifying your instruments.

## 2. Selection

Choose the ideal combination of instrument and measuring technology to best match your process needs.

# Good Measuring Practices

## 3 Installation / Training



## 3. Installation & Training

Enjoy every confidence in your new device and master it with full professional skills right from day one.



## Hygienic Design

Contaminated food processing equipment has been responsible for a number of major food poisoning outbreaks. Equipment must be designed according to sound sanitary design principles. Our equipment for hygienically sensitive areas are designed after the latest guidelines of EHEDG, NSF and 3-A standards and allow efficient cleaning and sanitizing, thus reducing the risk of bacteria and cross contamination.

► [www.mt.com/hygienic-design](http://www.mt.com/hygienic-design)



## Hazardous Areas & Ingress Protection

Our solutions ensure compliance to national and international legal requirements and industry standards. For hazardous environments (e.g. in bulk foods or beverages), we offer NEC, CSA or ATEX Ex Zone 1 certified solutions. Our equipment for wet & harsh areas feature the highest ingress protection (IP69k) to withstand heavy hose-down cleaning procedures, all to protect your people and assets.

► [www.mt.com/hazardous](http://www.mt.com/hazardous)



# Global Services for Uptime, Performance, Compliance & Expertise

**Day-to-day laboratory and production processes are highly repetitive yet innovative, characterized by very complex applications and the need for guaranteed data quality and strict control of process risks. It is a world very sensitive to the total cost per data point, demanding the utmost precision and accuracy while constantly complying with legal and industrial regulations and norms.**

Uptime



Easy access to support know-how and regular equipment checks according to standard procedures ensure maximum uptime at minimal cost.

Your equipment is often subject to tough environments and high-utilization in critical processes, requiring every minute of uptime, guarding against equipment breakdown, parts failure, and 'wear and tear'.

Performance



Professional installation and setup of your equipment along with the use of thoroughly tested applications guarantee high performance from day one.

Regular preventative maintenance according to manufacturers' procedures ensure efficient and consistent performance throughout the life of your equipment, preventing out-of-specs results at all times.

Compliance



Full compliance with your industry's regulatory norms is a must all over the world. This ensures good audit results and provides you with peace of mind.

Take advantage of our comprehensive equipment qualification and calibration packages combining standard DQ/IQ/OQ documentation with recommendations for maintenance and routine testing specific to your application.



METTLER TOLEDO is represented with Sales & Service Organizations in 35 countries as well as Distribution & Service Partners in most other countries across the globe. Products are developed and produced in various locations in the United States, Europe and China

## Expertise



Your expertise paired with the know-how of our Service Team are key to maximum uptime, optimum performance and 100% compliance.

Benefit from our large portfolio of optimized applications, scientific publications, SOPs and technical documentation. In our tailored trainings and seminars, your personnel acquire the know-how and skills to run your business with maximum efficiency.

## Global Presence



With our market organizations operating in most industrialized countries, as well as selected partners in other regions, we are ready to serve you well around the globe. In total, our products and services are available in over 100 countries.

Our geographically focused market organizations are responsible for all aspects of sales, service and support.

Get more information on  
► [www.mt.com/service](http://www.mt.com/service)

# Access Information and Know-how

## On [www.mt.com](http://www.mt.com)



### Application Literature

We offer comprehensive application support for all of our solutions. Our titration application database alone holds 200 applications for the food and beverage industry

- ▶ [www.mt.com/titration\\_applications](http://www.mt.com/titration_applications)
- ▶ [www.mt.com/moisture](http://www.mt.com/moisture)

### Technology guides

We provide comprehensive insight information on how our solutions and services help meet global food safety regulations and increase food safety, quality and productivity.

- ▶ [www.mt.com/ind-food-regulatory-guide](http://www.mt.com/ind-food-regulatory-guide)
- ▶ [www.mt.com/ind-food-productivity-guide](http://www.mt.com/ind-food-productivity-guide)
- ▶ [www.mt.com/pi-guides](http://www.mt.com/pi-guides)

### Webinars

METTLER TOLEDO offers a wide array of live and on-demand web-based seminars (webinars). Obtain specific information about best practice and latest news on applications, products, industry trends and standards.

- ▶ [www.mt.com/webinars](http://www.mt.com/webinars)

[www.mt.com/food-competence](http://www.mt.com/food-competence)

For more information

**Mettler-Toledo AG**  
CH-8606 Greifensee, Switzerland  
Tel. +41 44 944 22 11  
Fax +41 44 944 30 60

Subject to technical changes  
© 05/2012 Mettler-Toledo AG  
Printed in Switzerland 44098327  
Global MarCom Switzerland