

METTLER TOLEDO
Vehicle Weighing



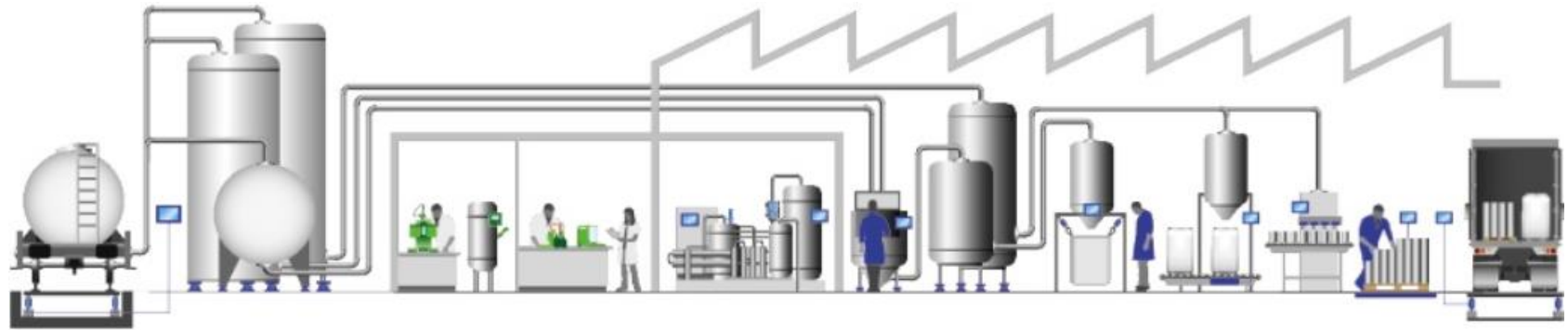
Safety, Accuracy, and Security

With METTLER TOLEDO Vehicle Scale Solutions

METTLER TOLEDO

The logo graphic consists of a series of parallel green lines that form a stylized arrow pointing to the right, positioned below the text 'METTLER TOLEDO'.

- 1** METTLER TOLEDO Solutions for The Chemical Industry
- 2** Common Truck/Rail Scale Challenges
- 3** VEH Scales Built For The Chemical Industry
- 4** Typical VEH Scale Applications For Chemical
- 5** Equipment Uptime
- 6** Improved Truck Tracking and Product Traceability
- 7** Total Cost of Ownership
- 8** The Business Impact of Inaccuracy
- 9** Additional Project Resources



Truck/Rail Weighing

Tank Farming

Laboratory Solutions

Process Analytics

Industrial Weighing

Logistics Solutions

METTLER TOLEDO provides measurement solutions across the entire production chain:

- Increase productivity by continuously improving your operational procedures
- Protect your product quality and business profits by providing accurate Ex-approved solutions
- Reduce maintenance activities with rugged equipment that consistently performs at a high level



Scales play a critical role in day-to-day activities for the Chemical industry

- Whether you are using a truck scale to manage your daily transactions or simply to track different materials coming in and out of your facility it is critical to ensure that the solution you choose is built with the following business needs in mind:

Industrial Gases



- Equipment uptime
- Safety
- Intrinsically safe
- Simplified cleaning
- Scale accuracy
- OTR Compliance

Refinery Operations



- Visibility into material tracking and inventory control
- Equipment uptime
- Vehicle throughput
- Minimized maintenance costs

Fertilizers



- Equipment uptime
- Minimized maintenance costs
- Compliance information
- Security / Fraud prevention features

Bulk Chemicals



- Traffic management
- Compliance Information
- Scale accuracy
- Security / Fraud prevention features
- Equipment uptime



METTLER TOLEDO offers products in intrinsically safe designs so that you don't have to sacrifice scale performance to comply with hazardous-area ratings

Comply with Hazardous Area Ratings



Real-life service data shows that POWERCELL® sensors are up to 3x more accurate than traditional analog load cells

Increase Scale Accuracy



Professional vehicle scale management software protects your daily profits by reducing the risk of overfilling, under filling, or manual data entry

Manage the Filling Process



Advanced data analytics and reporting capabilities allow back office operations to easily spot process trends

Secure Data Integration

Solutions that help you maximize the yield of your operation

- METTLER TOLEDO has been operating in the industrial sector **since 1901** and for the past 50 years has been the **#1 global supplier** of vehicle scales.
- METTLER TOLEDO's vehicle scale equipment portfolio includes **truck scales, rail scales, VEH transaction management software, terminals (both unattended and attended), load cell upgrade kits, hazardous weighing solutions, and service.**
- Within the chemical segment we have a lot of experience collaborating with **engineering, procurement, and construction firms (EPC)** to design truck and rail scale projects for a variety of applications all around the world such as:

Custody Transfer



Filling Operations



In-Motion Weighing



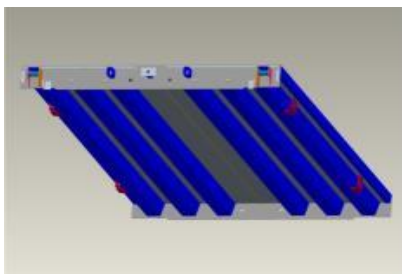
Reliable equipment that can operate in less than reliable conditions

- Common causes of truck scale failure in the Chemical industry:
 - Environmental Factors (Water/flooding, lightning, ice, temperature)
 - Over loading and material spill
- METTLER TOLEDO Solutions:
 - POWERCELL® Load Cells: On average, owners of analog truck scales **replace 5X's** more load cells over the life of the scale than owners of POWERCELL PDX truck scales.
 - MT Weighbridges are built to last for **20 years or more** with minimal downtime.

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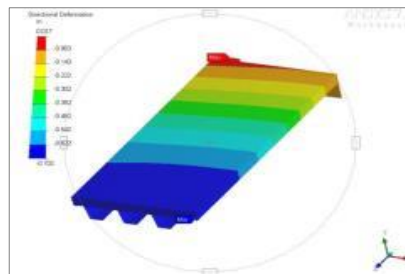
Other Vehicle Scale Manufacturer's

Design Modeling



Model is created using 3D CAD

Finite Element Analysis (FEA)



Design is virtually tested to determine stress areas, showing how it would theoretically perform under various loading conditions

Regulatory Testing



90% of the concentrated load capacity (CLC) is loaded onto the weighbridge **twice**

Lifecycle Testing



100% of the CLC is applied to the module up to **2 million times**. Any design flaws that occur will be adjusted and the new design will go back through the full testing process

The 3 main benefits of using DataBridge™ VEH scale management software

■ Improved yield and reduced giveaway

- Protects your profits by eliminating 100% of the data errors caused by manual data entry
- Reduces the amount of OTR fines that are received for exceeding axle weight limits
- Anti-cheating features in the software protect you against theft at the scale

■ Enhanced traffic management

- An unattended terminal solution allows you to complete weighments up to 30% faster
- DataBridge™ keeps traffic safely moving over your VEH scales by allowing the drivers to complete their weight transaction without ever having to leave their trucks

■ Seamless data integration and monitoring

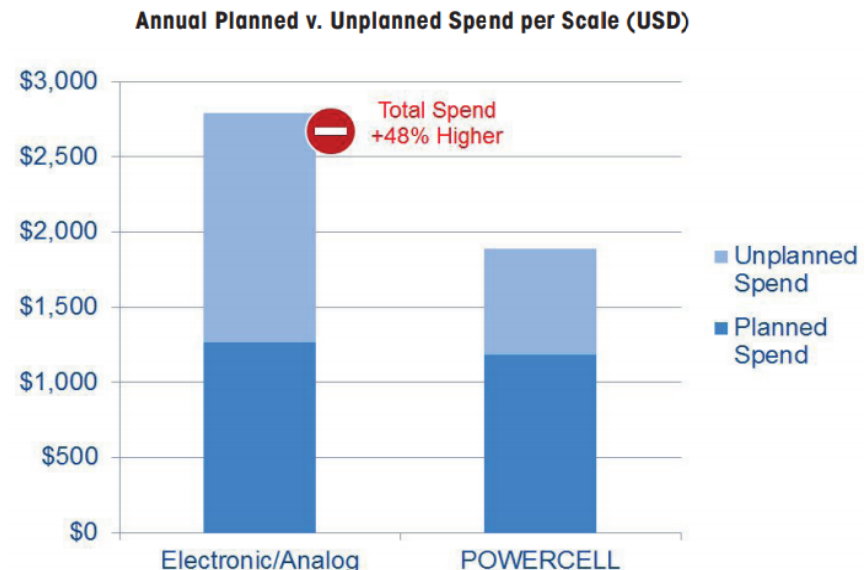
- Comprehensive reporting allows for accurate weighing and data reliability
- Auditing features provide full transparency into transactions for inventory management and regulatory purposes



What will your truck scale really cost you?

- Overtime service costs on less expensive scales can grow quickly and in some cases even surpass the original cost of the scale.
- Initial project cost shouldn't be the only focus.
- It is critical to consider the following points to understand how the **ongoing costs of a scale can quickly turn into a money pit**:
 - Load cell systems have the **greatest impact on ongoing total expenditure**
 - Inexpensive scales are accompanied by **weak warranty's** and high repair fees.
- METTLER TOLEDO **protects your profits**:
 - In the Chemical industry, our service data shows that customers with analog truck scales spend **+48% more annually on repairs** than owners of scales with POWERCELL
 - POWERCELL PDX systems come with an **all-inclusive 10 year warranty**

Truck Scale Spend Analysis		
System Component	Initial Cost	Ongoing cost
Weighbridge	35%	5%
Load Cell System	20%	65%
Foundation	20%	0%
Terminal/Software	10%	10%
Planned Services	15%	20%



Are you forfeiting profits on every truckload?

- Annual Weights & Measures certification of a scale does not ensure long-term accuracy.
- Choosing the right load cell technology can limit your exposure to product giveaway and/or poor material tracking.
- The below accuracy table is based on 4,837 service records from the Chemical Industry.
 - Monthly calculations based on 100 trucks per day, 6 days a week, 4 weeks of operation.

Scale Technology	% Found outside legal tolerance	Accuracy Range (95%)	Shrink Per Day	Lost Profit Per Day	Lost Profit Per Month	Lost Profit Per Day	Lost Profit Per Month
		12t test load	40t GVW	Bulk Sulfuric Acid (\$120/ton)		Anhydrous Ammonia (\$200/ton)	
POWERCELL Load Cells	9%	+/- 42 kg	+/- 15 tons	+/- \$1,800	+/- \$39,000	+/- \$3,000	+/- \$66,000
Analog Load Cells	26%	+/- 132 kg	+/- 47 tons	+/- \$5,600	+/- \$123,000	+/- \$9,400	+/- \$207,000
Mechanical Conversions	22%	+/- 70 kg	+/- 26 tons	+/- \$3,120	+/- \$74,880	+/- \$5,200	+/- \$124,800

POWERCELL PDX load cells are up to 2 times more accurate than traditional analog load cell systems.

Resources that help you get the most out of your truck scale

Truck Scale / Weighbridge Buying Guide

- The Truck Scale Buying Guide is a comprehensive resource that provides you with everything you need to know to successfully specify, order, and install a new truck scale or weighbridge.

Vehicle Scale Case Study Collection

- Using real life customer success stories the Vehicle Scale Case Study Collection highlights the positive impact METTLER TOLEDO equipment can have on your operation.

Truck Scale Routine Care Poster

- Scale cleanliness is a constant battle in all industrial environments. The Truck Scale Routine Care Poster will help you stay on track with recommended weekly, monthly, and yearly preventative maintenance tips.

Technology Comparison Report: Chemical industry

- See how truck scales at Chemical facilities around the world are performing. Does yours stack up?

Truck Scale Buying Guide

Weighbridge Routine Care
Extend the Life of Your Equipment

Services an owner/operator can perform

- Daily**
 - Visually inspect around the scale.
 - Look for and clear any obstructions.
 - Control traffic flow to ensure scale safety.
- Monthly**
 - Clean the scale, including weighing stand and under the scale to remove debris such as packed mud, snow or fallen product.
- Alternate Months**
 - Conduct a portable weight test - only if safe and test weights are available.
 - Order a full service calibration if accuracy discrepancies show.

Services a certified technician may perform

- Schedule calibration through service provider or certified by Weights & Measures. Failure to do so can mean fines and forced scale shut-down.
- Schedule recommended preventative maintenance performed by your service provider.
- To extend the life of your weighbridge, your service provider may recommend a load cell system upgrade.

Frequency: Every Month, Every 12 Months, As Recommended

Chemical Industry

Your Next Truck Scale
a Guide to Project Components

Technology Comparison Report
Truck Scale Performance in Your Industry

Over the past 3 years, we have collected data from the nearly 600 Chemical sites we service in North America. See below results and consider how your truck scale would compare, you might be surprised.

- Appropriate Selection: Chemical Facilities**
 - 88% report 100 trucks or less per day
 - 82% operate 24/7 shift work
 - 85% report a scale length of 21 m
- Hidden Scale Costs**

Truck scale expenses fall in two major buckets: (operated preventative maintenance and equipment) break fees. For Chemical operations, choosing among our major operating eRSUs, saves on every scale.
- Load Cell Performance Statistics**

On average, owners of analog truck scales will replace **5.5** load cells over the life of their equipment. **POWERCELL** P20 for 5X's better performance.

POWERCELL P20 for 5X's better performance

Power Cell Drivers → Power Service Cells → Higher Productivity
- Are You Certain About Your Scale Accuracy?**

The below accuracy table is based on 4,621 service records from the past 3 years. How do you consider how accurate your scale could be? (Calculations based on 100 trucks per day, 8 days a week)

Scale Type	Accuracy	Accuracy	Accuracy	Accuracy	Accuracy
1000kg	10%	< 40kg	< 10 tons	< 1000kg	< 1000kg
Accuracy	27%	< 100 kg	< 10 tons	< 1000kg	< 1000kg
Accuracy	31%	< 100 kg	< 10 tons	< 1000kg	< 1000kg

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