

Cleaning a Balance

Reference Paper

Many factors contribute to obtaining reliable weighing results which always fall within process specifications. One factor which is often overlooked, and which can have a major influence on the quality of results, is simply the cleanliness of the measuring instrument being used. Especially with balances, the risks of sample (cross) contamination can be large whenever cleaning guidelines are not strictly adhered to.

But which steps need to be considered when cleaning a balance? And which cleaning agents can/should be used? This reference paper aims to provide an overview of typical cleaning products which can be used to clean the various parts of a typical lab balance, and also offers some important considerations when purchasing a new balance.

General recommendations for cleaning

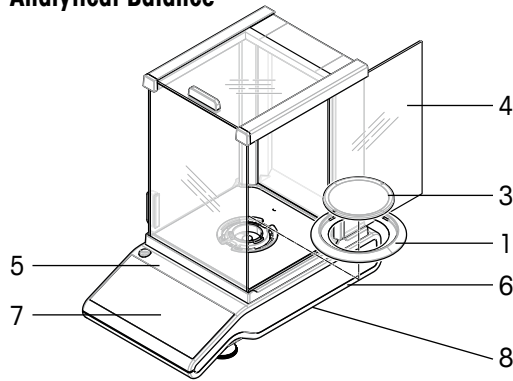
- Depending on your laboratory guidelines, the frequency for cleaning of equipment may differ. Make sure that your SOP specifies the frequency for balance cleaning, and that these intervals are carried out for each instrument according to instructions.
- Frequency: in many laboratories, the rule of thumb is to check the balance on sight. If it is obviously dirty, clean the balance before weighing. Otherwise the minimum recommendation would be to clean the balance at least once per week.
- Where toxic samples are being weighed, the recommendation would be to clean the balance immediately after each weighing.
- The use of aluminum foil (or similar) placed around the weighing pan to protect the balance from becoming dirty is not recommended; it typically makes it more difficult to clean the surfaces thoroughly, and more difficult to perform a visual check.

Observe the following when cleaning

- The balance should be completely disconnected from the power supply
- Ensure that no liquid comes into direct contact with the electronic parts and its AC adapter
- Never completely dismantle a balance for cleaning – there are no components inside the balance that require cleaning. In case of repair, contact a service technician.
- Under no circumstances use cleaning agents containing inappropriate solvents or abrasives; the use of such agents can result in permanent damage to the surfaces or the balance itself.

The Different Parts of a Balance

Analytical Balance



Precision Balance

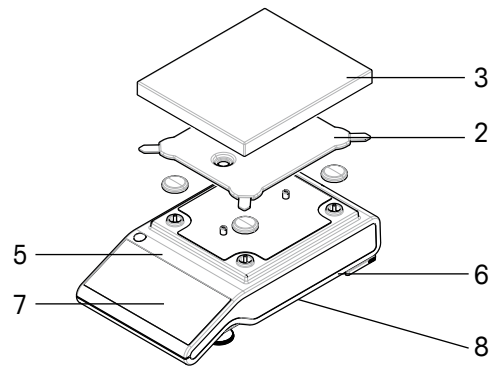


Table 1.

	ME and ML Balances	MS Balances
1. Wind Ring	Stainless Steel	Stainless Steel
2. Pan Support	Die-cast aluminum	Die-cast aluminum
3. Weighing Pan	Stainless steel	Stainless steel
4. Draft Shield	Glass and Plastic (ABS)	Glass and Plastic (PBT)
5. Top Housing	Plastic (ABS)	Die-cast aluminum lacquered
6. Bottom Housing	Die-cast aluminum lacquered	Die-cast aluminum lacquered
7. Display	Glass	Glass
8. Bottom Plate	Stainless Steel	Stainless Steel

Which Detergent Can Be Used for Which Part?

Table 2.

Models	H ₂ O		Isopropanol		Ethanol 70%		Acetone		Hydrochloric acid (3%, 1Mol/L)		Sodium hydroxide (20%)		Peracetic acid (2%)	
	ML, ME Balance	MS Balance	ML, ME Balance	MS Balance	ML, ME Balance	MS Balance	ML, ME Balance	MS Balance	ML, ME Balance	MS Balance	ML, ME Balance	MS Balance	ML, ME Balance	MS Balance
Wind ring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pan Support	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Weighing Pan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Draft shield	✓	✓	✓	✓	✓	✓	•	✓	✓	✓	✓	✓	✓	✓
Top Housing	✓	✓	✓	✓	✓	✓	•	✓	✓	✓	✓	✓	✓	✓
Bottom housing	✓	✓	✓	✓	✓	✓	•	✓	✓	✓	✓	✓	✓	✓
Display	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bottom Plate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Feet	✓	✓	✓	✓	✓	✓	•	✓	✓	✓	✓	✓	✓	✓
Protective Cover	✓	✓	✓	✓	✓	✓	•	•	✓	✓	✓	✓	✓	✓

✓ Recommended by MT • Not recommended by MT

The reference table (Table 2) offers guidance on which cleaning agents can be used for each part.

Cleaning made easy with the MS-TS, ML-T, ME-T balances

At METTLER TOLEDO we have taken an in-depth look at how to make the cleaning procedure of balances as easy and rapid as possible. Since cleaning can be a procedure which needs to be repeated as frequently as each measurement, time spent cleaning should be kept to a minimum. Cleaning your balance becomes a task which takes seconds to complete. The MS-TS QuickLock draft shield dismantles in seconds without any tools. With QuickLock glass panels, which are also available for ML-T, the glasses can be removed easily. The ME-T draft shield can be removed with a screwdriver. The parts requiring the most cleaning are dishwasher-proof, and surfaces are smooth and rounded to make cleaning easy.



1. Unlock the draft shields



2. Take out the draft shield panes



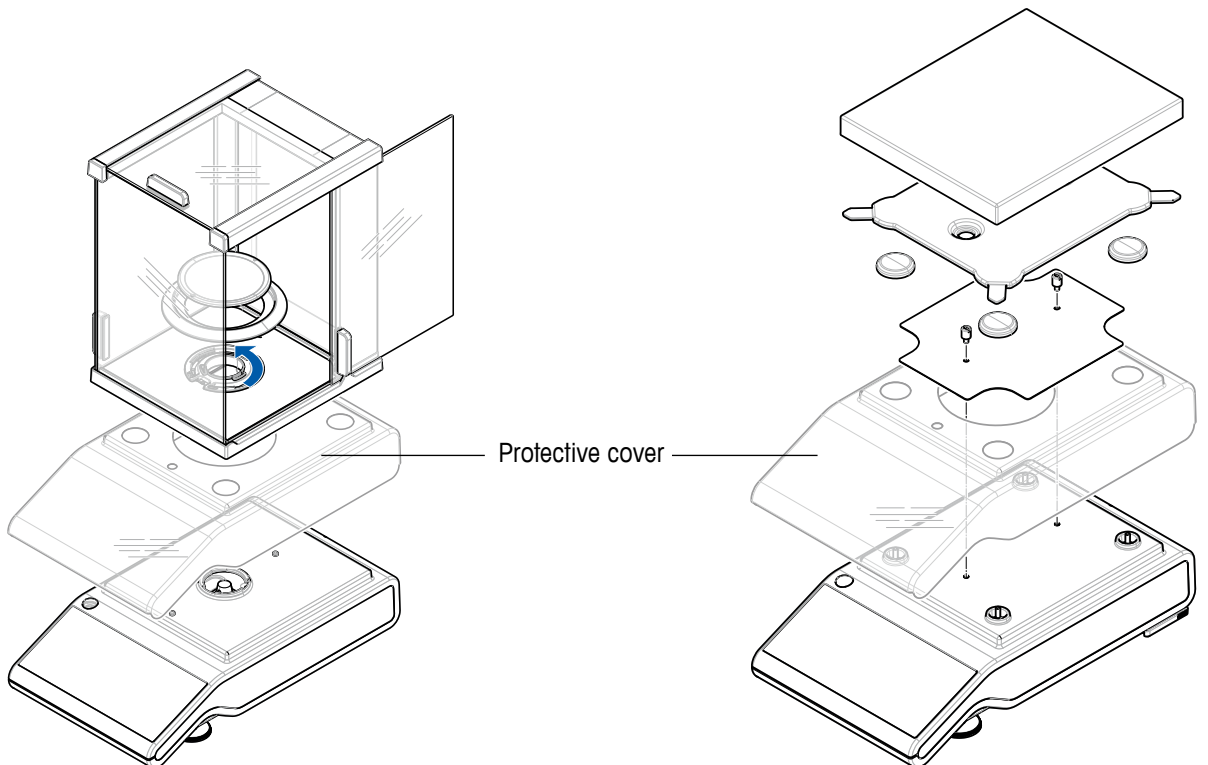
3. Wash the glass panes and bottom plate in the dishwasher



4. Take off the top housing and clean manually

Protective Cover

Another much-appreciated feature of the MS-TS, ML-T and ME-T balances is the protective cover, which comes with a new balance. Once the protective cover is worn out, it is possible to re-order one, so that you are sure your instrument's parts are protected from spills and residue. However this cover does not replace the steps necessary for cleaning the actual weighing pan.



Pan Protection

For precision balances, a separate "pan protection" stick-on mat has been developed, that absorbs minor liquid spills and which guides the user to position the tare container centrally on the weighing pan. In this way contamination of the weighing pan can be reduced and the pan remains protected from scratches (which could also cause sample contamination).



Make the Most of Your Balance with Clever Accessories and Service

METTLER TOLEDO balances can be customized with accessories and peripheral devices to meet the needs of virtually any application. Our carefully designed accessories make your work easier, convenient and help increase efficiency.



► www.mt.com/lab-accessories

10 Ways to Make Weighing Easy

Many factors can have a negative impact on your weighing workflows. Have you considered the ways a touchscreen balance can simplify such workflows and reduce errors in your everyday work?

Learn more on:

► www.mt.com/lab-easy-weighing



www.mt.com

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