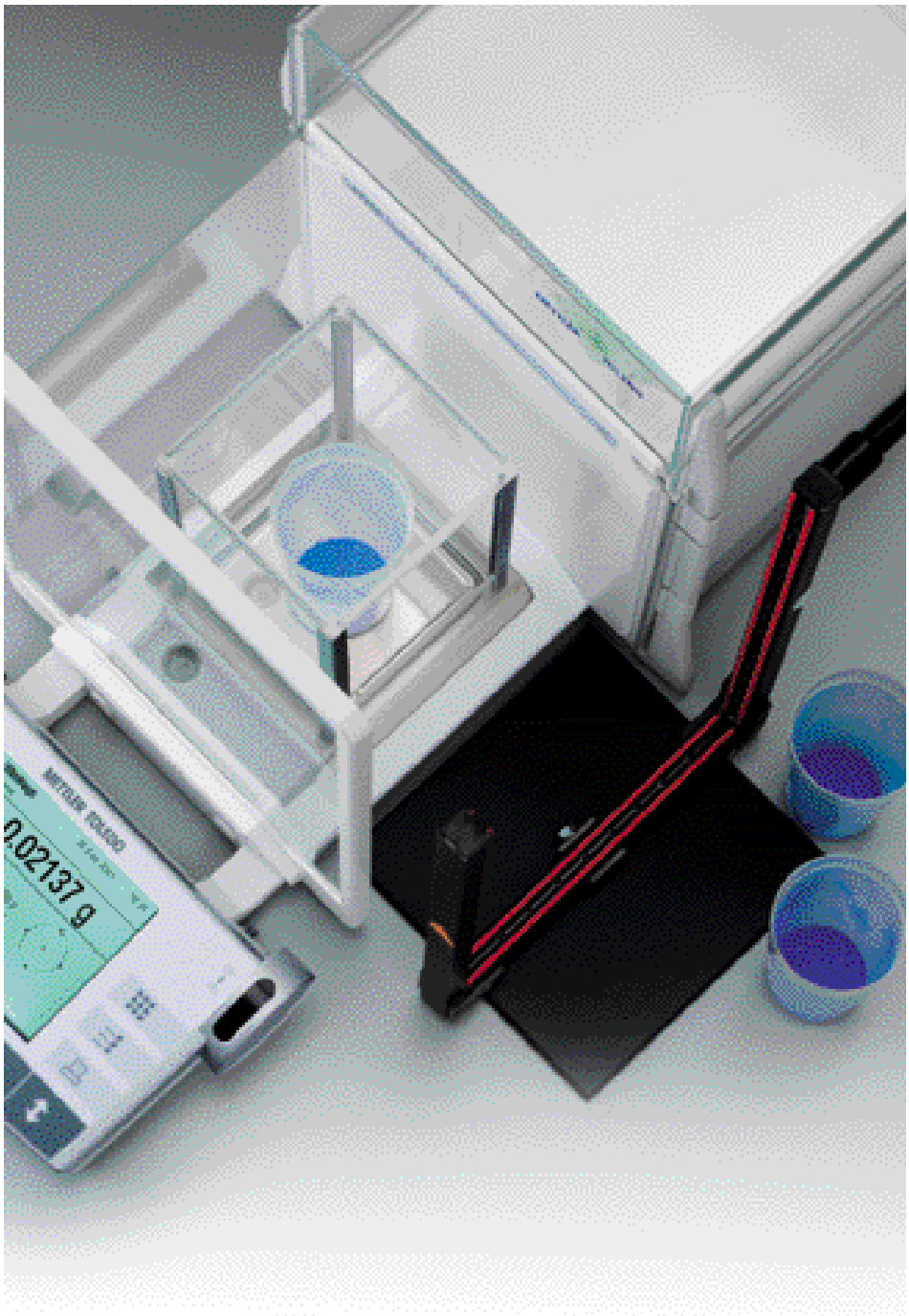


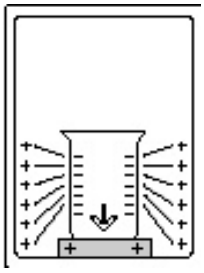
The solution from METTLER TOLEDO for discharging electrostatically charged weighing containers and weighing samples.

Take the static out of weighing.

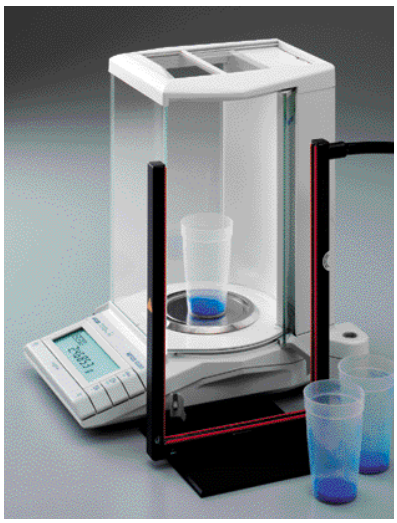
METTLER TOLEDO

There's a highly-charged atmosphere.

Static charges and weighing.
The same weighing sample but different weight values in the display? Optimized weighing processes but results still unstable? The phenomenon is well known, the explanation usually simple: electrostatically charged samples interfere with weighing.



Certain readings.
METTLER TOLEDO knows the phenomenon with all its aspects and background. And METTLER TOLEDO has developed a solution so that weighing values are stable and highly reproducible even when the weighing sample carries a high electrostatic charge.



How charges originate.
How does an electrostatic charge come into being? When an object is rubbed, an electrostatic charge is left behind. This can happen when a volumetric flask is held with tweezers, or a glass beaker dried with a cloth. Because many weighing containers are made from insulating material, this charge can only dissipate slowly, or not at all. Samples can even charge themselves, especially when being transferred or dispensed. This particularly applies to powders and granulates.

Undissipated charges…
At normal air humidity electrostatic charge can usually dissipate along the wall of the weighing container due to the slight, but distinct, conductivity of its surface.

If the air humidity falls below about 45% – 40% this conductivity due to the air humidity declines rapidly. The charge can then hardly dissipate, which allows a substantial electrostatic charge to remain.

…and their consequences.
A static charge on the weighing sample or weighing container creates an electric field which can exert forces. The sum of these forces is measured by the balance, and appears in the display as if it came from the weight of the weighing sample. If the charge slowly dissipates, for example because of the high air humidity, the displayed weighing value drifts and practically never comes to rest. The weighing result is therefore impaired, either through massive distortion or not being stable.

Avoiding charges.
Precautions which can reduce the occurrence of electrostatic charges when weighing are:

- Ensure adequate air humidity (≥45%…50%).
- If possible, use antistatic weighing containers (metal is better than glass, glass is better than plastic).
- Avoid rubbing containers.
- If the weighing sample is not especially high or wide, place it on the weighing pan in a metal dish with an edge. The edge of the metal dish helps to shield the electric fields.
- Discharge the weighing sample with an ionizer before weighing.

Static-free atmosphere in the lab and in production.

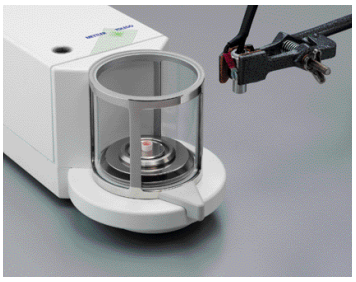
METTLER TOLEDO has two antistatic solutions for weighing electrostatically charged samples. Both are equally practical, fast, flexible, and reliable.

Neither positive nor negative. An ionizer uses a high voltage to generate positively and negatively charged ions. These are attracted by the electrostatically charged object and neutralize the disruptive electrostatic charge on the surface of the weighing sample. As a result, the forces which distort the weighing result also disappear.

For every balance: the U ionizer. This ionization system can be used with practically all balances and weighing substances. It consists of a U-shaped ionizer and a high-voltage power pack.

- The weighing sample or weighing container is discharged by being passed through the U ionizer when the balance is loaded.
- The weighing sample is neutralized. The operation is completed in seconds.
- The ionizer prevents powdery weighing substances from blowing (problematical with toxic particles).
- The weighing pan remains freely accessible.
- No additional operating steps are necessary.
- There are no drafts in the weighing chamber; the stabilization time of the weighing is not affected.
- Despite the high voltage, the ionizer is absolutely safe to the touch. The maximum current that can flow is limited by the power pack and the U ionizer.
- From time to time the tips of the U ionizer should be cleaned of dirt. No other maintenance is required.
- All materials are completely recyclable.

Technical data and values



For every sample: the point ionizer. When powdery samples are electrostatically charged a draft is often enough to blow the substance into the air. With toxic substances this is highly problematical. In this case the point ionizer is the ideal solution. It discharges even the smallest objects. Its probe with a diameter of approx. 25 millimeters can also be inserted into the inside of containers. Thanks to its flexible cable, you can fasten the point ionizer in any position simply and easily.

For both ionizers: the power pack. The high-voltage power pack with protection type IP54 and protection class I has two high-tension sockets. You can use them to connect both the U ionizer and the point ionizer. A function control built into the power pack indicates faults on an LED display. The patented coaxial plug connection guarantees safe assembly and disassembly in seconds without tools.

Technical data for U ionizer:	
Dimensions of U ionizer section:	14 x 16.5 mm
Dimensions of U ionizer:	270 x 180 mm
High-voltage cable:	Coaxial screened high-voltage cable with fixed length of 2 m permanently connected to the U ionizer
High-voltage connection:	X-2000 plug connection system
Ambient temperature:	Max. +50 °C
Part number:	110091

Technical data for Point ionizer:	
Diameter and length:	16 x 32 mm
Temperature:	bis max. +50 °C
High-voltage cable:	High-voltage cable, permanently connected to the point ionizer
Part number:	110090

Technical data for EN-SL LC power pack:	
Input voltage:	100 V~ / 115 V~ / 200 V~ / 230 V~
Frequency:	50 – 60 Hz
Output voltage:	6.7 kV / 2 high-voltage connections X-2000
Max. short-circuit current:	I_K < 5 mA
Power consumption:	Approx. 15 VA
Protection type:	IP 54
Maximum connection length:	10 m (high-voltage cable incl. ionizer)
Power supply cable length:	Approx. 2 m
Weight:	Approx. 3.5 kg
Temperature:	Max: +50 °C
Part number:	110092

U Ionizer with EN-SL LC power pack & LED display	
Part Number:	110041

U Ionizer with power pack	
Part Number:	110042

Point Ionizer with EN-SL LC power pack & LED display	
Part Number:	110044

Point Ionizer with power pack	
Part Number:	110089