



MICROMATTER

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Technical Note 2017-01

Storage, Handling and Expiry of XRF Calibration Standards

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Micromatter has manufactured XRF calibration standards and reference samples for several decades. Highest quality materials, such as ultra-pure metals or stable inorganic compounds, are deposited onto polyester or track-etched polycarbonate by evaporation methods and characterized by precision weighing and XRF spectroscopy.

Micromatter thin film standards contain minute quantities of materials, typically in the microgram range (μg , 10^{-6} g). They require careful handling and storage under controlled conditions to ensure long-term accuracy.

Micromatter will only honour the manufacturer's warranty set out in our Terms and Conditions of Sale if XRF calibration materials have been stored and handled in accordance with the following instructions.

Storage of Micromatter XRF Standards and Reference Samples

Micromatter standards and reference samples must be protected from moisture as well as mechanical damage.

When not in use, Micromatter standards should be stored at room temperature in desiccators with activated silica gel.

Micromatter standards must never be stored in refrigerators or freezers.



Handling of Micromatter XRF Standards and Reference Samples

Micromatter standards may only be touched on their mounting ring or frame. Ideally, users should wear clean gloves (nitrile or cotton) when handling standards. Alternatively, tweezers may be used.

Never touch the membrane with bare fingers as the standard may be damaged or contaminated.

Never try to 'clean' a Micromatter standard by wiping or rinsing. Replace the standard with a new one if it shows fingerprints, scratches, dust particles, blank spots or other signs of deterioration.



Expiry of Micromatter XRF Standards and Reference Samples

Micromatter does not provide expiry dates for standards and samples. The lifetime of any Micromatter reference material strongly depends on the conditions under which they are used. Furthermore, some materials are more susceptible to deterioration through oxidation or reaction with moisture than others, e.g. salts such as caesium bromide. Multi-element standards and samples that contain various layers of metals and compounds may show signs of galvanic corrosion over time. In contrast, standards manufactured from pure noble metals maintain their accuracy over many years if handled and stored correctly.

Experience has shown that under typical laboratory conditions (indoor use only, controlled atmosphere) Micromatter standards remain within the certified 5% tolerance for at least one year. Their lifetime may be shorter if they are used in high vacuum or helium atmosphere, or at high x-ray power. Rapid deterioration also occurs if standards are used outdoors.