

Calibration of Portable Spectrometer in North Africa

Article Overview

Portable spectrometers in North Africa can be accurately calibrated using certified reference standards and, where needed, accredited regional services to ensure traceable, reliable measurements.

Importance of Calibration

Calibration is essential to ensure that a spectrometer provides accurate, reproducible, and traceable measurements. Over time, portable spectrometers can drift due to aging components, temperature fluctuations, and mechanical wear, which can compromise data quality and lead to incorrect interpretations or regulatory non-compliance. Proper calibration ensures that wavelength accuracy, intensity response, and resolution are aligned with known standards, making results comparable across instruments and laboratories.

Core Calibration Steps

- **Warm-Up and Baseline:** Turn on the spectrometer and allow it to stabilize for 15–30 minutes. Use a neutral reference (blank or white tile) to set the baseline.
- **Wavelength Calibration:** Use certified wavelength standards such as mercury or neon lamps. Record the emission spectrum, identify known peaks, and adjust the instrument to match these reference wavelengths.
- **Intensity Calibration:** Employ calibrated light sources or standard reference materials to verify the photometric response. Adjust the instrument to correct any deviations

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Conclusion Maintaining calibration traceability in portable spectrometers is a multifaceted challenge that requires

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