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Calibration and Environmental Monitoring Using PGIS-128 Gamma-ray Spectrometer

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The portable PGIS-128 gamma-ray spectrometer, produced by Pico Envirotec, Inc., Canada, was originally designed for the geological purposes and the determination of K, U and Th concentrations in soil and rocks. The device is fully calibrated for K, U and Th. However, its functions have been extended, and now the gamma-ray spectrometer is available with the dose rate function (in nGy/h) and the Cs-137 window (in cps) measured in real time. Due to one-second sampling and real-time processing, now PGIS-128 can be used for fast and precise environmental monitoring at relatively large environmental areas with on-line mapping on the HHC display and/or the post-mapping. To calibrate the PGIS gamma-ray spectrometer and to convert the count rates (cps) in the Cs-137 window to the surface activity of Cs-137 (in kBq/m²), the Beck's method or the standard stripping method can be used. This contribution is focused on the Beck's method. Some results and the measurement conditions are also presented.

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