ID: **P3.2-279** Type: **e-Poster**

Proficiency Test Exercises (PTE) : Bringing Certainty into Uncertainty

Thursday 1 July 2021 09:15 (1 minute)

The international monitoring network of radionuclide stations of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) is supported by 16 radionuclide laboratories. As part of a continuing performance evaluation programme for these laboratories PTEs have been organised for the particulate and noble gas measurement capabilities of the IMS laboratories. PTS has been evaluating additional tools to the standard PTE grading scheme to assist laboratories with improving quality of results. This includes the statistical evaluation of zeta test scores and evaluation of measurement data including interferences. One of the critical steps in analysing a gamma spectrum includes the decision on which nuclides are present in the sample. Statistical methods employed in standard commercial software for evaluating whether the measurement signal is consistent with background noise ignore complications that may arise from interfering radionuclides. We present results for extracting information on uncertainties from zeta statistics and of applying a modified method for determining characteristic limits based on ISO11929:3 (2019) to experimental spectra.

Promotional text

Proficiency Test Exercises not only provide performance evaluation of IMS laboratories, but can also provide additional tools for laboratories to improve the quality of their analysis.

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Session Classification: T3.2 e-poster session

Track Classification: Theme 3. Verification Technologies and Technique Application: T3.2 - Laboratories Including Transportable and Field Based Facilities