

Accuracy of particulate sample analysis with a BEGe detector

Accurate gamma spectrometric measurements are depended on correct values of several parameters. One of these is corrections for true summing coincidences of the gamma emitted by the assayed radionuclides. Coincidence summing correction factors are nuclide specific and should be applied to relevant measured peak areas to obtain accurate activity results. In the study several radionuclides for IDC event screening from particulate samples will be analysed looking at summing coincidence effects. These samples contain fission and activation products acquired using BEGe detector. Correction factors are obtained by software based on Monte Carlo calculations. A comparison of coincidence summing correction factors will be made between an available commercial software package (LabSOCS) and a specifically developed software package (VGSL), developed by Radionuclide Development Unit of the IDC of the CTBTO designed to accordingly provide quality assessment of the data delivered by eighty (80) international monitoring stations distributed around the world to monitor nuclide emissions after illegal nuclear tests, either in the atmosphere or underground. The results of the coincidence summing correction factors from relevant radionuclides of particulate samples will indicate the accuracy of the activity results, if the factors generated by LabSOCS will be identical or may be complemented by VGSL software factors.

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