

The estimation of the ^{210}Pb bremsstrahlung contribution to the background of lead shielded γ -spectrometers

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A simple method of ^{210}Pb in lead from the intensity of the 46.5 keV γ -ray is described. Although, the 46.5 keV γ -intensity in the background can be easily reduced by inner lining the bremsstrahlung from the 1.2 MeV maximal energy β -decay will reach the shielded detector. The spectrum of this bremsstrahlung is calculated by numerically fitting the β -spectrum and integrating the Bethe-Heitler formula. The adsorption of the bremsstrahlung spectrum in the lead is calculated by the effective solid angle algorithm by comparison with the measured background spectrum. It is shown, that for the lead with 25 Bq/kg of ^{210}Pb , at 100 keV the bremsstrahlung contribution to the background is about 20%.