

THE MEASUREMENT OF THE LOW LEVELS OF RADIOACTIVITY BY LIQUID SCINTILLATION ALPHA AND BETA SPECTROMETER QUANTULUS 1220

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The Quantulus 1220 is a liquid scintillation counting (LSC) system for the quantitative measurement of extremely low levels of alpha and beta activity. With both passive and active shielding, the Quantulus 1220 employs a universal background reduction system which is optimized according to type of analysis.

The active shielding is the asymmetric liquid scintillator guard. The active shielding is used in anticoincidence with the analogue to digital converter (A/D converter). This means that if the guard registers a signal simultaneously with a coincidence signal in the detector the guard detector will inhibit the A/D conversion.

In the Centre of Isotopic Research (CIR) of FGBU "VSEGEI" Quantulus 1220 is used for radiocarbon (^{14}C) dating of various organic objects (wood, peat, soil, bottom sediments, bones), dating young bottom sediments using ^{210}Pb as well as determination the tritium content in water.

The minimum detectable concentration of tritium in water is approximately 1 Bq/L.

The obtained results are presented as the alpha and beta decay spectra of radioactive isotopes with calculations of the specific activities and radiocarbon ages.

The speaker is a student or young scientist

No

Section

1. Applications of nuclear methods in science and technology

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