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Title

Development Of Method For Simultaneous Measurement Of Gross Alpha And Beta In Aqueous Environmental Samples

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Measurement of gross alpha and beta in aqueous environmental sample using standard method is a very lengthy, tedious and time consuming process. Alternatively, liquid scintillation counting (LSC) offers a better solution, since the latest model of LSC offer simultaneous counting of gross alpha and beta. The success of LSC technique will depend on two factors; first is the proper setting of the LSC window and its pulse shape analyzer (PSA) concluded in the new protocol for alpha beta simultaneous counting. Secondly, the successful incorporation of the water phase which contains the radionuclides into the organic solvent phase using proper choice of emulsifier which produce a clear stable solution with reasonably high counting rate and figure of merit. This new developed method was validated to ensure that it gave accurate and precise

results and the method was verified. Later, the method was applied for measuring various types of environmental water samples including river water, lake water, hot spring water, sea water, mineral and drinking water. The activity concentrations of gross alpha and gross beta in various types of water were above the limit of National Water Quality Standard except for bottled mineral and drinking water. Another aspect of this study was to construct the gross alpha and gross beta spectra using Microsoft excel in order to identify the radionuclides present in the samples through their spectrum. Therefore the result was not only based on the count rate but also the spectrum of the samples. Additional information from the spectrum will help researcher to plan for further analysis if needed.