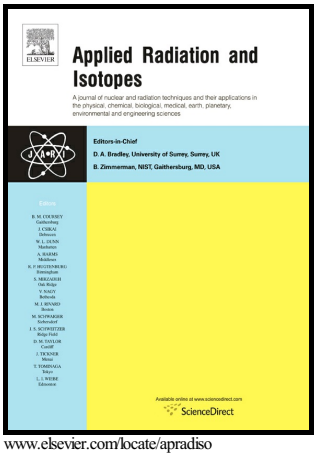

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Abstract

From a commercial supplier a solution containing ^{134}Cs has been standardized at National Laboratory for Ionizing Radiation Metrology (LNMRI) for the first time using three Liquid scintillation based measurement. These measurement methods are 4πβ-γ live-timed anticoincidence counting, 4πβ-γ coincidence counting and ^{3}H-standard efficiency tracing with the CNET methods. The results obtained by anticoincidence counting was adopted as reference value and its combined uncertainty was 0.38 %. The agreement of this reference value with coincidence counting and CNET methods were 0.39 % and 0.34 % respectively and were in consistency with each uncertainty method. The weighted mean results coincidence counting and CNET methods are also in close agreement 0.03 % with anticoincidence counting method and meets the requirement of primary and national standard.

This standardization was made in order to reduce the uncertainty in ^{134}Cs measurement in Brazil and also following a request made by Bureau International des Poids and Mesures for new submission to International Reference System. The LNMRI last submission was made in 1987. Therefore from a ^{134}Cs master solution a NIST ampoules was prepared and LNMRI/IRD submitted it to the International Reference