

P. 350 CALIBRATION OF SURFACE CONTAMINATION MONITORS IN ALPHA AND BETA RADIATION STANDARD FIELDS

Linda V. E. Caldas and Marcos Xavier

Instituto de Pesquisas Energéticas e Nucleares - CNEN
Travessa R, 400 - Cidade Universitária
05508-900, São Paulo - SP Brasil

The need for effective monitoring of surface contamination is quantified in terms of activity per unit area; this quantity being used to specify the derived limits, that are incorporated in the national regulations of radiation protection. These regulations recommend the calibration of all health physics instruments every 12 months. In the case of surface contamination monitors, a special set-up and a method were developed at the Calibration Laboratory of São Paulo, using standard alpha and beta radioactive sources and international recommendations. The monitors were calibrated using ^{241}Am , ^{14}C , ^{36}Cl and $^{90}\text{Sr} + ^{90}\text{Y}$ sources, and the instrument efficiency was determined for each case for alpha and beta radiation. Results are presented for the calibrated instruments during the year 2000.

P. 355 PRIMARY STANDARDIZATION OF ^{242}Am RADIOACTIVE SOURCES

Nora L. Maidana*, Mauro S. Dias, Marina F. Koskinas

Instituto de Pesquisas Energéticas e Nucleares, IPEN - CNEN/SP
Caixa Postal 11049 05422-970 - São Paulo, Brasil

The procedure followed by the Laboratório de Metrologia Nuclear in São Paulo, Brazil, for the standardization of ^{242}Am is described. The calibration system was composed of a 4π gas-flow proportional counter coupled to a pair of NaI(Tl) crystals operating in coincidence. The samples were produced by irradiating dried aliquots of ^{241}Am with thermal and epithermal neutrons at the IEA-R1 research reactor. The efficiency tracer technique has been applied using ^{60}Co as tracer. The beta detection efficiency was changed by external absorbers and extrapolated to unity by linear least square fitting applying covariance methodology.

P. 357 SISTEMA ESPECTROMÉTRICO MULTIESFERA CON DETECTORES TERMOLUMINISCENTES

Juan A. Cruzate, Beatriz N. Gregori, Susana B. Papadópolos, Juan J. Kunst

Autoridad Regulatoria Nuclear
Av. Del Libertador 8250- Buenos Aires – Argentina

En este trabajo se presenta el desarrollo de un sistema espectrométrico de neutrones basado en un conjunto de esferas moderadoras con detectores termoluminiscentes (TL). El sistema permite realizar, con fines de protección radiológica, mediciones de espectros de neutrones en campos pulsados producidos en aceleradores de uso médico, aceleradores de investigación, mediciones de dosis en transporte aéreo. El sistema está compuesto de 12 esferas de polietileno de alta densidad con diámetros comprendidos entre 2" y 12", con detectores TL sensibles a radiación gama (TLD-700) y a radiación neutrónica y gama (TLD-600) colocados en el centro de cada esfera. La matriz de respuesta energética a neutrones del sistema se obtuvo teóricamente utilizando el código Monte Carlo MCNP4B para el rango de energías comprendido entre térmicos y 100 MeV cuyas secciones eficaces se obtuvieron de