

AIR-EQUIVALENT IONIZATION CHAMBER

D. Novković, P. Mirić and R. Ilić

Institute of Nuclear Sciences "Boris Kidričh", Beograd

The characteristics of the air-equivalent ionization chamber intended for routine measurements of exposures have been investigated.

The air-equivalent material was mixture 91% polycarbonate ($(C_{16}H_{14}O_3)_n$) and 9% "E" glass (54% SiO_2 ; 1% Al_2O_3 ; 1% Fe_2O_3 ; 1% $Na_2O_2 + K_2O$; 1% TiO_2 ; 15% CaO ; 5% MgO and 8% B_2O_3). This was equivalent to the mixture of commercial thermoplastics: 55% Makrolon-3100 natural and 45% Makrolon-3020 natural (Bayer).

The investigated chamber of active volume 1 l. and wall thickness 2 mm was obtained by injection moulding. The internal walls of the chamber were coated by a conductive air-equivalent layer composed of 49 g. graphite; 5 g. Al; 7 gr. Al_2O_3 ; 18 g. polystyrene; 15 g. eccobond 24-part A and 7.5 g eccobond 24-part B.

The response of the investigated ionization chamber was slightly depends on gamma radiation energy in the energy range 0,06-1, 25 MeV (Fig.1.).

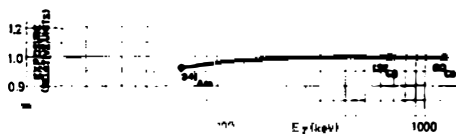


Fig.1.