

The Comparative Study of the Radiation Shielding of (60-x) PbO-x Li₂O-40 B₂O₃ (where $0 \leq x \leq 25$ mol%) Glass System by Using FLUKA to XCOM and the Previous Experimental Data

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We had investigated the efficacy of FLUKA Monte Carlo (MC) code for the gamma radiation shielding parameter calculation of the (60-x) PbO-x Li₂O-40 B₂O₃ (where $0 \leq x \leq 25$ mol%) glass system. The mass attenuation coefficients (μ_m), the effective atomic number (Z_{eff}), the effective electron density (N_{ei}), mean free path (MFP) and half value layer (HVL) were investigated in the various sample of glasses for photon beams at different energies, 356, 662, 1173, and 1332 keV. Then we compared the results to the standard XCOM and the previous real experimental data. We found that the calculated values agree well with measured values from recently published experimental work, for which the maximum relative deviation is less than 1.5 % for all the glass samples.

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