

Effective Atomic Number and Electron Density Studies in Some Water Equivalent Phantoms for MV X-Rays

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Abstract. A simple procedure has been presented for calculation of effective atomic numbers (Z_{eff}) and electron densities (N_{eff}) in some water equivalent phantoms namely PMMA, Polystyrene, Solid Water (WT1), RW3 and ABS for MV X-rays which are heterogeneous in energy. Firstly, effective atomic cross sections have been determined to obtain effective photon energies which were further used for calculation of Z_{eff} and N_{eff} . Similar procedure was adopted for Co-60 X-rays to check the validity of the present method. Results were found to be quite satisfactory. With the help of this method, it can be possible to obtain Z_{eff} and N_{eff} of different materials for MV X-rays.