**X- and γ-ray interaction characteristics and**

**dosimetry of tissue substitutes**

**Abstract**

Detailed information of radiation interaction, exposure and dose delivery to tissue substitutes is necessary for various branches of radiation physics [1,2]. Several materials have been proposed as tissue equivalent whose performance is best than ordinary water [3]. In the present investigation X- and γ-ray interaction characteristics and dosimetry of some tissue substitutes have been studied and compared with standard tissues. Effective values such as: Atomic numbers, Electron densities, absorbed dose and kerma in air have been calculated using ZE and MC codes. Through measurements the equivalent kerma in air was measured for the materials here presented. Calculations were validated through the measurements using the ANOVA test. The polymer Soft® has the best performance in comparison with real human soft tissue being different in less than 1% in terms of kerma in air equivalence. Using easy-to-get materials, tissue equivalents can be made having dosimetric performance alike to soft tissue.

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