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Gamma-ray shielding and structural properties of strontium–lead–silicate glasses

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The gamma-ray attenuation coefficients of strontium–lead–silicate glasses have been measured by using a narrow beam transmission technique for gamma ray photon energies at 122, 662, 1173 keV and X-ray attenuation technique for gamma ray photon energies at 74.228 keV. These coefficients were then used to obtain the values of mass attenuation coefficients and half value layer. In order to evaluate gamma-ray shielding properties for glass samples, mass attenuation coefficients have been calculated with the WinXcom computer software. The results have been used to calculate half value layer parameters. The molar volume, FTIR, longitudinal velocity and longitudinal modulus have been used to study the structural properties of the prepared glass system.

Keywords: Glasses, Radiation shielding, Gamma-ray attenuation coefficients

Author: GUNHAKOON, Pattaranipa (Department of Physics, Faculty of Science, Ubon Ratchatani University, Warinchamrab, Ubon Ratchatani, 34190, Thailand.)

Co-authors: JAIBOON, Oruethai; PENCHAREE, Somkid; LAOPAIBOON, Jintana (UBU); Mr LAOPAIPOON, Raewat; Mr YENCHAI, Chadet (Chulalongkorn University)

Presenter: GUNHAKOON, Pattaranipa (Department of Physics, Faculty of Science, Ubon Ratchatani University, Warinchamrab, Ubon Ratchatani, 34190, Thailand.)

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