

Structural and Leaching Properties of Irradiated Lead Commercial Glass by Using XRD, Ultrasonic, UV-VIS and AAS Technique

Authors : N. H. Alias, S. A. Aziz, Y. Abdullah, H. M. Kamari, S. Sani, M. P. Ismail, N. U. Saidin, N. A. A. Salim, N. E. E. Abdullah

Abstract : Gamma (γ) irradiation study has been investigated on the 6 rectangular shape of the standard X-Ray lead glass with 5/16" thick, providing 2.00 mm lead shielding value; at selected Sievert doses (C1; 0, C2; 0.07, C3; 0.035, C4; 0.07, C5; 0.105 and C6; 0.14) by using (XRD) X-ray Diffraction techniques, ultrasonic and (UV-VIS) Ultraviolet-Visible Spectroscopy. Concentration of lead in 0.5 N acid nitric (HNO₃) environments is then studied by means of Atomic Absorption Spectroscopy (AAS) as to observe the glass corrosion behavior after irradiation at room temperature. This type of commercial glass is commonly used as radiation shielding glass in medical application.

Keywords : gamma irradiation, lead glass, leaching, structural

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