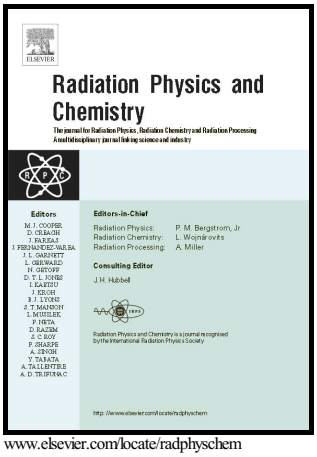
Author's Accepted Manuscript

Shielding Properties of $80TeO_2$–$5TiO_2$–(15−x) WO_3–xA_nO_m Glasses using WinXCom and MCNP5 code

M.G. Dong, R. El-Mallawany, M.I. Sayyed, H.O. Tekin



www.elsevier.com/locate/radphyschem

PII: S0969-806X(17)30139-1
DOI: http://dx.doi.org/10.1016/j.radphyschem.2017.07.006
Reference: RPC7583

To appear in: *Radiation Physics and Chemistry*

Received date: 2 February 2017
Revised date: 19 May 2017
Accepted date: 3 July 2017

Cite this article as: M.G. Dong, R. El-Mallawany, M.I. Sayyed and H.O. Tekin Shielding Properties of $80TeO_2$–$5TiO_2$–(15−x) WO_3–xA_nO_m Glasses using WinXCom and MCNP5 code, *Radiation Physics and Chemistry* http://dx.doi.org/10.1016/j.radphyschem.2017.07.006

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Shielding Properties of $80TeO_2–5TiO_2–(15−x)\ WO_3–xA_nO_m$ Glasses using WinXCom and MCNP5 code

M. G. Dong[1], R. El-Mallawany[2], M.I. Sayyed[3*], H.O. Tekin[4]

[1]Department of Resource and Environment, School of Metallurgy, Northeastern University, Shenyang 110819, China,

[2]Physics Dept., Faculty of Science, Menofia University, Egypt,

[3]Physics Dept., University of Tabuk, KSA,

[4] Radiotherapy Dept., Vocational School of Health Services, Uskudar University, Turkey

mabualssayed@ut.edu.sa

Accepted manuscript

Abstract

Gamma ray shielding properties of $80TeO_2–5TiO_2–(15−x)\ WO_3–xA_nO_m$ glasses, where A_nO_m is Nb_2O_5=0.01, 5, Nd_2O_3= 3, 5 and Er_2O_3=5 mole % have been achieved. Shielding parameters; mass attenuation coefficients, half value layers, and macroscopic effective removal cross section for fast neutrons have been computed by using WinXCom program and MCNP5 Monte Carlo code. In addition, by using Geometric Progression method (G-P), exposure buildup factor values were also calculated. Variations of shielding parameters are discussed for the effect of REO addition into the glasses and photon energy.

Key Words: Tellurite glasses; shielding Properties; MCNP5

1. Introduction:

Download English Version:

https://daneshyari.com/en/article/5498992

Download Persian Version:

https://daneshyari.com/article/5498992

Daneshyari.com