Calibration constant of a silver activation counter used with plasma focus devices

G R Etaati¹, R Amrollahi¹ and V Doostmohammadi²

1. Physics and Nuclear Science Department, Amir Kabir University of Technology, P. O. Box 15875-4413 Tehran, Iran
2. Nuclear Engineering Department, Islamic Azad University, Science and Research Branch, Tehran, Iran
E-mail: etaati.reza@gmail.com

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Abstract

The silver activation counters are commonly used for pulsed-neutron yield measurements especially in plasma focus devices. The counter normally consists of a Geiger-Muller tube along with silver foils and polyethylene (as a moderator), which is calibrated against an Am-Be radioisotope neutron source. The neutrons, after being slowed-down in the polyethylene, activate the silver foils. By measuring the foil activity with a Geiger-Muller counter, the neutron yield is determined. In the present paper, the activation counter’s calibration constant calculation using the MCNP4C code is explained. The calculated calibration constant is in good agreement with the experimental results.

Keywords: silver activation counter; plasma focus; MCNP4C Code; calibration constant; neutron

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