
COMPUTED INDUCED ACTIVITIES FOR TRACE ELEMENT CONCENTRATION OF HUMAN BLOOD SERUM BY 14-MeV NEUTRONS

Aida A. Abboud

Reactor and Neutron Physics Department, Nuclear Research Centre, Atomic Energy Authority, Cairo, Egypt

Human blood serum constitutes traces of the following elements: chromium, manganese, iron, nickel, copper, zinc, selenium, bromine and lead. The induced activities per gram per unit flux, when performing appropriate reactions for the isotopes of the prementioned elements, have been computed using about 14-MeV neutrons induced primary reaction cross-sections. These cross-sections are done using the computer code Exifon which is based on an analytical model for statistical multistep direct and multistep compound reactions. The agreement between the computed cross-sections and the available experimental data is fairly good. The induced β or γ activities for the (n, p) and (n, α) reactions for the isotopes of the prementioned elements with half-life-times of residual nuclei ranging from few seconds to several hundreds of years, per gram per unit neutron flux have been computed.