ID: **P2.4-610** Type: **E-poster**

Comparison on Using Different Cross-sections for Simulating the Radioxenon to Radioargon Activity Ratios Created by Neutron Activation

Thursday, 22 June 2023 11:45 (1 minute)

Argon-37 is produced via neutron activation of stable argon or calcium in nuclear reactors. This isotope is used in on-site inspection (OSI) activities. Therefore, its background in the atmosphere from nuclear reactors is an important parameter in interpreting the OSI measurement results. Since its measurement is complicated, only few reports exist on the amount of its production in the reactors. The radioxenon isotopes or Ar-41 can be used as a proxy for Ar-37, if both are produced through neutron activation. The activity ratio of the proxy to Ar-37 can be used to determine the source term of Ar-37. In this presentation the parameters affecting the simulation of these ratios are presented, most importantly the cross-section. The results for different cross-sections are compared and discussed.

Promotional text

The measurement of Ar-37 is difficult and its releases from nuclear reactors not well known. By using Ar-41 as proxy for Ar-347, its reactor inventory can be investigated, and the release rates may be estimated.

E-mail

pouneh.tayyebi@gmail.com

Oral preference format

in-person

Primary author: TAYYEBI, Pouneh (Nuclear science and technology research institute, NSTRI)

Co-author: Mr KALINOWSKI, Martin B. (CTBTO Preparatory Commission)

Presenter: Mr KALINOWSKI, Martin B. (CTBTO Preparatory Commission)

Session Classification: Lightning talks: P2.4

Track Classification: Theme 2. Events and Nuclear Test Sites: T2.4 Atmospheric and Subsurface Radionuclide Background and Dispersion