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Xe and Kr Radionuclides Generator for Calibration and Functional Testing of Equipment

Radionuclide 252Cf is disintegrate main by alpha decay, half-life period T1/2 =2.645 years (97%) and also by spontaneous fission with T1/2 =86 years (3%). Number of spontaneous fissions ~610 fissions . sec-1 .ng-1. Thus, in 252Cf specimen the whole spectrum of fission products (fragments) is formed, including 133Xe, 135Xe), etc. Xe radionuclides generator is designed as a stainless steel hermetic cylindrical ampoule 8 cm3 by volume. The generator contains about 1.5 ng of 252Cf; gamma-radiation dose rate is not more than 0.4 microSv/h at the distance of 15 cm from the protective case; neutron flux is ~2400 neutron/sec. • During one month are accumulated: • 133Xe - 19 Bq, • 135Xe - 25 Bq,• 133mXe- 0.6 Bq,• 131mXe ~0.1 Bq per /ng 252Cf. Radionuclide 131I (T1/2=8.02 days), which decays to 131mXe, can be added to the Xe(Cf)-generator. Then the removed xenon radionuclides gases mixture will be enriched in 131mXe.
Thus the generator may be used as the system for radionuclides monitoring stations, laboratories and on site inspection teams in field use.
The construction of Xe-Kr radionuclides generator as a sealed source provides its classification in accordance with International radiation safety regulations.

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