



Contribution ID: 233

Type: Poster

Gross α ; activity determination in water and ^{210}Po

Tuesday, 20 April 2010 11:45 (20 minutes)

The gross alpha activity is defined as the total activity of the alpha emitters. Gross alpha and beta activity screening methods have been developed to determine if radionuclides specific analysis is required to further characterize the water. There may be a loss of radionuclides during storage of water sample caused by the adsorption onto the container wall and by the precipitation and coprecipitation. It is generally recognized, however, that these effects can be minimized by acidification of the samples after collection utilizing HNO_3 or HCl .

Polonium 210 is an alpha emitter, a member of the uranium decay series. This radionuclide originates by radioactive decay of ^{222}Rn . In water with elevated amount of ^{222}Rn , the presence of ^{210}Po can contribute significantly to the measured value of the gross alpha activity.

The methods for gross alpha activity analysis of drinking water are often based on sample evaporation and heating at the temperatures exceeding 100 °C. At such temperatures, can ^{210}Po become volatile in dependence of its chemical form and therefore the gross alpha activity can be underestimated. Our contribution will compare and discuss several routines of sample preparation considering the possible losses of ^{210}Po .

Primary author: Dr SVĚTLÍK, Ivo (Nuclear Physics Institute AS CR, Na Truhlarce 39/64, 180 86 Prague)

Co-authors: Ms BELANOVA, Alena (Water Research Institute, Nabrezie arm. gen. L. Svobodu 5, 812 49 Bratislava, Slovakia); Dr IVANOVOVA, Diana (T. G. Masaryk Water Research Institute, Podbabska 30, 160 00 Prague, Czech Republic); Dr HANSLIK, Eduard (T. G. Masaryk Water Research Institute, Podbabska 30, 160 00 Prague, Czech Republic); Dr MERESOVA, Jana (Water Research Institute, Nabrezie arm. gen. L. Svobodu 5, 812 49 Bratislava, Slovakia); Ms TOMASKOVA, Lenka (Nuclear Physics Institute AS CR, Na Truhlarce 39/64, 180 86 Prague); Dr VRSKOVA, Marta (Water Research Institute, Nabrezie arm. gen. L. Svobodu 5, 812 49 Bratislava, Slovakia); Ms NOVAKOVA, Tereza (Nuclear Physics Institute AS CR, Na Truhlarce 39/64, 180 86 Prague)

Presenter: Dr SVĚTLÍK, Ivo (Nuclear Physics Institute AS CR, Na Truhlarce 39/64, 180 86 Prague)

Session Classification: Poster Session - Nuclear Analytical Methods

Track Classification: Nuclear Analytical Methods