



Contribution ID: 196

Type: Poster

Measuring of gross α ; and β ; activity by means of LSC

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

Measuring of gross alpha and beta activity of radioactive aerosols is one of the tasks of field analyses of radioactive substances in the army of the Czech Republic. It is performed by suction of air through filters and measuring of gross activity. Furthermore the field analyze includes determination of gross alpha and beta activity of water, milk, soil, food, smear and gamma spectrometric measurement.

The problem of determination of gross alpha and beta activity of aerosols filters by means of LSC is solved. This method is perspective and appropriate for rapid measurement of gross alpha and beta activity because of alpha and beta separation, thus simultaneous measurement of alpha and beta radionuclides and 4π geometry without any filter modification.

The method is based on Automatic TDCR Liquid Scintillation Counter Hidex 300 SL. Model radionuclides were chosen due to their military significance, radio toxicity and possibility of misusing by terrorists - ^{90}Sr , ^{210}Pb , ^{239}Pu a ^{241}Am .

Three type of filters were investigate –paper and glass filters in LSC cocktail insoluble and soluble or partially soluble nitrocellulose filters. The attention was also paid to selection of convenient type and volume of the LSC cocktail.

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Session Classification: Poster Session - Nuclear Analytical Methods

Track Classification: Nuclear Analytical Methods