UNIVERSITY OF PANNONIA

SUBJECT DATASHEET

Semester:	2011/12/1
Subject:	Laboratory Practices in Radioecology
Code:	VEMKRKR136R
Responsible department:	Institute of Radiochemistry and Radioecology
Responsible department code:	MKRK
Responsible lecturer:	Tibor Kovács

Educational objectives:

Basics of nuclear metrology, measurement of environmental samples

Detailed content of the subject:

General rules in an isotope laboratory, accident protection, radiation protection. Preparation of environmental samples for measurements. Measuring with GM tube I (working point, increasing, efficiency, relaxation time, statistics of measurements) Measuring with GM tube II (spread of beta-radiation, measuring of self-absorption and absorption, absolute beta activity) Gamma spectrometry with scintillating detector (working point, efficiency, evaluating spectra, identifying of peaks, precision) Gamma spectrometry with semi-conductor detector (energy calibration, precision, determining the efficiency with absolute and relative method) Measurements of radon and thoron concentration of soil gas, exhalation of radon and soil permeability Measuring and qualification the radionuclide concentration and radon emanation of building materials. Rn-222 and Ra-226 concentration measurements in drinking water, calculating of exposition. Measuring of alpha action radius, measuring of Po-concentration in plant samples with semi-conductor detector. Calibration of gamma dose power meter, measuring of environmental dose power, calculating of exposition. Exposition of radiation sources and radioactive contaminant on the soil surface, calculation of shielding. Measurement of environmental samples with semi-conductor gamma spectrometry (qualitative and quantitative analysis). Measurement of total alpha and beta activity with gas convection counter and shape discriminator scintillation detector.

Requirements:

All the proper practices are to be executed by the students admitted the subject either on regular or on extra dates offered. To test the preparedness of the students they have to provide an entrance digger and the results of it contribute to the classification mark of the practice. The results of the determinations provided in the laboratories, including some intermediate data to control the endpoints, are to be presented in a protocol. The protocols are collected at the end of the practice and classified the conductor. The average of the marks of the protocols is reported as the endpoint of the practice.

Required and suggested references:

Radiokémiai laboratóriumi gyakorlatok, A VE Radiokémia Tanszék jegyzete, VE Kiadó, 1996. Radioökológiai laboratóriumi gyakorlatok. A VE Radiokémia Tanszék kézirata, 1998.

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