DETERMINATION OF $^{238}U/^{234}U$ RATIO BY MEANS OF LIQUID SCINTILATION TECHNIQUE

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A new method of simultaneous determination of uranium isotopes ^{238}U and ^{234}U by use of liquid scintillation technique was developed.

The determination of ^{238}U and ^{234}U is possible due to the different time function of alpha and beta activity of the sample caused by decay products ^{234}Th and ^{234}Pa created in the sample after chemical separation of uranium.

The time function of the sample activity depends on the $^{238}U/^{234}U$ ratio. This ratio is widely used in hydrological investigations.

After chemical separation of uranium from the water sample, the activity is measured in different time intervals. Then, the activity of ^{238}U and ^{234}U is calculated by solving a simple equations system.

The method has been applied for uranium isotopes determination in highly mineralized radium-bearing waters from the Upper Silesian Coal Basin.