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Determination of Uranium Isotopes Composition Using LSC

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Fast, simple and effective method for determination of enrichment/depletion of uranium samples that can be used not only in the laboratory but also for unknown samples at inspections outdoors, it is for longer time in insistent demand of specialists. The technique of liquid scintillation counting (LSC) in the mobile mode represented by Triathler LSC Counter (Hidex Oy) could be a valuable tool for this type of measurement. Application (usage) of this equipment allows several advantages: determination of enrichment/depletion under off-road conditions, combination of alpha, beta and Cherenkov counting (gives a complete picture required), milligram or even sub-milligram amounts of the sample (comparing e.g. to gamma-ray spectrometry), and easy preparation of the sample by mixing of U-salt with scintillation cocktail (comparing to e.g. alfa-spectrometry). The method can be used as the final step of suitable separation/concentration method.

The method was also adjusted as a task for students in "Practical exercises in radiochemistry techniques" in the educational programme "BSc in Nuclear Chemical Engineering".

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