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Joint determination of ⁹⁹Tc and ^{108m}Ag in L/ILW liquid wastes

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The low- and intermediate-level liquid wastes produced by the Paks Nuclear Power Plant (NPP) contain routinely measureable gamma-emitting (e.g. Mn-54, Co-60, Ag-110m, and Cs-137) as well as many so-called "difficult-to-measure"isotopes. Despite of their low specific activity compared to the total, the reliable determination of these isotopes is an important issue of nuclear waste management. The increasing amount of waste samples to be qualified yearly by our laboratory put a pressure on revising the existing procedure of Tc-99 separation applied. We have managed to halve the initial amount of the sample required to achieve the same level of MDA of technetium. Furthermore, one of the new purifying steps introduced have proved to be able to separate Ag-108m (and Ag-110m) better than 99% keeping the Tc-99 content of the product almost intact. As intended, this new procedure has a major impact on the chemical reagent as well as the electricity requirement of the separation making it more cost-effective.

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