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Determination of uranium in calcareous rocks/minerals after separation by NTA-mediated sample dissolution and cation-exchange

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ABSTRACT
The separation and determination of uranium in calcareous samples (e.g. calcite, phosphogypsum and phosphate rock) has been investigated by means of alpha-spectroscopy after dissolution of the samples by nitrilotriacetic solution (NTA), uranium separation by cation-exchange and electrodeposition on stainless steel planchets. Method recovery as well as uranium analysis and isotopic ratio composition of the samples was performed using a uranium standard tracer solution (232U). Comparison of the data with corresponding data obtained from experiments after EDTA-dissolution have indicated lower selectivity for uranium and coextraction of radium isotopes present in the samples, assuming applicability of the method also for radium separation.

Key words: Uranium analysis; Calcite; Phosphogypsum; Phosphate Rock, NTA-mediated dissolution, cation exchange

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