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## Preparation of Fluoride Target Matrices for U-236 AMS Measurement

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In recent years, radionuclide  $^{236}\text{U}$  has become a significant analytical tool. Due to its mostly anthropogenic origin, the main purpose of its determination resides in tracing of human nuclear activities, though it can be used for studying plenty of natural phenomena like natural fission reactors or deep sea currents as well. Since natural samples usually contain only a trace amount of this nuclide, a highly accurate analytical method like accelerator mass spectrometry (AMS) is required. Target sample preparation involves a pre-concentration of raw water or soil eluate obtained from the natural matrix, followed by conversion of uranium contained to a desired chemical form, commonly a uranium oxide. Apart from the oxides, fluoride target matrices have lately become a significant point of interest, particularly due to use of monoisotopic fluorine that provides a considerable decrease in isobaric interferences occurring in the process of analysis. Several methods of fluoride target preparation have been developed and published recently [1], though none of them provided a pure fluoride matrix without contamination by oxygen. Therefore, a new method of fluoride target sample preparation for  $^{236}\text{U}$  is being developed. The main objective is a substantial reduction of the oxygen content while maintaining the procedure itself simple enough for application in routine analyses. The proposed preparation method involves addition of a suitable carrier for uranium to its acidic solution, followed by reduction to +IV oxidation state and coprecipitation with the carrier in a form of fluoride. Uranium separation yield for the samples prepared exceeds 99 %. Particular ion currents, ionisation yields and efficiencies are currently being measured at AMS Vera, Vienna.

[1] Xianggao Wang, Kejun Dong, Ming He, Shaoyung Wu, Shan Jiang (2013) Nucl. Tech. 182, 235-241

**Primary authors:** PRÁŠEK, Tomáš; Dr NĚMEC, Mojmír (CTU FNSPE)

**Presenter:** PRÁŠEK, Tomáš

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