# Solid phase extraction of uranium and thorium from various multi-element standard solution and geological sample

ช่วงเวลาดำเนินการ ปี พ.ศ. 2560 - 2561

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Matrix effect is one of the major problems of the Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) technique. It will provide inaccurate results. In some cases, the ratio of uranium isotope is quite sensitive necessity such as the $^{235}U/^{238}U$ ratio. Solid phase extraction by using UTEVA resin is to separate uranium (U), thorium (Th), and other elements before using ICP-MS measurement. This work tests the extraction process of 2 multi-element standard solutions and three geological samples. The experiment focuses on the percent recovery of U, Th, resin recycling, and the matrix effect of the extracted process. The results show that UTEVA resin is highly selectivity for U/Th with other elements resulting in the matrix effect being reduced. The other benefit of this extraction process is to increase U and Th concentration in samples that can be measured by quadrupole mass spectrometer (or ppb detection limit) and to improve confidential results of unknown samples for nuclear forensics and safeguards aspect.

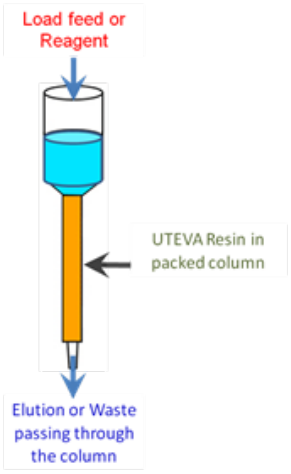


Fig.1. The schematic of separation