

CHARACTERISATION OF A TBP RESIN AND ITS APPLICATION TO THE SEPARATION OF SN

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TBP is an extractant widely used in liquid–liquid extraction, especially in the extraction of actinides, one of its most prominent uses being the Purex process. A TBP based extraction chromatographic Resin has been characterized with respect to the weight distribution ratios D_w of U, Th, Pu and Np, as well as numerous other cations in different concentrations of HCl and HNO₃. This initial characterization showed that the TBP Resin has especially interesting selectivity for Sn in HCl solutions of elevated concentration.

Based on obtained data, elution studies were performed regarding the development of methods for the separation of Sn from various matrices; main focus was placed on two methods:

The first method aims at the determination of long-lived beta emitting Sn isotopes (Sn-121m and Sn-126) in decommissioning and radioactive waste samples. This method is based on a two-step separation procedure: a matrix removal step via an anion exchange resin followed by a final purification of Sn on the TBP Resin.

The second method aims at the direct separation of Sn on the TBP Resin from elevated amounts of Cd as e.g. needed during the production of Sn-117m from Cd targets.

Results of the determination of the D_w values and the respective elution studies will be presented.