absorbance of the organic layer is measured at 410mμ against the reagent blank. Beer's law is obeyed up to 2 ppm. and molar extinction coefficient is 17,00 l./mol. cm. Molybdenum, titanium, copper and a large amount of chromium (III) interfere the determination of iron.

Separation and Spectrophotometric Determination of Uranium by the Extraction of the Dibenzoylmethane Chelate with Butyl Acetate

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Solvent extraction and spectrophotometric determination of uranium as a chelate with dibenzoylmethane were investigated. Dibenzoylmethane reacts with uranium to form a stable chelate, $UO_2[(C_6H_5CO)_2CH]_2$, which is insoluble in water but soluble in chloroform or butyl acetate. The chloroform solution, however, is unstable as seen in the case of uranium acetylacetonate or ferric dibenzoylmethane chelate.

Absorption spectra of the uranium bidenzoylmethane chelate show three maxima at 275, 335 and 400mμ. The last maximum can be used for the determination of uranium.

The effects of the reagent concentrations and pH values were investigated, and EDTA was introduced as a masking agent for the various cations. The analytical procedure was established as follows:

To the sample solution, 2 ml of 10% EDTA solution and calcium chloride solution equivalent to EDTA are added, pH is adjusted to 6-7, and 0.5-1 ml of 5% dibenzoylmethane acetone solution is added. After diluting to about 40 ml, the solution is warmed at 60-70°C for 10-15 minutes. The chelate formed is extracted with 20 ml of butyl acetate and the absorbance of organic layer is measured at 400 mμ or 410 mμ or 410mμ against the reagent blank.

Beer's law is obeyed up to 10 ppm. and the molar extinction coefficients are 20,300 l./mol. cm. at 400mμ, and 17,680 l./mol. cm. at 410mμ. Copper gives a positive error and a large amount of titanium, chromium (III). and ferric irons interfere the deteiminations by the hydroxides precipitations.

In the procedure, the extraction recovery of uranium is quantitative and the extraction method is successfully applied to the separation of uranium from mixed fission products. The decontamination factor, 10^4 is given for a single extraction.