
SHORT COMMUNICATIONS

New Colorimetric Method for the Determination of Uranium with Neo-thorone

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In order to determine a microgram amount of uranium, a new colorimetric method has been developed that is based upon the stable blue colored uranium complex of Neo-thorone¹⁾ (*o*-arsonophenyl-azo-chromothropic acid²⁾) in an aqueous solution.

Absorption spectra of the reagent and of the complex with uranium are respectively presented in Fig. 1a and 1b. These curves were measured in a buffered solution of pH 6.0. The blue colored complex of uranium was formed by adding several micrograms of uranium (as $\text{UO}_2(\text{NO}_3)_2$) and 1.0 ml. of 0.1% reagent solution to a 25 ml. volumetric flask and diluting to the mark with a buffered solution. Color was developed for five minutes and its stability was found to be quite adequate for the determination of uranium, the absorbance being proportional to uranium concentration in the range from 1 $\mu\text{g.}$ to at least 40 $\mu\text{g.}$ At 600 $\text{m}\mu$, the molar extinction coefficient is about 25,000. or 0.0095 $\mu\text{g. U/cm}^2$ corresponding to $\log I_0/I=0.001$. Thus this

1) M. Ishibashi and S. Higashi, *Japan Analyst (Bunseki Kagaku)*, 4, 14 (1955); 5, 135 (1956).

2) V. I. Kuznetsov, *Compt. rend. acad. sci. U.S.S.R.*, 31, 898 (1941).

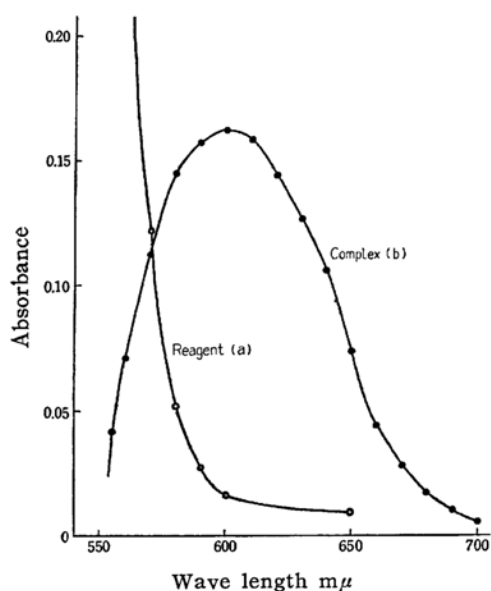


Fig. 1. Absorption spectra of reagent and its complex.

method appears to offer a good basis for the colorimetric determination of a microgram amount of uranium.

Details of the study will be published later.

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