

## Flow injection spectrophotometric determination of europium using chlortetracycline

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**Abstract:** A flow injection (FI) spectrophotometric determination of europium (III) is described, based on the complexation between europium (III), and chlortetracycline (CTC) in a Tris-buffer pH 8.0 medium. The resulting yellow-coloured complex is measured at its absorption maximum of 400 nm after 100  $\mu$ l of sample or standard solution containing europium. (III) are injected into the merged streams of CTC and Tris-buffer solutions. Optimum conditions for determining  $\mu$ g amounts of europium (III) are achieved by univariate method. Various types of reactors are also investigated. It is shown that the use of a single bead string reactor gives rise to the enhancement of peak height. A linear calibration curve over the range of 0.10-0.60  $\mu$ g  $\text{ml}^{-1}$  europium (III) is established with the regression equation ( $n = 6$ )  $Y = 34.93X + 0.01$  and the correlation coefficient of 0.9994 is obtained. A detection limit ( $3\sigma$ ) of 0.01  $\mu$ g  $\text{ml}^{-1}$  of europium (III) and the relative standard deviation (R.S.D.) of 4.32% for determining 1.0  $\mu$ g  $\text{ml}^{-1}$  of europium (III) ( $n = 7$ ) are obtained. The recommended method has been applied to the quantitation of europium (III) in spiked water and stream sediment samples with average recoveries of 99.9 and 97.5%, respectively. The sampling rate is found to be 85  $\text{h}^{-1}$ . (C) 2002 Elsevier Science B.V. All rights reserved.

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