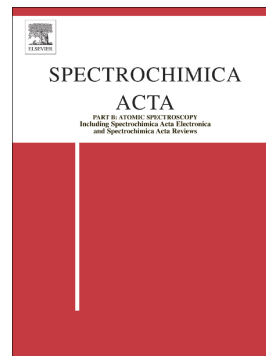


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## **Chelate vapor generation using ethanol as efficiency-enhancing reagent for nickel determination in samples by atomic fluorescence spectrometry**

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### **Abstract**

Chelate vapor generation at room temperature (Che-VG) for nickel determination was investigated by atomic fluorescence spectrometry (AFS). The study showed that ethanol and methanol can significantly enhance the efficiency of volatile Ni-DDTC chelation. Under the optimized conditions, ethanol enhanced the Che-VG efficiency for Ni by 1.7-fold over that without the addition of ethanol and a Che-VG efficiency of 50% was obtained ; furthermore, the limit of detection ( $3\sigma$ ) was  $1.12 \text{ ng ml}^{-1}$  for nickel, and the relative standard deviation for 10 replicate determinations of  $40 \text{ ng ml}^{-1}$  nickel was 2.9%. After the interfering ions were removed by solvent-impregnated resin with a tertiary amine extractant (N235), the nickel in the water samples was accurately determined by the external standard method. The proposed method was successfully applied in the analysis of certified reference materials (GSB07-3186-2014 for water, LD2 for aluminium alloy) and the results were in good agreement with the certified values.

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