

## **Direct photometric determination of lead by manual and flow injection methods with gallocyanine**

### **ABSTRACT**

A direct photometric method was developed for the determination of sub-nanogram levels of lead. The method is based on complexation between lead and gallocyanin, which form a coloured dye ( max 550 nm) at pH 8.0. The determination was based on the use of kinetic approach and in the lead concentration range of  $1.0 \times 10^{-3}$  g/mL to  $1.0 \times 10^1$  g/mL, a smooth calibration curve was obtained. The reaction system can also be successfully adapted to flow injection analysis (FIA). The dynamic range of the proposed flow injection method was  $1.0 \times 10^{-3}$  g/mL to  $1.0 \times 10^2$  g/mL and detection limit was 1.6 ng/mL at a sampling rate of 30 injections per hour. At 1:1 mole ratio of lead to the interfering ion, mercury, iron, aluminium, citrate and fluoride were found to interfere most during the determination.

**Keyword:** Flow injection analysis; Lead determination; Gallocyanin; Photometry