

**A FLOW INJECTION SYSTEM WITH MULTI-SITE DETECTION  
FOR SPECTROPHOTOMETRIC DETERMINATION OF CALCIUM  
AND MAGNESIUM IN SOIL EXTRACTS AND NATURAL WATERS**

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A flow system with multi-site detection was proposed for spectrophotometric determination of calcium and magnesium in KCl soil extracts and natural waters. O-cresolphthalein complexone (CPC) was elected as chromogenic reagent, ammonium-ammonia as buffer system, and EGTA or 8-hydroxyquinoline as masking agents for calcium or magnesium.

Linearity of the calibration equations was observed up to 50.0 mg Ca l<sup>-1</sup> and 15.0 mg Mg l<sup>-1</sup>. Sample throughput was about 160 h<sup>-1</sup>, corresponding to 0.8 mg CPC consumed per sample. Those features are superior relatively to the individual analogous systems because, with multi-site detection, washing time is not a relevant factor in sampling rate.

Relative standard deviations of results were in general < 0.02, and results compare with flame atomic absorption spectrometry. Slight changes in the coefficients of the calibration equations (usually < 3 %) were observed after 4-h working periods. Recoveries after adding 10.0 ml of 15.00 mg Ca<sup>2+</sup> l<sup>-1</sup> plus 5.00 mg Mg<sup>2+</sup> l<sup>-1</sup> to 50.0 ml sample solution were calculated as 97.5 - 104.1 %. When applied to large scale analysis, good repeatability was observed, emphasizing the simplicity, robustness and versatility inherent to flow injection process.