



“Gheorghe Asachi” Technical University of Iasi, Romania



COMPARISON OF FAAS AND XRF PERFORMANCE FOR METAL MONITORING IN BROWNFIELDS

**Maria L. Bizo^{1*}, Carmen Roba¹, Erika A. Levei², Maria-Alexandra Hoaghia^{1,2},
Cristina O. Modoi¹, Alexandru Ozunu¹**

¹*Babeş-Bolyai University, Faculty of Environmental Science and Engineering, 30 Fântânele Str., 400294 Cluj-Napoca, Romania*

²*INCDO INOE 2000, Research Institute for Analytical Instrumentation, 67 Donath Str., 400293 Cluj-Napoca, Romania*

Abstract

Flame atomic absorption spectrometry (FAAS) and X-ray fluorescence spectrometry (XRF) were used as investigation techniques in the assessment of soils contaminated with metals such as Pb, Cu and Zn. The investigation focused on the comparability of the concentrations determined by the two methods, in order to identify the most suitable approach for Pb, Cu and Zn quantification, with respect to metal monitoring in brownfields. Generally, the concentrations obtained through FAAS were comparable with those given by XRF, indicating the suitability of both techniques for contamination monitoring. FAAS proved to be a precise method for the quantification of metal concentrations in soil and had lower limit of detection (LOD) and limit of quantification (LOQ), but was more laborious and required sample processing, while XRF was a faster and practical tool for the metal monitoring in the investigated brownfield.

Key words: brownfield, Cu, FAAS, monitoring, Pb, XRF, Zn

Received: January, 2015; Revised final: October, 2015; Accepted: November, 2015

* Author to whom all correspondence should be addressed: e-mail: bizo.maria@yahoo.com; Phone: +40744475393; Fax: +40264583378