

Analytical Possibilities of X-Ray Fluorescence Spectrometer (XRF) for Trace Metals Determination in Soil by Using Reference Standard

*Mst. Shamsun Nahar¹

1.Earth Consultant Co. Ltd, Toyama, Japan

Abstract

Certified standard reference soils were used in this study for investigating the accuracy, precision and repeatability of the XRF method for metals determination in soil in comparison with the traditional analytical methods.

Major and trace elements in soil cannot be measured simultaneously by using any conventional analytical techniques including atomic absorption spectroscopy (AAS), inductively coupled plasma mass spectrometer (ICP-MS) because for matrix effect. Compared with traditional methods, XRF has some potential advantages for soil heavy metal analysis, it is nondestructive with rapid throughout, simple sample preparation and cost savings mater, avoiding acid digestion is appropriate for field screening for most metals. The objectives of this study were to determine the detection limits, accuracy of analytical data and efficiency of a XRF by using soil standard in comparison with the traditional analytical methods, AAS and ICP-MS in determining of major and trace elements simultaneously of contaminated soils.

Keywords: Soil Standard, ICP-MS, XRF, Matrix Effect, Trace Metals