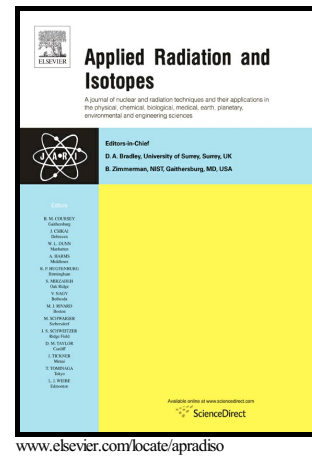


# Author's Accepted Manuscript

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# Investigation of a High-Pressure Pressed Powder Pellet Technique for the Analysis of Coal by Wavelength Dispersive X-ray Fluorescence Spectroscopy

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## Abstract

Using the proposed high-pressure pressed powder pellet technique, a coal sample was pressed into an ideal pellet without binders, which provides a solution to the poor self-binding quality of coal for the determination by X-ray fluorescence spectroscopy (XRF). The pellet produced by this method was more compact and smoother, which was particularly meaningful for spectrometer, where the sample is placed over the tube window. Additionally, the high-pressure sample preparation technique effectively eliminated the effect of falling powder and contamination in the Measuring chamber of the spectrometer.

Wavelength Dispersive X-ray Fluorescence Spectroscopy (WDXRF) was applied successfully to the determination of carbon, nitrogen and ash content in coal samples. This could provide an alternative method for the rapid analysis of carbon, nitrogen and ash content in the coal rather than the combustion method or the high-frequency infrared absorption with a slow ashing method. Furthermore, WDXRF could provide simultaneous determination of other major, minor and trace elements by X-ray fluorescence spectroscopy. The XRF results indicated that the sensitivity, precision, and limit of detection for most components were improved when the coal

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