



## Application Note 54

### Environmental Analysis: Determining the Fuel Value of Waste Materials

Easy direct determination of the percentage levels of Carbon, Hydrogen & Nitrogen (CHN) in waste materials is now possible using the Model 440 CHN Elemental Analyser. Determination of the CHN content of a variety of waste materials can now be completed in just 6 minutes. The resultant CHN data is directly related to the energy content of the waste material analysed.



#### APPLICATIONS

- Analysis of recovered secondary fuel samples.
- Performance testing for Material Recovery Facilities producing solid recovered fuels.
- Performance testing for Mechanical Biological Treatment Facilities producing solid recovered fuels.

## METHODOLOGY

Due to the non-homogeneous nature of most waste materials – samples are dried then shredded and ground to increase homogeneity. Each sample is then typically analysed 3 times and the average of the data taken. The Carbon, Hydrogen and Nitrogen (CHN) data is expressed as a weight per cent figure.

## Benefits of the Model 440 Methodology

The Exeter Analytical Model 440 is robust, easy-to-use CHN analyser with a unique horizontal furnace design enabling easy removal of residue between samples. This is particularly important in the analysis of waste materials as they leave uncombusted residue (metals, inorganics) after each CHN determination. This residue builds up in most CHN analysers resulting in sample carry over to the next analysis. The horizontal furnace design of the Model 440 does not suffer from these effects and combined with the Model 440's enhanced combustion capabilities means you get precise and accurate data on every analysis.

## Conclusion

The Exeter Analytical Model 440 is a proven tool for analysing waste material samples for their fuel value. Free of the associated problems of residue build up the Model 440 is able to determine the percentage CHN (fuel value) more accurately and precisely than any other analyser. **The benefit to your laboratory being .....**

The logo for Exeter Analytical, consisting of the letters 'EAI' in a large, bold, serif font. A horizontal red bar passes behind the letters, with a white highlight on the 'A'.

**EXETER ANALYTICAL**

University of Warwick Science Park, The Venture Centre, Sir William Lyons Road,  
Coventry CV4 7EZ. United Kingdom

Tel: +44 (0)24 76323223 Fax: +44 (0)24 76323221 Email: [sales@exeteranalytical.co.uk](mailto:sales@exeteranalytical.co.uk)