



DO YOU HAVE TOTAL ORGANIC CARBON COMPLIANCE ISSUES?

Business Benefits

Most biomass energy facilities have a 3% total organic carbon (TOC) permit limit for ash.

Char and charcoal are common by-products from biomass incineration. Their presence can lead to an overestimation of TOC values because standard TOC methods cannot distinguish between organic and elemental carbon.

An overestimation of TOC could be the difference between permit compliance and non-compliance.

Are you interesting in being part of a research project to solve this issue?

The Need

WRc has been undertaking in-house research to try and understand the differences in the material properties of elemental and organic carbon to lead to the development of a routine and more accurate TOC test method. Having made some initial advances we have developed the outline of a more comprehensive project to develop a solution to the overestimation of TOC.

The project – Development of a refined TOC test for complex ashes

During the research programme we will liaise with the Environment Agency on a confidential basis to promote the acceptance of the new routine TOC method.

There will be two main activities.

Method development: trial, develop and refine two test methods based on a thermal and wet chemical approach using a range of reference materials.

Ash testing: test biomass ash samples to determine the elemental carbon fraction to refine TOC values.

Being part of this programme will give you the inside track for allowing your ash to be tested with this refined method with the support of the Environment Agency.

This collaborative ground-breaking project would have two major benefits for participating UK based biomass facilities.

Sharing of costs between participants reduces development costs and improves project scope.

Production of a data set from multiple facilities will provide the regulator with confidence when implementing the method as a routine test.

Based on four facilities taking part, the indicative cost per facility would be: £11,900.

The Benefits

Development of this test method will yield the following benefits.

- Consistent plant compliance.
- Reliable data and accurate reporting of TOC values.
- Greater understanding of process chemistry and opportunities for further optimisation.

Why WRc?

WRc has gained the trust of both industry and the regulator for bespoke material characterisation with a strong track record of providing meaningful assessments of industrial products and wastes. We have a rich background in testing industrial ashes of all types, expert scientists and lab facilities. So WRc is well placed to develop a novel testing regime to quantify the elemental carbon fraction in biomass bottom ash working with the regulator to obtain a favourable outcome.

Duration: 6 months
Price per company: Dependent on engagement

WRc Contact: Peter Keely-Lopez

Telephone: +44 (0)1793 865071

Email: peter.keeley-lopez@wrcplc.co.uk

