



Contribution ID: 471

Type: **Poster Presentation**

## Kinetic analysis of the various biomass / coal blends for co-gasification purpose

Wednesday, 10 July 2013 17:40 (1 hour)

### Abstract content <br> &nbsp; (Max 300 words)

Abstract. The paper reports on kinetic analysis of various biomass / coal blends at different mixing ratios for determination of kinetic parameters (activation energy ( $E_a$ ) and pre-exponential factor ( $A$ )) of best mixture for co-gasification purpose. Biomass materials (chicken litter, corn stover, pine wood, eucalyptus wood and cow dung), and coal (sub-bituminous) were used in the study. Thermogravimetric analysis (TGA) was conducted to investigate the kinetic parameters and thermal stability for various biomass/coal blends. A mixture of 90% corn stover and 10% coal resulted in the highest thermal stability compared to others with the activation energy value and pre-exponential factor of  $3.7728 \times 10^{-3}$  J/mol and  $1.4979 \times 10^{-4}$  min<sup>-1</sup> respectively. The thermal analyses obtained for the different blends will be presented and discussed in detail in the paper.

Keywords: Biomass, coal, TGA, Activation energy and pre-exponential factor

### Apply to be<br> considered for a student <br> &nbsp; award (Yes / No)?

Yes

### Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD)?

M.Sc

### Main supervisor (name and email)<br>and his / her institution

Prof E. Meyer  
e-mail:emeyer@ufh.ac.za  
University of Fort Hare (FHIT)

### Would you like to <br> submit a short paper <br> for the Conference <br> Proceedings (Yes / No)?

No

**Primary author:** Mr MABIZELA, Polycarp (FHIT)

**Co-authors:** Ms MABUDA, Iren (University of Fort Hare (FHIT)); Dr MAMPHWELI, Sampson (University of Fort Hare (FHIT))

**Presenter:** Mr MABIZELA, Polycarp (FHIT)

**Session Classification:** Poster2

**Track Classification:** Track F - Applied Physics