

# Kinetics of Lignocellulosic and Polymer Waste using Thermogravimetric Analysis

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## **ABSTRACT**

Extraction of energy from Municipal Solid Waste (MSW) is difficult task because of its heterogeneous nature. It consists of components like papers, plastics, organic matter and non-combustibles; all having different decomposition rate depending upon their individual characteristics. Hence it is necessary to make an effort to determine the degradation behavior of individual components to evaluate the kinetics of the reaction. The present work focuses on the decomposition of one of the major component of MSW i.e. Newspaper waste (about 7-10% by wt) and combination of Newspaper and Plastic based on which the kinetic parameters such as prefrequency exponent (A) and activation energy (E) are obtained at heating rates ( $\beta$ ) 5, 10, 20 °C/min using TG/DTG 32 horizontal differential system balance mechanism. Kinetic Constants will be calculated from the TG/DTG results obtained. The data thus gathered will be useful in the modeling, design and operation of thermal conversion processes for MSW.