Correlation between Arrhenius Kinetic Parameters in Coal Combustion

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Abstrak

The Arrhenius kinetic oxidation parameters of coal combustion have been investigated using a thermogravimetric analyzer. The coal samples, ranging from sub-bituminous to bituminous coats, were selected from coat fields in Sumatra and Kalimantan Indonesia. The thermogravimetric experiments were carried out at a constant heating rate of I0 K min" in air atmosphere with particle sizes ranging from 45 to 53 pm. The objectives of the present works are to: (a) measure the Arrhenius kinetic parameters cf coal combustion and (b) to illustrate the apparent activation energy and pre-exponential factor (the E vs. A) correlation for the range of the studied coal samples. The results show that the values of the kinetic parameters for combustion reactions are affected by the analytical properties of the coals. A strong correlation between Arrhenius parameters is found.