**A Modified Two-step Model of Devolatilization**

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Although complex models of coal pyrolysis have been developed based on chemical structure, simple but accurate models are currently needed for incorporation into large boiler simulation models. Many investigators fit coefficients for a simple model to match predictions of the complex model over a narrow range of heating rate or temperature. In this paper, a modified two-step model for devolatilization is presented. It is used by combining the original two-step model with a corrective function developed as part of the Yamamoto one-step model. The original two-step model works well for predicting yield values of total volatiles and tar for one heating rate, but is not as accurate if used over a wider range of heating rates, meaning a new set of parameters must be generated for each new heating rate. Combining the form of the original two-step model with the corrective function from the Yamamoto model gives the modified two-step model the predictive capabilities of the original two-step model, but also the accuracies inherent in the Yamamoto model compared to the CPD model. The results for different types of coal are presented here. The modified two-step model is shown to be a very accurate model for calculating yields in the devolatilization process over a wide range of heating rates (5000 K/s to 1 million K/s). This gives the model flexibility to model yields at any heating rate inside that range.