RESEARCH CATALOGUE

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NUMERICAL SIMULATION OF MSW COMBUSTION FOCUSING ON THERMAL EFFICIENCY AND NOx FORMATION

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This research was performed during 2013-2019 to develop a simulation model that could predict the combustion of MSW and could also predict NOx formation based on predicted combustion environment.

With the prediction of the combustion environment based on the characteristics of the MSW, it was possible to optimize the combustion process to yield higher thermal efficiency and reduced NOx emission.

For simplicity, the characteristics of the MSW in the work were determined based on a power plant in Hatyai, Thailand. The simulation results were compared with the monitoring results of the power plant.

By nature, the composition and characteristics of MSW vary depending on locations and time of year, and based on the life-style of the producers. This work aimed at providing a preliminary assessment of the integration of multiple fuel characteristics and multiple pollution formation as part of a single simulation model to enhance understanding of the integration of multiple factors in optimising combustion and improve the overall performance of a power plant. To further validate the model investigated in this research, more MSW samples coupled with monitoring data from actual power plants are required.

Part of this research work was published in the journal "Renewable energy".