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Numerical modelling of thermal decomposition and combustion of microwave pre-treated straw pellets

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In this study thermal decomposition and combustion processes of microwave pre-treated straw pellets are modeled using COMSOL Multiphysics numerical software. 2D axi-symmetric geometry of the combustion reactor is considered and a turbulent, reacting flow is modeled in a steady-state conditions. It is found that the microwave pre-treatment of biomass significantly influences overall heat output of the device and the temperature distribution in the reactor.

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