Reduced Chemical Kinetic Mechanism for biodiesel fuel

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abstract

The published detailed chemical kinetic mechanism for methyl decanoate proposed by Westbrook and co-authors consists of reactions over 7000. It takes too much time to simulate with this mechanism and it is difficult to apply the mechanism to CFD calculations. Thus, this study proposes reduced kinetic mechanism for methyl decanoate. The reactions in the mechanism are reduced to blow 4000 by ignoring minor reaction paths in compression ignition and flame propagation process. Comparisons between the full mechanism and the reduced mechanism were made, and the results are in good agreement with each other.