PREDICTIVE CAPABILITIES OF THE KINETIC MODELS OF HYDROCARBON OXIDATION FOR THE LOW- AND HIGH-TEMPERATURE OXIDATION OF n-HEPTANE AS AN EXAMPLE

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Abstract: The current trends in constructing detailed kinetic mechanisms of the oxidation of hydrocarbons are considered. Particular attention is paid to low-temperature oxidation reactions. For the oxidation of n-heptane with air, as an example, at various fuel–oxidizer ratios, pressures, and temperatures, the predictive possibilities of novel reaction mechanisms are demonstrated.

Keywords: low- and high-temperature oxidation of hydrocarbons; detailed kinetic modeling; ignition delay time; n-heptane; kinetics; intermediate products

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