KINETIC MODEL AND CALCULATION OF SELF-IGNITION OF TRIETHYL ALUMINUM MICRODROPLETS IN AIR

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Abstract: Based on the model of heterogeneous interaction of oxygen with microdroplets of triethyl aluminum (TEA) resulting in the release of light hydrocarbon radicals into the gas phase, a computer code is developed and used for parametric calculations of the ignition delay of a spatially uniform mixture of TEA microdroplets in air. The calculations are performed with a variation of the kinetic parameters of the rate limiting reaction and are intended for further comparison with experiments.

Keywords: triethyl aluminum; interstitial reaction; rate constant; activation energy; microdroplets; ignition delay; radical formation; detailed kinetics; computer code

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