

Hydrogen Peroxide Runaway Reaction

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ABSTRACT

The current work focuses on the evaluation of selected thermal runaways of hydrogen peroxide. Isothermal calorimetry measurements, obtained in the past (Papadaki, 2004) have been employed for the evaluation of the rate coefficients of a previously developed kinetic model (Sempere, Nomen, Rodriguez, and Papadaki, 1998) of hydrogen peroxide decomposition. Adiabatic calorimetry measurements were performed on aqueous hydrogen peroxide decomposition in the presence and in the absence of phosphotungstic acid. It was found that the uncatalysed thermal decomposition of hydrogen peroxide proceeds much slower than the catalysed one. The model developed for the decomposition of hydrogen peroxide in the absence of alkylpyridines predicts data consistent with the experimentally observed behavior.