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Formal kinetics of high-temperature thermal decomposition of polyurethanes and their mixtures with flame retardants

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Abstract

The thermal destruction of different purposes polyurethanes and rigid polyurethane foam are considered, formal kinetic equation of thermal decomposition is obtained. The dependence of the thermal properties of molded polyurethane on the structure of polyester and diisocyanate component is found. It is shown that the use of the principle of trimerization of isocyanates for polyurethanes allows to increase the resistance of the polymer to elevated temperatures. The efficiency of applying a number of fire retardant additives is analyzed. The mechanism of preparing hydrocyanic acid in the pyrolysis products is shown.