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# *N*-2-ethylhexyl-*N*'-phenyl-*p*-phenylenediamineas inhibitor of radical chain oxidation of ethylbenzene

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**Abstract**

The problem of stabilization of organic materials has important practical value. For the purpose of protection of synthetic rubbers against oxidation decomposition in the production enterprises inhibitors of aminny and phenolic types are used. For selection of efficient stabilizers – antioxidants it is necessary to know the quantitative characteristics of their effectiveness. One of important quantitative characteristics of antioxidants is the kinetic constant of break of chain on an inhibitor at oxidation of an organic substratum. On the example of model reaction of the initiated oxidation of ethylbenzene anti-oxidizing properties of *N*-2-ethylhexyl-phenyl-*p*-phenylenediamine are studied. The kinetics of reaction of the initiated oxidation of ethyl benzene in the presence of additives *N*-2-ethylhexyl-phenyl-*p*-phenylenediamine was studied with use of highly sensitive manometric installation. It is shown that introduction to the model system of the studied substance leads to decrease of saturating speed of oxygen. Besides, on the kinetic curves of oxygen uptake received at measurement of saturating speed of oxygen in the presence of various concentration *N*-2-ethylhexyl-phenyl-*p*-phenylenediamine induction periods are observed, that is characteristic of the strong inhibitors, to which number it is possible to carry also studied inhibitor. As a result a research the quantitative kinetic parameters characterizing anti-radical activity of substance in the form of a kinetic constant of break of chain of oxidation and capacity of an inhibitor are received. Activation parameters of interaction of connection with peroksilny radicals of ethyl benzene are determined that allows to predict effectiveness of anti-oxidizing effect of the studied antioxidant depending on temperature.

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