

Chain reaction of *N,N'*-diphenyl-1,4-benzoquinonediimine with 2-mercaptobenzothiazole

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Abstract

The kinetics of the reaction *N,N'*-diphenyl-1,4-benzoquinonediimine with 2-mercaptobenzoxazole in chlorobenzene at 343 K was studied. The reaction orders were defined on the components by the way of by introducing the initiator (tetraphenylhydrazine) found that the reaction is characterized by a chain mechanism of quadratic chain termination. There was defined the value of the parameter $k_{pr}/(2k_t)^{1/2} = 12.4 \pm 1.1$ ($\text{l mol}^{-1}\text{c}^{-1}$)^{1/2}, where k_{pr} – the rate constant for the rate-limiting step of continuing, and $2k_t$ – speed constant of chain termination step. It is shown that both specified steps proceed with 2-mercapto benzoxazolyl thiyl radicals.