

Apparently chain termination occurs mainly by radical recombination. Examination of equations (1) - (6) leads to the conclusions that with increased concentration, and therefore, with increased pressure of hydrogen, benzene formation should be accelerated; that the formation of toluene should be significantly limited by the rate of reaction (1)*;

*(Footnote R.p. 950) The possibility is not excluded that toluene formation may result from the reaction , but the relative probability of such a reaction is small /5/.

and that demethylation of toluene should also be accelerated by increased hydrogen pressure. In this way one can elucidate the effect of hydrogen pressure on the rate and course of homogeneous destructive hydrogenation of ethylbenzene.

We were interested in studying the effect of hydrogen pressure on the course of the process of destructive hydrogenation of isopropylbenzene, whose thermal decomposition yields a variety of products (hydrogen, methane, ethane, ethylene, propane, propylene, butane, benzene, toluene, xylenes, ethylbenzene, n-propylbenzene, styrene, α -methylstyrene, etc.) /6-10/.

As was shown in publication /10/, the first step in the thermal degradation of isopropylbenzene is the reaction

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In homogeneous destructive hydrogenation the further reactions involving the participation of hydrogen, are