It appears that this ratio, at t=2,3,4 and 5 hours in the range of initial hydrogen pressures of 0-200 atm increases nearly proportionately to the square of the pressure.

Thus, increase in hydrogen pressure in the homogeneous destructive hydrogenation of isopropylbenzene significantly increases the yields of benzene and propane, compared to the yields of other liquid and gaseous reaction products. The fact that the (benzene):(toluene + ethylbenzene) ratio (Fig. 2) increases with increasing hydrogen pressure to a greater extent than does the ratio (propane):(ethane + methane) (Fig. 1), is easily explained. Benzene is formed directly from isopropylbenzene as well as from ethylbenzene and toluene, the yields of which decrease with increasing hydrogen pressure. In contrast to benzene, propane is formed only from isopropylbenzene. Recombination of methyl and ethyl radicals to from propane proceeds apparently to a negligible degree* and, in

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*(Footnote R.p. 952) Thermal degradation of isopropylbenzene yields gaseous products containing methane and ethane, but almost no propane.

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any case slows down rather than accelerates, with increasing hydrogen concentration.

The results of this study support the description, given in this paper, of the mechanism of homogeneous destructive hydrogenation of alkylbenzenes.