Special Custom Translation CHF

The Effect of Hydrogen Pressure in the Rate and Direction of the Homogeneous Destructive Hydrogenation of Alkylbenzenes.

M. G. Gonikberg and V. E. Nikitenkov.

N. D. Zelinskii Institute of Organic Chemistry, Academy of Sciences of the USSR. (Presented by Academician B. A. Kazanskii, Jan. 29, 1955) Translated from Doklady Akademii Nauk SSSR, Vol. 102, No. 5, pp. 949-952, 1955. Original article submitted Jan. 26, 1955.

It is known that the rate and direction of homogeneous destructive hydrogenation of alkylbenzenes is substantially dependent on hydrogen pressure. An increase in hydrogen pressure in the homogeneous destructive hydrogenation of ethylbenzene leads to an increase in the benzene content and a decrease in the toluene content of the reaction products /1/. This fact, and other analogous data are sometimes interpreted as the relative weakening under hydrogen pressure, of the C_{aliph}-C_{arom} bond in alkylbenzenes. But it is evident that hydrogen pressure (of the order of several hundreds of atmospheres) cannot in any way significantly change the relative strength of these or any other chemical bonds (or the absolute value of the bond energies). Discussion here therefore centers on the difference in the mechanisms of thermal degradation and of the homogeneous destructive hydrogenation of alkylbenzenes.

In the studies which we carried out earlier on the homogeneous ~~destruction~~ hydrogenation of toluene under high hydrogen pressure /2/ (as