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The Alkylation of n-Butane with Propylene in the Presence of Aluminum Oxide.

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N. D. Zelinskii Institute of Organic Chemistry, Academy of Sciences of the USSR. Translated from Doklady Akademii<sup>i</sup> Nauk SSSR, Vol. 96, No. 5, pp. 1011-1014, 1954. Original article submitted April 15, 1954.

The process of alkylation of branched paraffins<sup>s</sup> with olefins in the presence of mineral acids has been studied so extensively that it is now widely used in industry. Normal paraffins under analogous conditions do not react with olefins. Liquid-phase alkylation has a number<sup>o</sup> of inherent drawbacks, associated with the large consumption of sulfuric acid and the inconvenience in using such condensing agents as hydrofluoric acid. <sup>4</sup> Lavrovskii and Mikhnovskaya /1/ conducted experiments on the condensation of n-heptane with propylene at 400° and 30 atm. in the presence of an aluminosilicate catalyst. Later O'Kelly and Sachanen /2/ found that at high temperatures and pressures in the presence of homogeneous catalysts (Freon, chlorinated ligroin, benzyl chloride, etc.) n-butane, like branched paraffins, is alkylated by ethylene. Experiments, in which the weight ratio of saturated to unsaturated components was 8:1, were conducted under static conditions at a pressure of 220 atm and a temp. of 427°. The quantity of catalyst was varied from 1 to 3.2% dry weight of the reaction mixture. In