7) Bromine No

8) Residue

9) Expt. in absence of aluminum oxide

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The yield of liquid products in the process, based on propylene introduced was 115% in expt. 6 at 450° and 600 atm; 150% in expt. 8 at 450° and 1000 atm; and 137% in expt. 13 at 500° and 600 atm; but was 87% in expt. 7 when aluminum oxide was omitted. Among the gaseous products only 5% of cracking products were observed. As was shown by the work of Frey and Hepp /3/ propane is alkylated with ethylene at 504-510° at a pressure of 300 atm in the absence of catalyst. In this connection, we conducted expt. 7 on the alkylation of n-butane with propylene in the absence of catalyst at 450° and 600 atm, the remaining conditions being similar to those of experiments 4 and 6. Fig. 2 shows condensate fractionation curves derived from experiments 6,7 and 8. Comparison of the results obtained

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Fig. 2. Fractionation of condensates.

I- Expt. 8; II- Expt. 6; III- Expt. 7.

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~~IN THESE EXPERIMENTS SHOWS THAT IN THE PRESENCE~~

in these experiments shows that in the presence of aluminum oxide the heptane fraction is 2-2.5 times as high. This indicates the catalytic role of aluminum oxide in the alkylation process. Thermal alkylation occurs simultaneously with the catalytic process. Since on distillation of the condensates