

ume of the catalyst fell by 35% after pressing at 10,000 atm and by 50% after pressing at 20,000 atm.

The dehydrogenation was carried out at  $300^{\circ}$  in a feeble current of hydrogen at a volume rate of 0.3. The degree of dehydrogenation of the cyclohexane was determined refractometrically /6/ and that of the gasoline by the sulfuric acid method.

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Fig. 1. Effect of thiophene impurity in the dehydrogenation of cyclohexane on the stability of a nickel-alumina catalyst.

Key

1) Degree of cyclohexane dehydrogenation

2) h

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Figures 1, 2, and 3 show the variation in the activity of various catalyst samples with time (characterizing their stability). The y axis gives the degree of dehydrogenation in percents of the theoretical value, and the x axis gives the time in hours.

We see from the figures that at the beginning of the experiment the unpressed sample (curve I) had the same activity as the pressed one (curves II and III). Hence the size of <sup>the</sup> ~~its~~ active surface was also unchanged. This is confirmed by the fact that the ~~denser~~ denser (pressed) catalyst sample was poisoned by thiophene at the same rate as the unpressed one (Fig. 1).

Stability of Catalyst Samples in the Dehydrogenation of Cyclohexane with Thiophene Impurity. Some 6 ml of pure cyclohex-

ane were first passed over 20 ml of unpressed catalyst (13.9 g).

The resultant <sup>catalyzate</sup> catalyst had a refractive index of....., i.e.,