at about the same rate. The reaction products, too, differ but little in composition. Methyl-vinyl ketone is the principal product, with croton aldehyde being produced in a lesser amount. The yields of saturated carbonyl compounds and of olefin oxides are also significant—particularly, as compared to the product yields in oxidation of isobutylene over the same catalyst.

It is believed that the process of oxidation of *n*-butenes can be best understood from the properties and reactivity of the radicals and of the radical-catalyst complexes which are formed in chemisorption of these hydrocarbons.

Hydrogenation of Sodium Cinnamate Over Skeletal Nickel with Metallic Additives

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Catalytic activity of certain skeletal nickel-aluminum alloys, containing added cobalt, rhenium, and molybdenum, was determined in hydrogenation of sodium cinnamate in 0.1 *N* NaOH solution. The results show that of the compositions tested, the alloy containing 10% of added Mo is the most active. Potentiometric measurements show that the bonding energy between hydrogen and the catalyst surface increases with increasing concentration of molybdenum.

Analysis of Kinetic Relationships of Isotopic Exchange in a Molecular Oxygen-Solid Oxide System

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The kinetic equations for isotopic exchange in a molecular oxygen-solid oxide system are reduced to conveniently-tabulated forms. Subsequently, a comparison between the observed and calculated kinetic correlations enables to determine with the aid of the experimental data, the rates of isotopic exchanges of different types. The method proposed was used to determine the exchange rates in a molecular oxygen-vanadium pentoxide system.

LETTERS TO THE EDITOR:

Mechanism of Catalysis Over Complex Pd(II) Compounds

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