Catalytic Conversion of Acetylene in Vapor Phase: I. Adsorption of Acetylene and of Hydrogen Chloride on the Catalysts Used in Vapor Phase Hydrochlorination of Acetylene

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The results of adsorption of acetylene and of hydrogen chloride by the chlorides of mercury, bismuth, cadmium, and zinc, using activated carbon, AR-3, as the carrier show the following:

(1) The order of adsorptive capacity of the cations with respect to acetylene, $Hg^{2+} > Bi^{3+} > Cd^{2+} > Zn^{2+}$, coincides with the order of their catalytic activity in the acetylene hydrochlorination reaction;

(2) The results of the adsorption measurements support the reaction mechanism proposed by the authors.

Study of Hydrogenolysis of Xylite. I. The Effects of Temperature and Pressure

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The effects of temperature (200°–245°) at a constant pressure (200 atm.) and of pressure (100–250 atm.) at a constant temperature (230°) were studied in hydrogenolysis of xylite. This study was carried out in a specially-designed high pressure unit. At the conditions employed initiation of the reaction occurs at 200°. The rate of conversion and product yields (glycerin, ethylene glycol, 1,2-propylene glycol, and tetrahydrobutane) increase with the temperature. Raising the pressure to 250 atm somewhat decreases the rate of conversion of xylite and inhibits the secondary reaction of decomposition of glycerin to form 1,2-propylene glycol. On the other hand, decreasing the pressure to 100–150 atm promotes the secondary reaction comprising splitting off of the end hydroxyls of the polyalcohols.