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## The Lability and Relative Reactivities of Organic Radicals

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## THE EFFECTS OF SUBSTITUENTS IN THE FORMATION OF THIOCARBANILIDES

L. CHAS. RAIFORD and G. MERVIN McNULTY

It is well known that many reactions of benzene derivatives are hindered by the presence of substituents that are ortho as respects the reacting group. In the work here reported such hindrance has been observed when the substituent occupies the meta position.

p-Aminoacetanilide reacts very readily with carbon disulfide in alcoholic solution, forming the corresponding thiocarbanilide. When a methyl radical is meta to the amino group the reaction velocity is decreased by about one-third. If one or both meta positions are occupied by bromine atoms, the reaction is completely prevented. A single bromine atom in the ortho position caused inhibition, also. This reaction was studied with the following compounds: 2-bromo-4-aminoacetanilide, 3-bromo-4-aminoacetanilide, 2, 6-dibromo-4-aminoacetanilide, and 3, 5-dibromo-4-aminoacetanilide.

The acetyl groups of the above mentioned thiocarbanilides cannot be removed from these compounds by any method of hydrolysis tried in this work without, at the same time, decomposing the ureas.

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## THE LABILITY AND RELATIVE REACTIVITIES OF ORGANIC RADICALS

HENRY GILMANN, EDITH L. ST. JOHN, and L. L. HECK

Studies have been made of the rates of many reactions involving organometallic compounds, by means of the color test of Gilman and Schulze. These rate studies comprise: (1) the relative reactivities of a variety of compounds towards a typical organometallic compound; (2) the relative reactivities of a series of related compounds like nitriles or azo compounds with an organometallic compound; (3) and, the differences in rate of reaction of a series of organometallic compounds towards other compounds. The same method has been used in a study of the effect of concentration, temperature and catalysts on reaction rates. Also, it has been shown to be of service in a study of the mechanism of reactions, like the two-stage conversion of esters to ketones to

tertiary alcohols; and the lability and relative electronegativities of radicals.

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### A STUDY IN THE RING STRUCTURE OF METHYLATED SUGARS

CARRELL A. WHITNAH

The report will show that methylation of glucose with methyl sulphate and sodium hydroxide, if carried out at lower temperatures and in less alkaline solutions than usually employed, yields methylated gamma glucoside.

The value of (1) the rate of oxidation by potassium permanganate and (2) the acid concentration required for hydrolysis, as tests for gamma glucosides, will also be discussed.

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### SOME PHYSICO-CHEMICAL STUDIES OF ORGANOMETALLIC COMPOUNDS

HENRY GILMAN, L. L. HECK, and J. A. LEERMAKERS

The physico-chemical properties such as molecular weight, conductivity, and absorption spectra have been determined with a miscellany of organometallic compounds in connection with studies on their dissociation, and their constitution. Also, their reactions toward oxygen, nitrous oxide, hydrogen (catalytic with *platinum*) have been investigated for the same purpose as well as to test electronic structures proposed for the constitution of nitrous oxide and organometallic compounds.

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