

resembles natural rubber in the fact that when it is stretched its x-ray diffraction pattern shows a point diagram.

The transformation of chloroprene into μ -polychloroprene occurs very rapidly in aqueous emulsion. The resulting product constitutes a synthetic (vulcanized) latex. It has a much smaller particle size than natural latex and it penetrates porous materials more readily.

Chloroprene can also be polymerized in the pores of porous or bibulous materials. The materials thus become intimately impregnated with synthetic rubber.

Compared with natural rubber the new synthetic rubber is more dense, more resistant to absorption or penetration by water, less strongly swelled by petroleum hydrocarbons and less permeable to many gases. It is much more resistant to attack by oxygen, ozone, hydrogen chloride, hydrogen fluoride and many other chemicals.

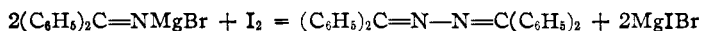
WILMINGTON, DELAWARE

COMMUNICATIONS TO THE EDITOR

A NEW METHOD FOR THE PREPARATION OF KETO-CHLORIMINES

Sir:

Recently, Morton and Stevens [THIS JOURNAL, 53, 2769 (1931)] have prepared diphenylketazine, in good yield, by heating with iodine the magnesium compound obtained from phenylmagnesium bromide and benzonitrile. The reaction is represented by the equation



When bromine was used instead of iodine, a small yield of the ketazine was obtained.

Since the corresponding reaction with chlorine has been carried out in this Laboratory [G. J. Haus, Master's Thesis, Duke University, May, 1931], it seemed desirable to make a preliminary report of our work at this time.

In the hope of developing a new method for the preparation of chlorimines [see Peterson, *Am. Chem. J.*, 46, 325 (1911)] the above magnesium compound was treated in the cold with an equivalent quantity of chlorine. A product was obtained which contained about 60% benzophenone-chlorimine as calculated from its active chlorine content. Although attempts to isolate the pure chlorimine have thus far failed, we have obtained further evidence that the crude product consists partly of benzophenone-chlorimine. Thus the fact that the chlorine content changed only a small amount even after standing in an open vessel at room temperatures for several weeks indicates the presence of a rather stable chlorine compound. Furthermore, when the crude product in anhydrous ether or benzene is

treated with dry hydrogen chloride a precipitate is obtained which with water yields benzophenone.

When the corresponding magnesium compound, prepared from *p*-chlorobenzonitrile, was treated with chlorine, a chlorimine, m. p. 103–104°, was obtained. Bromine instead of chlorine apparently yields a bromimine. These and other reactions of this type are being further studied and we hope to be able to publish our results within a short time.

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ACETYL DERIVATIVES OF THE LACTONES OF MONOBASIC SUGAR ACIDS

Sir:

Acetyl derivatives of several lactones of monobasic sugar acids have been prepared in this Laboratory using either zinc chloride or pyridine as the catalyst. Among others we have prepared the 2,3,4,6-tetraacetyl- δ -*d*-gluconolactone. So far as we are aware this lactone has not been converted previously into any derivative by a direct method. The only recorded work which we have found on these acetyl derivatives is by J. Mikšič [J. Mikšič, *Vestnik Kral.-Ces. Spal.-Nauk* Cl. II, 18 pp. (1929)], who reports the acetylation of γ -*d*-gluconolactone by acetic anhydride in the presence of pyridine. The crystalline product melted at 103° and the specific rotation was +13.46° in chloroform solution. We have been unable to repeat the work of Mikšič. Only a sirupy product was obtained using his methods. We have acetylated γ -*d*-gluconolactone in the presence of zinc chloride. The product is a liquid and the analysis indicates a tetraacetyl derivative. The rotation in 4% solution in an 80% acetone water mixture was +60.29° six minutes after solution. Two hours after solution it was +58.17°. This slow diminution in rotation is characteristic of γ -lactones. We conclude that this compound is 2,3,5,6-tetraacetylgluconolactone. On account of the low rotation +13.46° reported by Mikšič, it is possible that his product was the tetraacetylgluconic acid.

On acetylation of the δ -*d*-gluconolactone a crystalline product was obtained. The melting point was 114–117° and the specific rotation was –1.21°. Analysis showed it to be a tetraacetylgluconic acid monohydrate. On heating in vacuum at 100° the substance became liquid and moisture was given off. After several hours' heating there remained a colorless glassy solid, which analyzed correctly for a tetraacetylgluconolactone. In sharp contrast to that of the γ -lactone derivative is the rotational behavior of this substance. Six minutes after solution the specific rotation was +64.35°. In the course of twenty minutes the value had diminished