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Mechanism of Chlorination by Means of Deuterated Model Compounds

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Mechanism of Chlorination by Means of Deuterated Model Compounds*

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β,β-Dideuterated poly(vinyl chloride) (β,β-d_2-PVC) was chlorinated under conditions of photochemical suspension chlorination in concentrated hydrochloric acid with addition of chloroform as a swelling agent, and also under conditions of thermal solution chlorination in tetrachloroethane. The ^{1}H-NMR spectra of chlorinated β,β-d_2-PVC (β,β-d_2-CPVC) were measured. The deuterium concentration was determined in combustion products of β,β-d_2-CPVC as the D_2O:H_2O ratio by means of mass spectroscopy. It was found that the concentration of –CHCl– groups decreases in both the photochemical suspension chlorination and in the thermal solution chlorination. The structural nonidentity of β,β-d_2-PVC chlorinated in suspension and in solution was confirmed.

*The full text of this communication will be published elsewhere (J. Polym. Sci., Polym. Chem. Ed.)