Method for Determining the Concentration of Isolated Silanol Groups on Silica Surface with Dimethylchlorosilane

A. M. Varvarin and L. A. Belyakova

Institute of Surface Chemistry, National Academy of Sciences of Ukraine, Kiev, Ukraine

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Abstract—The chemical interaction between dimethylchlorosilane and silica of varied degree of hydroxylation was subjected to a systematic study. The optimal conditions for complete substitution of isolated silanol groups with dimethyl hydride silyl groups were found. It is suggested that the reaction of dimethylchlorosilane with the surface of silicon dioxide can be used to determine the concentration of free silanol groups in the surface layer of silica.