

Abstract

A comprehensive kinetic and mechanistic study of 2-methylresorcinol and formaldehyde has been carried out in the temp. interval 65-80 °C using the different concns. of sodium hydroxide as catalyst. The reaction follows an overall second-order rate law. Reaction proceeds with the formation of monomethylol 2-methylresorcinol in the first step and dimethylol 2-methylresorcinol in the second one. The overall rate const. k has been resolved into stepwise rate consts. k_1 and k_2 . The mechanism of reaction, based on ΔS and ΔE values, is also proposed. Effect of changing the nature of catalyst shows that the rate of the reaction gradually increases in the order ethylamine, diethylamine, triethylamine, tetraethylammonium hydroxide and attains max. value with sodium hydroxide. Similarly as the dielec. const. of the solvent used increases, the rate of the reaction of 2-methylresorcinol with formaldehyde also increases and it is the highest with 1,4-dioxane and lowest when methanol was employed as solvent.