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Kinetic investigations on esterification of maleic anhydride with butanols

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Kinetic studies of esterification reaction of maleic anhydride with butan-1-ol, 2-methylpropan-1-ol and butan-2-ol were carried out in a semibatch reactor, in the presence of four acidic catalysts: sulfuric acid, phosphotungstic acid, ion exchange resin Dowex 50WX8 and tetrabutyl zirconate. Phosphotungstic acid proved to be the most active catalyst. The temperature range was 383–413 K, the initial molar ratio of alcohol to acid ranged 2.2-5:1. The kinetic parameters were given. The kinetics appeared to be that of the second order with respect both to the acid and to the alcohol. The reaction carried out in the presence of tetrabutyl zirconate was very slow and depended only on acid concentration. The effect of temperature on the reaction rate follows the Arrhenius equation well.

Metryczka

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