

Problem 7.1

The formation of phosgene appears macroscopically to take place according to reaction (1) below. It has been suggested that this reaction does not take place at the molecular level, and that instead the actual events taking place are given by reactions (2), (3) and (4). Supposing that reactions (2) and (3) are reversible, but reaction (4) is irreversible, use the Bodenstein steady state approximation to derive a rate expression for reaction (1). Your resulting rate expression should not contain concentrations or partial pressures of reactive intermediates.

