

A First Course on Kinetics and Reaction Engineering

Practice Problem 9.2

Problem Purpose

This problem will help you determine whether you have mastered the learning objectives for this unit.

Problem Statement

Suppose that enzyme E requires a cofactor, C, in order to catalyze the conversion of its substrate, S, to the product, P. If the overall reaction is given by equation (1) and the mechanism is given by equations (2) through (4) with reaction (4) being irreversible, derive an acceptable expression for the overall rate of reaction. The free cofactor concentration is easy to measure, so it is acceptable for its concentration to appear in the rate expression.

