

INTRODUCTION

Prerequisites for the design of chemical-engineering systems and chemical reactors include comprehension of chemical reaction pathways formalized as mathematical description, understanding, how different factors affect the reaction, as well as taking into account the mathematic model of the reactor, wherein the reaction carried out.

Chemical reaction may proceed with different rate, and multiple reactions may proceed with different selectivity under different conditions (temperature, initial concentrations and ratio of reactants) and in different reactors. The reaction optimal conditions are chosen according to the following procedure: study of the reaction regularities – kinetic modeling – optimal conditions and optimal reactor selection in terms of reaction rate, selectivity and minimal reactor volume.