

CE 329, Fall 2015
Assignment 17

Problem Statement

Suppose reaction (1.1) and reaction (1.2) are typical irreversible reactions and further assume that they have *exactly* the same rate expression (same reaction orders, same pre-exponential factor and same activation energy). In fact, the only difference between them is that reaction (1.1) is exothermic and reaction (1.2) is endothermic. Make a single graph showing conversion of A versus time, and on that graph sketch what the plot would look like (a) for reaction (1.1) taking place in an adiabatic batch reactor, (b) for reaction (1.1) taking place in an isothermal batch reactor, (c) reaction (1.2) taking place in an adiabatic batch reactor and (d) reaction (1.2) taking place in an isothermal batch reactor. For each plot explain why it has the shape it does, and then explain why the plots differ from each other in the way they do.

