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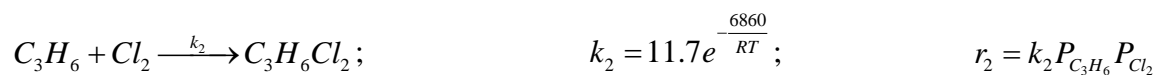
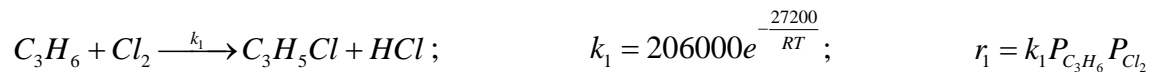
DEPARTMENT OF CHEMICAL AND PETROLEUM ENGINEERING B.ENG. CHEMICAL ENGINEERING PROGRAMME

Computer Applications in Chemical Engineering II (CHE 471) Assignment V

Given Date: 24/11/2018
Submission Date: 28/11/2018

PROBLEM STATEMENT

The reactions between propylene and chlorine occur as shown in the equations below in a 144-in. long and 2-in ID tube isothermal plug flow reactor. The feed, which is a 4:1 molar ratio of propylene to chlorine, contains 0.80 lbmole/hr of propylene and enters the reactor at a temperature and a pressure of 1000 Rankine and 2 atm, respectively.



If the rate constants have units of lbmoles/(min-ft³-atm²), T is in degrees Rankine and R (universal gas constant) is in BTU/(lbmole °R), with the aid of ChemCAD and Peng-Robinson as the Global K-Value Model, estimate the mass flowrates of the components in the exit stream. Also, plot the molar composition profiles of all the components involved in the system.