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**Project 1**

The system had a feed of a mass flow rate of ethanedichloride (EDC) 3000 lbs/hr and is moved through reactor and distillation columns. The matrix that was created for this system has one parameter which is the overall conversion rate of EDC to VCM. In the problem, the system was varied by testing different conversion rates and its relationship with the recycle rate flowing back into the mixer. From the plot, it is shown that as conversion rate increases, the recycle rate decreases. In a different problem, the system was varied by observing the relationship between the overall VCM process yield and the recovery rate. From the plots, it is shown that despite the conversion rate, as the recovery rate increases the overall VCM process yield decreases.