

The composition profiles of the liquid streams across side reactors and distillation column are respectively shown in Figure S1 and Figure S2. They are from the optimal cases with one side reactor and with two side reactor. The water profile is not presented in Figure S1 because the mole fraction of water always keeps at about 0.8714.

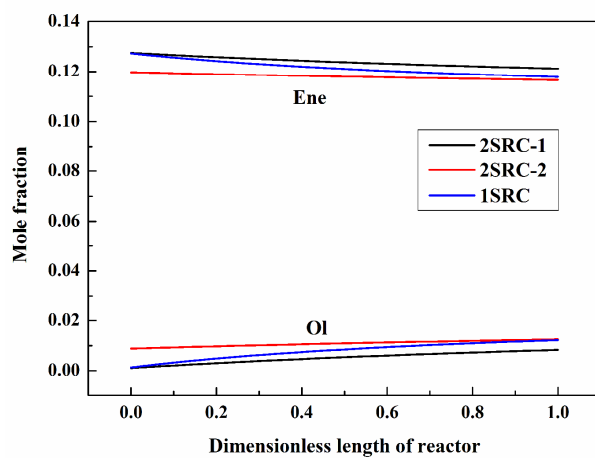


Figure S1. Composition profiles of liquid streams across side reactors.

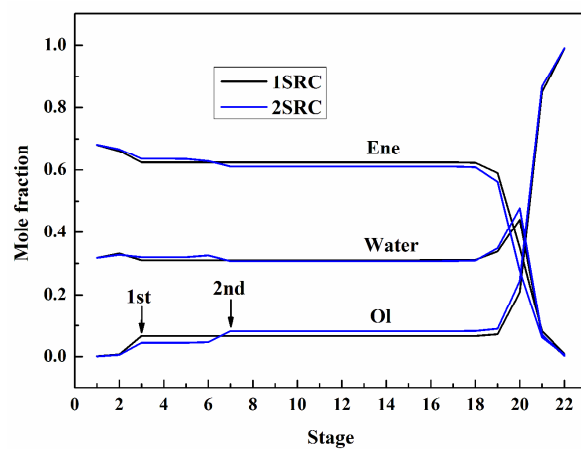


Figure S2. Composition profiles of liquid streams across distillation column.