

CHE 305 – Separation Processes
Spring 2010 – In Class on Multiple Stages 2

Use the data in the table for a cascade of single stages to answer the following questions. The cascade produces palmitic acid containing 0.1 mole% decane (light component).

Flash	z_{Decane}	x_{Decane}	y_{Decane}	F(moles/hr)	V(moles/hr)	L(moles/hr)	Ψ
1	0.02	0.012	0.25	100			
2	0.012	0.003	0.075				
3	0.003	0.001	0.025				

- a. Draw a picture of the cascade, clearly showing which outlet stream from each flash is used as the feed stream for each successive flash.

- b. What is the percent vaporization in each flash? (Hint: Two points yields the slope)

- c. What is molar flow rate of the final liquid stream?

- d. What is the percent recovery of palmitic acid?

Q-Line:
$$y_i = \left(\frac{\Psi - 1}{\Psi} \right) x_i + \left(\frac{1}{\Psi} \right) z_i$$