## Assignment

- Consider a mixture of N<sub>2</sub> and O<sub>2</sub> at 2 atm. Calculate the Murphree efficiency for a plate with liquid at 89 K and the vapor below this plate is at 94 K. Also, it is given that the mole fraction of N<sub>2</sub> leaving this plate in vapor phase is 0.67.
- Use the temperature composition diagram given in the earlier lectures.

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## **CRYOGENIC** ENGINEERING

## Answers

## Data

p = 2 atm

 $\begin{array}{l} y_{j\text{-}1} = 0.4 \text{ at } 94 \text{ K} \\ x_{j} = 0.42 \text{ at } 89 \text{ K} \\ y_{0,j\text{-}1} = 0.72 \text{ at } 89 \text{ K} \\ y_{i} = 0.67 \text{ at } 90 \text{ K} \end{array}$ 

$$\eta_{M} = 0.843$$

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