

## **Extractive Distillation of Ethyl Acetate and Cyclohexane Mixture**

SHANVI TIWARI

National Institute of Technology, Warangal

EMAIL: [tiwari\\_961942@student.nitw.ac.in](mailto:tiwari_961942@student.nitw.ac.in)

### **BACKGROUND**

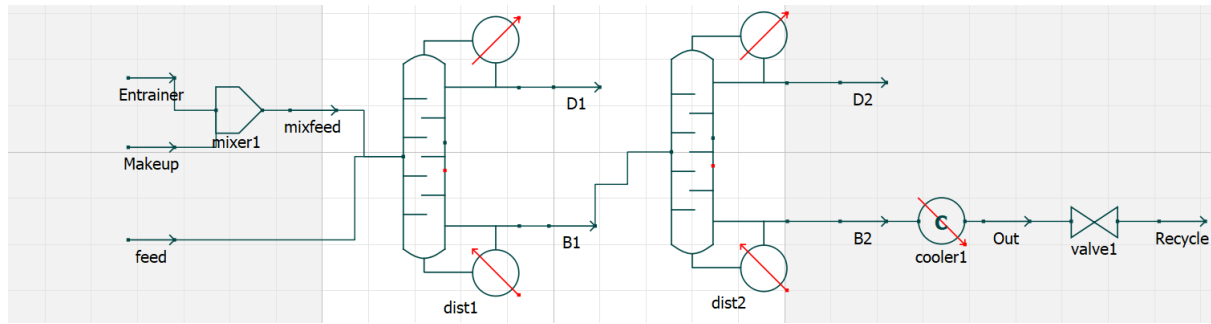
We demonstrate the extractive distillation of ethyl acetate and cyclohexane mixture which is a widely used organic solvent in the pesticide and chemical engineering industries. DMSO is used as a solvent/entrainer in the process to break the azeotrope of the mixture.

### **DESCRIPTION OF THE FLOWSHEET**

The feed stream comprising equal composition of ethyl acetate and cyclohexane enters the first distillation column, named dist1, at feed stage 10. Cyclohexane is obtained as the distillate, D1. The bottoms, B1, goes to the second distillation column, named dist2, at feed stage 3, where ethyl acetate is obtained as the distillate, D2, and DMSO is recovered in the bottom stream, B2 which is further cooled by 'cooler1' and its pressure was increased by 'valve1' to give 'Recycle' stream. The stream 'entrainer' is mixed with 'makeup' stream in 'mixer1' to give the stream 'mixfeed' which provides the

necessary amount of DMSO required for the process into the first distillation column at feed stage 8.

## FLWSHEET



## RESULTS

<u>STREAMS</u>	<u>Ethyl Acetate</u>	<u>Cyclohexane</u>	<u>DMSO</u>
D1	0.001	0.999	0
B1	0.2776	0.0003	0.7221
D2	0.999	0.001	0
B2	0	0.001	0.999

## REFERENCE

<https://doi.org/10.1016/j.seppur.2019.116425>