

Extractive distillation of Methanol Toluene system with Chloroform as an Entrainer

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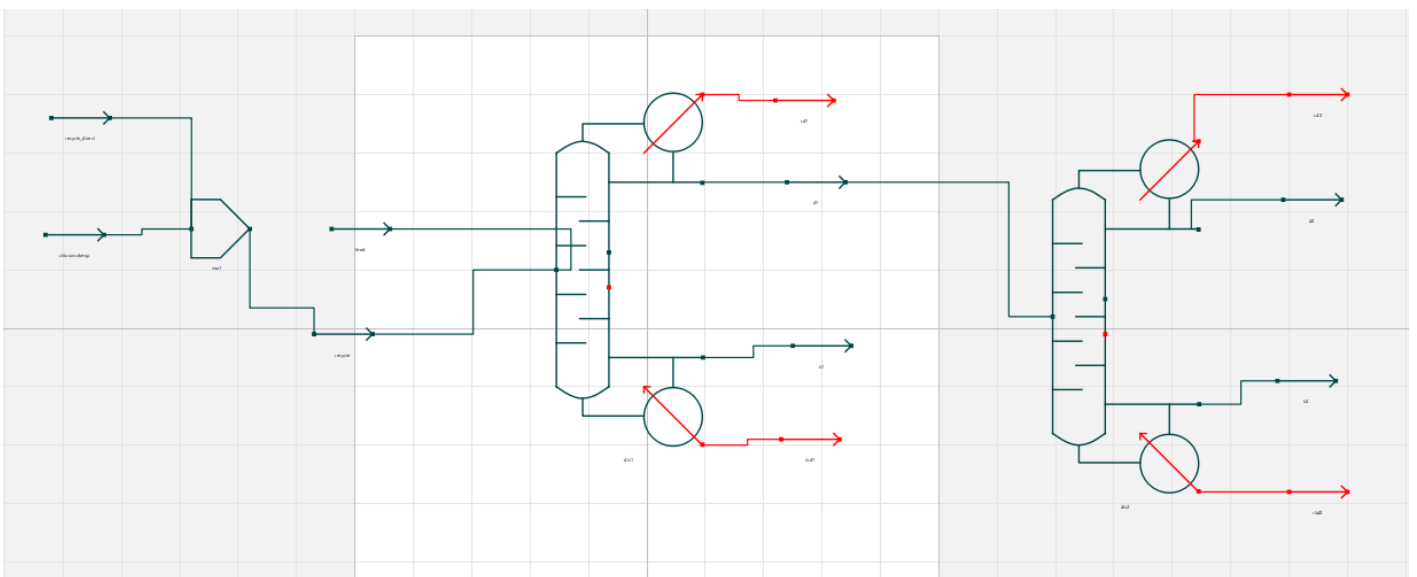
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Background & Description:

Methanol and toluene mixtures are commonly encountered in fine chemical and pharmaceutical industries. The mixture in discussion forms a minimum boiling azeotrope at mass composition of 68% methanol at constant pressure of 101325 Pa.

In this process to separate Methanol and Toluene we are using Chloroform as an entrainer. Chloroform breaks the methanol-toluene azeotrope and we get pure toluene as the bottom product in the first distillation column. The distillate which is composed of Methanol-Chloroform azeotrope goes to the second distillation column where a fraction of Methanol is extracted as bottom product. The distillate is recycled back to the first column after adding some pure chloroform to it.

Flowsheet:



Results:

	Temperature (K)	Pressure (Pa)	Mole flow (mol/s)	Mole fraction (Methanol)	Mole fraction (Toluene)
feed	447.84	101325	27.7778	0.5	0.5
chloromakeup	298.15	101325	0.0091	0	0
recycle / d2	327.72	81060	23.9003	0.3251	0
b1	490.60	1013250	13.879	~ 0	0.9999
b2	332.38	81060	13.8982	0.999	~ 0