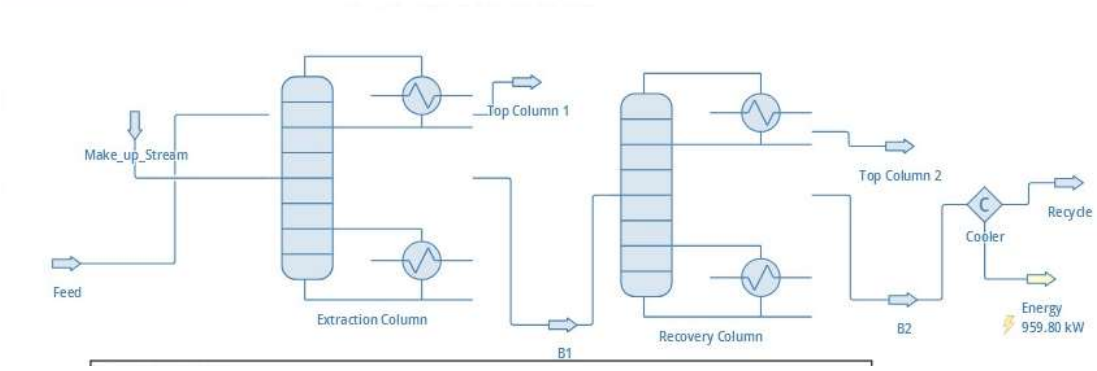
EXTRACTIVE DISTILLATION

For **extractive distillation**::-

Here , we use **DMSO -Dimethyl Sulfoxide** as entrainer.Acetone has boiling point near to 56°C and chloroform has about 61°C .So due to their low boiling point difference , extractive distillation become the foremost choice ,which is also seen in results:

Set up:



Raw Data taken :

Feed :
Molar Flow Rate :100 kmol/hr
Acetone :0.5
Chloroform:0.5

Make up stream:
Molar Flow Rate : 164.4kmol/hr
Chloroform : 0.0001
DMSO : 0.9999

Bottom part of Extraction Column:
Molar Flow rate : 214.3 kmol/hr

Bottom part of Recovery Column
Molar Flow rate : 164.4 kmol/hr

Results obtained after taking considering the above data:

EXTRACTIVE DISTILLATION

Master Property Table					
Object	Top Column 2	Top Column 1	B2	B1	
Molar Flow	49.8989	50.1011	164.401	214.3	kmol/h
Molar Fraction (Mixture) / Acetone	0.0789721	0.919328	1.27399E-08	0.0183883	
Molar Fraction (Mixture) / Chloroform	0.921015	0.0805981	0.000126213	0.214551	
Molar Fraction (Mixture) / Dimethyl sulfoxide	1.25611E-05	7.35472E-05	0.999874	0.76706	

Conclusion:

Based on the above outputs generated in both cases , we can say that extraction distillation works better than pressure distillation in separating the acetone from chloroform **.**

Reference:

William L. Luyben,"*Comparison of extractive distillation and pressure-swing distillation for acetone/chloroform separation* ".