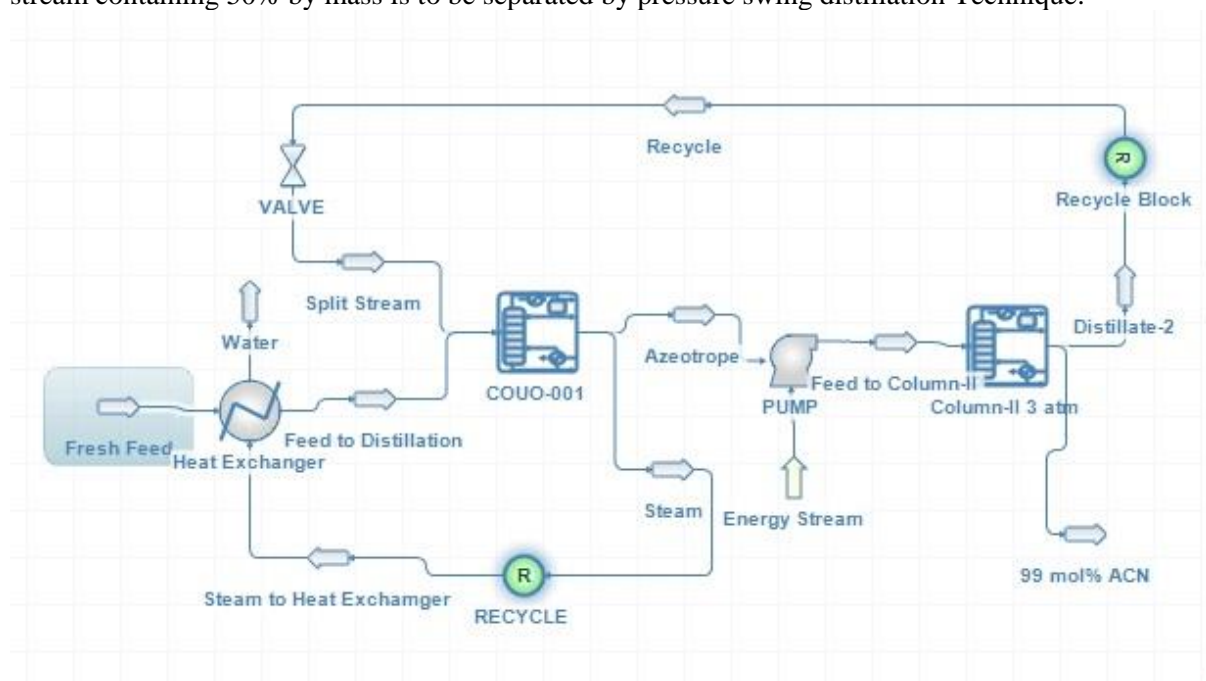


Pressure Swing Distillation of Acetonitrile-Water Mixture

Problem Statement

Acetonitrile forms minimum boiling azeotrope with water at 101.325 kPa at 350.15 K. An aqueous stream containing 50% by mass is to be separated by pressure swing distillation Technique.



Description

In column-I, Fresh feed with recycle stream (i.e., distillate from column-II) ACN is distilled out at 101.325 kPa in the form of azeotrope while bottom product is water with negligible impurity of ACN. Azeotrope from column-I top is fed to column-II which is operated at 3 atm. Top product from column-II is again an azeotrope. The bottom product from column-II is 99% Acetonitrile (ACN).

Reference:

Stoichiometry 5th Edition Bhatt and Thakore, Mcgraw Hill Publications