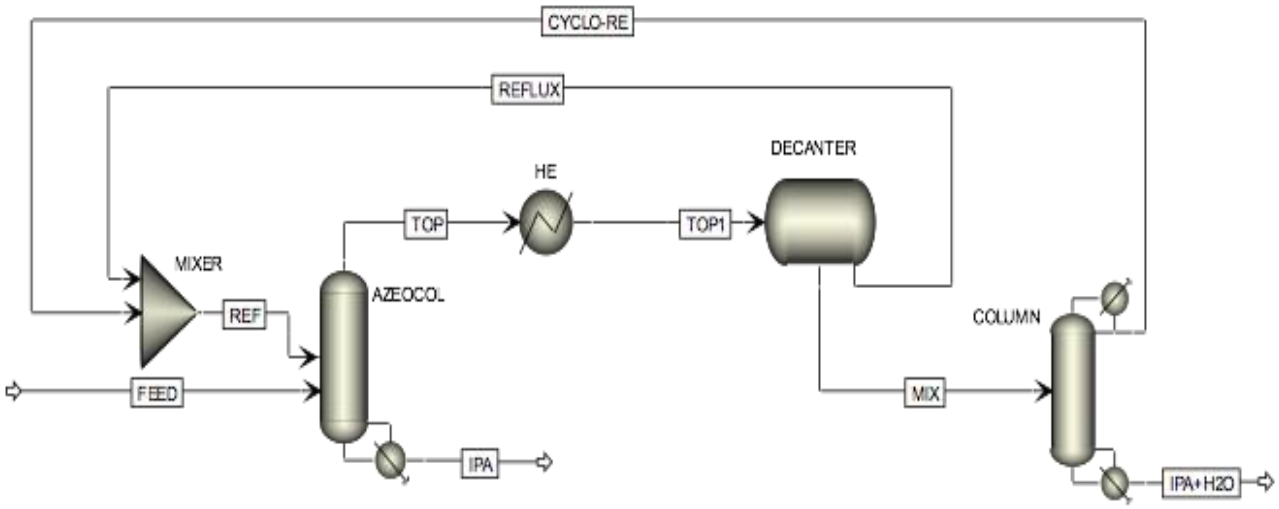
Description -
Isopropyl Alcohol (IPA)-Water Separation System
Process Flow Diagram



Process Description

For separation of isopropyl alcohol and water, the simulation modelling and optimisation are performed to obtain ultra-pure isopropyl alcohol from the mixture of isopropyl alcohol and water using cyclohexane(CH) as an entrainer. By adding cyclohexane to the IPA-water mixture, forms a ternary heterogeneous azeotrope of IPA-water-CH which is lower than any other binary azeotropic temperatures thereby obtaining nearly pure IPA as a bottom product of the azeotropic distillation column.

The typical feed composition is as follows

IPA	**85 % (wt.)**
Water	**15 % (wt.)**
Design basis	**99.5 % purity**

Operating Conditions

Operating Pressure	Column is operating under atmospheric pressure
Column Internals	Structured packing for the column is (Type 5.0L)

Experience

Finepac® Structures has supplied separating a number of systems involving azeotropic distillation. IPA-water is a typical system involving IPA-water azeotrope. The design involves prediction of azeotrope of IPA-water.