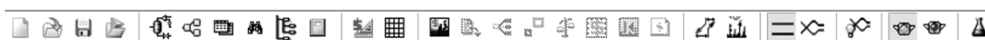# Unit Operations in Aspen HYSYS

Part 1

Ref:
Unit Operations Guide, Aspen Technology, Inc., 2011.

Introduction

- Estimating unknown binary coefficients
- Setup unit set
- Setup color scheme
- Important keys

Case Study 1

- Calculate bubble and dew point temperature of following mixture at 12 bar.
- Evaluate hydrate formation at 1 bar and 5 °C.
- Draw phase envelope of mixture (P-T).
- Draw true boiling point (TBP) curve of mixture.
- Draw variation of viscosity as a function of p (1-2 bar) in 50 °C.
- Determine pipe diameter if acceptable pressure drop is 0.1 kPa/m.
- Calculate the critical properties of mixture.

Comp	Mole %
C_1	81
C_2	6
C_3	5
i-C_4	3
n-C_4	4
H_2O	1

Typical Chemical Processes

Feed(s) → Feed Preparation → Reaction → Separation → Product(s)

Byproduct(s)

Recycle
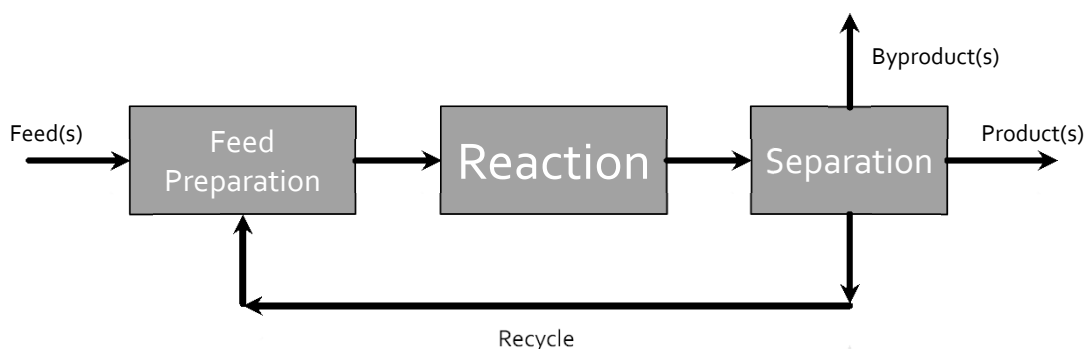
Classification of Unit Operations

- Vessels (Separators)
- Heat Transfer Equipment
- Rotating Equipment
- Piping Equipment
- Solids Handling
- Reactors
- Columns

Separation

Reaction

HW 2

- What is the differences between "unit operation" and "unit process" ?

- Recommended source:
  - Elementary Chemical Engineering, Max Stone Peters, McGraw-Hill, 1984.

Before you start anything, learn how to finish it.