



# Distillation

## Basic System Components

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### Course Objectives

1. Describe the basic operation of a distillation column.
2. Compare the different types of internals structures used for liquid and vapor distribution inside distillation columns, including: bubble cap trays, valve trays, sieve trays, packing grids, and packed columns.
3. Identify the distillation column symbols used on a P&ID.
4. Define the following terms related to a distillation column: overhead product, bottoms product, boil-up, reflux, feed rate, external reflux, internal reflux, bubble caps, packed columns, packing grids, and fractionation.
5. Describe how refluxing and re-boiling help separation.



### Key Terms (Define the following)

downcomers - \_\_\_\_\_  
\_\_\_\_\_

packed columns - \_\_\_\_\_  
\_\_\_\_\_

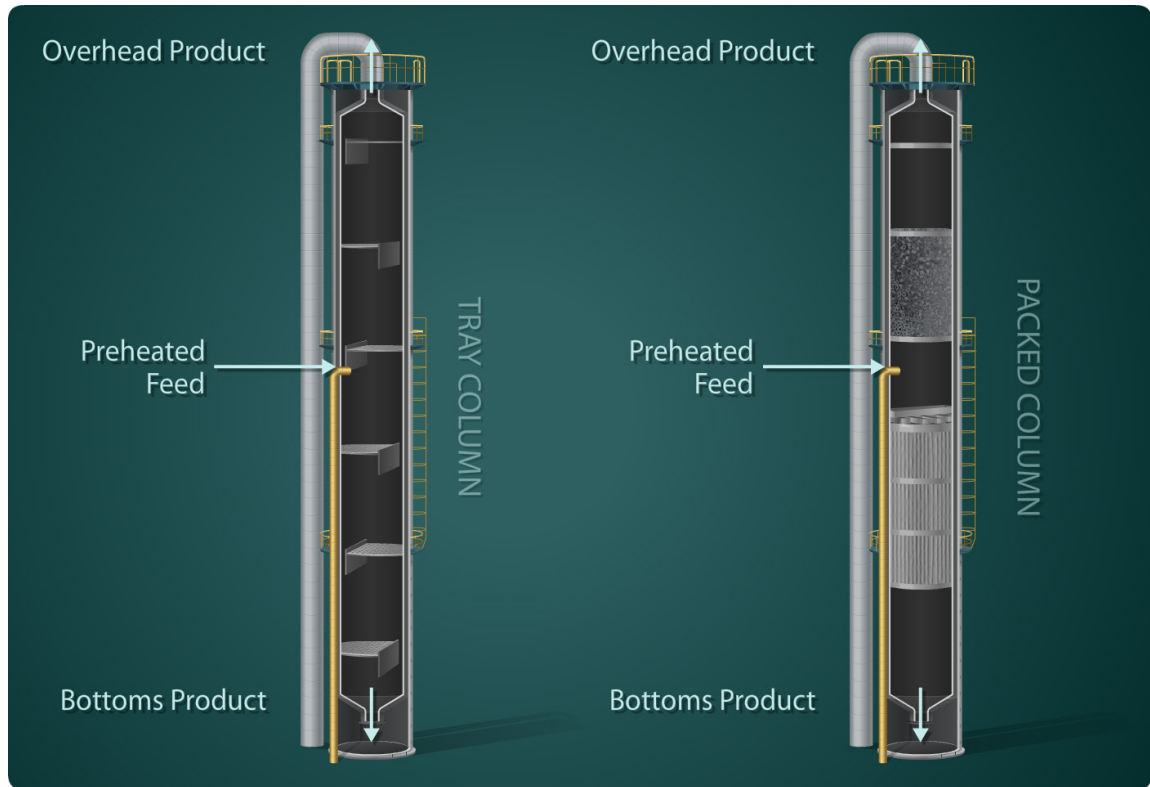
simple distillation - \_\_\_\_\_  
\_\_\_\_\_

tray columns - \_\_\_\_\_  
\_\_\_\_\_

weir - \_\_\_\_\_  
\_\_\_\_\_



# Principles



## Questions

- Both structured and random packing cannot be used in the same column.  
 True  
 False
- When the rate of vaporization is equal to the rate of condensation in a system, \_\_\_\_\_ occurs.  
 flooding  
 equilibrium  
 reflux  
 reboiling
- The three basic tray designs commonly used in distillation columns are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- Define "boilup".  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_