



## Experiment 15: Steam Distillation

Understand how differences in boiling points and solubility can be utilized in a unique kind of distillation. Explore the parts of distillation apparatus, the mechanism of distillation and conduct a steam distillation to isolate a substance well below its boiling point.

---

### Preparations

Read: Experiment 15B - Steam Distillation (page 122)  
(we will be doing only part B)

Technique 18 - Steam Distillation  
Essay - Terpenes

Do: Prepare your lab notebook:

- State experiment objectives (for each part assigned)
- List materials used w/ properties (solvents used in previous experiments do not need to be repeated)
- Make a procedures bullet list (for each part assigned)

---

### Intended Learning Outcomes

- \* Know vaporization is the process of thermal energy overcoming intermolecular forces.
- \* Know temperature is a measure of average thermal energy, some vaporization occurs at all temperatures.
- \* Know vapor pressure is the pressure created by vaporization of a liquid.
- \* Know boiling occurs when the vapor pressure of a liquid equals the pressure of the world around it.
- \* Know mixtures have weaker IMF than pure substances and lower boiling points than pure substances.
- \* Know distillation is a technique for separating liquids.
- \* Know a substance can be vaporized from a mixture below its boiling point by steam distillation.
- \* Know steam distillation is a technique for distilling substances that may decompose at their boiling point.
- \* Know a pure substance can be obtained by fractional or simple distillation.
- \* Identify the parts of a distillation apparatus (distillation flask, head, condenser and collection flask).
- \* Know a pure substance can be identified in a simple distillation by the temperature at which it condenses.
- \* Know the distillation head is where the temperature of condensing gas is identified in a simple distillation.

---

### Report

Prepare a report for this experiment according to this experiment's report description for the parts we accomplished. Include the questions with answers for this experiment, except any your instructor tells you to omit.