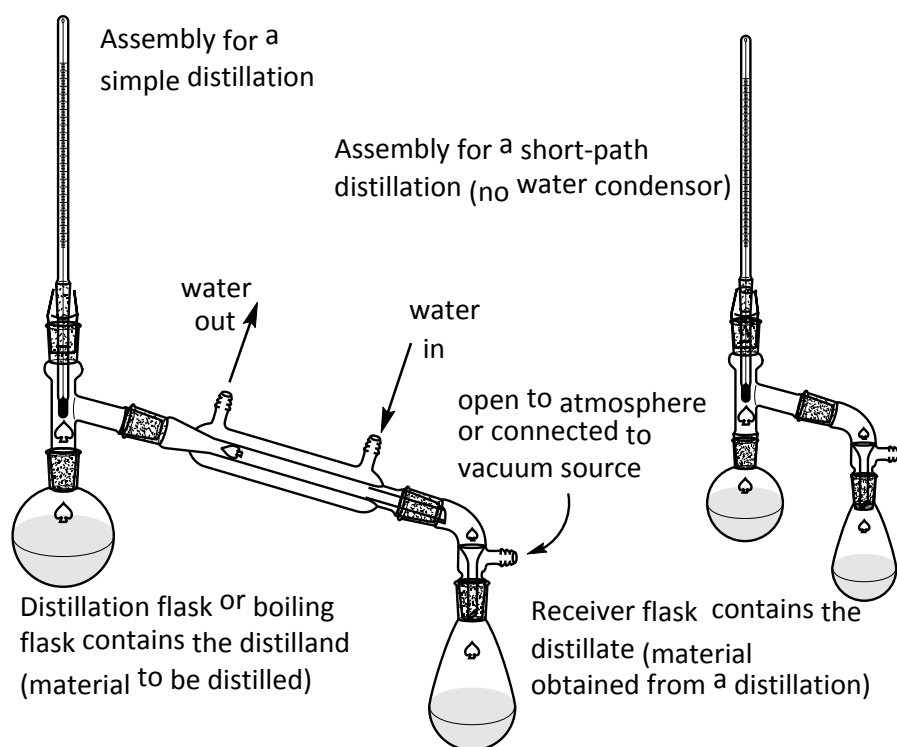


Glassware Set-up for a distillation



The first compound to distill, acetone, is a relatively harmless substance. However acetone is flammable so open flames will not be used. A hot water bath will suffice as a heat source. Acetone is a compound with high vapor pressure; it is volatile meaning it evaporates readily at room temperature. A typical set-up is shown here.

Procedure

You will be doing at least two distillations in order to become proficient with this routine operation. Your instructor will provide organic liquids for distillation.

A. Distillation of Acetone

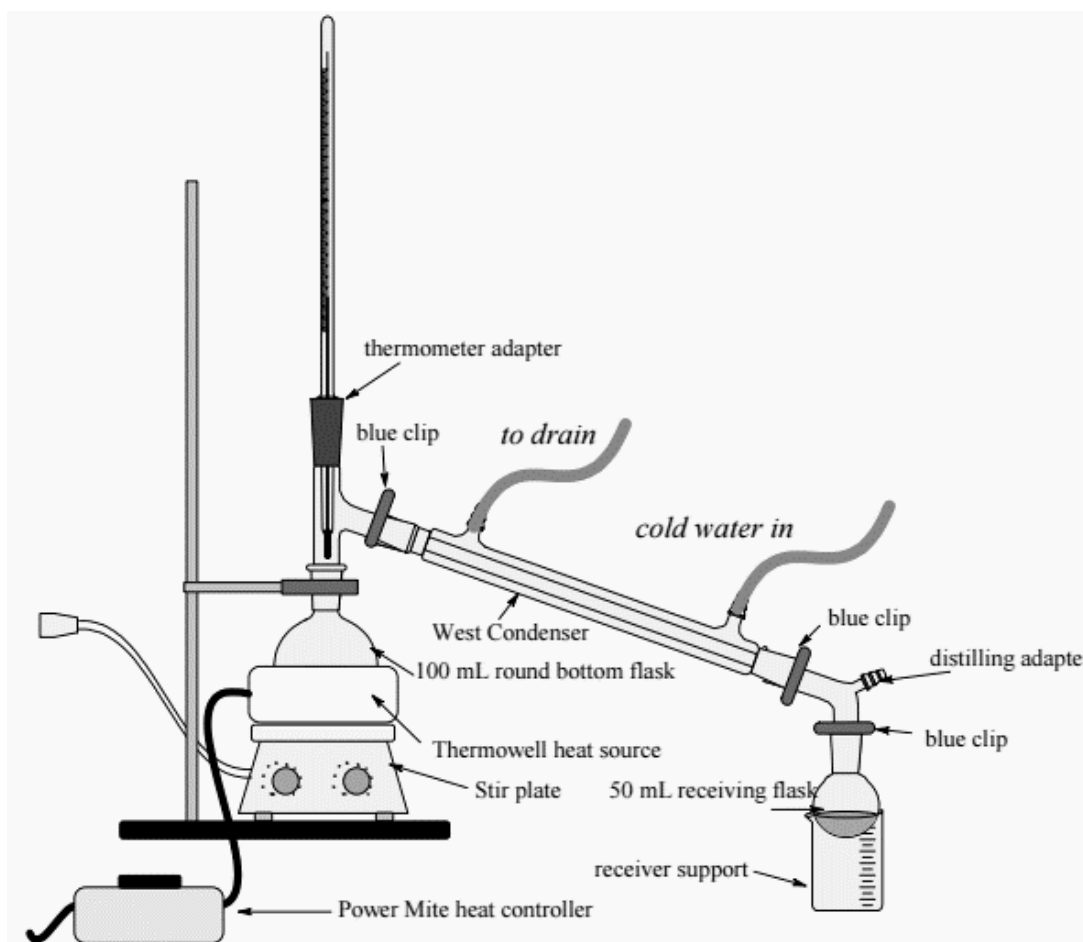
Place approximately 25-30 mL of acetone in a 50 mL round bottom flask, set up your equipment as shown in Figure 1 below and distill the liquid until about 3-5 mL remains in the pot. Turn in your distillate to the instructor- your distillate will be returned to the acetone container.

B. Distillation of Other Compound

- Clean out boiling flask or start with a fresh clean flask
- Distill the unknown liquid provided by your instructor
- Use a clean round bottom flask to collect the distillate- this material is now purified and will be used for subsequent experiments

Reminders:

- During set-up, be sure glassware is secured with clips so that pieces do not slip apart and break- male/female joints need to be clipped together when handling
- Adjust height of lab jack and hot plate so that heat source can be moved during experiment- you may need to quickly remove oil bath after heating has begun
- C-clamp is always clamped on vertical monkey bar
- Round bottom flask clamped securely with C-clamp
- Add stir bar to r.b. flask
- Thermometer placed at junction of 3-way adapter
- Never add reagents over hot water or oil bath
- Never get water in heating bath! -Check for leaks before starting reaction/distillation
- Need to know b.p. of distilland- then heating bath should be 10-15° hotter than b.p. of solvent
- Never boil all contents from boiling flask- leave behind a residue

Typical Distillation Assembly

Plastic clips can be used to connect glass joints that will not be in contact with excessive heat. Otherwise, the wire spring clips can be used.

MiniReport- Record the following observations for each compound that you distill and turn in this cover page attached to your data and observations

- Identify the name of the compound you are distilling
- Record the initial volume of distilland
- Keep running temperature record throughout the distillation- you should be able to report a boiling point for acetone based on your data.
- Record the volume of distillate
- Record the volume of material remaining in the boiling flask
- Because of its low bp, acetone distills quickly but you will be able to make some important observations during this part of the activity. For example, you should be able to notice a change in the rate of distillation simply by changing the speed of your stir bar in the pot.