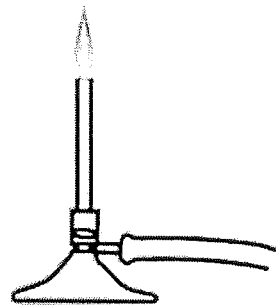


Bunsen Burner Safety Lab

Part I: Lighting a Bunsen Burner

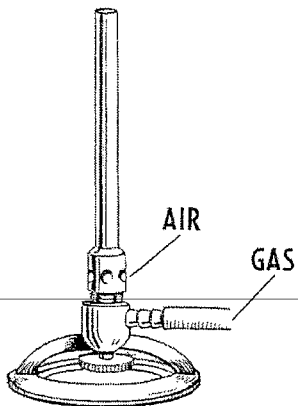


Before beginning this activity, the following safety precautions must be taken:

- Put on safety glasses and a lab apron.
- Tie back long hair.
- Remove bulky jackets and secure loose clothing.
- Clear the lab station except for needed equipment.

Procedure:

1. Close the air control valve, found on the barrel of the Bunsen burner. This prevents air from mixing with, and diluting the methane gas.



2. Turn the gas regulator valve clockwise to its closed position. Then open it one full turn. This prevents too much gas from being released.

3. Check the gas outlet on the counter of your lab station to ensure that the gas is turned on and being released. Securely attach the rubber tubing to the gas outlet.

4. Test the striker to ensure that you can produce a good spark. Use your thumb to firmly press the flint of the striker against the file.

5. With the striker in position for lighting the burner, open the main gas control at your lab station so that gas is released. Immediately produce a spark above the barrel to light the burner. If you are unsuccessful after three attempts with the striker, turn off the gas and allow it to dissipate before trying again.

**** Do not lean over the Bunsen burner while lighting it. Keep your head and clothing well back.**

6. Once the burner is lit, adjust the gas regulator valve to produce a flame that is about 6 cm in height.

7. Open the air control valve to add air to the flame. Notice how adding air to the gas causes the flame to change to a blue colour.

8. Adjust the amount of gas and air so that the flame has an inner blue cone about 4 cm high. This type of flame is very hot; the hottest part of the flame is just above the inner blue cone.

9. Turn off the gas using the gas control on the lab bench.

Safety Precautions:

- **If the flame of your Bunsen burner goes out, immediately turn off the gas using the main gas control.
- **Do not leave the Bunsen burner unattended. Turn the burner off if both partners must leave the lab station.
- ** Never heat glassware directly with a Bunsen burner. Place a wire square under the beaker or heat using a water bath.

Part II: Working With Glass Tubing

1. Obtain a piece of glass tubing that is 40 cm long. Using a meter stick and a marking pen, mark the tube for cutting into two 20 cm pieces.
2. Place the tubing on the counter of your lab station. Using a firm stroke of the file, make a deep scratch where you want to cut the glass tubing. Hold the tubing with both thumbs behind the scratch. (The scratch should be pointing away from you.) Push firmly with both thumbs and the tubing should break cleanly.
3. In order to smooth the ends of the glass tubing, a technique called fire polishing is used. Light the burner again and place the end of one piece of tubing into the flame. Rotate the tubing so that the heating is even. Continue fire polishing until the end of the tube is smooth. Repeat for each end.

** Bring the back of your hand close to the glass to check whether the glass is cool enough to be handled. Many students have received minor burns from handling glass that is too hot.

4. Optional: Bending Glass

Create unique shapes out of your piece of glass tubing by heating the area that you wish to bend. Rotate the tubing so that the heating is even. After several minutes, gently bend the glass as desired by exerting pressure on the heated area. Let the glass cool completely before attempting additional bends.

Bunsen Burner Lab Questions

- I. Draw your Bunsen burner on a separate sheet of blank paper and label the following parts: (gas regulator valve, air control valve, rubber tubing, and barrel). This drawing is to be Completed in pencil as neatly as possible. Underline all labels and title with a ruler.
- II. Answer the following questions using complete sentences in the designated section of your lab report. Be as neat as possible.
 - 1a. What two controls are there on the flow of gas to the Bunsen burner?
 - b. Which control should you use if you need to shut off the burner quickly?
 2. After you have lit a Bunsen burner, how can the temperature of the flame be increased?
 3. Which part of the Bunsen burner flame is the hottest?
 4. What should be placed under any glassware heated using a Bunsen burner?
 5. What is the name of the fuel used by the Bunsen burners in the lab?
 6. State two safety rules which should be followed when working with glass.
 7. In your own words, describe how to correctly light the Bunsen burner.

Conclusion

Identify the safety rules to follow when using the Bunsen burner.