

Basic Laboratory Techniques

In the chemical laboratory, a student is required to carry out from the simplest operations like bending a glass tube, cutting a glass tube, and boring a cork, to complex processes of analyzing substances qualitatively and quantitatively. A general acquaintance with such operations thus becomes obvious before taking up actual experiments

Bunsen Burner

It is a common heating device used in the laboratory and consists of the following parts.

1. **Base**, made of cast iron. It keeps the burner in a stable upright position.
2. **Gas-inlet tube**, It fits horizontally into the side of the base and can be connected to the gas tap through a rubber tube.
3. **Nipple**, made of brass rod and has a fine pinhole running through it. At its lower end, the nipple is screwed into the base. At the upper end, it carries the burner base.
4. **Burner tube**, a metallic tube with two opposite air holes near its lower end. It is screwed to the nipple and carries the air regulator.
5. **Air adjusting disc** is a metallic ring that loosely fits on the lower end of the burner tube. It is pierced with two holes that exactly correspond to the two air holes of the burner tube.

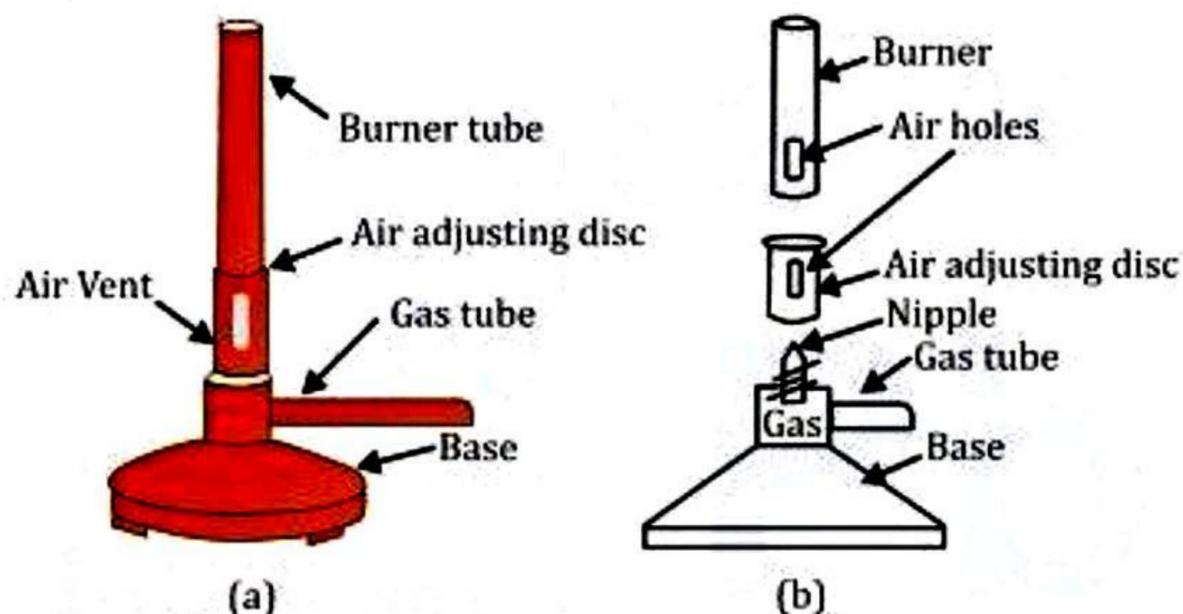


Fig. 1 (a) Bunsen burner, (b) Parts of Bunsen burner

Working of Burner

The rubber tubing is connected to the gas tap and the burner is lighted. As the gas escapes through the nipple, there is a fall of pressure. As a result of which air is sucked in through the air holes. The mixture of air and combustible gas burns at the top with a flame. Depending upon the quantity of air mixed flame can be luminous or non-luminous.

Oxidising flame or non-luminous zone is the hottest. It is this portion that should be used for heating. The luminous zone is the brightest part of the flame. It is reducing in character and is used for reducing processes, such as in charcoal cavity test, matchstick test and borax bead test of some radicals.