

**Hot-air oven:**

The hot-air oven is electrically heated and is fitted with a fan to ensure adequate and even distribution of hot air in the chamber.

It is also fitted with a thermostat that ensures circulation of hot air of desired temperature in the chamber.

Heated, circulated air transfers its heat to the materials inside the chamber.

Recommended temperature and duration for oven:

Exposure to 160–180°C for 2 hours and 30 minutes, which ensures thorough heating of the objects and destruction of spores.

Precautions:

- it should be ensured that the oven is not overloaded.
- The materials should be dry and arranged in a manner which allows free circulation of air inside the chamber.
- It is essential to fit the test tubes, flasks, etc., with cotton plugs and to wrap Petri dishes and pipettes in a paper.

Uses of hot-air oven:

- Glassware, forceps, scissors, scalpels, all glass syringes, swabs and some pharmaceutical products such as liquid paraffin, dusting powder.



### **Incineration: (Incinerator)**

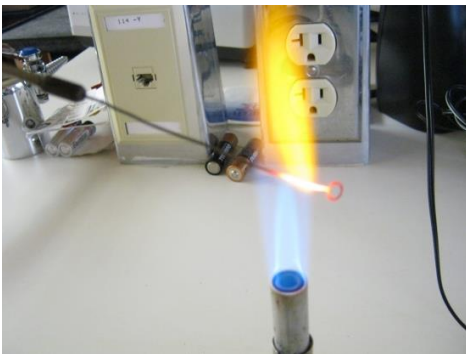
Incineration is an excellent method for safely destroying infective materials by burning them to ashes.

It has many uses:

1. Incinerators are used in hospitals and research labs to destroy hospital and laboratory wastes.
2. Complete destruction and disposal of infectious material, such as syringes, needles, culture material, dressings, bandages, bedding, animal carcasses, and pathology samples.

### **Flaming: (Bunsen burner)**

Sterilization of inoculating loop or wire, the tip of forceps, searing spatulas, etc.. Glass slides, scalpels, and mouths of culture tubes are sterilized by passing them through the Bunsen flame without allowing them to become red hot.



**Pipette::**

A pipette is a laboratory tool commonly used in chemistry, biology and medicine to transport a measured volume of liquid, often as a media dispenser

**How to Use the Various Types of Pipettes**

1. Hold **pipette** in solution, don't touch the bottom.
2. Squeeze bulb and attach to top of the **pipette**.
3. Hold forefinger on top of **pipette** to control volume aspiration.
4. Subtract the amount needed into separate beaker while staying eye level to assure proper measurement.

## Centrifuge

A centrifuge is a laboratory device that is used for the separation of fluids, gas or liquid, based on density. Separation is achieved by spinning a vessel containing material at high speed.



## Autoclave

An autoclave is a machine used to carry out industrial and scientific processes requiring elevated temperature and pressure in relation to ambient pressure/temperature.

Temperature – Time - Pressure levels for autoclaving

Temperature

121°C

Time

20 minutes

Pressure level

15 psi

**Uses of autoclave:**

It is a good method to sterilize heat-resistant materials, such as glassware, cloth (surgical dressings), metallic instruments, liquids, some media, and some heat-resistant plastics

