

# FLAME EMISSION PHOTOMETRY

# Flame Emission Photometry

- Principle-It involve the analysis of metal present in the sample on the basis of radiations emitted by it,when the sample is atomised into the flame.

**1. When the solution of metallic salt is sprayed into flame, following process takes place.**

A-Solvent get vapourised ,leaving behind salt.

B-Salt get vapourised leaving behind constituent atoms.

C-Some of the metal atom get excited to higher energy state.

D-Excited atoms emit radiations ,which are characteristics of the metal atom.

2.Efficiency of formation of excited atoms into flame is low due to incomplete combustion or formation of molecular species. Due to this reason ,the technique cannot be used for analysis of all metals.

3.Only those metals ,which has easily excited flame spectrum have sufficient intensity for detection by photocell.

4.This technique is used for analysis of Na,K,Ca,Li,etc.

# Instrumentation



Atomiser+Burner

Monochromator

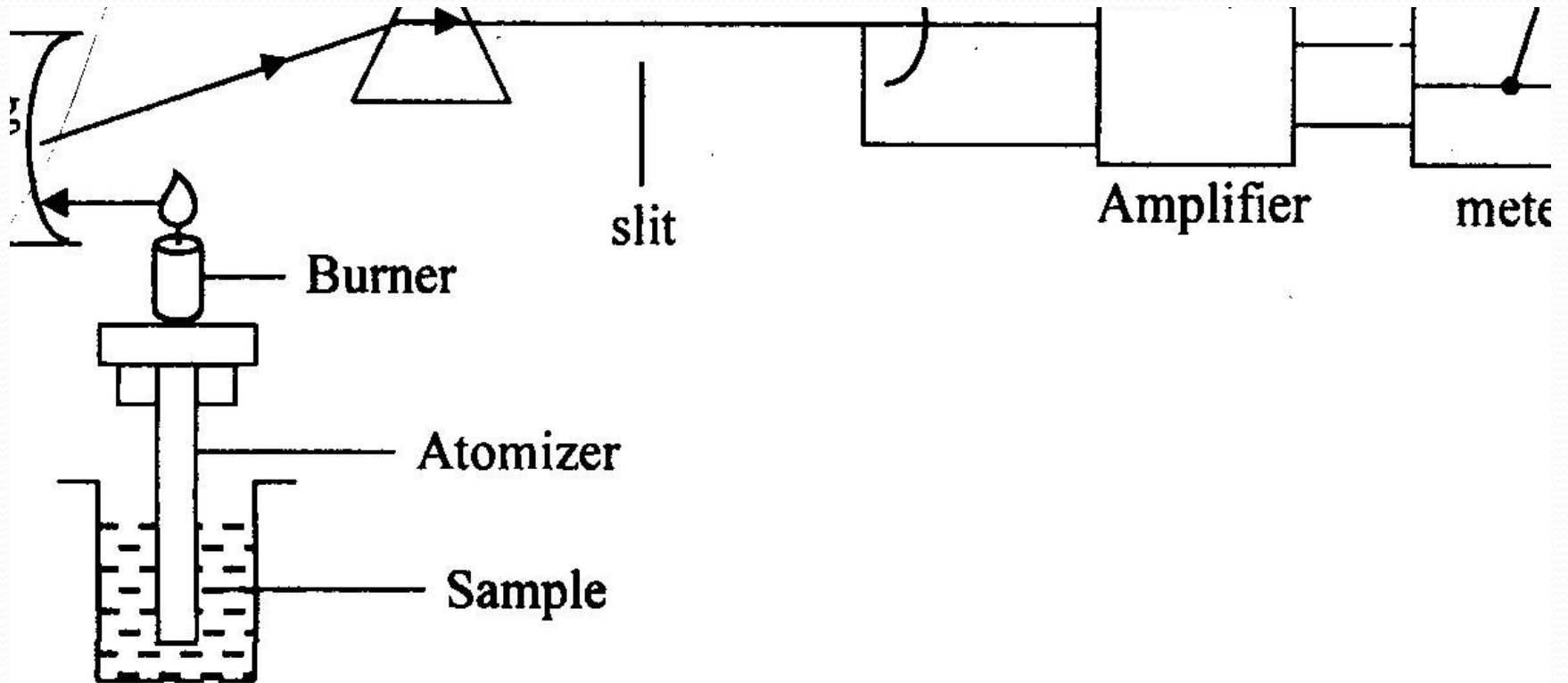
Photocell

Detector

Amplifier

Read out

# Instrumentation



**Flame spectrophotometer (Block diagram)**

# Applications

1. The technique is used in agriculture field for testing of water, soil, and plant materials.
2. In medical science for testing of urine and blood samples.
3. In industries for detection of elements in fuel, glass and cement, etc.

**Drawbacks-** Flame photometry cannot be used for the analysis of those metals, which have tendency for incomplete vaporization as the formation of excited atoms cannot be easily detected by photocell.