

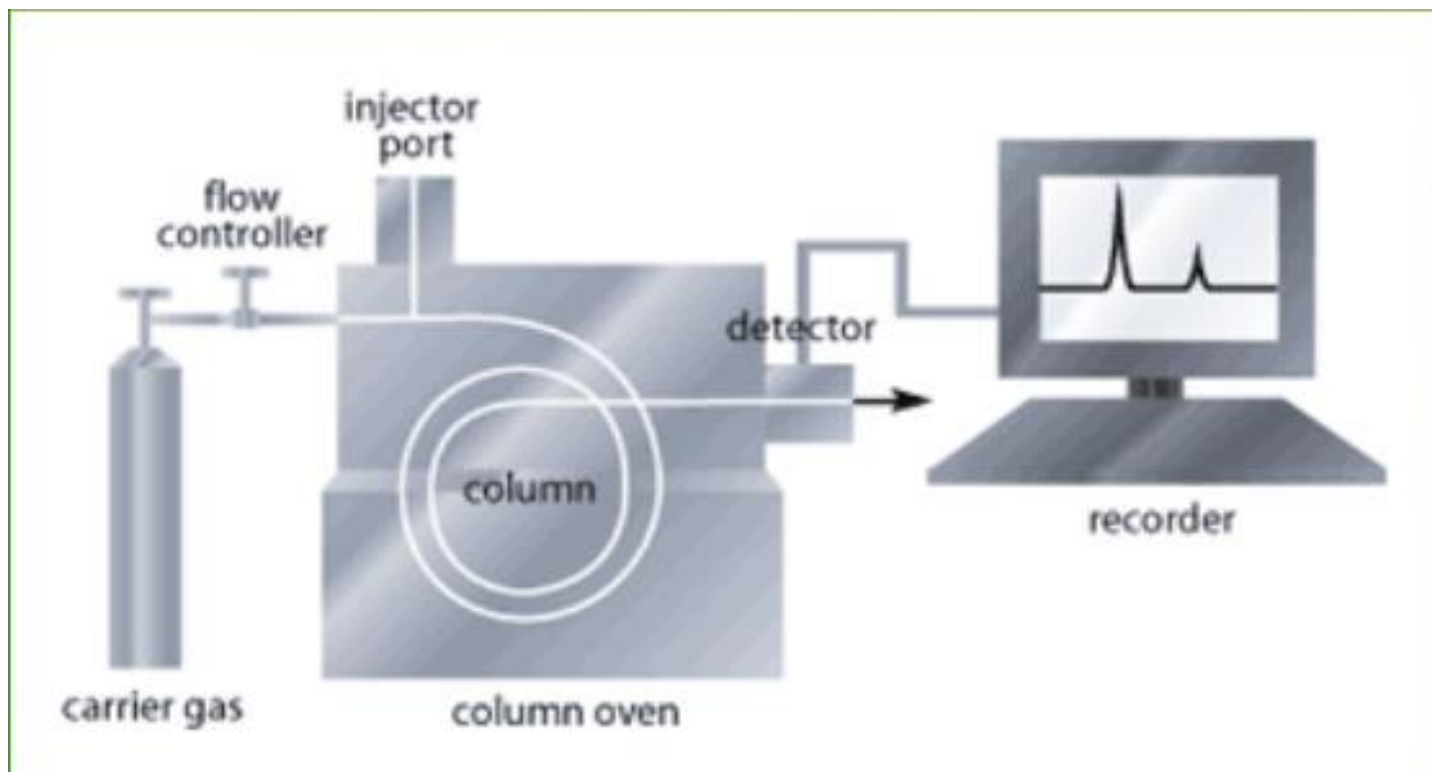
# Gas chromatography

- Chromatography is a technique for separating mixtures into their components in order to analyze, identify, purify, and/or quantify the mixture or components.
- Gas chromatography is a type of column chromatographic technique that can be used to separate volatile organic compounds.
- Mobile phase: inert gas: nitrogen, helium, hydrogen → carrier gas.
- Stationary phase: liquid/solid.

# How a Gas Chromatography Machine Works

- 1- a vaporized sample is injected onto the chromatographic column.
- 2- the sample moves through the column through the flow of inert gas.
- 3- the components are recorded as a sequence of peaks

# Gas chromatography



# High Performance Liquid Chromatography (HPLC)

- HPLC is a form of liquid chromatography used to separate compounds that are dissolved in solution. HPLC instruments consist of a reservoir of mobile phase, a pump, an injector, a separation column, and a detector.
- Compounds are separated by injecting a sample mixture onto the column. The different component in the mixture pass through the column at different rates due to differences in their partition behavior between the mobile phase and the stationary phase. The mobile phase must be degassed to eliminate the formation of air bubbles.

# Components of HPLC

- It consists of 4 basic parts:
- 1. Pump system
- 2. The column
- 3. The injection system
- 4. The detector system

**Solvent Reservoir: Mobile phase solvent separation technique**

- Pumps pushes mobile phase from reservoir and pulls to detector. It helps to maintain flow rate.
- Columns are usually long narrow tubes containing stationery phase.
- Injection system is a way of introducing sample into mobile phase.
- Detector in HPLC is used to monitor mobile phase that emerges from column.

# High Performance Liquid Chromatography (HPLC)

