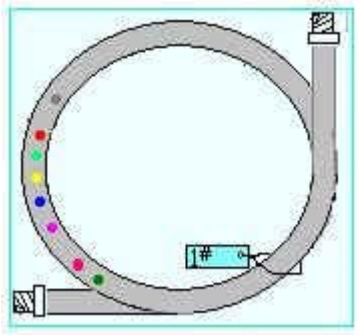
§5.1.2 Separation Process of GC

一、The separation process of GC is done in chromatograph column.



Chromatograph column is packed with stationary phase. （动画） **二、The separation mechanism in these two types packed column GC are different.** 1.Gas-solid GC Stationary: porous solid adsorbants.

Separation mechanism: Solid adsorbants has the different adsorptivity for different sample components. It’s a continuous adsorption and desorption process.

2.Gas-liquid GC Stationary: support and liquid phase.

Separation mechanism: Gas-liquid stationary has the different solvency for different sample components. It’s a continuous solubility and volatilization process.

三、Separation process The separation figure of double components after six partitioning is shown as follows: (1) When a sample mixture enters chromatograph column under carrier gas and contacts with stationary phase, it is dissolved or adsorbed by stationary phase. The dissolved or adsorbed components volatilizes or desorbed from stationary phase with the

carrier gas. The components volatilized or desorbed is dissolved or adsorbed by stationary phase again when they moves forward with carrier gas.

(2) This process is carried out continuously under the carrier gas. The process of dissolution and volatilization (or adsorption and desorption) is carried out under carrier gas.

(3) Separation occurs because sample components have different affinities for the stationary phase and mobile phases and therefore move at different rates along a column. So they have different retention times.

Outline of this page: The process of chromatograph separation; the difference of separation process between gas-solid and gas-liquid chromatograph. Thinking subject of this page: What differences are there for separation mechanism between gas-solid and gas-liquid chromatograph? Thinking subject of next page: Which part is key for separation efficiency in chromatograph?