

### 9.2.1.5 Classification According to the Mechanism of Separation

#### **Adsorption Chromatography**

Separation is based mainly on differences between the adsorption affinities of the sample components for the surface of an active solid.

#### **Partition Chromatography**

Separation is based mainly on differences between the solubilities of the sample components in the stationary phase (gas chromatography), or on differences between the solubilities of the components in the mobile and stationary phases (liquid chromatography).

#### **Ion-Exchange Chromatography**

Separation is based mainly on differences in the ion exchange affinities of the sample components.

*Note:* Present day ion-exchange chromatography on small particle high efficiency columns and usually utilizing conductometric or spectroscopic detectors is often referred to as *Ion Chromatography (IC)*.

#### **Exclusion chromatography**

Separation is based mainly on exclusion effects, such as differences in molecular size and/or shape or in charge. The term *Size-Exclusion Chromatography* may also be used when separation is based on molecular size. The terms *Gel Filtration* and *Gel-Permeation Chromatography (GPC)* were used earlier to describe this process when the stationary phase is a swollen gel. The term *Ion-Exclusion Chromatography* is specifically used for the separation of ions in an aqueous phase.

#### **Affinity Chromatography**

This expression characterizes the particular variant of chromatography in which the unique biological specificity of the analyte and ligand interaction is utilized for the separation.