

# Gas Chromatography

**1. Introduction**

**2. Stationary phases**

**3. Retention in Gas-Liquid Chromatography**

**4. Capillary gas-liquid chromatography**

**5. Sample preparation and injection**

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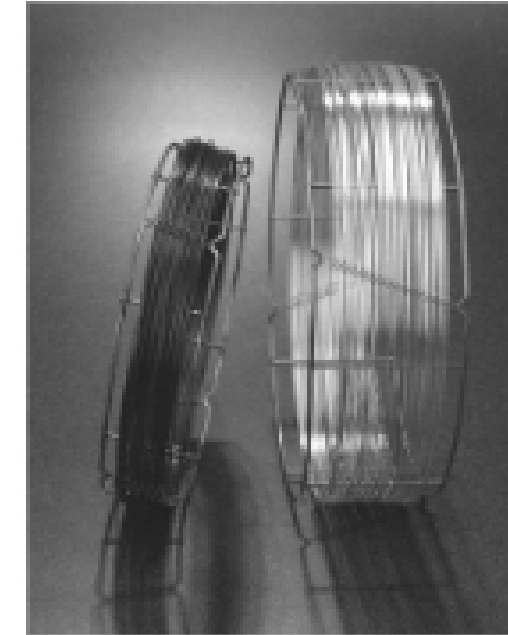
**(Chapter 2 and 3 in The essence of chromatography)**

# Capillary Gas-Liquid Chromatography

## A. Separation efficiency and rate theory

## B. Preparation of Capillary Column

## C. Evaluation of Capillary Column

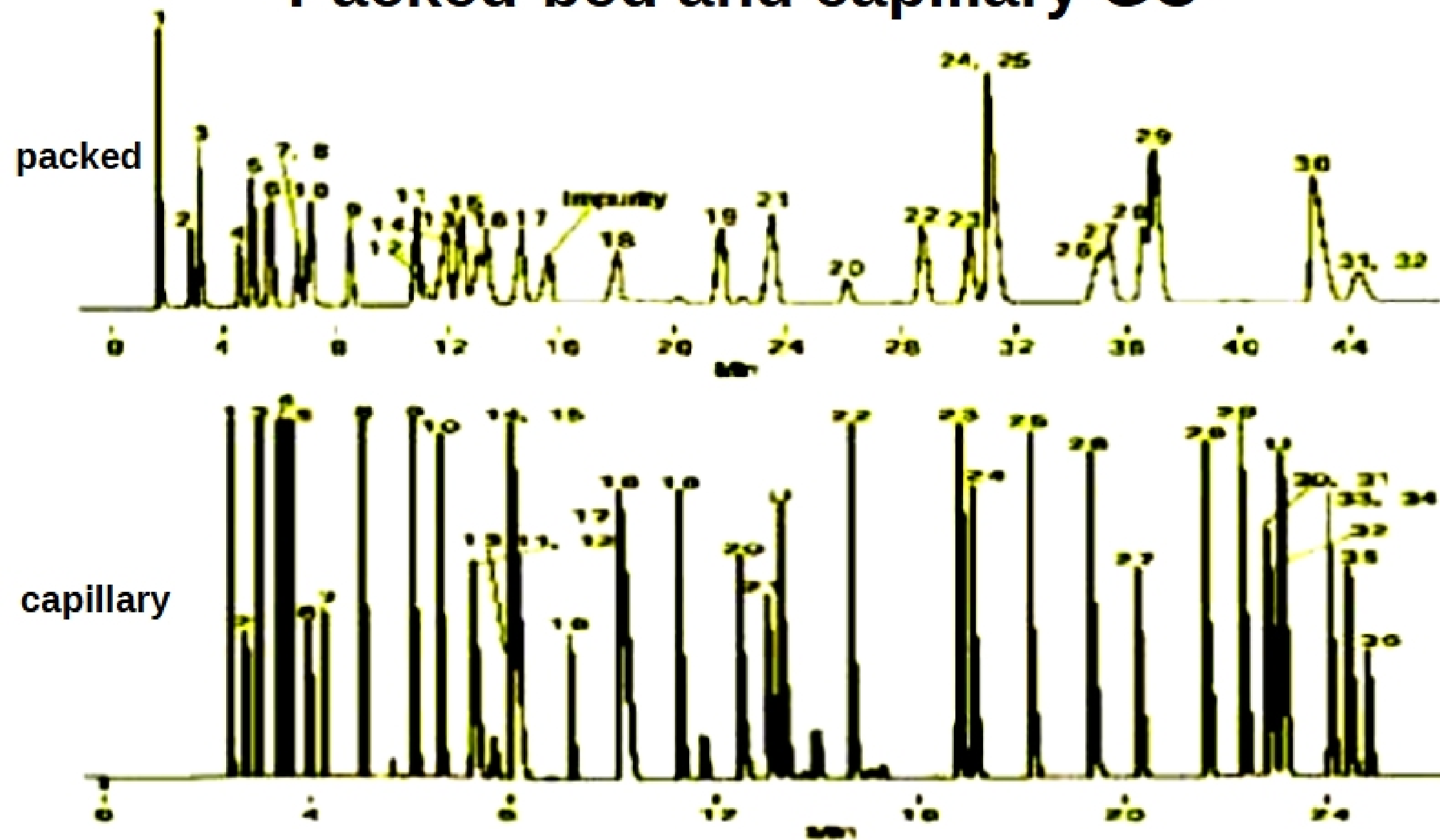


Representative properties of different column types for gas chromatography

$H_{min}$  = minimum plate height at the optimum mobile phase velocity  $u_{opt}$

Column type	Phase ratio	$H_{min}$ (mm)	$u_{opt}$ (cm/s)	Permeability ( $10^7 \cdot \text{cm}^2$ )
Classical Packed	4-200	0.5-2	5-15	1-50
Micropacked	50-200	0.02-1	5-10	1-100
Packed Capillary	10-300	0.05-2	5-25	5-50
SCOT	20-300	0.5-1	10-100	200-1000
WCOT	15-500	0.03-0.8	10-100	300-20000

# Packed-bed and capillary GC



Capillary GC has much higher separation efficiency than packed-bed GC!