Successful separations depend on choosing the right column, but with so many options available do you know which is best? Understanding the basic elements of the resolution equation and how they relate to column characteristics is the key to getting the best separation in the shortest possible time.

$$R = \frac{1}{4}\sqrt{N \times \left( \frac{k}{k+1} \right) \times (\alpha - 1)}$$

- **Nonpolar**
  - As inner diameter increases, efficiency decreases, sample loading capacity decreases.
  - GC-MS
  - Highest efficiency

**Characteristics**
- Short analysis times
- Good efficiency

**Applications**
- Complex samples
- High concentration samples
- Wide concentration range

**Stationary Phase**
- Fused Silica Tubing
- Polyimide Coating
- Wall Coated Open Tubular (WCOT) Column

**Thin Film**
- **0.15 - 0.18 μm**
  - Characteristics: Higher efficiency, narrower banding
  - Applications: Faster, more robust separations

**Thick Film**
- **1.6 - 2.0 μm**
  - Characteristics: Higher loading capacity, lower bleed
  - Applications: Higher bleed, longer retention times

**Film Thickness**
- Stationary phase film thickness (μm) directly affects retention, resolution, and elution time for each sample component. When changing either film thickness or the temperature program, you must reconfirm peak identifications as elution order changes can occur.

**Length**
- Short Length
- Long Length

**Inner Diameter**
- Small ID
- Large ID

Visit www.restek.com for our complete line of general-purpose and application-specific GC columns.