

Do You Really Need High pH for Retention in HPLC - Tips and Suggestions

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Traditionally, some analyses have required very high mobile phase pH (up to 10–12) to achieve acceptable retention for compounds with high pK_a values. However, using extreme pH is not always necessary—and it comes with significant drawbacks.

Risks of High pH

- **System Damage:** Prolonged exposure to high pH can degrade pump seals, tubing, fittings, and detector cells.
- **Column Issues:** At very high pH and moderate ionic strength, silica dissolution can occur, shortening column life.

Alternative Approach

With Cogent™ TYPE-C™ HPLC Columns and Aqueous Normal Phase (ANP), many compounds can be retained effectively within the typical HPLC pH range of 2–7.

- Some methods still require high pH for analyte solubility—if so, maintain high pH.
- In ANP, the goal is to fully ionize compounds, not neutralize them.

Rule of Thumb

- Acidic analytes → Basic mobile phase
- **Basic analytes → Acidic mobile phase**

