

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 pKa 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**

