Why is isopropanol rarely used as a solvent in HPLC or LCMS methods - FAQ

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While isopropanol (IPA) is a common laboratory solvent, it is infrequently used as a primary mobile phase component in HPLC or LC-MS methods. Here's why:

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1. Higher Viscosity = Higher Backpressure

IPA is significantly more viscous than commonly used solvents like acetonitrile (ACN) or methanol (MeOH). This increased viscosity leads to:

- Higher system backpressure
- Reduced flow rate flexibility
- Potential strain on pumps and fittings

As a result, IPA is less practical for routine use, especially in high-throughput or high-pressure systems.

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2. Limited Selectivity Advantages

In terms of chromatographic selectivity, IPA offers few unique benefits. When visualized in a solvent selectivity triangle (with ACN, MeOH, and tetrahydrofuran [THF] at the corners), IPA typically falls within the range achievable by blending these other solvents. Therefore, most desired selectivity effects can be replicated without using IPA.

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3. Where IPA *Is* Useful

Despite its limitations, IPA has valuable niche applications in HPLC workflows:

- Solvent bridging: IPA is miscible with both aqueous and non-aqueous solvents, making it ideal for transitioning between reversed-phase and normal-phase methods.
- Column cleaning: IPA is effective at removing strongly retained hydrophobic contaminants. It can be used:
  - As a wash step at the end of a gradient
  - In dedicated column cleaning protocols, including backflushing

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📦 Need help selecting the right solvent for your method? Our technical team is here to assist.

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