

Analyte Adsorption Behavior in Controlled-Flow and Zero-Flow CE Capillaries - Tech Information

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Overview

This technical note explains how analytes interact with the inner polymer coating of Controlled-Flow and Zero-Flow CE capillaries. These capillaries are engineered to minimize sample-to-wall interactions, offering lower adsorption than bare silica. However, adsorption behavior varies depending on analyte properties, particularly hydrophobicity and charge. Neutral, hydrophobic species have a greater tendency to adsorb to the coating surface, while charged analytes typically exhibit minimal sticking.

Understanding these differences helps users troubleshoot unexpected peak losses, migration delays, or sensitivity reductions when working with challenging compounds.

Analyte Adsorption in Controlled-Flow and Zero-Flow CE Capillaries

Controlled-Flow and Zero EOF capillaries generally produce very low interaction between the sample and the polymer coating on the inner wall. As a result, adsorption is typically minimal.

However, analyte behavior may vary depending on the compound's chemistry. In general:

- Hydrophobic and neutral analytes have a greater likelihood of adsorbing to the coating surface.
- Charged analytes are unlikely to stick, because their charge promotes migration and reduces affinity for the polymer.

Understanding your analyte's hydrophobicity and charge state can help determine whether adsorption may occur in these capillaries.

Click [HERE](#) for ordering information and images of CE capillaries.