Biological extracts Diamond Hydride columns and LCMS ion source diminished peak height problem - FAQ

Date: 2-APRIL-2012 Last Updated: 11-OCTOBER-2025

Unexpected Drop in Peak Intensity During LC-MS Analysis—What's Going On?

While analyzing maleic and fumaric acids in a biological extract using a Cogent Diamond Hydride™ column, I observed an interesting phenomenon:
After 10 flawless injections—with retention time %RSD around 0.5—the peak intensities dropped by a factor of 10, yet the retention times remained unchanged.

What happened to the column?

Most likely, nothing is wrong with the column. A sudden drop in signal intensity with stable retention times typically points to an issue with the mass spectrometer, not the chromatography.

We recommend checking the following:

- Clean the ion source – Contamination can significantly reduce signal strength.
- Inspect the nebulizer – Clogs or wear can affect ionization efficiency.

Maintaining your MS system is essential for consistent performance, especially in sensitive LC-MS workflows. The Cogent Diamond Hydride™ column is highly stable and unlikely to be the cause in this scenario.

MicroSolv Technology Corporation
9158 Industrial Blvd. NE, Leland, NC 28451
Tel: (732) 380-8900
Fax: (910) 769-9435
Email: customers@mtc-usa.com
Website: www.mtc-usa.com