MICROSOLV

# Using Deactivator Agents with Cogent TYPE-C HPLC Columns - Tech Information

*Date: 7-NOVEMBER-2020 Last Updated: 12-FEBRUARY-2026*

**Can Deactivator Agents Be Used on Cogent TYPE-C™ HPLC Columns?**

**Short Anser: Yes, they can.**

---

## Introduction

Cogent TYPE-C™ HPLC columns are engineered with a silica-hydride surface and are known for their chemical robustness, broad solvent compatibility, and stable performance across a wide pH range.

Occasionally, analysts encounter peak-shape distortion or sensitivity loss caused by metal contamination, system components, or sample interactions. In such cases, the question arises: *Can deactivator agents or passivation compounds be safely used with TYPE-C columns?*

The answer is **yes**—properly selected deactivator agents can be applied without harming the column.

---

## Use of Deactivator/Passivation Agents

Deactivator agents are sometimes required when analyzing negatively charged or metal-sensitive analytes. These agents improve performance by minimizing interactions with metal surfaces within the HPLC flow path, reducing adsorption, and enhancing peak symmetry.

Cogent TYPE-C™ columns are compatible with these treatments because their surface chemistry does not rely on traditional silanol-based interactions. In situations where acidic or basic conditions are applied to restore response or improve peak shape, TYPE-C columns maintain stability and do not suffer from the degradation observed in conventional silica columns.

---

## Why Deactivators Are Used

Peak tailing, poor recovery, and suppressed MS sensitivity are often linked to metal ion leaching—particularly iron—from system tubing or column hardware. These metals can interact with analytes, especially acidic or highly polar compounds, leading to distorted chromatographic behavior. Introducing a compatible deactivator can mitigate these interactions and reestablish consistent analyte performance.

---

### Example of a Compatible Deactivator

Medronic acid, a methylene-substituted bisphosphonate, is a commonly referenced example of a deactivating compound suitable for use with Cogent TYPE-C™ columns.

It binds to problematic metal sites and reduces undesirable interactions that would otherwise produce poor peak shapes or diminished sensitivity—particularly in LC–MS applications involving negatively charged analytes. TYPE-C columns tolerate the use of this reagent without compromising column durability or performance.

---

### Conclusion

Deactivator agents can be safely used on Cogent TYPE-C™ HPLC columns to correct metal-related performance issues, improve peak shapes, and enhance MS sensitivity. Their compatibility with acidic or basic treatments, along with the unique silica-hydride surface, allows analysts to troubleshoot difficult separations without risking damage to the column


**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