

A MicroSolv Technology White Paper



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Why Laboratories should adopt TYPE-C™ Technology

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Introduction

HPLC is still the most widely used and relied upon analytical technique in the world today. The technology is rapidly developing in an effort to keep pace with changes in the business world with faster and better separations now expected.

Cogent TYPE-C™ Silica based HPLC columns provide lab managers & chromatographers with an opportunity to advance their capabilities with HPLC and achieve results in less time.

Laboratories are now as much about business as they are about science.

Problem Statement

HPLC is expensive! Analytical laboratories today exist in a very demanding business climate with company mergers, increased regulatory requirements and globalization issues.

Costs are continually escalating and management is under pressure to lower the cost of data, yet still produce high quality, accurate data at a much reduced cost per analysis.

Previous Options

HPLC column technology based on ordinary silica has been extremely reliable since it's development in the early 1970's . Using organo-silanes and high purity silica particles to make columns, continual improvements to HPLC columns were made until the late 1990's when the development slowed to almost a halt.

Limitations due to the silica surface chemistry have become routinely accepted. Often under the new analytical demands "work arounds" have been required when HPLC simply did not produce the desired results.

To gain speed of analysis, sub 2 micron particles using standard HPLC column

chemistry evolved into UHPLC. The run times have been incredibly reduced but these columns lack robustness, selectivity power and require time to equilibrate between runs. This results in faster run times but not robust methods with orthogonality and the cycle time from injection to injection is not rapid enough.

This leaves the chromatography community still searching for fast technology that lowers the cost per analysis and method development.

Cogent Solution

Cogent TYPE-C™ Silica columns use a more modern approach to column chemistry than other HPLC columns. Using high purity silica particles with a surface chemistry that does not retain and hold water, these HPLC columns offer all the benefits of your favorite columns but have many additional features that help laboratories “do more with less”.

The surface of the TYPE-C™ columns are populated with silica-hydride functional groups instead of silanols. This makes the particle slightly hydrophobic and will adsorb and desorb solvents much more easily than ordinary silica. Using proprietary bonding technology, the TypeC™ silica-hydride columns have also been modified with C8, C18, Cholesterol, and Phenyl with a slightly modified hydride surface for additional phase selectivities.

Benefit 1

Faster turnaround time between runs. Most HPLC columns require

15-20 column volumes to equilibrate. TYPE-C™ columns only require 1-2 column volumes to save you time, solvents and cost per analysis.

Benefit 2

Easy method development. Retain both polar and non polar compounds on the same column and in less than 60 minutes identify the best column for your method optimization. Most methods developed on TYPE-C™ columns use the same mobile phase even when changing to different bonded phases.

Benefit 3

Extended column lifetime and less lifetime failures and investigations. Direct silicon carbon bonds and the lack of a need for end capping makes these columns last 10-15 times longer than columns based on older silica technology that requires end capping.

Benefit 4

Selectivity enhancements. All TypeC™ column phases can be used in any of the (3) modes of chromatography. Reverse Phase, Normal Phase or Aqueous Normal phase can be used including switching between modes without hysteresis or damage to the column.

Benefit 5

Easy to use. Simple singular mobile phases such as acetonitrile and water with acid or base can usually separate most compounds. No PIC reagents are needed. Use our fast “Quick Start” method to easily determine the best chromatographic mode to deploy for unknown polar or non polar compounds.

Benefit 6

Save time and money, do more with less. The initial cost of column acquisition is similar to other market leaders, but the reliability, precision, fast equilibration, savings in personnel and instrument time, solvents, extended column lifetime and low column failure rate, gives incredible overall column life-time savings.

Implementation

It is compelling to learn more about this technology and how easy it is to implement the on-boarding of this technology into your laboratory for routine use.

Many laboratory managers have adopted these columns by assigning one individual to work with them on both simple and complicated methods currently in the laboratory.

By quickly learning the similarities and the differences between historical silica and silica-hydrate makes success almost guaranteed. Working with the MicroSolv support staff, this task is made very easy.

Summary

To keep pace with down-sizing, smaller budgets, out-sourcing and personnel attrition; lab managers have to find solutions with far less resources than were once available. To reduce costs per analysis, turn-around-time of methods and runs is an absolute must. Finding a reliable column that does not fail, as they

often do, in the middle of a run is one way to strongly reduce costs.

Fast column equilibration between runs increases throughput on your instruments as well as per scientists/employees.

Saving time, money and gaining reliability are the foremost reasons for adopting Cogent TYPE-C™ silica-hydrate based HPLC column technology in your lab.

Let us help you adopt it.