

A MicroSolv Technology White Paper

Why Laboratories should adopt TYPE-C™ Technology

Date: September 19, 2016

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Introduction

HPLC is still the most 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 becoming the expected methods. Cogent TYPE-C Silica based HPLC columns provide chromatographers with an opportunity to advance their capabilities in 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 needs to lower the cost of data analysis yet still produce highest quality, accurate data.

and at a much reduced cost of analysis sometimes saving as much as \$75.00 per hour.

Previous Options

HPLC column technology based on ordinary silica has been extremely reliable since the early 1970's when it was developed. Using organosilanes and high purity silica particles made excellent HPLC columns but the development of column chemistry slowed to almost a halt in the late 1990's. Limitations due to the surface has become routinely accepted and often under the new analytical demands "work arounds" have been used when HPLC simply did not produce results. To gain speed of analysis, sub 2 micron particles using standard HPLC column chemistry evolved into UHPLC. The run times were incredibly reduced but these columns lacked robustness, selectivity

power and require time to equilibrate between runs. This results in fast run times but not robust methods with orthogonality and not fast enough cycle time from injection to injection. This leaves the chromatography community still searching for fast technology that lowers the cost of analysis and method development.

Cogent Solution

Cogent TYPE-C Silica columns use a more modern approach to column chemistry. Using high purity silica particles that have a surface chemistry that does not retain and hold water, these HPLC columns offers all the benefits of columns based on older technology but with 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 Cogent columns can be modified with C8, C18, Cholesterol, Phenyl and a slightly modified hydride surface.

Benefit 1

Faster turn around 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.

Benefit 2

Easy method development. Retain both polar and non polar compounds on the same column and in 60 minutes identify the best method for the columns to being optimizations. Most methods are developed using the same mobile phase even when changing to different bonded phases.

Benefit 3

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

Benefit 4

Selectivity enhancements. Any one column can be used in any of 3 modes of chromatography. Reverse Phase, Normal Phase or Aqueous Normal phase can be used and you can switch between modes with little hysteresis and no 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 quick start methods to determine best mode to deploy with unknowns compounds; polar or non polar.

Benefit 6

Save time and money, do more with less. The cost of acquisition is similar to other columns made by market leaders but the reliability is incredible as well as the precision.

Implementation

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

Many leading laboratories have adopted these columns by assigning one individual in the laboratory to work with them on simple and complicated methods that are currently in the laboratory. Quickly learning the similarities and the differences makes success almost guaranteed. Working with the MicroSolv support staff, this task is made very easy.

Summary

To keep pace with downsizing, outsourcing, personnel attrition lab managers have to find solutions with far less resources than what were once available. Turn around time of methods and runs is an absolute must and finding a reliable column that does not fail in the middle of the run as often as is normal is one way to reduce costs. Fast column equilibration between runs can also increase throughput on your instruments as well as per scientist/employee.

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

Let us help you adopt it.