## HAISIL HL  *High Load*

| | |
|---|---|
| Phases | C18 |
| Particle Sizes | 5µm |
| Pore Size | 100Å |
| Pore Volume | 0.8mL/gm |
| Surface Area | 300m$^2$/gm |
| %Carbon (w/w) | C18 = 18% |
| Phase type | Monofunctional & fully endcapped |
| Silica Class | Type B |
| USP Class | L1 |

### Guide to HAISIL HL Part Numbers

Lx-xxxx-C185      HAISIL HL C18 5µm
*See Page 23 for complete Part Number information*

### Applications

HAISIL HL "high load" columns and cartridges are intended for applications requiring maximum loading and selectivity. The high surface area permits high bonded phase loading yet the monofunctional bonded phase and the absence of micro-pores eliminates the problems that plague many of the so-called "high capacity" columns currently on the market. The Type B silica backbone is pure, robust, and stable under harsh conditions. Users report satisfactory lifetime when used for prolong periods at pH as high as 9.

### High Speed Analysis of Paraben Food Preservatives

Parabens represent another example of food additives that are routinely analyzed by HPLC. Often, the food matrix being assayed for preservative content requires exhaustive cleanup and pre-filtration in order to prevent clogging of columns with nonporous or 2µm sorbents recently suggested for this analysis. As in the previous diet cola example, the compounds of interest are base line resolved under isocratic conditions. The inexpensive HAISIL HL 5µm 20x2.1mm cartridge column and the 50 second analysis time contribute significantly towards reducing operating costs.
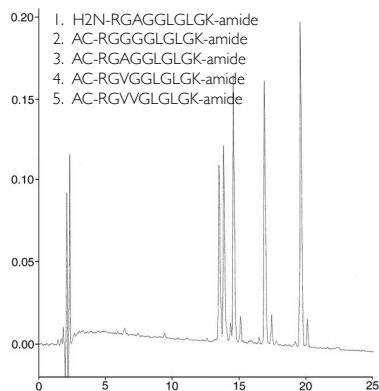


*Fast Paraben Analysis*
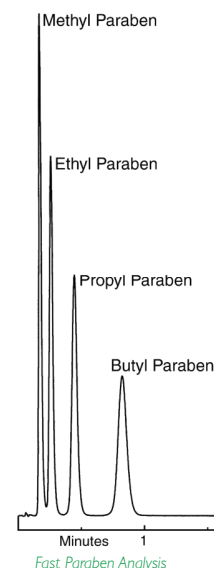
HAISIL HL C18 5µm
20x2.1mm Cartridge
LK-0221-C185
700µL/min, 40% MeCN/water

## HPLC Peptide Standards for RP on the HAISIL HL C18 Column

The aromatic hydrocarbons that most HPLC column manufacturers use to quality control columns render little information about a column's selectivity



1. H2N-RGAGGLGLGK-amide
2. AC-RGGGGLGLGK-amide
3. AC-RGAGGLGLGK-amide
4. AC-RGVGGLGLGK-amide
5. AC-RGVVGLGLGK-amide

*"Hodges Test Peptide Mix"*
*(from Synthetic Peptides, Inc.)*

HAISIL HL C18 5µm
150x4.6mm P/N LS-1546-C185

and performance characteristics for peptides. The Canadian corporation, SPI, produces a well characterized yet challenging peptide mixture that is very useful for quantifying HPLC column performance for peptides. The difficult to separate first pair of peptides are resolved to near base line on HAISIL HL C18 columns. Many so-called peptide analysis columns are unable to separate this pair.

## Water Soluble Vitamin Analysis on HAISIL HL
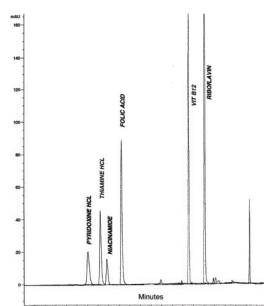


*Water Soluble Vitamins*

HAISIL HL C18 5µm 250x4.6mm
A: 0.05mM KOAc, pH5; B: MeCN
Gradient: 2.5% - 30%B in 25min

## Food Additives

Beverage additive analysis is not only an important industrial application, but it also serves as a practical and relatively simple procedure for introductory HPLC courses. Industry is increasingly driven by rapid analysis requirements and an HPLC column can represent an overwhelming expense in a teaching environment. The diet cola analysis in the chromatogram to the left illustrates an extremely fast analysis on an extremely inexpensive HPLC column. A package containing five
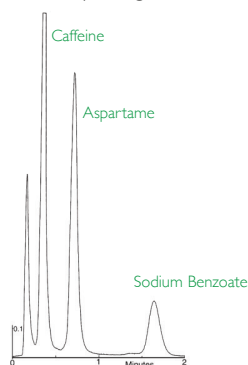


*Fast Diet Cola Analysis*

HAISIL HL C18 5µm
2cm × 2.1mm Cartridge    PN LK-0221-C185
15% MeCN/Water 200µL/min

of the 20x2.1mm cartridge column used for this analysis costs about half as much as one moderately priced HPLC column. And, there's no need to pre-filter the cola sample through a 0.5µm filter as some column manufacturers recommend when using their expensive columns packed with 2µm particles for this analysis! The readily available and non-toxic nature of the sample and the low cost of Higgins Analytical cartridges has made the diet cola analysis an ideal choice for classroom purposes.

## Reverse Phase Chromatography of Basic Compounds in Combinatorial Mixtures

In the example at the top of the next column, A and B are single compounds containing two identical building blocks. A-B and B-A represent positional isomers, each containing two building blocks.

This analysis was conducted on the crude liquid-phase reaction mixture. Each component contains multiple secondary

and tertiary amine functionality yet the combinatorial products can be rapidly chromatographed and exhibit no tailing on a 150x4.6mm HAISIL HL C18 column using a simple linear 5% to 100% MeCN/water 0.1% TFA gradient.
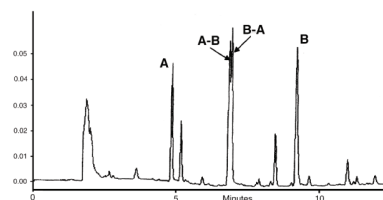


*Basic Compounds in Combinatorial Mixtures*

HAISIL HL C18
P/N LS-1546-C185

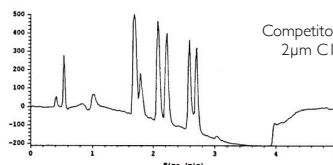## Speed and Selectivity for Ballistic Gradients on Complex Libraries

The relative importance of particle size and selectivity are graphically illustrated below by the high speed analysis of a six component combinatorial library on a HAISIL HL C18 5µm column and two competitor's C18 2µm columns. HAISIL HL with its high carbon loading and surface area often works much better than expensive small particle size columns that are prone to plugging up more quickly.
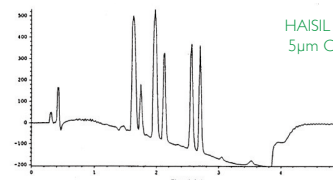


HAISIL HL
5µm C18
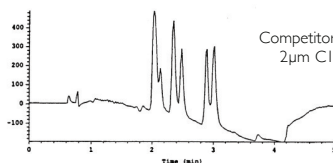


Competitor "A"
2µm C18



Competitor "B"
2µm C18