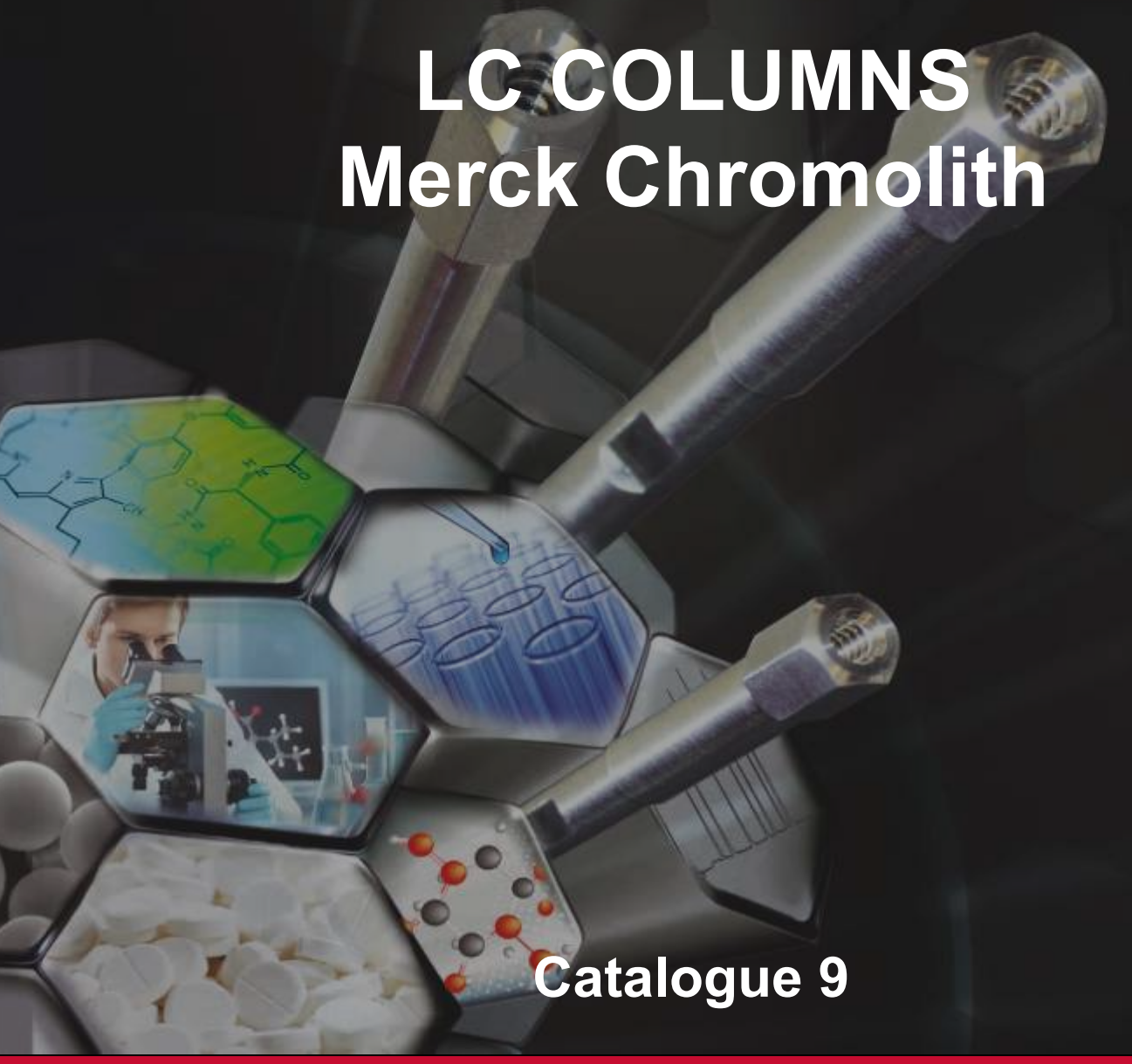
# HICHROM

Chromatography Columns and Supplies

# LC COLUMNS
# Merck Chromolith



Catalogue 9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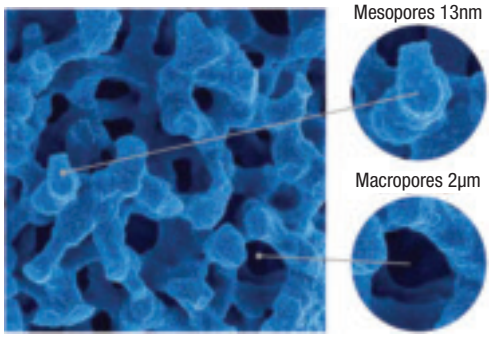
## Chromolith®

- Monolithic silica with bimodal pore structure
- Reduced back pressure compared with particulate silica
- Fast analysis, high throughput

Chromolith® HPLC columns consist of monolithic rods made of highly porous metal-free silica. The rods are mechanically stable and chemically resistant. After derivatization and endcapping the silica rods are clad in PEEK.



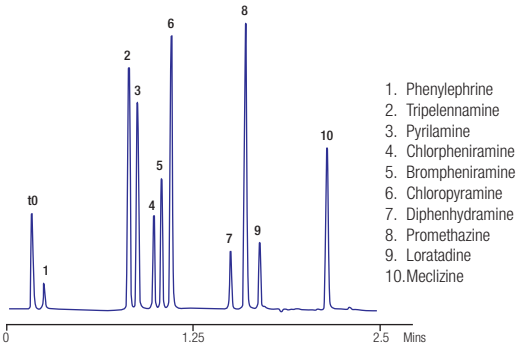

### Specifications of Chromolith Columns

| Chromolith Phase | Macropore Size (µm) | Mesopore Size (nm) | Surface Area ($m^2/g$) | Carbon Load (%) | Endcapped |
|---|---|---|---|---|---|
| RP-18e | 1.5[1] / 2[2] | 13 | 300 | 18 | Yes |
| High Resolution RP-18e | 1.15 | 15 | 250 | 18 | Yes |
| RP-8e | 2 | 13 | 300 | 11 | Yes |
| NH2 | 2 | 13 | 300 | - | No |
| Si | 2 | 13 | 300 | - | No |

[1] For 2mm i.d. columns [2] For 3, 4.6 and 10mm i.d. columns

## Features of Chromolith Columns

- **Bimodal pore structure.** Chromolith silica has a porosity exceeding 80% and a unique bimodal pore structure. A dense network of macropores, each 2µm in diameter (1.5µm for 2mm i.d. columns), dramatically reduces the column back-pressure and allows the use of faster flow rates, thereby considerably reducing the analysis time. Within the skeletal structure of the rod is a further network of mesopores, each 13nm in diameter, which provides the large active surface area for high efficiency separations.
- **Selectivity.** Chromolith columns show comparable selectivity to conventional reversed-phase columns, so existing methods can be easily transferred with only minimal method development. However, retention times are shorter on the Chromolith columns.
- **Speed of analysis.** Separations twice as fast and at half the column back pressure compared to conventional reversed-phase 5µm columns, can be achieved. Very fast analyses can be accomplished by the use of very high flow rates (up to 10ml/min). Since efficiency does not decrease with increased linear velocity as significantly as with traditional particulate columns, flow programming is feasible. Figure 1 shows the separation of a range of antihistamines on a Chromolith FastGradient RP-18e column. Ultra-high performance, combined with low operating pressures, is achieved with both UHPLC and conventional HPLC systems.
- **Column coupling.** Several Chromolith columns can be linked in series producing a column with a theoretical plate count significantly higher than particulate columns.
- **Flow programming.** Chromolith columns are very responsive to changes in flow rate, due to fast re-equilibration. Flow rates can be changed in mid flow to shorten separation time once the target compound has successfully eluted.




Column: Chromolith FastGradient RP-18e (50 x 2mm)
Eluent: A: 0.1% TFA in $H_2O$
B: 0.1% TFA in $CH_3CN$
Gradient: 5% to 90% B in 3.4 mins
Flow rate: 1.0ml/min
Detection: UV, 230nm

Figure 1. Ultra-fast separation of antihistamines

- **Chromolith CapRod®.** Chromolith CapRod® capillary columns combine the speed of monolithic silica technology with the sensitivity of nano LC. Columns provide excellent separations and are ideal for high throughput, high sensitivity proteomics applications. Chromolith CapRod columns are designed for use with various nano or capillary LC systems, providing high efficiency and performance when coupled to mass spectrometers, both on-line (ESI, nanospray) and off-line (MALDI). Chromolith CapRod capillary columns are supplied complete with sleeves and standard 1/16″ PEEK fittings to enable direct coupling to a UV detector or mass spectrometer.

## Chromolith® (continued)

### Trapping Capillaries

Trapping capillary columns are also offered in order to protect the separation capillary column and to optimise the separation efficiency when using complex biological samples.

### Chromolith SemiPrep and Prep

Chromolith® SemiPrep 10mm i.d. columns have the same bimodal porous silica rod structure as Chromolith analytical columns with 4.6mm i.d. and are ideal for direct scale-up. Columns exhibit faster sample throughput at lower operating pressure compared to semi-prep columns packed with traditional 5µm particles. For Chromolith Prep columns (100 x 25mm i.d.) the macropore size is 3µm and mesopore size 12nm.

Table 1 shows typical flow rates and loading capacities for transfer from an analytical to a preparative column.

**Table 1.**

| | Analytical Column | Preparative Column |
|---|---|---|
| **Dimensions (mm)** | 100 x 4.6 | 100 x 25 |
| **Typical Flow Rate (ml/min)** | 2 | 60 |
| **Loading Capacity (mg)** | 5 | 150-370 |
| **Loading Volume (µl)** | 5-50 | 100-1500 |

### Ordering Information

#### Analytical Columns

| Chromolith Phase | Column Dimensions[1] (mm) | Catalogue No. | Price |
|---|---|---|---|
| FastGradient RP-18e | 50 x 2 | 52007 | |
| Performance RP-18e | 100 x 3 | 52001 | |
| Flash RP-18e | 25 x 4.6 | 51463 | |
| Flash NH2 | 25 x 4.6 | 52026 | |
| SpeedROD RP-18e | 50 x 4.6 | 51450 | |
| SpeedROD NH2 | 50 x 4.6 | 52027 | |
| Performance RP-18e | 100 x 4.6 | 02129 | |
| Performance NH2 | 100 x 4.6 | 52028 | |
| Performance RP-8e | 100 x 4.6 | 51468 | |
| Performance Si | 100 x 4.6 | 51465 | |
| **Chromolith Guard Columns and Kits** | **Dimensions (mm)** | **Catalogue No.** | **Price** |
| RP-18e (3/pk) | 5 x 4.6 | 51451 | |
| RP-18e (3/pk) | 10 x 4.6 | 51452 | |
| RP-18e Guard Column Kit (1 holder + 3 guard cartridges) | 5 x 4.6 | 51470 | |
| RP-18e Guard Column Kit (1 holder + 3 guard cartridges) | 10 x 4.6 | 51471 | |

[1] Other dimensions available

#### CapRod® Capillary Columns

| Chromolith Phase | Column Dimensions (mm) | Cat. No. | Price |
|---|---|---|---|
| CapRod RP-18e | 150 x 0.05 | 50403 | |
| CapRod RP-8e | 150 x 0.1 | 50400 | |
| CapRod RP-8e Trap | 50 x 0.1 | 52031 | |
| CapRod RP-18e Trap | 50 x 0.1 | 50426 | |
| CapRod RP-18e | 150 x 0.1 | 50402 | |

| Chromolith Phase | Column Dimensions (mm) | Cat. No. | Price |
|---|---|---|---|
| CapRod RP-18e | 300 x 0.1 | 50424 | |
| CapRod RP-18e HR | 150 x 0.1 | 50404 | |
| CapRod RP-18e Trap | 50 x 0.2 | 50409 | |
| CapRod RP-18e | 150 x 0.2 | 50405 | |
| CapRod RP-18e HR | 150 x 0.2 | 50407 | |

#### SemiPrep and Prep Columns

| Chromolith Phase | Column Dimensions (mm) | | Guard Cartridges | |
|---|---|---|---|---|
| | 100 x 10 | 100 x 25 | For 10mm i.d. Columns[1] | For 25mm i.d. Columns[2] |
| RP-18e | 52016 | 25252 | 52036 | 25261 |
| Si | 52015 | 25251 | 52035 | 25260 |

[1] Use with SemiPrep guard cartridge holder 52037

[2] For Prep guard cartridge holder please enquire