



Merck液相色谱柱

Chromolith – 整体化色谱柱

2000年，默克公司研究开发了整体化硅胶(monolithic Silica), 将液相色谱的发展带入了一个崭新的领域。整体化硅胶采用了完全不含金属杂质的合成硅材料和尖端的“溶胶”技术制备得到，是迄今为止最新型的色谱硅胶。

Chromolith 填料参数

	孔径	比表面积	孔体积	碳载量	PH范围
RP-18	2um, 130A	300m2/g	1m2/g	11.0%	2-7.5
Rp-8	2um, 130A	300m2/g	1m2/	18.0%	2-7.5
Si	2um, 130A	300m2/g	1m2/g	---	2-7.5

特点:

流速高，压力低。

柱效卓越。

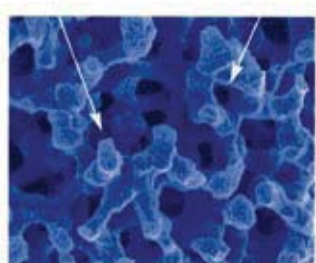
永远不会发生“柱头坍塌”等填装不慎带来的问题。

使用寿命长，难以被杂质污染。

硅胶结构

Mesopores: 13 nm

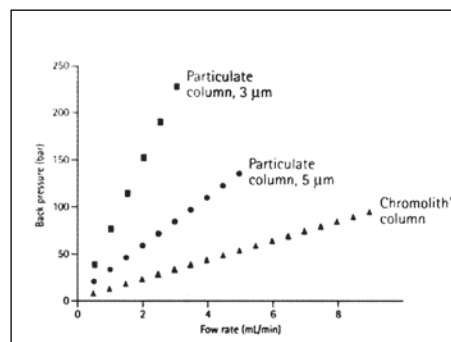
Macropores: 2 μm



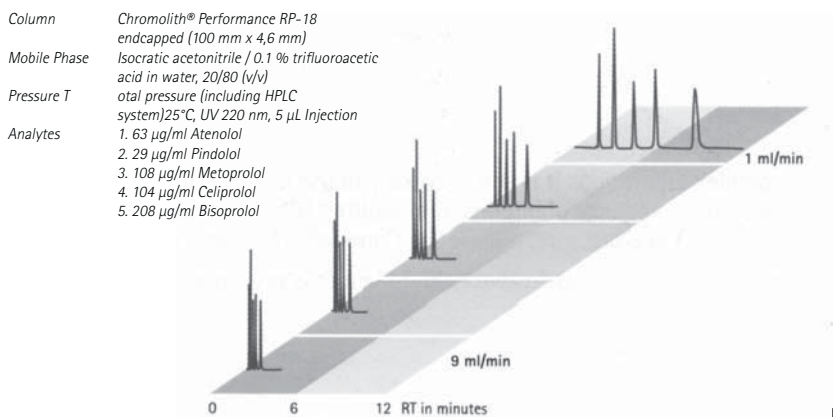
Total porosity > 80 %

如图，整体化硅胶具有网状的孔径大小为2um的大孔，以及空隙大小为130Å小孔。流动相流经色谱柱时，快速通过2um的孔径，而130Å小孔中，进行着吸附和脱附的液相分离过程。

高流速，低柱压



从图可见，Chromolith 在正常流速下，压力仅有普通色谱柱的1/4。

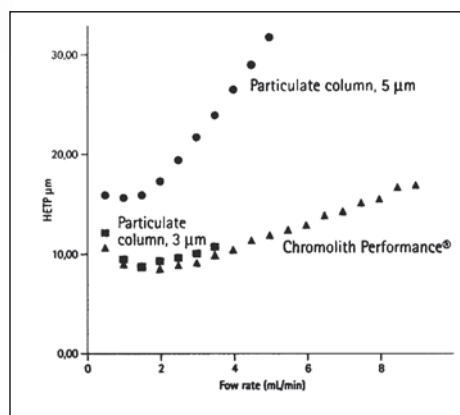


由于Chromolith 孔隙率大于常规的色谱柱，而且其2µm的大孔也远大于常规色谱柱的硅胶空隙，因此，流速通常可以提高到4ml/min，有时甚至可以提高到9ml/min。

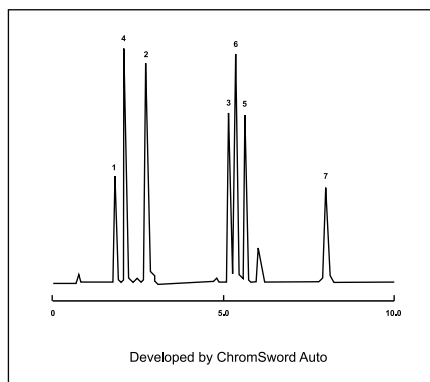
高柱效

Van Deemter 方程曲线 显示了5µ和3µ的传统色谱柱 及Chromolith 对于流速变化给柱效带来的影响。从图中我们可以发现，在流速很高的情况下，Chromolith柱效降低的程度极小，远小于其它色谱柱。

有数据显示，整体化色谱柱Chromolith的柱效和相同柱长3µm或3.5µm的色谱柱相当，远高于5µm的色谱柱。



应用实例



Column Chromolith® Performance RP-18 endcapped, 100-4.6 mm (Cat. No. 1.02129)

Mobile phase A: Methanol (LiChrosolv® Cat. No. 1.06007)
B: 0.1 % TFA in water (LiChrosolv® Cat. No. 4.80112)

Gradient 0.0 min 100% B
1.0 min 100% B
10 min 80% B

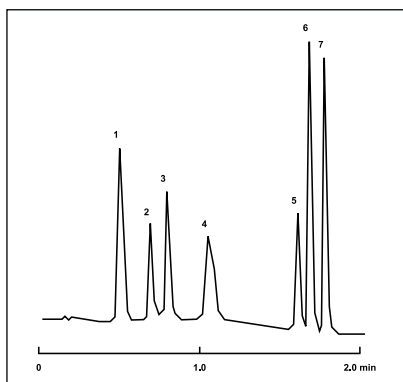
Flow rate 2 ml/min

Detection UV 282 nm

Temperature ambient

Injection volume 5 µl

Sample
 1. 2,4,5-Trihydroxyphen
 2. Levodopa
 3. Methyldopa
 4. Dopamine
 5. Carbidopa
 6. 3,4-Dihydroxyphenylacetic acid
 7. 3-o-Methylcarbidopa



Column Chromolith® SpeedROD RP-18 endcapped, 50-4.6 mm (Cat. No. 1.51450)

Mobile phase A: Acetonitrile (LiChrosolv® Cat. No. 1.00030)
B: 0.1 % TFA (LiChrosolv® Cat. No. 4.80112)

Gradient 0.0 min 95% B;
0.4 min 95% B;
1.2 min 70% B;
2.2 min 70% B;
6.0 ml/min

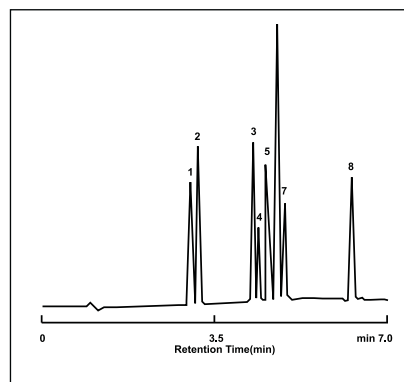
Flow rate UV 270 nm

Detection ambient

Temperature ambient

Injection volume 10 µl

Sample
 1. Sulfadiazine;
 2. Sulfathiazole;
 3. Sulfamerazine;
 4. Sulfadimidine;
 5. Sulfasoxazole;
 6. Sulfamethoxazole;
 7. Sulfadimethoxine



Column 2 columns of Chromolith® Performance RP-18 endcapped (Cat. No. 1.02129)

Mobile phase A: Acetonitrile (LiChrosolv® Cat. No. 1.00030)
B: Water (LiChrosolv® Cat. No. 1.15333)

Gradient 0.0 min 80% B
7.0 min 10% B

Flow rate 3.0 ml/min

Detection UV 220 nm

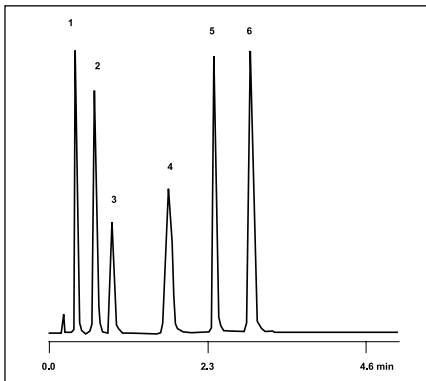
Temperature ambient

Injection volume 10 µl

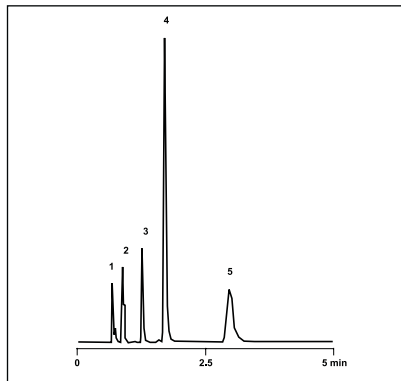
Sample
 1. Prednisolone;
 2. Cortisone;
 3. Nortestosterone;
 4. Estradiol;
 5. Testosterone;
 6. Corticosterone;
 7. Estrone;
 8. Progesterone



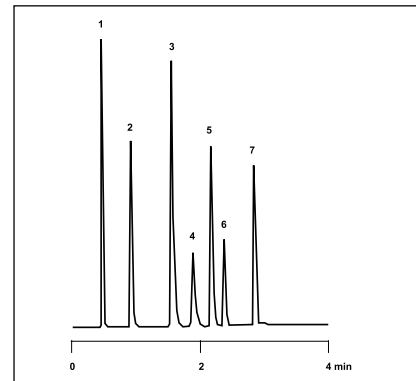
Merck液相色谱柱



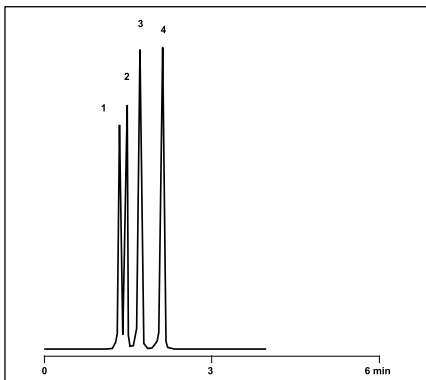
Column Chromolith® SpeedROD RP-18 endcapped, 50-4.6 mm (Cat. No. 1.51450)
Mobile phase A: Acetonitrile (LiChrosolv® Cat. No. 1.00030)
 B: 0.1 M phosphate buffer, pH 5.0
Gradient 0.0 min 97% B;
 2.5 min 97% B;
 2.6 min 92% B;
 5.0 min 92% B;
Flow rate 4.0 ml/min
Detection UV 227 nm
Temperature ambient
Injection volume 10 µl
Sample 1. Acesulfame-K (23 µg/ml); AK糖
 2. Saccharin (29 µg/ml); 糖精
 3. Benzoic acid (13 µg/ml); 苯甲酸
 4. Sorbic acid (14 µg/ml); 山梨酸
 5. Caffeine (47 µg/ml); 咖啡因
 6. Aspartame (100 µg/ml); 阿斯巴甜



Column Chromolith® Performance RP-8 endcapped, 100-4.6 mm (Cat. No. 1.51468)
Mobile phase Methanol (LiChrosolv® Cat. No. 1.06007) / Buffer (15/85, v/v)
 Buffer: 1.01g heptane-sulfonic acid + 24ml acetic (100%) + 2ml TEA to 1L
Flow rate 0 min 2 ml/min;
 2 min 4 ml/min;
 5 min 4 ml/min;
Detection UV 270 nm
Temperature ambient
Injection volume 10 µl
Sample 1. Uracil (0.01 mg/g); 尿嘧啶
 2. Nicotinic acid amid (0.06 mg/g); 维生素B3
 3. Pyridoxine hydrochloride (0.06 mg/g); 维生素B6
 4. Riboflavin (0.05 mg/g); 维生素B2
 5. Thiamine chloride (0.03 mg/g); 维生素B1



Column Chromolith® Performance RP-8 endcapped, 100-4.6 mm (Cat. No. 1.51468)
Mobile phase A: Acetonitrile (LiChrosolv® Cat. No. 1.00030)
 B: 0.1 % Phosphate acid
Gradient 0.0 min 30% A;
 1.0 min 30% A;
 2.0 min 80% A;
 5.0 min 95% A;
Flow rate 0 min 3 ml/min; 1 min 3 ml/min;
 2 min 4 ml/min; 5 min 4 ml/min;
Detection UV 254 nm
Temperature ambient
Injection volume 10 µl
Sample 1. 3-Aminophenol; 3-氨基苯酚
 2. Phenol; 苯酚
 3. 2-Nitrophenol; 2-硝基苯酚
 4. 2,4-Dinitrophenol; 2,4-二硝基苯酚
 5. 2,6-Dimethyl-4-nitrophenol; 2,6-二甲基-4-硝基苯酚
 6. 3,4-Dinitrophenol; 3,4-二硝基苯酚
 7. Pentachlorophenol; 五氯苯酚



Column Chromolith® Performance Si, 100-4.6 mm (Cat. No. 1.51465)
Mobile phase n-Heptane (LiChrosolv® Cat. No. 1.04390) / Dioxane (LiChrosolv® Cat. No. 1.03132) (95/5, v/v)
Flow rate 2 ml/min;
Detection UV 254 nm
Temperature ambient
Injection volume 5 µl
Sample 1. Dibutyl phthalate (0.29 mg/ml); 邻苯二甲酸二丁酯
 2. Dipropyl phthalate (0.31 mg/ml); 邻苯二甲酸二丙酯
 3. Diethyl phthalate (0.39 mg/ml); 邻苯二甲酸二乙酯
 4. Dimethyl phthalate (0.41 mg/ml); 邻苯二甲酸二甲酯

Chromolith可以在很短的时间里对复杂混合物样品进行高效的分离。但有时无论怎么调整流动相的组成或比例，都无法获得很理想的分离效果，此时，我们可以选择用一个串联接头(Column Coupler)将两支或多支Chromolith串联起来，塔板数也将随之倍增。由于单支的Chromolith压力极低，因此在压力允许的范围内，甚至可以串联多达10支Chromolith来获得极高的分离度。

订货信息

Chromolith

填料	柱长	直径	包装	货号
Chromolith RP-18	100mm	0.1mm	1	1.50402.0001
Chromolith RP-18	100mm	3mm	1	1.52001.0001
Chromolith RP-18	100mm	4.6mm	1	1.02129.0001
Chromolith RP-18	50mm	4.6mm	1	1.51450.0001
Chromolith RP-18	25mm	4.6mm	1	1.51463.0001
Chromolith RP-18	100mm	10mm	1	1.52016.0001
Chromolith RP-8	100mm	4.6mm	1	1.51468.0001
Chromolith RP-Si	100mm	4.6mm	1	1.51465.0001
Chromolith Column Coupler			1	1.51466.0001

Guard Columns

Chromolith RP-18	5mm	4.6mm	3	1.51451.0001
Chromolith RP-18	10mm	4.6mm	3	1.51452.0001
Chromolith RP-18	5mm	4.6mm	3+holder	1.51451.0001
Chromolith RP-18	10mm	4.6mm	3+holder	1.51452.0001