

If you like Hypersil, you'll love HyperClone

# A Guaranteed Direct Replacement to Hypersil

*at a fraction of the cost!*

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Курск (4712)77-13-04  
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Пенза (8412)22-31-16

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Рязань (4912)46-61-64  
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Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13

Сургут (3462)77-98-35  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93

# HyperClone™

HyperClone

## Why HyperClone?

### **Guaranteed Replacement to Hypersil®**

#### **Highly reproducible**

Due to advanced manufacturing technology and numerous quality controls, HyperClone has an excellent reproducibility history.

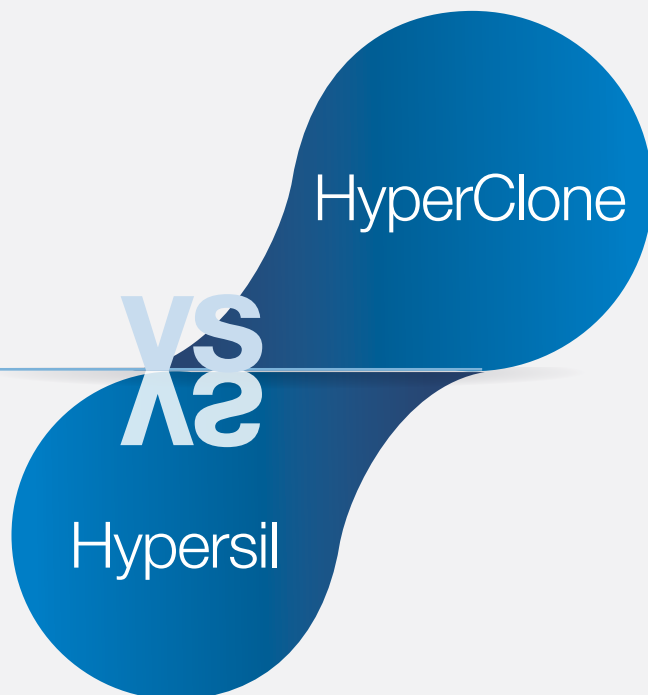
#### **Long Column Lifetime**

HyperClone columns have shown extreme column lifetime under most rugged conditions.

#### **Mimics performance of Thermo Hypersil-Keystone Hypersil®**

HyperClone is packed only by Phenomenex, thereby reducing the chance of column-to-column variation. You will receive columns of consistent quality and reproducibility, and will benefit from Phenomenex's excellent customer support and technical service.

#### **Economically priced**



If HyperClone analytical columns do not provide the equivalent separation as compared to Hypersil columns of the same particle size, phase and dimensions, send in your comparative data within 45 days for a FULL REFUND.

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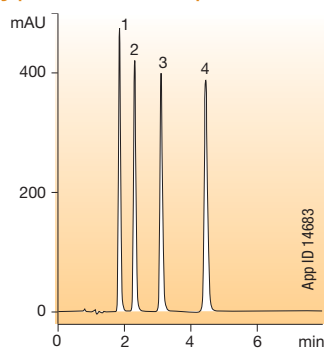
## Material Comparison

Phenomenex HyperClone	vs.	Thermo Hypersil-Keystone Hypersil
	<b>BDS Silica<sup>†</sup></b>	
3, 5	<b>Particle Size (µm)</b>	3, 5
130	<b>Pore Size (Å)</b>	130
155	<b>Surface Area (m<sup>2</sup>/g)</b>	170
0.6	<b>Pore Volume (mL/g)</b>	0.6
	<b>Regular Silica<sup>‡</sup></b>	
3, 5	<b>Particle Size (µm)</b>	3, 5
120	<b>Pore Size (Å)</b>	120
155	<b>Surface Area (m<sup>2</sup>/g)</b>	170
0.6	<b>Pore Volume (mL/g)</b>	0.6
	<b>Carbon Load % Comparison</b>	
7 %	BDS C8	7 %
11 %	BDS C18	11 %
6.5 %	MOS (C8)	6.5 %
10 %	ODS (C18)	10 %
4 %	CN (CPS)	4 %

## Parabens

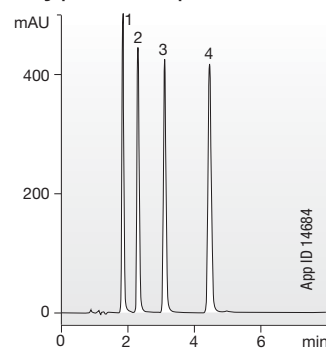
Note: Hypersil columns were manufactured by Thermo Hypersil-Keystone

## HyperClone 3µm C8 BDS



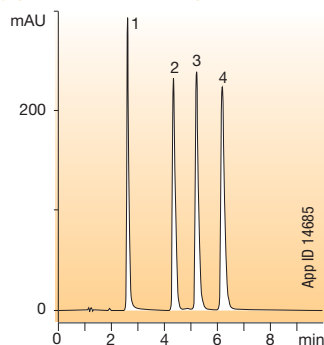
**Conditions for Both Columns**  
**Dimensions:** 100 x 4.6 mm  
**Mobile Phase:** Water / Acetonitrile (55:45)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Methylparaben  
 2. Ethylparaben  
 3. Propylparaben  
 4. Butylparaben

## Hypersil 3µm C8 BDS



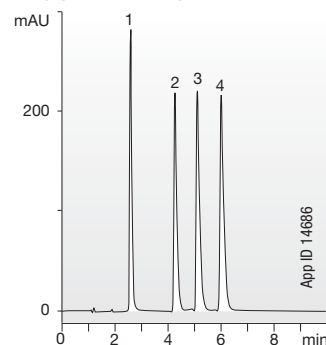
## Antidepressants

## HyperClone 3µm C8 BDS



**Conditions for Both Columns**  
**Dimensions:** 100 x 4.6 mm  
**Mobile Phase:** 20 mM KH<sub>2</sub>PO<sub>4</sub>, pH 7.0 / Methanol / Acetonitrile (30:35:35)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Imipramine  
 2. Nortriptyline  
 3. Amitriptyline  
 4. Clomipramine

## Hypersil 3µm C8 BDS



Comparative separations may not be representative of all applications.

<sup>†</sup> All Hypersil information obtained from (then) Thermo Electron Corporation 2006-2007 catalog and 2012-2013 Thermo Scientific Chromatography Columns catalog.

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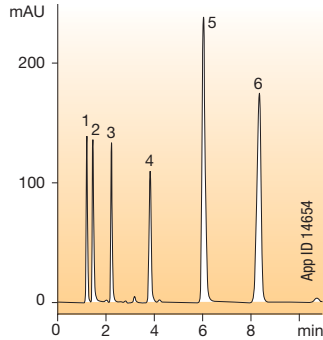
Hypersil®



## Non-Polar Basic Compounds

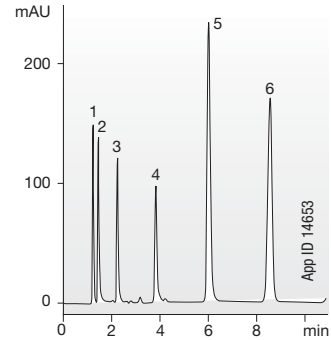
Note: Hypersil columns were manufactured by Thermo Hypersil-Keystone

## HyperClone 3µm C18 BDS



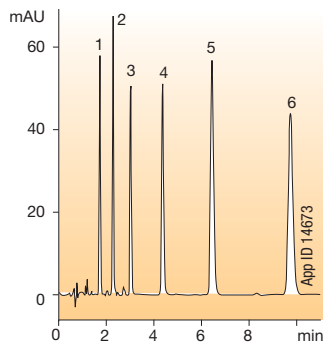
**Conditions for Both Columns**  
**Dimensions:** 100 x 4.6 mm  
**Mobile Phase:** 50 mM  $\text{KH}_2\text{PO}_4$ , pH 3.5 / Methanol (40:60)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Uracil  
 2. Pyridine  
 3. N-Methylaniline  
 4. N,N-Dimethylaniline  
 5. 2,6-Dichloro-4-Nitroaniline  
 6. Toluene

## Hypersil 3µm C18 BDS



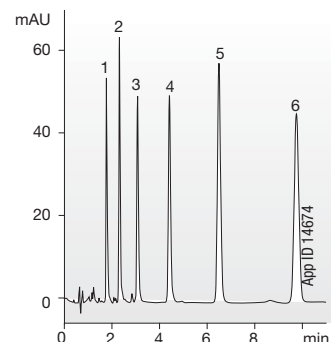
## Alkylbenzenes

## HyperClone 3µm C18



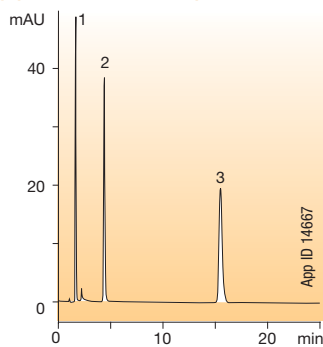
**Conditions for Both Columns**  
**Dimensions:** 100 x 4.6 mm  
**Mobile Phase:** Acetonitrile / Water (65:35)  
**Flow Rate:** 1.5 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Benzene  
 2. Toluene  
 3. Ethylbenzene  
 4. Propylbenzene  
 5. Butylbenzene  
 6. Amylbenzene

## Hypersil 3µm C18



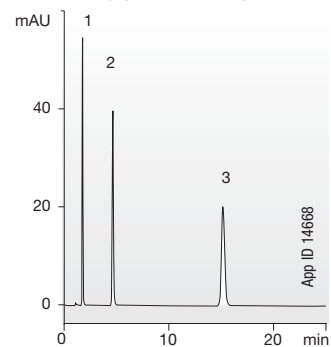
## Polarity Test

## HyperClone 5µm C18



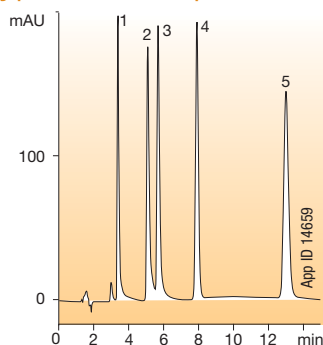
**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** Methanol / Water (55:45)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Thiourea  
 2. Dimethylphthalate  
 3. Toluene

## Hypersil 5µm C18



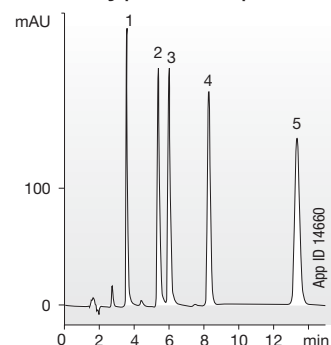
## Benzodiazepams

## HyperClone 5µm C18



**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** 20 mM  $\text{KH}_2\text{PO}_4$ , pH 3.0, 400 µL/L Triethylamine/Acetonitrile (63:37)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 230 nm  
**Sample:** 1. Bromazepam  
 2. Lorazepam  
 3. Oxazepam  
 4. Flunitrazepam  
 5. Diazepam

## Hypersil 5µm C18



Comparative separations may not be representative of all applications.

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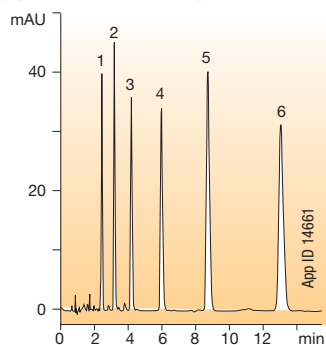
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## Alkylbenzenes

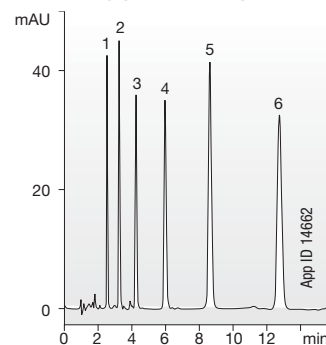
Note: Hypersil columns were manufactured by Thermo Hypersil-Keystone

## HyperClone 5µm C18



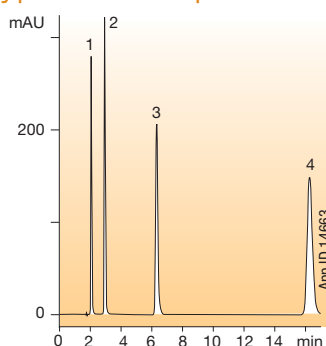
**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** Acetonitrile / Water (65:35)  
**Flow Rate:** 1.5 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Benzene  
 2. Toluene  
 3. Ethylbenzene  
 4. Propylbenzene  
 5. Butylbenzene  
 6. Amylbenzene

## Hypersil 5µm C18



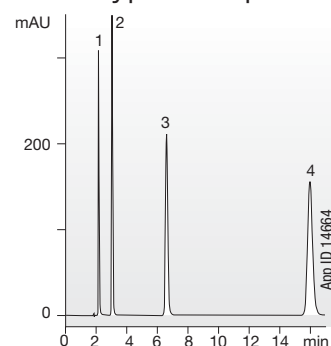
## ODS QC Test

## HyperClone 5µm C18



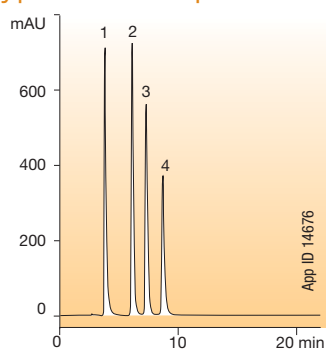
**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** Water / Methanol (30:70)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Benzamide  
 2. Acetophenone  
 3. Benzophenone  
 4. Biphenyl

## Hypersil 5µm C18



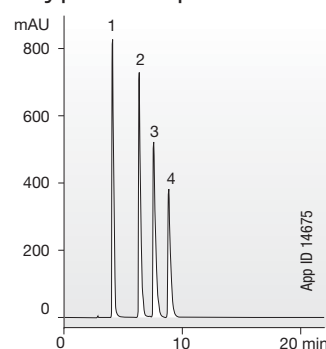
## Tricyclic Antidepressants

## HyperClone 5µm C8 BDS



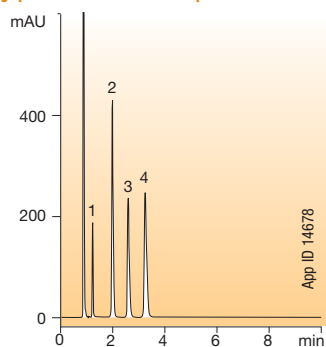
**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** 20 mM  $\text{KH}_2\text{PO}_4$ , pH 7.0 / Acetonitrile / Methanol (30:35:35)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Imipramine  
 2. Nortriptyline  
 3. Amitriptyline  
 4. Clomipramine

## Hypersil 5µm C8 BDS



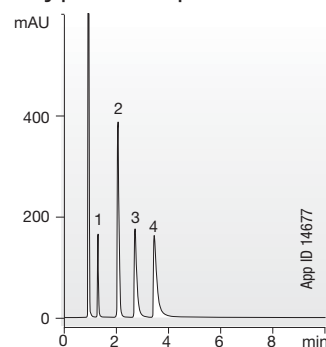
## Basic Drugs

## HyperClone 5µm C8 BDS



**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** 50 mM  $\text{KH}_2\text{PO}_4$ , pH 2.5 / Acetonitrile (80:20)  
**Flow Rate:** 2.0 mL/min  
**Detection:** UV @ 220 nm  
**Sample:** 1. Pseudoephedrine  
 2. Lidocaine  
 3. Pyrilamine  
 4. Chlorpheniramine

## Hypersil 5µm C8 BDS



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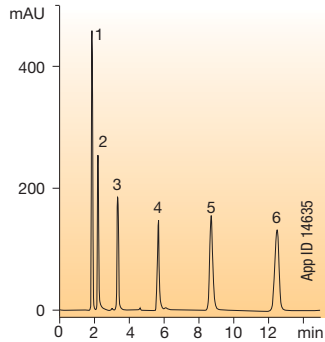
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## Non-Polar Basic Compounds

Note: Hypersil columns were manufactured by Thermo Hypersil-Keystone

## HyperClone 5µm C18 BDS



## Conditions for Both Columns

**Dimensions:** 150 x 4.6 mm

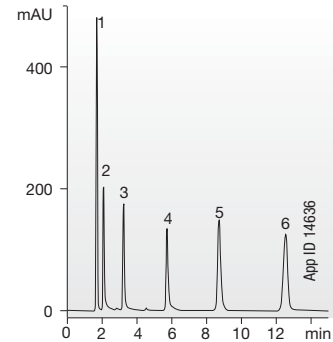
**Mobile Phase:** Methanol / 50 mM  $\text{KH}_2\text{PO}_4$ , pH 3.5 (60:40)

**Flow Rate:** 1.0 mL/min

**Detection:** UV @ 254 nm

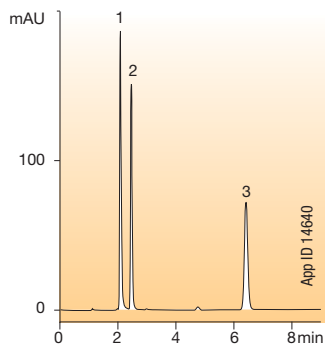
**Sample:** 1. Uracil  
2. Pyridine  
3. Methylaniline  
4. Dimethylaniline  
5. Dichloronitroaniline  
6. Toluene

## Hypersil 5µm C18 BDS



## Silanol Activity Test

## HyperClone 5µm C18 BDS



## Conditions for Both Columns

**Dimensions:** 150 x 4.6 mm

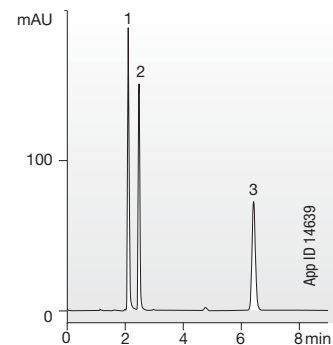
**Mobile Phase:** Water / Acetonitrile (50:50)

**Flow Rate:** 1.0 mL/min

**Detection:** UV @ 254 nm

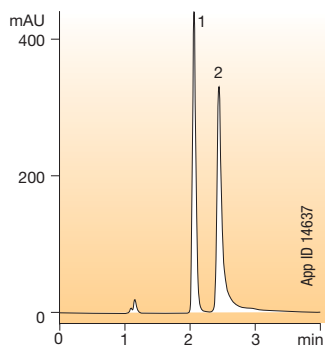
**Sample:** 1. Pyridine  
2. Phenol  
3. Toluene

## Hypersil 5µm C18 BDS



## Surface Metal Test

## HyperClone 5µm C18 BDS



## Conditions for Both Columns

**Dimensions:** 150 x 4.6 mm

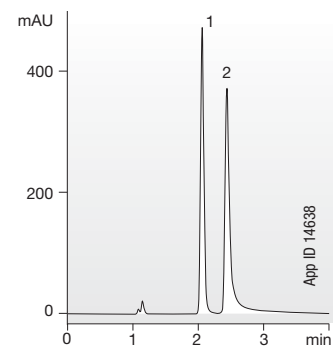
**Mobile Phase:** Water / Acetonitrile (50:50)

**Flow Rate:** 1.0 mL/min

**Detection:** UV @ 230 nm

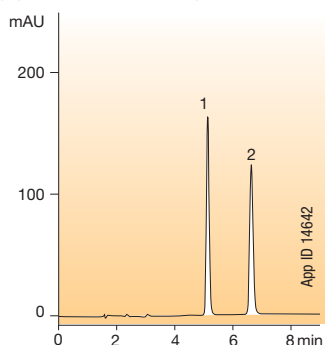
**Sample:** 1. 2,7-Dihydroxynaphthalene  
2. 2,3-Dihydroxynaphthalene

## Hypersil 5µm C18 BDS



## Hydrophobicity Test

## HyperClone 5µm C18 BDS



## Conditions for Both Columns

**Dimensions:** 150 x 4.6 mm

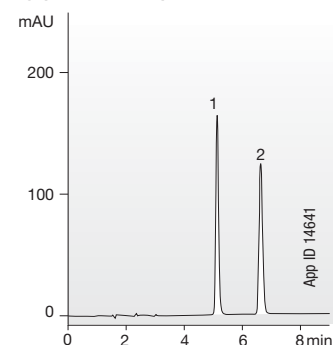
**Mobile Phase:** Water / Acetonitrile (20:80)

**Flow Rate:** 1.0 mL/min

**Detection:** UV @ 254 nm

**Sample:** 1. Butylbenzene  
2. Amylbenzene

## Hypersil 5µm C18 BDS



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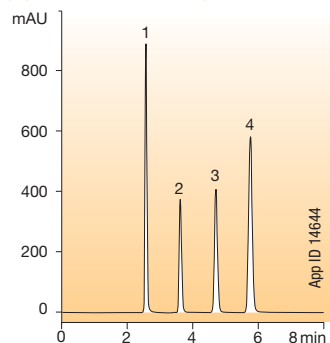
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## Performance Test

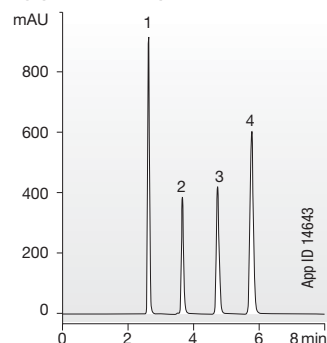
Note: Hypersil columns were manufactured by Thermo Hypersil-Keystone

## HyperClone 5µm C18 BDS



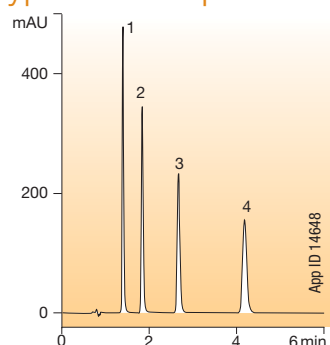
**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** Water / Acetonitrile (35:65)  
**Flow Rate:** 1.0 mL/min  
**Detection:** UV @ 254 nm  
**Sample:** 1. Acetophenone  
 2. Benzene  
 3. Toluene  
 4. Naphthalene

## Hypersil 5µm C18 BDS



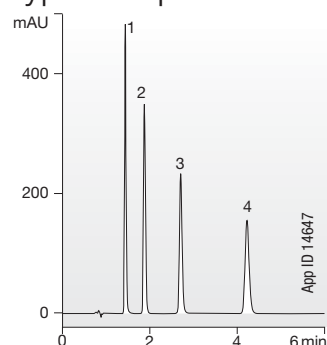
## Parabens

## HyperClone 5µm C18 BDS



**Conditions for Both Columns**  
**Dimensions:** 150 x 4.6 mm  
**Mobile Phase:** Acetonitrile / 50 mM KH<sub>2</sub>PO<sub>4</sub>, pH 7.0 (40:60)  
**Flow Rate:** 2.0 mL/min  
**Detection:** UV @ 260 nm  
**Sample:** 1. Methylparaben  
 2. Ethylparaben  
 3. Propylparaben  
 4. Butylparaben

## Hypersil 5µm C18 BDS

Ordering Information  
HyperClone

Phases	3 µm Minibore and Analytical Columns (mm)						SecurityGuard™ Cartridges (mm)	
	50 x 2.0	150 x 2.0	150 x 3.2	100 x 4.6	125 x 4.0	150 x 4.6	4 x 2.0*	4 x 3.0*
ODS (C18)	—	00F-4356-B0	—	00D-4356-E0	00E-4356-D0	00F-4356-E0	/10pk AJ0-4286	/10pk AJ0-4287
BDS C8	00B-4417-B0	—	—	—	—	00F-4417-E0	/10pk AJ0-4289	/10pk AJ0-4290
BDS C18	00B-4419-B0	00F-4419-B0	00F-4419-R0	00D-4419-E0	—	00F-4419-E0	AJ0-4286	AJ0-4287

for ID: 2.0-3.0 mm      3.2-8.0 mm

Phases	5 µm Minibore and Analytical Columns (mm)							SecurityGuard™ Cartridges (mm)		
	150 x 2.0	150 x 3.2	250 x 3.2	125 x 4.0	250 x 4.0	100 x 4.6	150 x 4.6	250 x 4.6	4 x 2.0*	4 x 3.0*
Silica	—	—	—	—	—	—	00F-4358-E0	00G-4358-E0	/10pk AJ0-4247	/10pk AJ0-4348
MOS (C8)	—	—	—	00E-4359-D0	—	00D-4359-E0	00F-4359-E0	00G-4359-E0	AJ0-4289	AJ0-4290
ODS (C18)	00F-4361-B0	00F-4361-R0	00G-4361-R0	00E-4361-D0	00G-4361-D0	00D-4361-E0	00F-4361-E0	00G-4361-E0	AJ0-4286	AJ0-4287
CN (CPS)	—	—	—	—	—	—	—	—	AJ0-4304	AJ0-4305
BDS C8	—	—	—	—	—	—	00F-4418-E0	00G-4418-E0	/10pk AJ0-4289	/10pk AJ0-4290
BDS C18	00F-4420-B0	00F-4420-R0	—	00F-4420-B0	00G-4420-D0	00D-4420-E0	00F-4420-E0	00G-4420-E0	AJ0-4286	AJ0-4287

for ID: 3.2-8.0 mm      3.2-8.0 mm

Phases	5 µm SemiPrep Columns (mm)		SecurityGuard Cartridges (mm)
	250 x 10		10 x 10 <sup>2</sup>
ODS(2)	00G-4361-N0	—	/3pk AJ0-7221

for ID: 9-16 mm

\* SecurityGuard™ Analytical Cartridges require holder Part No.: KJO-4282

† SemiPrep SecurityGuard™ Cartridges require holder Part No.: AJ0-7220

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 Курск (4712)77-13-04  
 Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
 Москва (495)268-04-70  
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