

MACHEREY-NAGEL
NUCLEODUR®
C₁₈ Gravity-SB

Chromatography



Providing distinct polar selectivity in HPLC

- Hydrophobic C18 phase with polar selectivity
- Excellent performance under highly aqueous conditions
- Suitable for LC/MS

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NUCLEODUR® C₁₈ Gravity-SB

Key features

- Hydrophobic C18 phase with distinct polar selectivity, ideal for method development, better retention of early eluting substances
- Excellent performance under highly aqueous conditions
- Suitable for LC/MS due to low bleeding characteristics

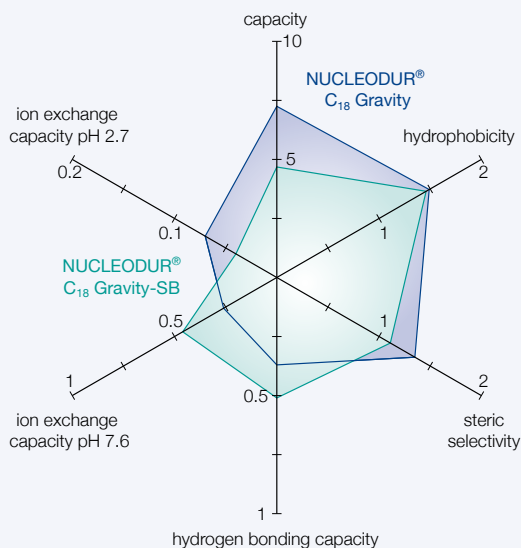
Technical characteristics

- Monomeric octadecyl silane with bulky side chains
- Pore size 110 Å, available particle sizes 1.8 µm, 3 µm and 5 µm
- Carbon content 13 %, pH stability 1–9, endcapped

Recommended application

- Overall sophisticated analytical separations, especially for polar compounds, e.g., antibiotics, water-soluble vitamins, organic acids

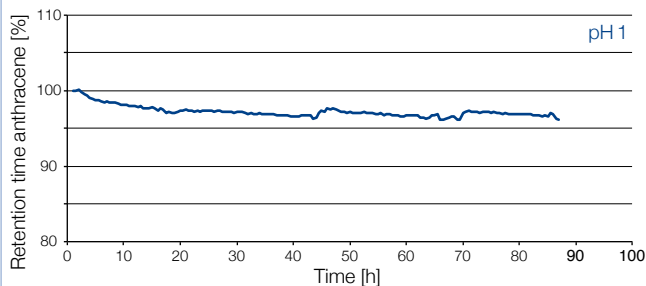
USP L1



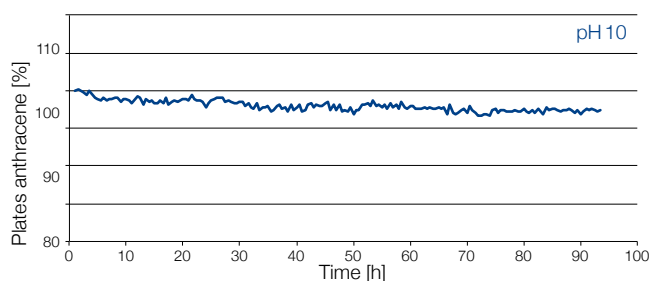
Stability of NUCLEODUR® C₁₈ Gravity-SB at extreme pH

MN Appl. No. 127280/127290

Column: EC 50/2 NUCLEODUR® C₁₈ Gravity-SB, 5 µm
 Eluent: 1 % TFA in water – 1 % TFA in methanol (30:70, v/v)
 Flow rate: 0.33 mL/min, temperature: 60 °C
 Detection: UV, 254 nm, injection: 2 µL (0.05 mg/mL)



Column: EC 50/2 NUCLEODUR® C₁₈ Gravity-SB, 3 µm
 Eluent: 50 mmol/L NH₄Ac – methanol (30:70, v/v)
 Flow rate: 0.33 mL/min, temperature: 50 °C
 Detection: UV, 254 nm, injection: 2 µL (0.05 mg/mL)

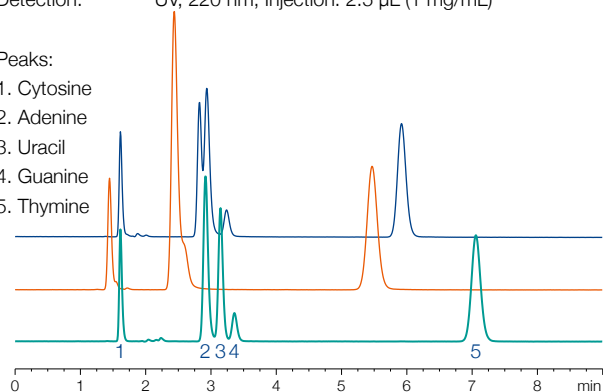


Comparing of selectivity for nucleobases

MN Appl. No. 127270

Columns: EC 150/4.6 mm
 NUCLEODUR® C₁₈ Gravity-SB, 5 µm
 NUCLEODUR® C₁₈ Gravity, 5 µm
 NUCLEODUR® C₁₈ Pyramid, 5 µm
 Eluent: 25 mmol/L KH₂PO₄, pH 3 – methanol (95:5, v/v)
 Flow rate: 1.0 mL/min, Temperature: 20 °C
 Detection: UV, 220 nm, Injection: 2.5 µL (1 mg/mL)

Peaks:
 1. Cytosine
 2. Adenine
 3. Uracil
 4. Guanine
 5. Thymine

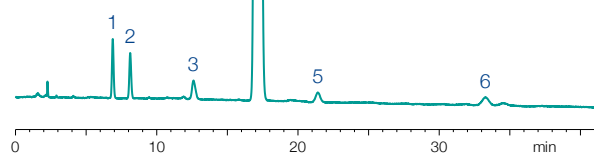


Purity control of betamethasone dipropionate (Ph. Eur.)

MN Appl. No. 127310

Column: EC 250/4.6 NUCLEODUR® C₁₈ Gravity-SB, 5 µm
 Eluent: Acetonitrile – water (60:40, v/v)
 Flow rate: 1 mL/min
 Temperature: 22 °C
 Detection: UV, 254 nm
 Injection: 20 µL

Peaks:
 1. Impurity B
 2. Impurity C
 3. Impurity D
 4. Betamethasone dipropionate
 5. Impurity G
 6. Impurity E



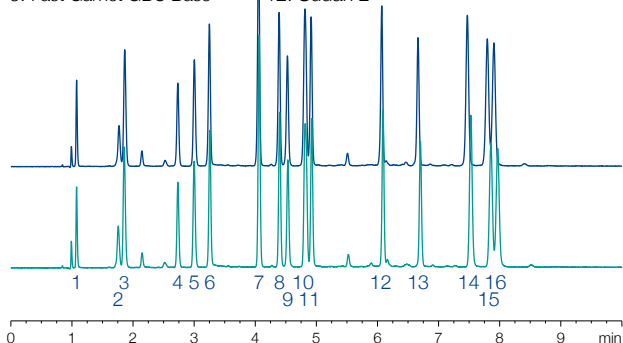
Stability at 70 °C (dyes)

MN Appl. No. 127300

Column: EC 150/3 NUCLEODUR® C₁₈ Gravity-SB, 3 µm
 1st injection, 500th injection
 Eluent: A) 10 mmol/L NH₄Ac pH 4.5; B) methanol;
 65–95 % B in 5 min, 95 % B for 10 min
 Flow rate: 0.8 mL/min
 Temperature: 70 °C
 Detection: UV, 432 nm
 Injection: 2 µL, 500 injections

Peaks:

- | | | |
|-------------------------|------------------|------------------|
| 1. 4-Nitroaniline | 7. Sudan Yellow | 13. Sudan 3 |
| 2. Orange 2 | 8. Para Red | 14. Sudan Red 7B |
| 3. Metanil Yellow | 9. Toluidine Red | 15. Sudan Red B |
| 4. Sudan Orange G | 10. Sudan Red G | 16. Sudan 4 |
| 5. Rhodamine B | 11. Sudan 1 | |
| 6. Fast Garnet GBC Base | 12. Sudan 2 | |



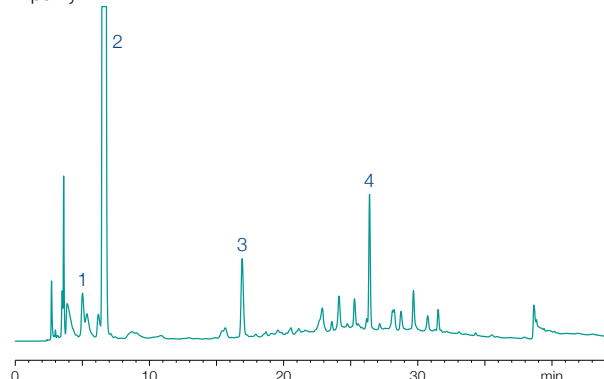
Purity control of cefepime dihydrochloride (Ph. Eur.)

MN Appl. No. 127320

Column: EC 250/4.6 NUCLEODUR® C₁₈ Gravity-SB, 5 µm
 Eluent: A) 5 mmol/L KH₂PO₄ pH 5 – acetonitrile (90:10, v/v);
 B) 5 mmol/L KH₂PO₄ pH 5 – acetonitrile (50:50, v/v);
 0 % B (10 min) to 50 % B in 20 min, 50 % B (5 min) to
 100 % B in 1 min (9 min 100 % B)
 Flow rate: 1 mL/min
 Temperature: 22 °C
 Detection: UV, 254 nm
 Injection: 10 µL

Peaks:

1. Impurity F
2. Cefepime
3. Impurity A
4. Impurity B



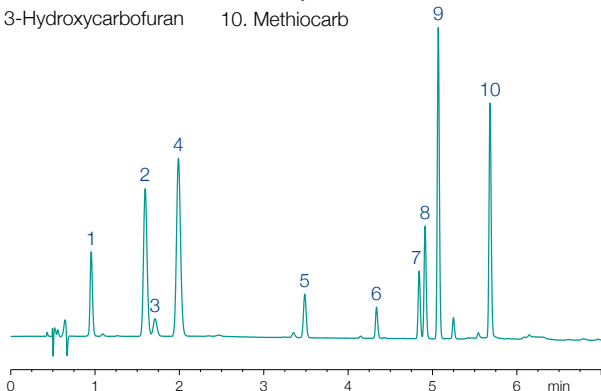
Carbamates (EPA 531.1)

MN Appl. No. 127360

Column: EC 100/3 NUCLEODUR® C₁₈ Gravity-SB, 3 µm
 Eluent: A) acetonitrile;
 B) 5 mmol/L ammonium formate
 15 % A (1 min) to 75 % A in 4 min, to 85 % A in 2 min
 Flow rate: 1.0 mL/min
 Temperature: 20 °C
 Detection: UV, 230 nm
 Injection: 1 µL (0.25 mg/mL)

Peaks:

- | | |
|------------------------|----------------|
| 1. Aldicarb sulfoxide | 6. Aldicarb |
| 2. Aldicarb sulfone | 7. Propoxur |
| 3. Oxamyl | 8. Carbofuran |
| 4. Methomyl | 9. Carbaryl |
| 5. 3-Hydroxycarbofuran | 10. Methiocarb |



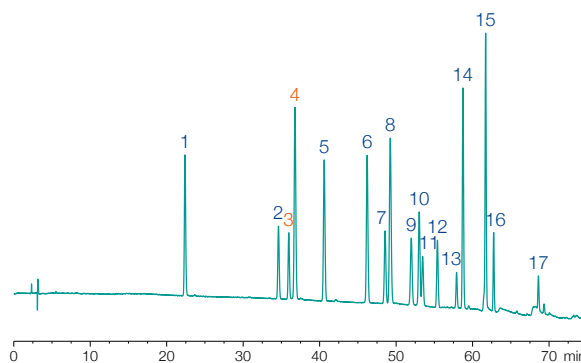
Pesticide mix (Ehrenstorfer, 17 components)

MN Appl. No. 127330

Column: EC 250/4.6 NUCLEODUR® C₁₈ Gravity-SB, 3 µm
 Eluent: A) Acetonitrile
 B) 5 mmol/L NH₄Ac;
 10–37.5 % A in 50 min, 37.5–75 % A in 25 min
 Flow rate: 1.1 mL/min
 Temperature: 35 °C
 Detection: UV, 230 nm
 Injection: 3 µL

Peaks:

- | | | |
|-----------------------|------------------|-------------------|
| 1. Desethylatrazine | 7. Chlortoluron | 13. Metazachlor |
| 2. Metoxuron | 8. Atrazine | 14. Sebutylazin |
| 3. Hexazinone | 9. Monolinuron | 15. Terbutylazine |
| 4. Simazine | 10. Isoproturon | 16. Linuron |
| 5. Cyanazine | 11. Diuron | 17. Metolachlor |
| 6. Methabenzthiazuron | 12. Metobromuron | |



NUCLEODUR® C₁₈ Gravity-SB

Ordering information

Eluent in column acetonitrile – water

Length	30 mm	50 mm	75 mm	100 mm	125 mm	150 mm	250 mm
NUCLEODUR® C₁₈ Gravity-SB, 1.8 µm particle size 1.8 µm · UHPLC							
EC columns (pack of 1 column)		particle size 1.8 µm					
2 mm ID	760591.20	760593.20	760595.20	760596.20		760598.20	
3 mm ID	760591.30	760593.30		760596.30			
4 mm ID	760591.40	760593.40		760596.40			
4.6 mm ID	760591.46	760593.46		760596.46			
EC guard columns*		4 x 2 mm: 761990.20		4 x 3 mm: 761990.30			
NUCLEODUR® C₁₈ Gravity-SB, 3 µm particle size 3 µm							
EC columns (pack of 1 column)							
2 mm ID		760603.20		760606.20	760607.20	760608.20	760609.20
3 mm ID		760603.30		760606.30	760607.30	760608.30	760609.30
4 mm ID		760603.40		760606.40	760607.40	760608.40	760609.40
4.6 mm ID		760603.46	760605.46	760606.46	760607.46	760608.46	760609.46
EC guard columns*		4 x 2 mm: 761991.20		4 x 3 mm: 761991.30			
NUCLEODUR® C₁₈ Gravity-SB, 5 µm particle size 5 µm							
EC columns (pack of 1 column)							
2 mm ID		760613.20		760616.20	760617.20	760618.20	760619.20
3 mm ID		760613.30		760616.30	760617.30	760618.30	760619.30
4 mm ID		760613.40		760616.40	760617.40	760618.40	760619.40
4.6 mm ID		760613.46	760615.46	760616.46	760617.46	760618.46	760619.46
EC guard columns*		4 x 2 mm: 761992.20		4 x 3 mm: 761992.30			
NUCLEODUR® C₁₈ Gravity-SB, 5 µm particle size 5 µm							
VarioPrep columns (pack of 1 column)							
10 mm ID		762350.100			762351.100		762353.100
21 mm ID		762350.210			762351.210		762353.210
32 mm ID							762353.320
40 mm ID						762352.400	762353.400
VP guard columns**		10 x 8 mm: 762354.80		10 x 16 mm: 762354.160		15 x 32 mm: 762355.320	

Guard column systems

Guard columns for EC columns with ID		2 mm	3 mm	4 mm	4.6 mm
* EC guard columns (pack of)	EC	4/2 (3)	4/3 (3)	4/3 (3)	4/3 (3)
Column Protection System guard column holder		718966	718966	718966	718966
Guard columns for VarioPrep columns with ID		8, 10 mm	16, 21 mm	32, 40 mm	
**VP guard columns (pack of)	VP	10/8 (2)	10/16 (2)	15/32 (1)	
VP guard column holder		718251	718256	718253	

Column Protection System

The innovative guard column system for analytical HPLC columns



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