Chromatography

MACHEREY-NAGEL

NUCLEODUR®
C_{18} Gravity-SB

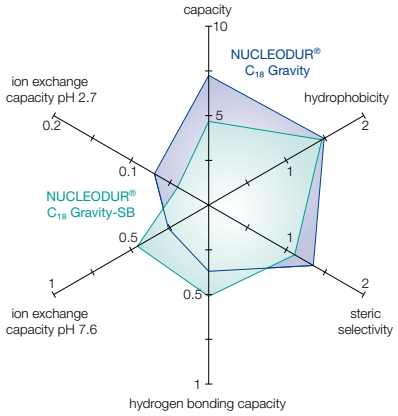
Providing distinct polar selectivity in HPLC

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

NUCLEODUR® C_{18} Gravity-SB

Key features

- Hydrophobic C_{18} 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



Hydrogen bonding capacity

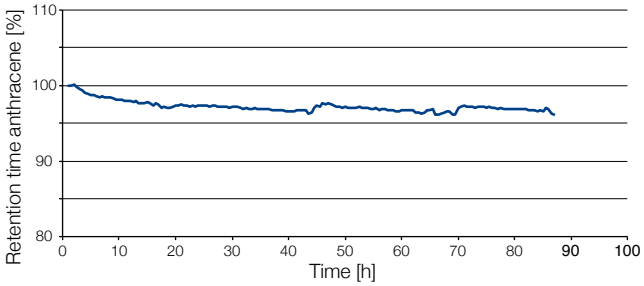
Technical characteristics

- 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

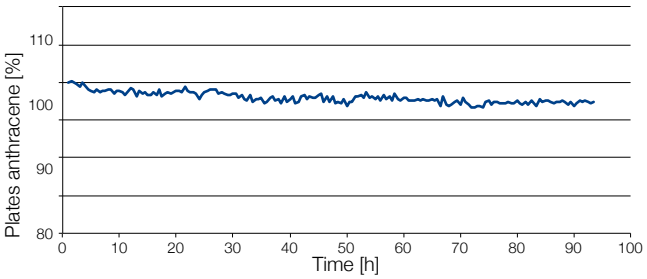
- Overall sophisticated analytical separations, especially for polar
- Compounds, e.g., antibiotics, water-soluble vitamins, organic acids

USP L1



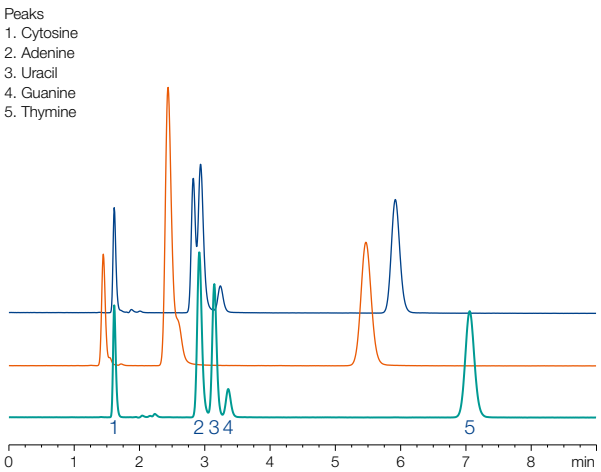
Stability of NUCLEODUR® C_{18} Gravity-SB at extreme pH

Column: EC 50/2 NUCLEODUR® C_{18} 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)



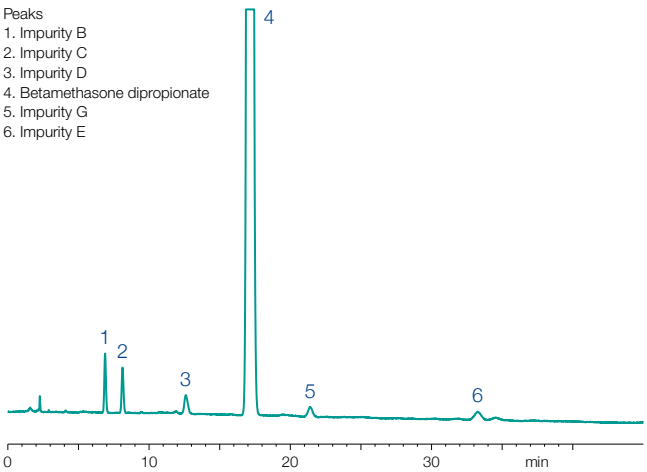
Stability of NUCLEODUR® C_{18} Gravity-SB at extreme pH

Column: EC 50/2 NUCLEODUR® C_{18} Gravity-SB, 3 µm
Eluent: 50 mmol/L NH_4Ac – 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

Columns: EC 150/4.6 mm
NUCLEODUR® C_{18} Gravity-SB, 5 µm
NUCLEODUR® C_{18} Gravity, 5 µm
NUCLEODUR® C_{18} Pyramid, 5 µm
Eluent: 25 mmol/L KH_2PO_4, 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)

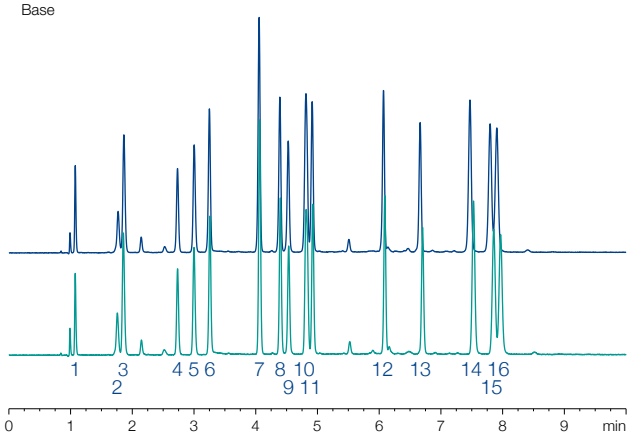


Purity control of betamethasone dipropionate (ph. Eur.)

Column: EC 250/4.6 NUCLEODUR® C_{18} 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

NUCLEODUR® C_{18} Gravity-SB

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



Stability at 70 °C (dyes)

Column: EC 150/3 NUCLEODUR® C_{18} Gravity-SB, 3 µm
1st injection, 500th injection

Eluent: A) 10 mmol/L NH_4Ac pH 4.5; B) methanol;
65–95 % B in 5 min, 95 % B for 10 min

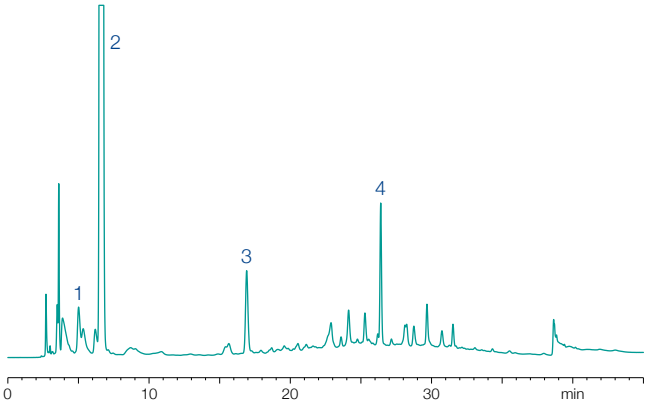
Flow rate: 0.8 mL/min

Temperature: 70 °C

Detection: UV, 432 nm

Injection: 2 µL, 500 injections

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



Purity control of cefepime dihydrochloride (Ph. Eur.)

Column: EC 250/4.6 NUCLEODUR® C_{18} Gravity-SB, 5 µm

Eluent: A) 5 mmol/L KH_2PO_4 pH 5 – acetonitrile (90:10, v/v);
B) 5 mmol/L KH_2PO_4 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)

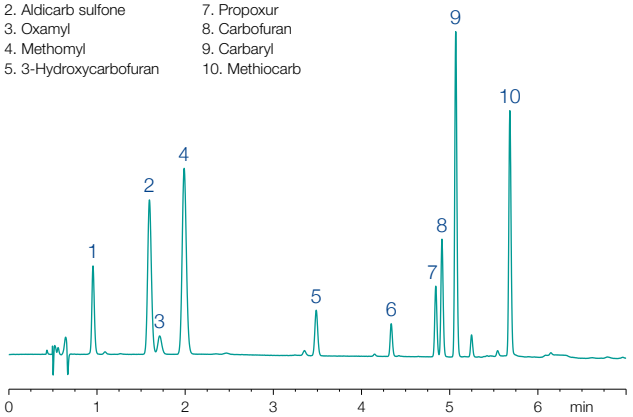
Flow rate: 1 mL/min

Temperature: 22 °C

Detection: UV, 254 nm

Injection: 10 µL

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



Carbamates (EPA 531.1)

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

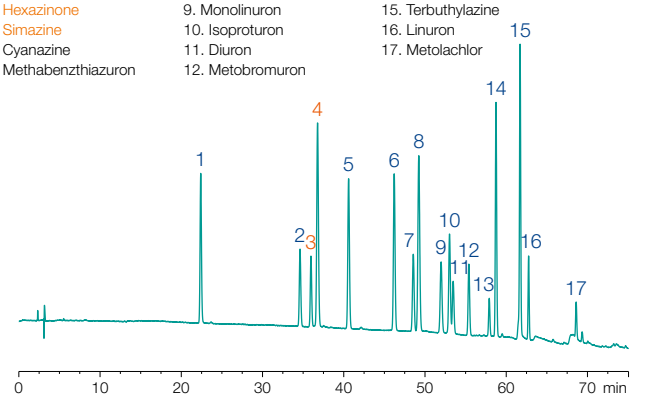
Flow rate: 1.0 mL/min

Temperature: 20 °C

Detection: UV, 230 nm

Injection: 1 µL (0.25 mg/mL)

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



Pesticide mix (Ehrenstorfer, 17 components)

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

NUCLEODUR® C_{18} Gravity-SB

Ordering information

NUCLEODUR® C18 Gravity-SB, 1.8 µm

Length	30 mm	50 mm	75 mm	100 mm	125 mm	150 mm	250 mm
EC columns (pack of 1 column)							
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

Length	30 mm	50 mm	75 mm	100 mm	125 mm	150 mm	250 mm
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

Length	30 mm	50 mm	75 mm	100 mm	125 mm	150 mm	250 mm
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

Length	30 mm	50 mm	75 mm	100 mm	125 mm	150 mm	250 mm
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) Column Protection System guard column holder (REF 718966)	EC	4 / 2 (3)	4 / 3 (3)	4 / 3 (3)	4 / 3 (3)
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	

© Serg Zastavkin (S. 1) · stock.adobe.com
KATEN200126 Flyer NUCLEODUR® C18 Gravity-SB en4a

MACHEREY-NAGEL GmbH & Co. KG · Valencienner Str. 11 · 52355 Düren · Germany
DE +49 24 21 969-0 info@mn-net.com
CH +41 62 388 55 00 sales-ch@mn-net.com
FR +33 388 68 22 68 sales-fr@mn-net.com
US +1 888 321 62 24 sales-us@mn-net.com