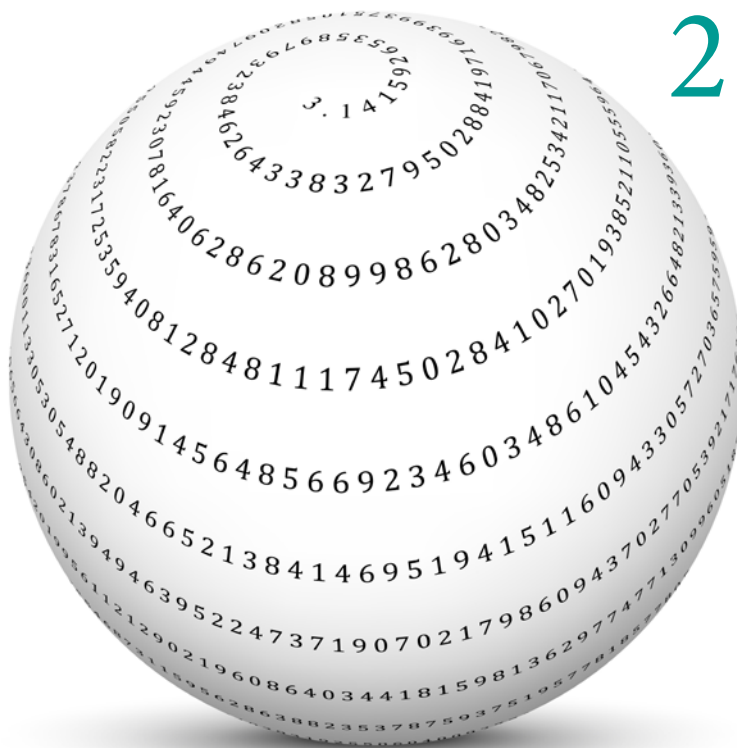


MACHEREY-NAGEL

NUCLEODUR[®] π^2

Chromatography



For enhanced π - π interactions in HPLC

- 従来のC18充填剤に比べ違う選択性を持つ疎水性相互作用
- USP L11 に適応
- 水100%移動相の使用可能

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Key features

- 従来のC18とは違う選択性を持つ分離モード
- π - π 相互作用と疎水性相互作用の二つの分離モード
- 芳香族や不飽和物質を特異的保持
- 水の多い移動相で優れた性能

Technical characteristics

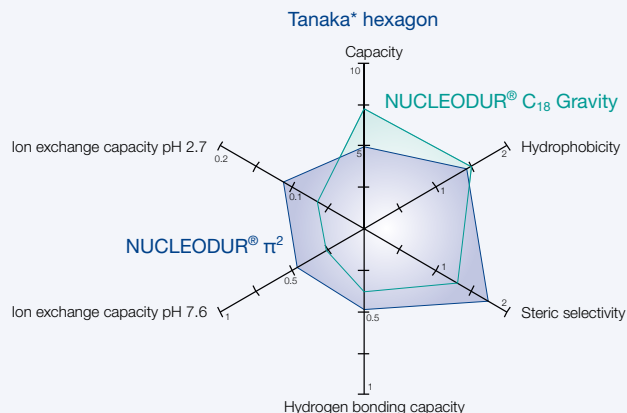
- ビフェニルプロピルとマルチエンドキャップ 相
- 細孔径110 Å, 粒径 5 μ m, カーボン率 17 %, pH 安定性 1.5–10

Recommended application

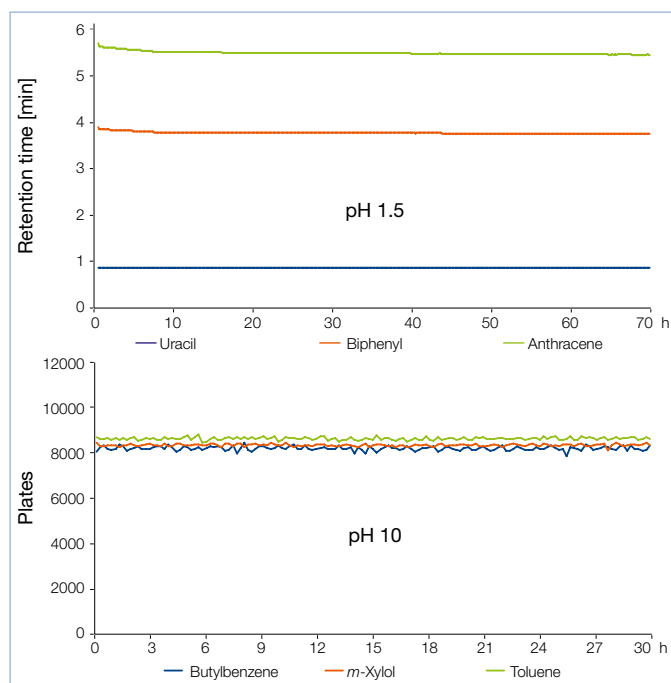
芳香族、不飽和合成物、極性医薬品、抗生物質、ステロイド等の精密分析に最適

USP L11

類似固定相: Pinnacle® DB Biphenyl, Ultra Biphenyl



* Prof. Tanaka, Kyoto Institute of Technology, J. of Chrom. Sci. 27, 725,1



High pH stability

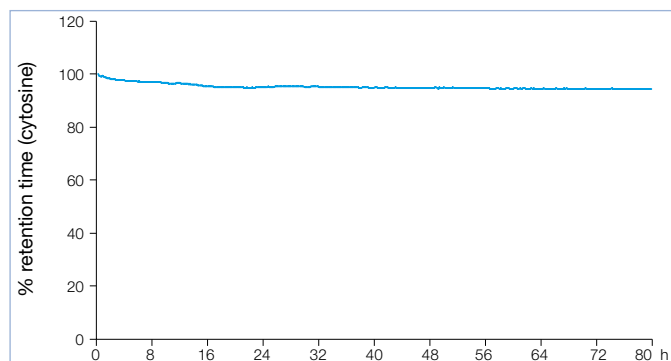
MN Appl. No. 127890

Column: 125 x 4 mm NUCLEODUR® π^2 , 5 μ m
 Eluent: acetonitrile–water (60:40, v/v) + 1 % TFA, pH 1.5
 Injection: 1 μ L uracil, biphenyl, anthracene in acetonitrile
 Flow: 1 mL/min
 Temperature: 60 °C
 Detection: UV, 254 nm

Eluent: 50 mmol/L ammonium acetate in water–methanol (20:80, v/v), adjusted to pH 10 by 25 % ammonium hydroxide
 Injection: 5 μ L butylbenzene, *m*-xylol, toluene in methanol
 Flow: 1 mL/min
 Temperature: 30 °C
 Detection: UV, 254 nm

Robust HPLC phase

Even under extreme pH conditions plate numbers and retention times remain stable over very long periods.



Stability under aqueous conditions

MN Appl. No. 127900

Column: 125 x 4 mm NUCLEODUR® π^2 , 5 μ m
 Eluent: 20 mmol/L potassium dihydrogen phosphate in water (adjusted to pH 3.1 by 85 % phosphoric acid)
 Injection: 1 μ L cytosine in methanol–buffer (1:1)
 Flow: 1 mL/min
 Temperature: 20 °C
 Detection: UV, 220 nm

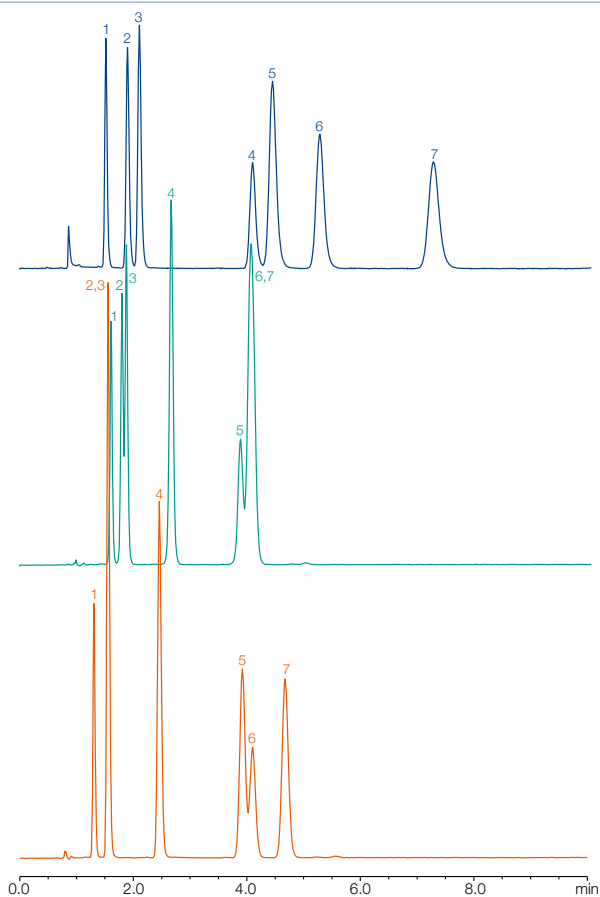
Enhanced stability

Excellent performance using 100 % aqueous mobile phase.

Steroids

MN Appl. No. 127910

Columns: 125 x 4 mm each
 NUCLEODUR® π², 5 μm
 NUCLEODUR® Phenyl-Hexyl, 5 μm
 NUCLEODUR® C₁₈ Gravity, 5 μm
 Eluent: acetonitrile – water (45:55, v/v)
 Injection: 1 μL
 Flow: 1 mL/min
 Temperature: 25 °C
 Detection: UV, 230 nm



- Peaks
1. Estriol
 2. Hydrocortisone
 3. Prednisone
 4. β-Estradiol
 5. Corticosterone
 6. Cortisonacetate
 7. Testosterone

Alternative selectivity

A complete separation was only achieved on NUCLEODUR® π².



Sulfonamide antibiotics

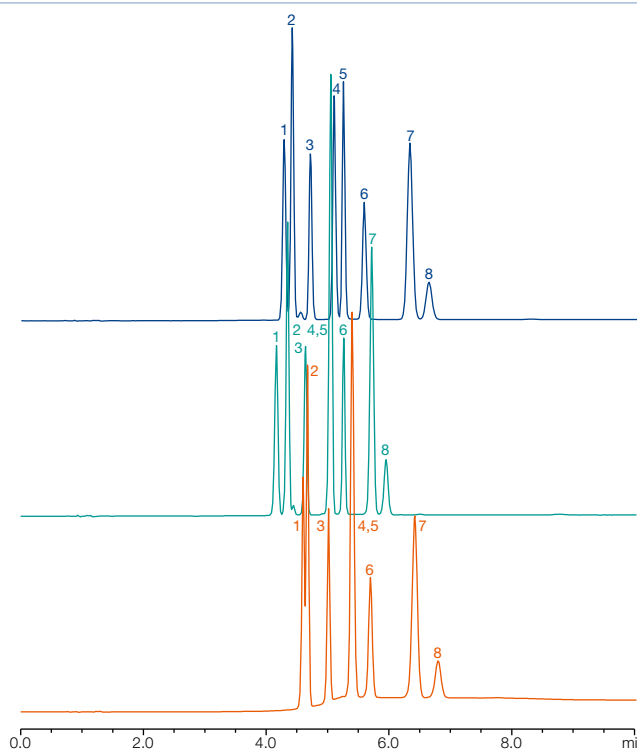
MN Appl. No. 127920

Columns*: 100 x 3 mm each
 NUCLEODUR® π², 5 μm
 Pinnacle® DB Biphenyl, 5 μm
 Ultra Biphenyl, 5 μm
 Eluent: A) 0.1 % TFA in water
 B) 0.1 % TFA in methanol
 20 % B for 2 min, 20–60 % B in 2 min, 60 % B for 10 min
 Flow rate: 0.56 mL/min
 Temperature: 30 °C
 Detection: UV, 280 nm
 Injection: 1 μL

- Peaks
1. Sulfathiazole
 2. Sulfadiazine
 3. Sulfachloropyridazine
 4. Sulfamerazine
 5. Sulfadimidine
 6. Sulfamethoxazole
 7. Sulfadimethoxine
 8. Sulfaquinoxaline

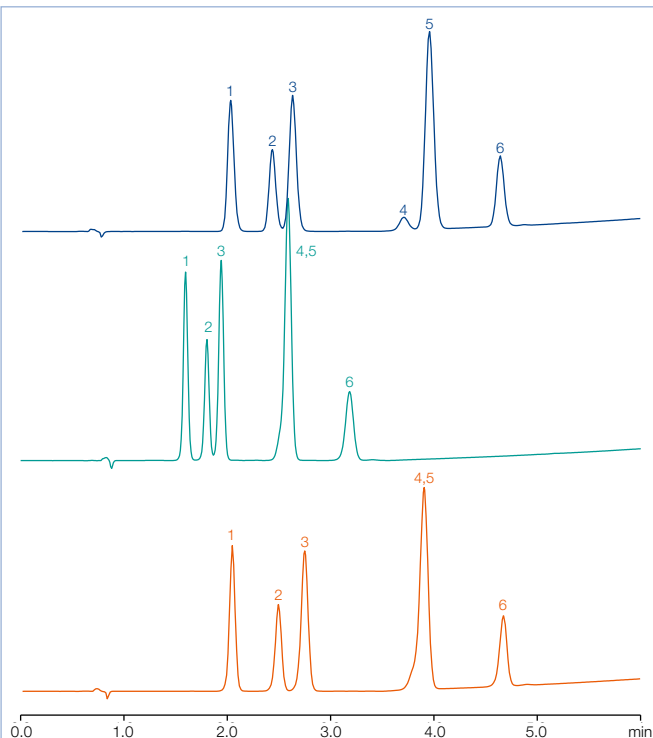
Better separation

Compared to other biphenyl columns NUCLEODUR® π² provides baseline separation of different sulfonamide antibiotics.



Acidic pharmaceuticals

MN Appl. No. 127930



Columns*: 100 x 3 mm each
 NUCLEODUR® π², 5 μm
 Pinnacle® DB Biphenyl, 5 μm
 Ultra Biphenyl, 5 μm

Eluent: A) 0.1 % TFA in water
 B) 0.1 % TFA in acetonitrile
 50 % B for 2.5 min, 50–70 % B in 3.5 min, 70 % B for 4 min

Flow rate: 0.56 mL/min
Temperature: 30 °C
Detection: UV, 280 nm
Injection: 1 μL

- Peaks**
1. Sulindac
 2. Suprofen
 3. Ketoprofen
 4. Fenoprofen
 5. Ibuprofen
 6. Diclofenac

Improved performance

Fenoprofen and ibuprofen are separated only on NUCLEODUR® π².



*Same conditions for all used columns. The shown chromatograms may not be representative of other applications.

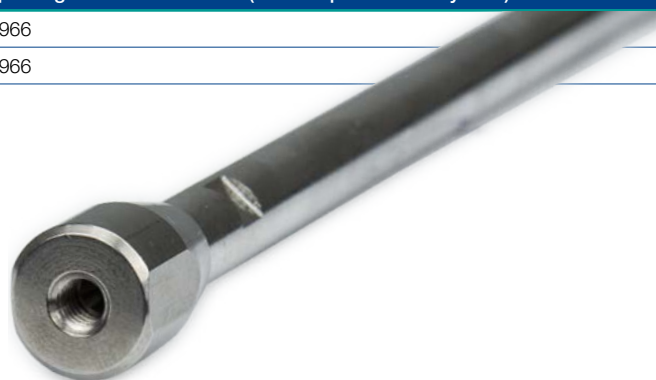
Ordering information

Length	50 mm	75 mm	100 mm	125 mm	150 mm	250 mm
NUCLEODUR® π², 5 μm						
EC columns (pack of 1)						
2 mm ID	760620.20	760621.20	760622.20	760623.20	760624.20	760625.20
3 mm ID	760620.30	760621.30	760622.30	760623.30	760624.30	760625.30
4 mm ID	760620.40	760621.40	760622.40	760623.40	760624.40	760625.40
4.6 mm ID	760620.46	760621.46	760622.46	760623.46	760624.46	760625.46

Selection of guard columns

EC column with ID	Guard column	REF	Required guard column holder (Column protection system)
2 mm	EC 4/2 (pack of 3)	761810.20	718966
3/4/4.6 mm	EC 4/3 (pack of 3)	761810.30	718966

Your local distributor



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MACHERY-NAGEL



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