MACHEREY-NAGEL

NUCLEODUR® π²

For enhanced π-π interactions in HPLC

- Hydrophobic phase with alternative selectivity compared to classical C₁₈ modifications
- Meets USP L 11
- Suitable for 100 % aqueous mobile phase
Key features

- Hydrophobic phase with alternative selectivity compared to classical C<sub>18</sub> modifications
- Separation mode based on 2 retention mechanisms: π-π interactions and hydrophobic interactions
- Better retention of aromatic and unsaturated substances
- Excellent performance under highly aqueous conditions

Technical characteristics

- Phase with biphenylpropyl modification and multi-endcapping
- Pore size 110 Å, particle size 5 μm, carbon content 17%, pH stability 1.5–10

Recommended application

Overall sophisticated analytical separations, especially aromatic and unsaturated compounds, polar compounds like pharmaceuticals, antibiotics, steroids

USP L11
Similar phases: Pinnacle<sup>®</sup> DB Biphenyl, Ultra Biphenyl
**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  

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**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. Sulfquinocaine  

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**Alternative selectivity**

A complete separation was only achieved on NUCLEODUR® π².

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**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

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

**Ordering information**

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**Improved performance**

Fenoprofen and ibuprofen are separated only on NUCLEODUR® π².

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MACHEREY-NAGEL GmbH & Co. KG

Since 1911