HICHROM

Chromatography Columns and Supplies

LC COLUMNS
Nucleoshell

Catalogue 9

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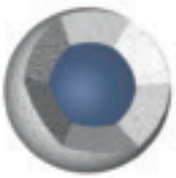
NUCLEOSHELL®

- Core shell technology
- Particle size 2.7µm (core 1.7µm)
- Narrow particle size distribution
- High efficiencies and low back pressure
- RP 18, zwitterionic HILIC and PFP modifications



NUCLEOSHELL® phases consist of a solid silica core (1.7µm) with a homogeneous shell of porous silica, giving an overall particle size of 2.7µm. They produce higher efficiencies compared with traditional totally porous materials. The lower back pressure achieved enables the columns to be used with both UHPLC and conventional HPLC instruments.

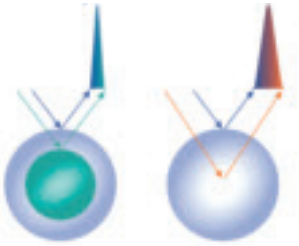
NUCLEOSHELL Phase[1]	Modification	Particle Size (µm)	Pore Size (Å)	Carbon Load (%)	Recommended pH Range
RP 18	Octadecyl, multi-endcapping	2.7	90	7.5	1 - 11
HILIC	Ammonium – sulphonic acid	2.7	90	1.3	2 - 8.5
PFP	Pentafluorophenylpropyl, multi-endcapping	2.7	90	3	1 - 9

[1] NUCLEOSHELL Phenyl-Hexyl also available – see page 6

Benefits of Core shell Technology

The shorter diffusion paths of these particles enable fast mass transfer (C-term of Van Deemter equation) and high flow velocity without peak broadening for fast LC. The narrow particle size distribution leads to stable packing and high efficiency columns.

NUCLEOSHELL RP 18 is suitable for LC-MS and HPLC at pH extremes (1 - 11). It is recommended for applications including analgesics, anti-inflammatories, antidepressants, herbicides, phytopharmaceuticals and immunosuppressants. Figure 8 shows resolution as a function of particle size of NUCLEOSHELL RP 18 and NUCLEODUR C18 Gravity.



Core shell particles vs. totally porous silica gel

NUCLEOSHELL HILIC is based on ammonium-sulphonic acid modified silica and is also suitable for LC-MS. Recommended applications include organic polar acids and bases, polar natural compounds, nucleosides, oligonucleotides, amino acids, peptides and water soluble vitamins. Figure 9 shows a comparison of the separation of creatine and creatinine on NUCLEOSHELL HILIC and NUCLEODUR HILIC (1.8µm).

NUCLEOSHELL PFP separates components with 4 retention mechanisms: hydrogen bonding, dipole-dipole interactions, π-π interactions and hydrophobic interactions. It is recommended for aromatic and unsaturated compounds, phenols, halogenated hydrocarbons, isomers, polar compounds and antibiotics.

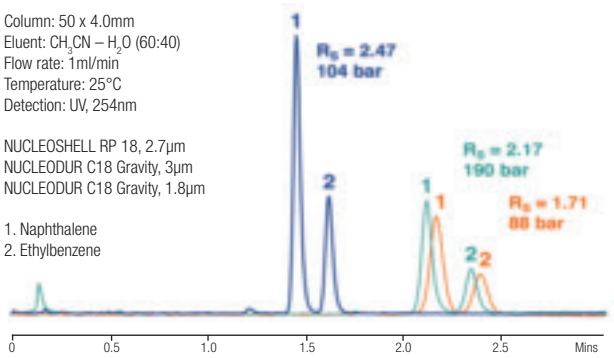


Figure 8. Resolution as function of particle size

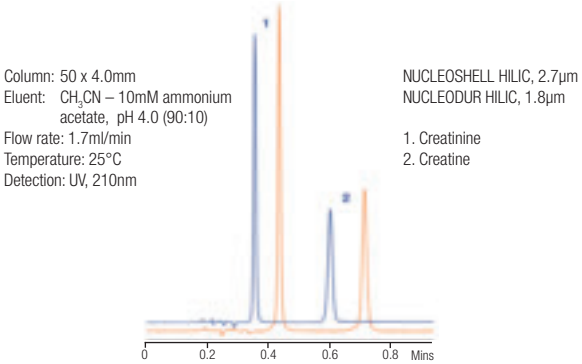


Figure 9. Separation of creatine and creatinine

Ordering Information

NUCLEOSHELL Phase	Column Dimensions (mm)					
	50 x 2.0	100 x 2.0	150 x 2.0	50 x 3.0	100 x 3.0	150 x 3.0
RP 18	763132.20[1]	763134.20[1]	763136.20[1]	763132.30[2]	763134.30[2]	763136.30[2]
HILIC	763332.20[3]	763334.20[3]	763336.20[3]	763332.30[4]	763334.30[4]	763336.30[4]
PFP	763532.20[5]	763534.20[5]	763536.20[5]	763532.30[6]	763534.30[6]	763536.30[6]
	50 x 4.0	**100 x 4.0**	**150 x 4.0**	**50 x 4.6**	**100 x 4.6**	**150 x 4.6**
RP 18	763132.40[2]	763134.40[2]	763136.40[2]	763132.46[2]	763134.46[2]	763136.46[2]
HILIC	763332.40[4]	763334.40[4]	763336.40[4]	763332.46[4]	763334.46[4]	763336.46[4]
PFP	763532.40[6]	763534.40[6]	763536.40[6]	763532.46[6]	763534.46[6]	763536.46[6]

[1] Use guards 763138.20 (3/pk) and holder 718966
[2] Use guards 763138.30 (3/pk) and holder 718966
[3] Use guards 763338.20 (3/pk) and holder 718966
[4] Use guards 763338.30 (3/pk) and holder 718966
[5] Use guards 763538.20 (3/pk) and holder 718966
[6] Use guards 763538.30 (3/pk) and holder 718966

Please see page 161 for details of Column Protection System.