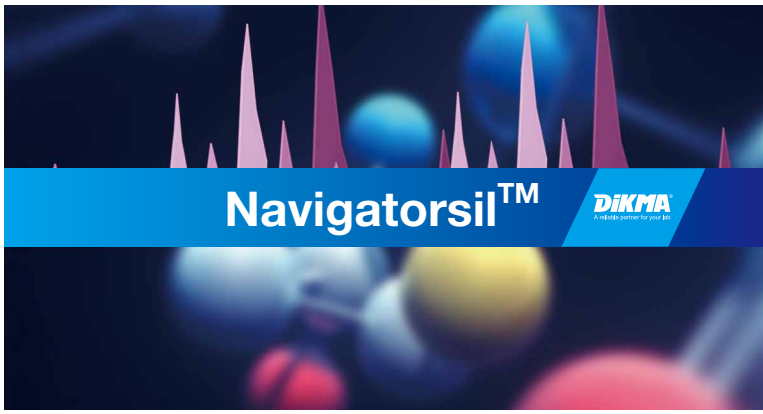
DiKMA®
A reliable partner for your lab

Navigatorsil™ Core-Shell Columns

- State-of-the-art Particle Technology
- Increasing LC Productivity
- Achieving Optimal HPLC/UHPLC Performance



Dikma Technologies Inc.
www.dikmatech.com | www.dimaglass.com

Navigatorsil™ core-shell particles consist of a solid core and a porous shell. It can deliver high speed and high resolution separations with greatly reduced backpressure. Optimized phase bonding and endcapping processes create a series of high coverage robust phases with outstanding pH stability. Unique column packing process results in a tight, highly uniform packed bed for high efficiency separations.

Benefits of Navigatorsil™ Core-shell Columns

- Designed to maximize performance of HPLC/UHPLC systems by maximizing efficiency, resulting in enhanced resolution and peak capacity at HPLC/UHPLC optimized pressures
- The higher phase density results in improved inertness, performance and stability
- Achieve UHPLC efficiency and performance on HPLC instrumentation
- The ability to shorten analysis times without sacrificing resolution
- Faster flow rate operation for improved throughput
- Greater peak heights for improved sensitivity
- Better resolution for complex or multi-component mixtures
- State-of-the-art column packing techniques and bonding and endcapping processes give consistent, reproducible performance and long column lifetimes

Characteristics of Navigatorsil™ Core-shell Columns

Bonded phase	Particle size (μm)	Pore size (Å)	Surface area (m^2/g)	Purity (%)	Phase density (μmol/m^2)	Carbon loading (%)	pH range	Endcapping
C18	2.7	90	120	>99.999	3.1	8	1.5-9.0	Yes
C8	2.7	90	120	>99.999	3.7	5	1.5-9.0	Yes

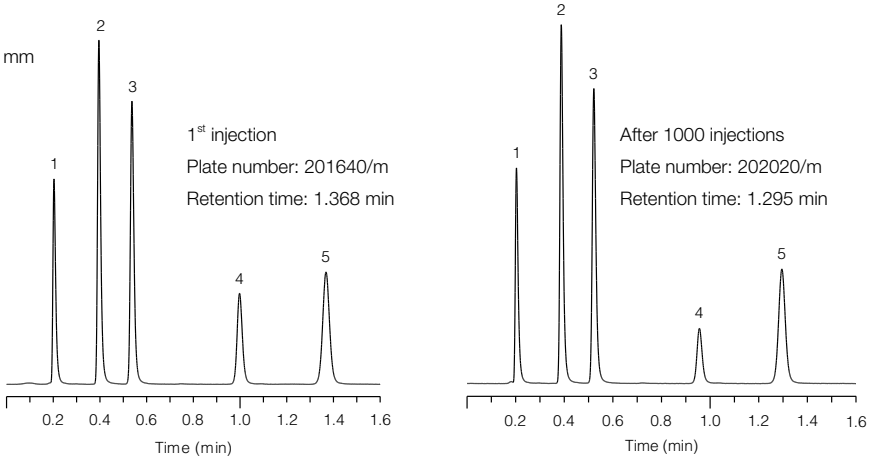
Particle Size Distribution

Compared with the fully porous silica gel, the size distribution of core-shell silica gel is narrower, and higher column efficiency, better resolution and lower column backpressure can be achieved.

	D90/D10
Navigatorsil™ 2.7 μm core-shell	1.11
Endeavorsil® 1.8 μm	1.36

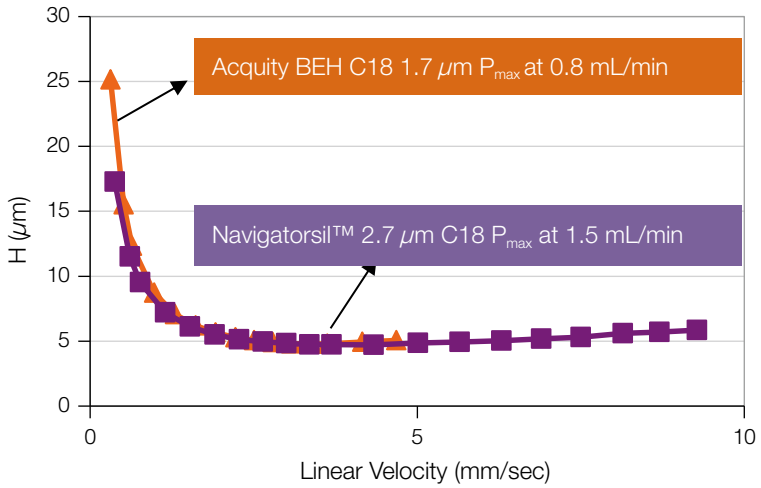
Column Lifetime Test

Column	Navigatorsil™ 2.7 μm C18, 50 x 2.1 mm
Mobile Phase	MeCN:H_2O = 50:50
Flow rate	0.5 mL/min
Detection	UV 254 nm
Sample	1. Uracil
	2. Acetophenone
	3. Methyl benzoate
	4. Toluene
	5. Naphthalene



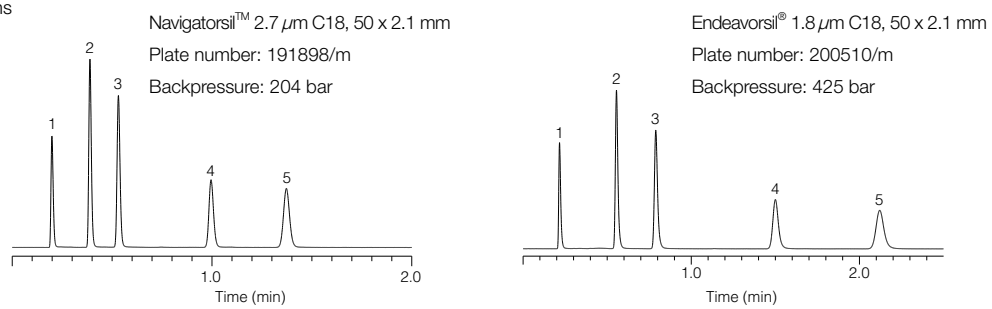
Higher Performance, Less Analysis Time*

Equivalent Performance to Sub 2 μm Columns



Under the same testing conditions, Navigatorsil™ 2.7 μm C18 column can achieve the similar column efficiency as the sub 2 μm UHPLC column, and the backpressure is only 50%.

Column	Listed on chromatograms
Mobile Phase	MeCN:H_2O = 50:50
Flow rate	0.5 mL/min
Detection	UV 254 nm
Sample	1. Uracil
	2. Acetophenone
	3. Methyl benzoate
	4. Toluene
	5. Naphthalene



Under the same testing conditions, Navigatorsil™ C18 shows more than 2.5 times higher performance to compare with totally porous sub 2 μm C18s.

Column	Plate	Pressure (MPa)	Plate/P
Navigatorsil™ 2.7 μm C18	9897	16.2	611
ACE Excel 2.0 μm C18	7944	27.0	294
Endeavorsil® 1.8 μm C18	10025	42.5	236
ZORBAX Eclipse Plus 1.8 μm C18	9519	51.9	183
Acquity HSS 1.8 μm C18	8464	29.2	290
Acquity Shield BEH 1.7 μm Shield RP18	10217	37.5	272

Under the same testing conditions, Navigatorsil™ 2.7 μm C18 column shows more than 1.5 times higher performance to compare with Kinetex 2.6 μm C18.

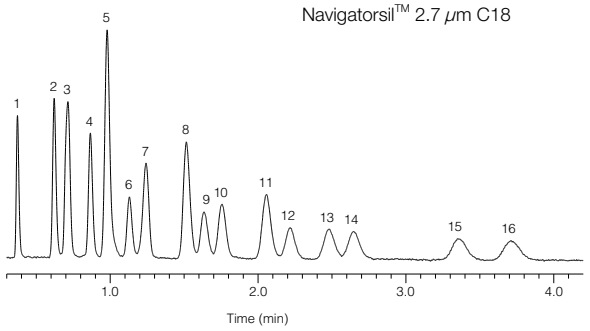
Column	Plate	Pressure (MPa)	Plate/P
Navigatorsil™ 2.7 μm C18	9897	16.2	611
Halo 2.7 μm C18	9238	19.7	469
CORTECS 2.7 μm C18	9649	17.2	561
Meteoric Core 2.7 μm C18	10398	18.5	562
Kinetex 2.6 μm C18	8797	21.6	407

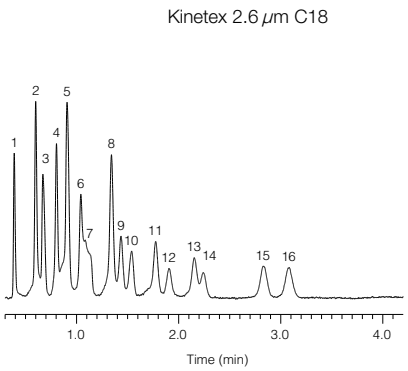
*Kinetex is a trademark of Phenomenex. Dikma Technologies Inc. is not affiliated with the above company.
*ACQUITY and CORTECS are registered trademarks of Waters Corporation. Dikma Technologies Inc. is not affiliated with the above company.
*ZORBAX is a registered trademark of Agilent Technologies. Dikma Technologies Inc. is not affiliated with the above company.
*Halo is a trademark of Advanced Materials Technology, Inc. Dikma Technologies Inc. is not affiliated with the above company.
*Meteoric Core is a trademark of YMC CO., LTD. Dikma Technologies Inc. is not affiliated with the above company.
*ACE Excel is a trademark of Advanced Chromatography Technologies Ltd. Dikma Technologies Inc. is not affiliated with the above company.

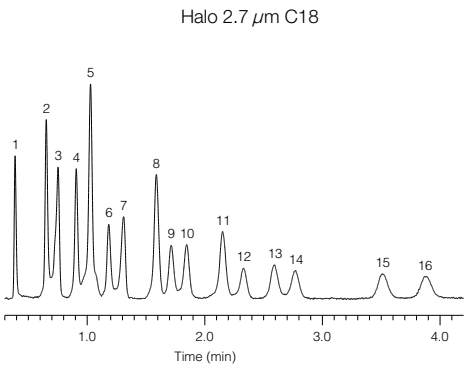
Better Separation*

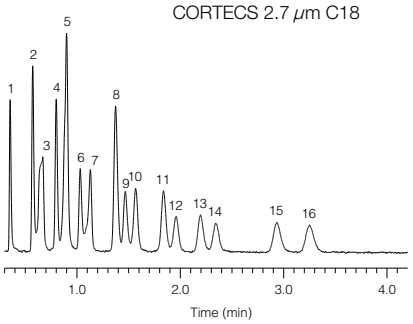
The separation of 16 phenols demonstrates the resolving power for isomers. Compared with other core shell columns, Navigatorsil™ 2.7 μm C18 column completes this separation in less than 4 minutes with remarkable selectivity.

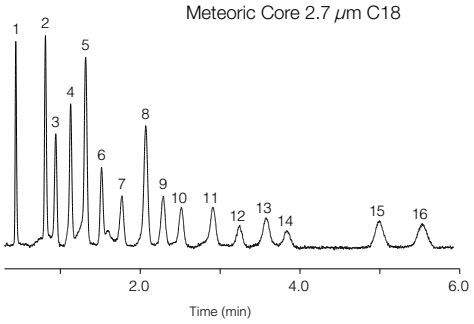
Column	Listed on chromatograms
Dimension	50 x 2.1 mm
Mobile Phase:	MeOH:H_2O = 35:65
Flow rate	0.5 mL/min
Detection	UV 254 nm
Sample	1. 3,4-Dimethoxyphenol
	2. 2,6-Dimethoxyphenol
	3. 2,6-Difluorophenol
	4. 2,4-Difluorophenol
	5. 2,3-Difluorophenol
	6. 3,4-Difluorophenol
	7. 2-Chloro-6-fluorophenol
	8. 3,5-Difluorophenol
	9. 2-Chloro-4-fluorophenol
	10. 2-Chloro-5-fluorophenol
	11. 4-Chloro-2-fluorophenol
	12. 2-Bromo-5-fluorophenol
	13. 4-Chloro-3-fluorophenol
	14. 4-Bromo-2-fluorophenol
	15. 4-Chloro-3-methyphenol
	16. 4-Chloro-2-methyphenol









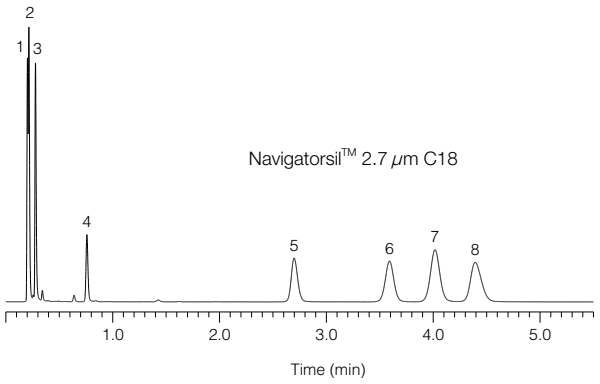


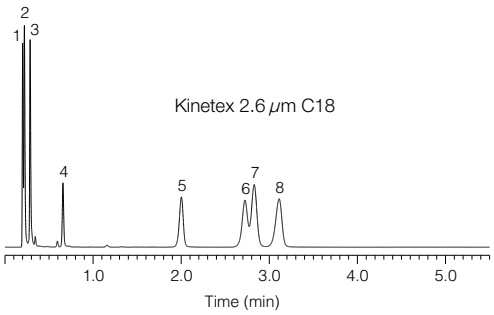
*Kinetex is a trademark of Phenomenex. Dikma Technologies Inc. is not affiliated with the above company.
*CORTECS is a registered trademark of Waters Corporation. Dikma Technologies Inc. is not affiliated with the above company.
*Halo is a trademark of Advanced Materials Technology, Inc. Dikma Technologies Inc. is not affiliated with the above company.
*Meteoric Core is a trademark of YMC CO., LTD. Dikma Technologies Inc. is not affiliated with the above company.

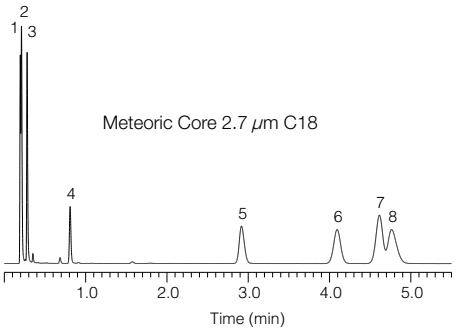
Better Selectivity*

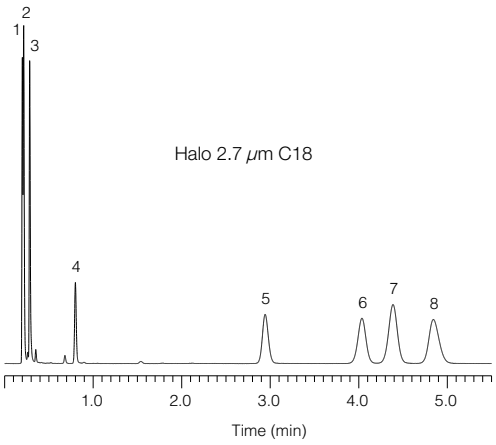
Retention and back pressure of five kinds of core shell type C18s were compared. Navigatorsil™ 2.7 μm C18 column exhibits the largest steric selectivity because it has the highest ligand density. Kinetex 2.6 μm C18 shows only 70% retention to compare with Navigatorsil™ 2.7 μm C18.

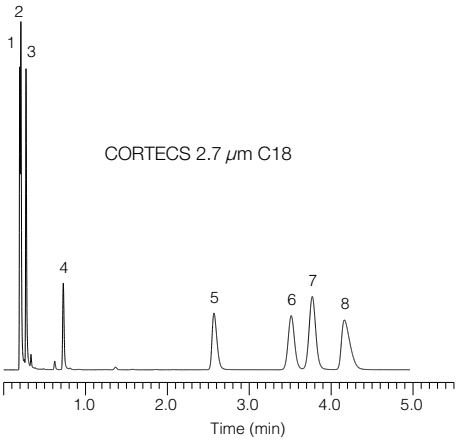
Column	Listed on chromatograms	
Dimension	50 x 2.1 mm	
Mobile Phase	MeCN:H_2O = 55:45	
Flow rate	0.5 mL/min	
Detection	UV 254 nm	
Sample	1. Uracil	5. Butylbenzene
	2. Caffeine	6. *o*-Terphenyl
	3. Phenol	7. Triphenylene
	4. Toluene	8. Amylbenzene











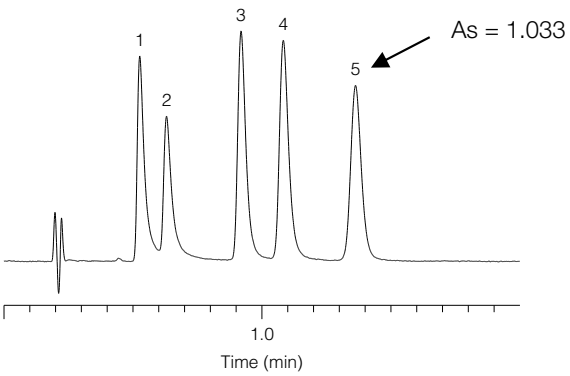
	α (H-bonding)	α (Hydrophobicity)	α (Steric)
Navigatorsil™ 2.7 μm C18	0.173	1.679	1.126
Halo 2.7 μm C18	0.181	1.694	1.092
CORTECS 2.7 μm C18	0.182	1.672	1.078
Meteoric Core 2.7 μm C18	0.167	1.678	1.123
Kinetex 2.6 μm C18	0.226	1.616	1.042

*Kinetex is a trademark of Phenomenex. Dikma Technologies Inc. is not affiliated with the above company.
*CORTECS is a registered trademark of Waters Corporation. Dikma Technologies Inc. is not affiliated with the above company.
*Halo is a trademark of Advanced Materials Technology, Inc. Dikma Technologies Inc. is not affiliated with the above company.
*Meteoric Core is a trademark of YMC CO., LTD. Dikma Technologies Inc. is not affiliated with the above company.

Basic Compounds

TCAs are highly basic compounds that tend to give poor peak shape and resolution on conventional C18 columns. Navigatorsil™ 2.7 µm C18 column exhibits greater peak shape and resolution, demonstrating its outstanding bonding and endcapping techniques.

Column	Navigatorsil™ 2.7 µm C18, 50 x 2.1 mm
Mobile Phase	MeOH:Buffer = 80:20
Flow rate	0.5 mL/min
Detection	UV 254 nm
Sample	1. Desipramine
	2. Nortriptyline
	3. Imipramine
	4. Amitriptyline
	5. Trimipramine



Ordering Information

2.7 µm Microbore Columns (2.1 mm ID)			
Phases	50 x 2.1	100 x 2.1	150 x 2.1
C18	88001	88003	88002
C8	88101	88103	88102

2.7 µm Analytical Columns (3.0 mm ID)			
Phases	50 x 3.0	100 x 3.0	150 x 3.0
C18	88004	88006	88005
C8	88104	88106	88105

2.7 µm Analytical Columns (4.6 mm ID)			
Phases	50 x 4.6	100 x 4.6	150 x 4.6
C18	88007	88009	88008
C8	88107	88109	88108

DIKMA®
A reliable partner for your lab

Literature No.3076

USA
11 Orchard Road, Suite 106
Lake Forest, CA 92630, USA
Tel: 1-949-716-5810
Fax: 1-949-716-5811
Toll-Free: 1-877-328-8348
Email: sale@dikmatech.com
www.dikmatech.com

Canada
255 Shields Court, Unit A & B
Markham, ON L3R 8V2, Canada
Tel: 1-905-944-8066
Fax: 1-905-944-0181
Toll-Free: 1-866-889-9072
Email: sales@dimaglass.com
www.dimaglass.com

EWC ISO9001 ANAB ACCREDITED 020102