KINETEX®

Better UHPLC Performance Starts NOW

1.7 µm Core-Shell Columns

The **FIRST** and **ONLY** sub-2 µm core-shell columns on the market

phenomenex®
. . . breaking with tradition℠

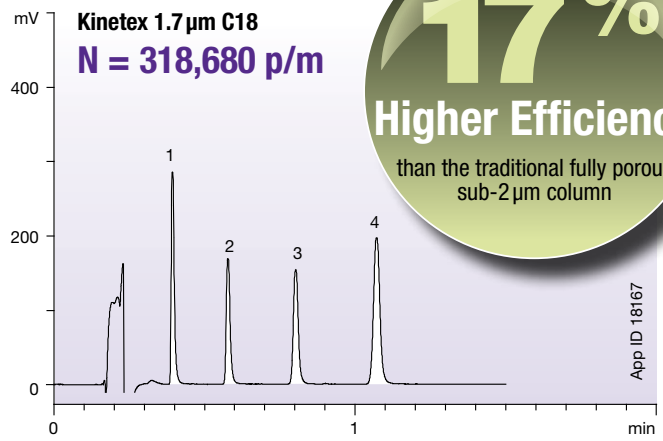
www.phenomenex.com/TradeUp

Kinetex® 1.7 µm – The *FIRST* and *ONLY* Sub-2 µm Core-Shell Columns on the Market

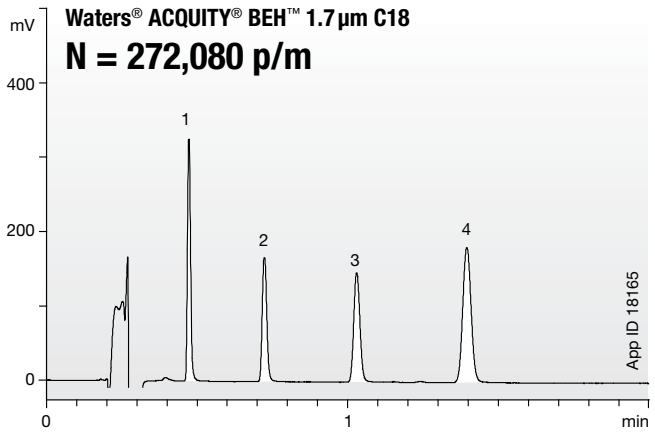
Delivering breakthrough UHPLC performance, Kinetex 1.7 µm core-shell technology produces increased efficiencies over traditional sub-2 µm columns on the market, yielding remarkable chromatographic resolution, higher peak capacities, and greater sensitivity, so you can get the most out of every analysis.

Efficiency Test Mix

17%
Higher Efficiency
than the traditional fully porous sub-2 µm column



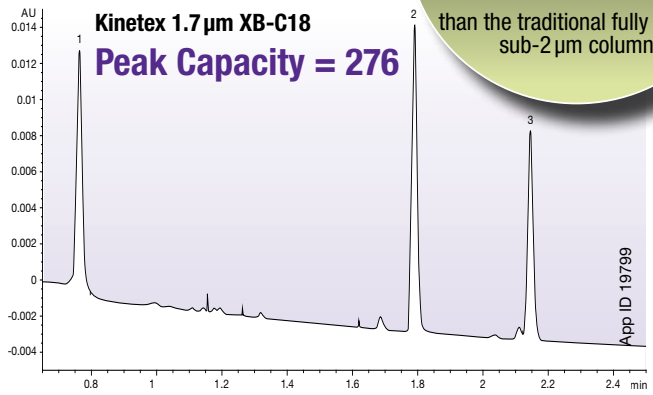
Conditions for both columns
Columns: Kinetex 1.7 µm C18
ACQUITY® UPLC® BEH™ 1.7 µm C18
Dimensions: 50 x 2.1 mm
Mobile Phase: Acetonitrile / Water (50:50)
Injection Volume: 0.2 µL/min
Flow Rate: 0.6 mL/min



Temperature: 25 °C
Detection: UV @ 254 nm (ambient)
Sample: 1. Acetophenone
2. Benzene
3. Toluene
4. Naphthalene

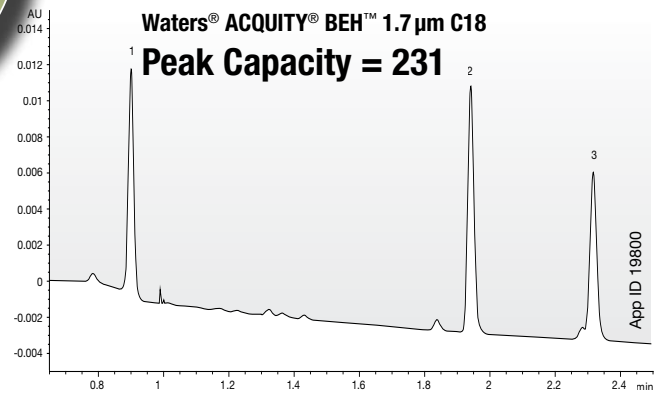
Estrogen Mix

19%
Higher Peak Capacity
than the traditional fully porous sub-2 µm column



Conditions for both columns
Column: Kinetex 1.7 µm XB-C18
ACQUITY® UPLC® BEH™ 1.7 µm C18
Dimensions: 50 x 2.1 mm
Mobile Phase: A: 6.9 mM Ammonium Formate pH 4.0 in 25 % Acetonitrile
B: Acetonitrile
Gradient:

Time (min)	% A	% B
0	100	0
5	35	65



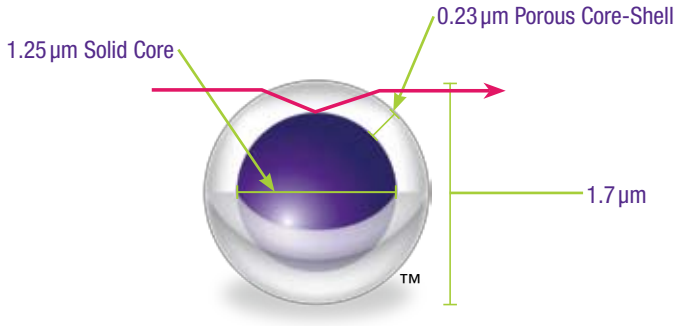
Flow Rate: 0.5 mL/min
Temperature: Ambient
Detection: UV @ 254 nm (ambient)
Instrument: Waters® ACQUITY® UPLC®
Sample: 1. Estriol
2. 17B Estradiol
3. Estrone

The Key to Better UHPLC Performance is Core-Shell Technology

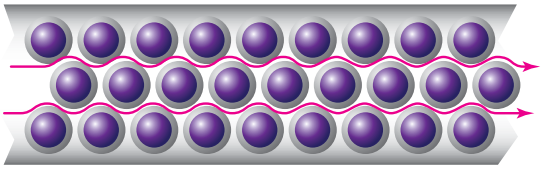
KINETEX®

The secret is in the core-shell particle morphology itself. A uniform porous silica layer is grown around a spherical solid silica core. This unique combination of precise particle architecture and sub-2 µm particle size provides dramatic leaps in performance in two important ways:

1 **Increasing the rate of mass transfer by decreasing the effects of diffusion**



2 **Reducing losses in efficiency with nearly monodispersed sub-2 µm particles**

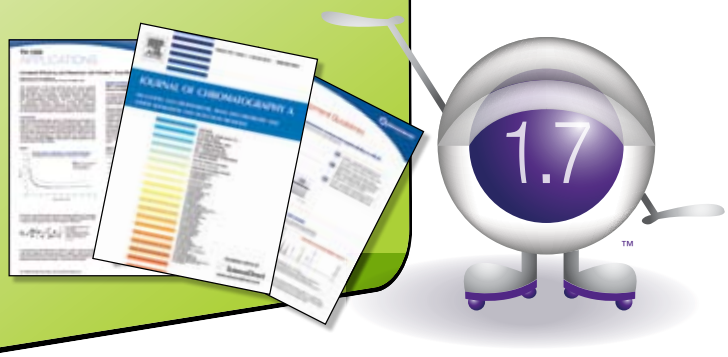


The result is a significant improvement in chromatographic resolution over traditional sub-2 µm columns, providing more information and higher quality data.

POWER TIP

Core-shell technology is at the forefront of UHPLC technology and is challenging system manufacturers to develop the next generation UHPLC systems capable of taking full advantage of the performance offered.[1]

The chromatography industry agrees that Kinetex® columns deliver on their promise of better UHPLC performance! Download and read journal articles and technical notes on Kinetex core-shell technology for free at:
www.phenomenex.com/kinetex

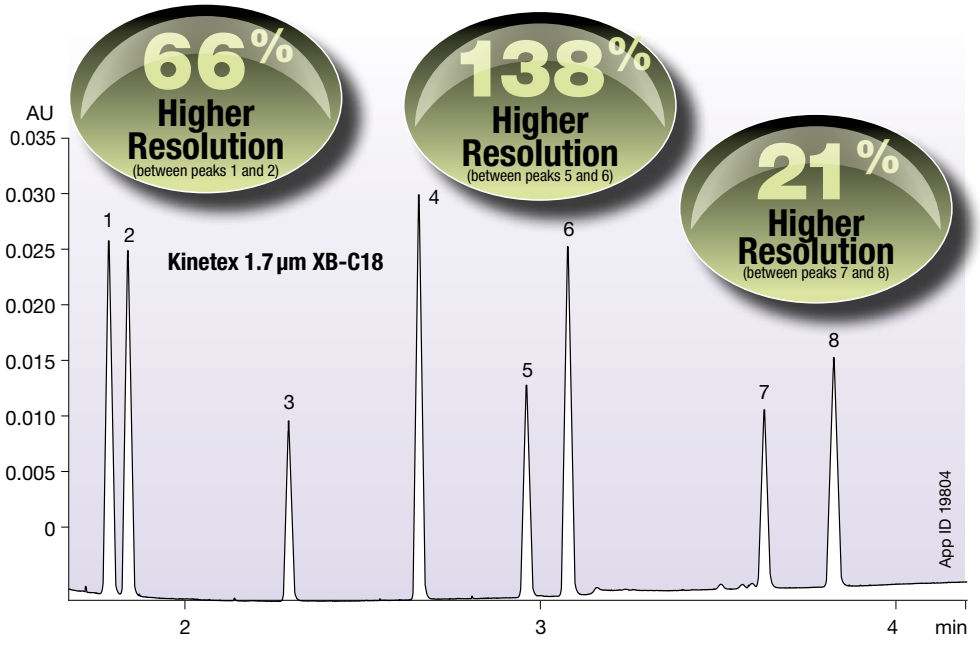


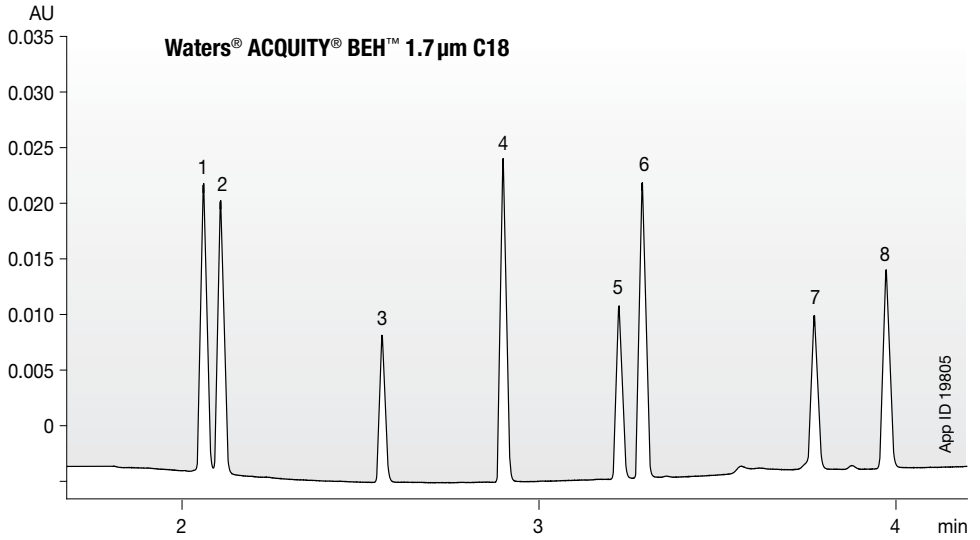
[1]*F. Gritti, C.A. Sanchez, T. Farkas, G. Guiochon, J. Chromatogr. A 1217 (2010) 3000-3012.*

Kinetex® 1.7 µm – Taking UHPLC to the Next Level

Higher efficiencies in sub-2 µm core-shell particles give increased resolving power, allowing you to better separate closely eluting peaks and readily separate compounds in complex mixtures for accurate identification.

Steroids





Conditions for both columns

Column: Kinetex 1.7 µm XB-C18
ACQUITY® UPLC® BEH™ 1.7 µm C18
Dimensions: 150 x 2.1 mm
Mobile Phase: A: MilliQ Water
B: Acetonitrile

Gradient:	Time (min)	% A	% B
	0	70	30
	5	0	100

Flow Rate: 0.5 mL/min
Temperature: Ambient
Detection: UV @ 210 nm (ambient)
Backpressure: 891 bar (Kinetex)
935 bar (ACQUITY®)
Instrument: Waters® ACQUITY® UPLC®
Sample: 1. Hydrocortisone
2. Cortisone
3. Corticosterone
4. Cortisone-21-Acetate
5. DHEA (Dehydroepiandrosterone)
6. 17-Hydroxyprogesterone
7. Deoxycorticosterone
8. Progesterone

Column	Average Peak Width	Peak Capacity	Resolution between Hydrocortisone and Cortisone	Resolution between DHEA (Dehydroepiandrosterone) and 17-Hydroxyprogesterone	Resolution between Deoxycorticosterone and Progesterone
Kinetex 1.7 µm XB-C18 150 x 2.1mm	3.5 sec	75.8	2.5 (66 % increase)	5.0 (138 % increase)	7.4 (21 % increase)
ACQUITY® 1.7 µm BEH™ C18 150 x 2.1 mm	3.7 sec	71.3	1.5	2.1	6.1

Challenging Separations are No Match for Kinetex.

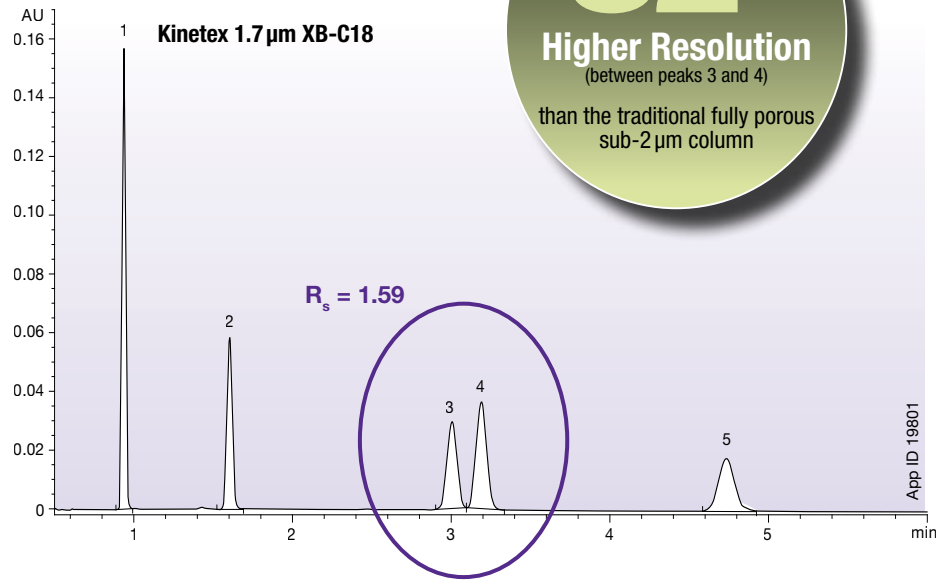
KINETEX®

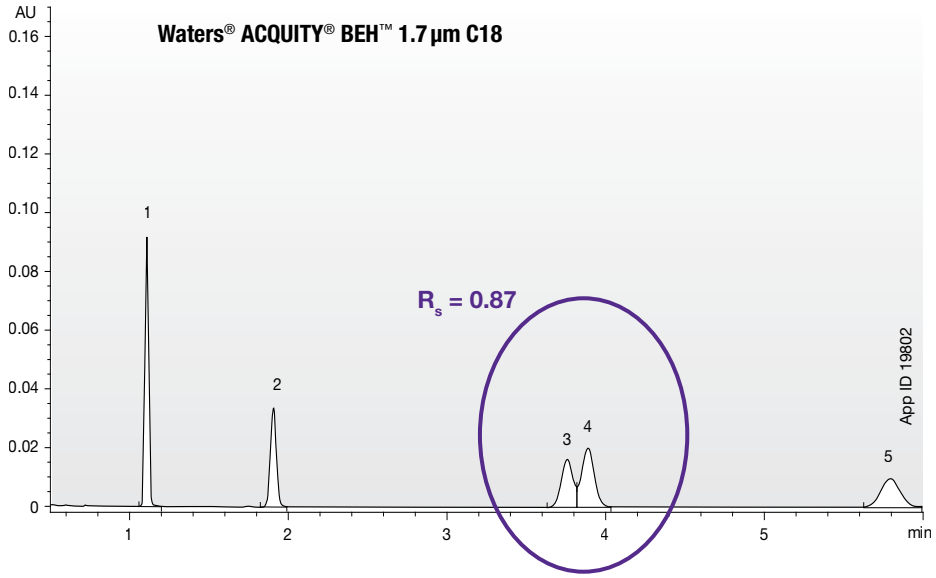
Barbiturates, a class of antidepressants, are often screened for in drugs of abuse testing. Two structural isomers, pentobarbital and amobarbital have been historically difficult to separate because their chemical structures differ from each other by the placement of a methyl group (See structures below). The similarity often results in co-elution of the two analyte peaks making it difficult to quantitate each compound.

The Kinetex® core-shell 1.7 µm UHPLC column successfully separated these two compounds better and faster, allowing for cost-effective, high-throughput processing of barbiturate screens.

Barbiturates

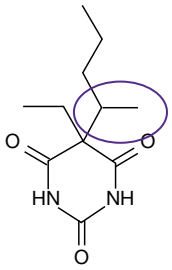
82%
Higher Resolution
(between peaks 3 and 4)
than the traditional fully porous sub-2 µm column



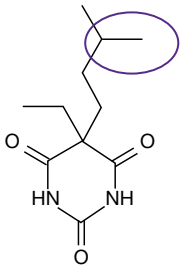


Structural Isomers

Pentobarbital



Amobarbital



Conditions for both columns

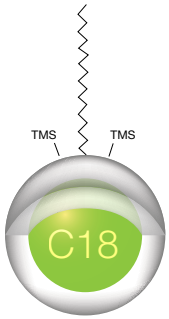
Column:	Kinetex 1.7 µm XB-C18 ACQUITY® UPLC® BEH™ 1.7 µm C18
Dimensions:	50 x 2.1 mm
Mobile Phase:	5 mM Ammonium Acetate pH 6.7/ Acetonitrile (85:15)
Flow Rate:	0.9 mL/min
Temperature:	50 °C
Detection:	UV @ 214 nm (ambient)
Backpressure:	548 bar (Kinetex) 631 bar (ACQUITY®)
Instrument:	Waters® ACQUITY® UPLC®
Sample:	1. Phenobarbital 2. Butalbatal 3. Pentobarbital 4. Amobarbital 5. Secobarbital

With such high efficiencies, you now have the ability to increase your productivity! By simply shortening your column length, you can drastically reduce your analysis times without losing critical resolution.

www.phenomenex.com/knxcalculator

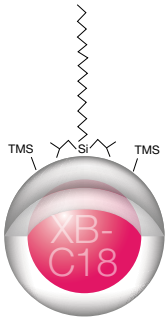
Six Selectivities. Take Your Pick.

Choose from a wide range of phases for greater flexibility in UHPLC method development. Kinetex 1.7 µm columns come in a variety of selectivities to cover a full spectrum of applications ranging from acids and bases, to isomers and extremely polar compounds.



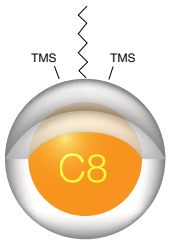
Endcapped C18 phase

Increased retention for **polar basic compounds**



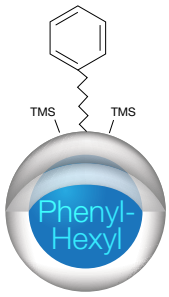
Protective isobutyl side chains

Increased retention of **polar acidic compounds**



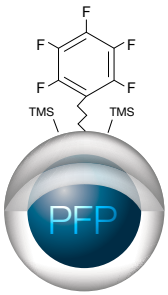
Endcapped C8 phase

Less hydrophobic than a C18 phase



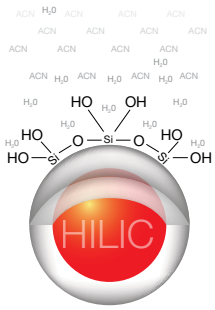
Phenyl - Hexyl

Greater retention and separation of aromatic hydrocarbons



Pentafluorophenyl phase

Unique **aromatic and polar** selectivity



Unbonded silica phase

Increased retention of **polar compounds**

Material Characteristics

Packing Material	Total Particle Size (µm)	Porous Shell (µm)	Solid Core (µm)	Pore Size (Å)	Effective Surface Area (m^2/g)	Effective Carbon Load %	USP Classification	pH Stability*	Pressure Stability
Kinetex C18	1.7	0.23	1.25	100	200	12	L1	1.5 - 8.5*	1000 bar
Kinetex XB-C18	1.7	0.23	1.25	100	200	10	L1	1.5 - 8.5*	1000 bar
Kinetex C8	1.7	0.23	1.25	100	200	8	L7	1.5 - 8.5*	1000 bar
Kinetex PFP	1.7	0.23	1.25	100	200	9	L43	1.5 - 8.5*	1000 bar
Kinetex HILIC	1.7	0.23	1.25	100	200	—	L3	2.0 - 7.5	1000 bar
Kinetex Phenyl-Hexyl	1.7	0.23	1.25	100	200	11	L11	1.5 - 8.5*	1000 bar

* Columns are pH stable from 1.5-10 under isocratic conditions. Columns are pH stable 1.5-8.5 under gradient conditions.

Ordering Information

1.7 µm Minibore Columns (mm)

	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	SecurityGuard ULTRA Cartridges▲ 3/pk
XB-C18	00A-4498-AN	00B-4498-AN	00D-4498-AN	00F-4498-AN	AJ0-8782
C18	00A-4475-AN	00B-4475-AN	00D-4475-AN	00F-4475-AN	AJ0-8782
C8	00A-4499-AN	00B-4499-AN	00D-4499-AN	00F-4499-AN	AJ0-8784
PFP	00A-4476-AN	00B-4476-AN	00D-4476-AN	00F-4476-AN	AJ0-8787
HILIC	00A-4474-AN	00B-4474-AN	00D-4474-AN	—	AJ0-8786
Phenyl-Hexyl	—	00B-4500-AN	00D-4500-AN	00F-4500-AN	AJ0-8788
					for 2.1 mm ID

1.7 µm MidBore™ Columns (mm)

	30 x 3.0	50 x 3.0	100 x 3.0	SecurityGuard ULTRA Cartridges▲ 3/pk
XB-C18	00A-4498-Y0	00B-4498-Y0	00D-4498-Y0	AJ0-8775
C18	—	00B-4475-Y0	00D-4475-Y0	AJ0-8775
C8	00A-4499-Y0	00B-4499-Y0	00D-4499-Y0	AJ0-8777
PFP	—	—	00D-4476-Y0	AJ0-8780
HILIC	—	00B-4474-Y0	—	AJ0-8779
Phenyl-Hexyl	—	—	—	AJ0-8781
				for 3.0 mm ID

▲ SecurityGuard ULTRA Cartridges require holder, Part No. AJ0-9000.

SecurityGuard™ ULTRA Cartridge System

The SecurityGuard ULTRA cartridge system protects ultra-high performance columns, like Kinetex, from damaging contaminants and microparticulates.

- Extend Kinetex column lifetime
- Simple to use
- Pressure rated to 20,000 psi (1,378 bar)
- Fits virtually all manufacturers' columns 2.1 to 4.6 mm ID

SecurityGuard ULTRA Guard Cartridge Holder	ea	Price
	AJ0-9000	

Kinetex 2.6 µm is also available!

Find more information and dimensions online at: ***www.phenomenex.com/kinetex***

guarantee

If you are not completely satisfied with Kinetex core-shell columns, send in your comparative data to a similar product within 45 days and KEEP THE COLUMN FOR FREE.

What Can Switching to Kinetex® 1.7 µm UHPLC Columns *Really* Mean to Your Lab?

Ask a Customer

"A new analytical method was developed which is capable of analysing 16 different API residues from production surfaces. It has been shown that the 1.7 µm Kinetex 100 x 2.1 mm column was capable of **resolving 16 different chemical entities with a 6-minute run time**. This new analytical method will be used to replace 16 older methods thereby facilitating an **annualised cost saving for the site of €320,000** [$460,000 USD]."

Andrew Charles, John P. Dunne, Louis McMahon, and Sebastian Jurek
MANUFACTURING AND TECHNOLOGIES, PFIZER GRANGE CASTLE, GRANGE CASTLE BUSINESS PARK, CLONDALKIN, DUBLIN, REPUBLIC OF IRELAND

Wonder What Kinetex Will Look Like on *Your* Method?

Let PhenoLogix, our in-house analytical services lab, show you what Kinetex core-shell technology can do for you!
Email: PhenoLogix@phenomenex.com
Or visit us online at: **www.phenomenex.com/phenologix**

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Your Method. Our Scientists.

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KINETEX®

1.7™

The **FIRST** and **ONLY** sub-2 µm core-shell columns on the market

phenomenex®
. . . breaking with tradition℠

www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at international@phenomenex.com

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