See Beyond
HALO® and Ascentis® Express

Sigma-Aldrich Biotechnology
See the Performance Difference

1. Decreased secondary interactions with a more inert base material
2. Sharper peaks for greater resolution
3. Increased sensitivity (S/N ratio) with taller peaks

Ranitidine

Conditions for all columns:
- Columns: Kinetex® 2.6 µm C18 100 Å
  - HALO® 2.7 µm C18 90 Å
  - Ascentis® Express 2.7 µm C18 90 Å
- Dimensions: 100 x 4.6 mm
- Mobile Phase: A: 40 mM Potassium phosphate, pH 7.1 / Acetonitrile (98:2)
  - B: 40 mM Potassium phosphate, pH 7.1 / Acetonitrile (78:22)
- Flow Rate: 1.5 mL/min
- Temperature: 35 °C
- Detection: UV @ 230 nm

Sample:
1. Ranitidine amino alcohol hemifumarate
2. Ranitidine diamin hemifumarate (Related compound A)
3. Ranitidine 5-sulpho (Related compound C)
4. Ranitidine N-oxide
5. Ranitidine complex nitroacetamide
6. Ranitidine HCl

Insulin Impurity Profiling

Conditions for all columns:
- Columns: Kinetex® 2.6 µm XB-C18 100 Å
  - HALO® 2.7 µm C18 90 Å
  - Ascentis® Express 2.7 µm C18 90 Å
- Dimensions: 100 x 4.6 mm
- Mobile Phase: A: 0.1 % Trifluoroacetic acid (TFA) in Water
  - B: 0.1 % Trifluoroacetic acid (TFA) in Acetonitrile
- Flow Rate: 1.5 mL/min
- Temperature: 40 °C
- Detection: UV @ 214 nm

Sample:
1. Insulin
2. Sample Impurity
3. Sample Impurity
4. Sample Impurity

HALO is a registered trademark of Advanced Materials Technology, Inc. Ascentis is a registered trademark of Sigma-Aldrich Biotechnology LP. All columns used for comparison were new and manufactured by Advanced Materials Technology, Inc. and Sigma-Aldrich Biotechnology LP, respectively. Phenomenex is in no way affiliated with the above companies. Dimensions and chromatographic conditions are the same for all columns compared unless otherwise noted. Comparative separations may not be representative of all applications.

© 2011 Phenomenex, Inc. All rights reserved.
Nearly monodispersed particle size distribution

Excellent batch-to-batch reproducibility

HALO is a registered trademark of Advanced Materials Technology, Inc. Ascentis is a registered trademark of Sigma-Aldrich Biotechnology LP. All columns used for comparison were new and manufactured by Advanced Materials Technology, Inc. and Sigma-Aldrich Biotechnology LP, respectively. Phenomenex is in no way affiliated with the above companies. Dimensions and chromatographic conditions are the same for all columns compared unless otherwise noted. Comparative separations may not be representative of all applications.
Even more than efficiency, selectivity is the most important parameter for obtaining increased resolution.

Tivadar Farkas, Ph.D., Senior Managing Scientist

NEW! **Kinetex® XB-C18**

This new phase provides superior peak shape and separation of basic compounds.

**Kinetex C8**

This new phase brings the benefits of core-shell technology to USP L7 and other C8 column methods.

**Kinetex PFP**

This pentfluorophenyl phase incorporates fluorine atoms on the periphery of the phenyl ring to provide unique aromatic and polar selectivity.

**Kinetex HILIC**

This unbonded silica phase is used under hydrophilic interaction chromatography conditions to provide the ideal selectivity for the retention and separation of polar compounds.

* pH range under isocratic conditions. pH range is 2 – 8 under gradient conditions.
Increased sensitivity, S/N ratio
2. Narrower peak widths
3. Less tailing

From the Journal of Chromatography A

Recent publications in the Journal of Chromatography A compare Kinetex® core-shell technology columns to other popular UHPLC technologies.

Articles
1. Performance of columns packed with the new shell particles, Kinetex-C18

2. Performance of columns packed with the new shell Kinetex-C18 particles in gradient elution chromatography

3. Comparative study of new shell type (Kinetex), sub-2 μm fully porous and monolith stationary phases, focusing on mass transfer resistance

Access these and additional journal articles by visiting www.phenomenex.com/info/journalarticles

KrudKatcher Ultra

- Extends Kinetex and UHPLC column lifetimes
- Easy to use
- Pressure rated to 20,000 psi (1,375 bar)
- Extremely low dead volume minimizes sample peak dispersion

The KrudKatcher Ultra filter body houses an integrated 0.5 μm 316 stainless steel depth filter that efficiently removes microparticulates from the flow stream without contributing to system backpressure or dead volume (<0.2 μL).

*KrudKatcher Ultra requires 5/16 in. wrench. Wrench not provided.

Ordering Information

<table>
<thead>
<tr>
<th>Kinetex 2.6 μm Analytical Columns (mm)</th>
<th>KrudKatcher™ Ultra In-Line Filter*</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 x 4.6</td>
<td>50 x 4.6</td>
</tr>
<tr>
<td>$579</td>
<td>$639</td>
</tr>
<tr>
<td>XB-C18</td>
<td>—</td>
</tr>
<tr>
<td>C18</td>
<td>00A-4462-E0</td>
</tr>
<tr>
<td>C8</td>
<td>—</td>
</tr>
<tr>
<td>PFP</td>
<td>00A-4477-E0</td>
</tr>
<tr>
<td>HILIC</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kinetex 2.6 μm MidBore™ Columns (mm)</th>
<th>KrudKatcher™ Ultra In-Line Filter*</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 x 3.0</td>
<td>50 x 3.0</td>
</tr>
<tr>
<td>$579</td>
<td>$639</td>
</tr>
<tr>
<td>XB-C18</td>
<td>—</td>
</tr>
<tr>
<td>C18</td>
<td>00A-4462-Y0</td>
</tr>
<tr>
<td>C8</td>
<td>—</td>
</tr>
<tr>
<td>PFP</td>
<td>00A-4477-Y0</td>
</tr>
<tr>
<td>HILIC</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kinetex 2.6 μm Minibore Columns (mm)</th>
<th>KrudKatcher™ Ultra In-Line Filter*</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 x 2.1</td>
<td>50 x 2.1</td>
</tr>
<tr>
<td>$579</td>
<td>$639</td>
</tr>
<tr>
<td>XB-C18</td>
<td>00A-4496-AN</td>
</tr>
<tr>
<td>C18</td>
<td>00A-4462-AN</td>
</tr>
<tr>
<td>C8</td>
<td>00A-4497-AN</td>
</tr>
<tr>
<td>PFP</td>
<td>00A-4477-AN</td>
</tr>
<tr>
<td>HILIC</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kinetex 1.7 μm Minibore Columns (mm)</th>
<th>KrudKatcher™ Ultra In-Line Filter*</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 x 2.1</td>
<td>100 x 2.1</td>
</tr>
<tr>
<td>$799</td>
<td>$829</td>
</tr>
<tr>
<td>XB-C18</td>
<td>00B-4498-AN</td>
</tr>
<tr>
<td>C18</td>
<td>00A-4475-AN</td>
</tr>
<tr>
<td>C8</td>
<td>00A-4499-AN</td>
</tr>
<tr>
<td>PFP</td>
<td>00A-4476-AN</td>
</tr>
<tr>
<td>HILIC</td>
<td>00B-4474-AN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UHPLC / HPLC Sure-Lok™ High Pressure PEEK™ Male Nut Fittings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No.</td>
</tr>
<tr>
<td>A00-8503</td>
</tr>
<tr>
<td>A00-8530</td>
</tr>
</tbody>
</table>
**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.

---

Australia

t: 02-9428-6444
f: 02-9428-6445
auinfo@phenomenex.com

Austria

t: 01-319-1301
f: 01-319-1300
anfrage@phenomenex.com

Belgium

t: +31 (0)30-2418700
f: +31 (0)30-2383749
beinfo@phenomenex.com

Canada

t: (800) 543-3681
f: (310) 328-7768
info@phenomenex.com

Denmark

t: 4824 8048
f: 4810 6265
nordicinfo@phenomenex.com

Finland

t: 094769 0063
f: +358 4810 6265
nordicinfo@phenomenex.com

France

t: 01 30 09 21 10
f: 01 30 09 21 11
franceinfo@phenomenex.com

Germany

t: 06021-58830-0
f: 06021-58830-11
anfrage@phenomenex.com

Ireland

t: 01 247 5405
f: +353 1625-501796
eireinfo@phenomenex.com

Italy

t: 051 6337511
f: 051 6337555
italiainfo@phenomenex.com

Luxembourg

t: +31 (0)30-2418700
f: +31 (0)30-2383749
nlinfo@phenomenex.com

Mexico

t: (55) 5018 3791
f: (310) 328-7768
info@phenomenex.com

The Netherlands

t: 030-2418700
f: 030-2383749
nlinfo@phenomenex.com

New Zealand

t: 09-4780951
f: 09-4780952
nzinfo@phenomenex.com

Norway

t: 810 02 005
f: +45 4810 6265
nordicinfo@phenomenex.com

Puerto Rico

t: (800) 541-HPLC
f: (310) 328-7768
info@phenomenex.com

United Kingdom

t: 01625-501367
f: 01625-501796
ukinfo@phenomenex.com

All other countries:
Corporate Office USA

t: (310) 212-0555
f: (310) 328-7768
info@phenomenex.com

---

Terms and Conditions
Subject to Phenomenex Standard Terms & Conditions, which may be viewed at www.phenomenex.com/TermsAndConditions.

Trademarks
Kinetex and Phenomenex are registered trademarks of Phenomenex in the United States, European Union, and other jurisdictions. MidBore, KrudKatcher, and Sure-Lok are trademarks of Phenomenex, Inc. HALO is a registered trademark of Advanced Materials Technology, Inc. Ascentis is a registered trademark of Sigma-Aldrich Biotechnology LP. PEEK is a trademark of Victrex plc.

Disclaimer
Phenomenex, Inc. is in no way affiliated with Advanced Materials Technology, Inc. or Sigma-Aldrich Biotechnology LP. Comparative separations may not be representative of all applications.

© 2011 Phenomenex, Inc. All rights reserved.

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