The Luna® brand of columns and media is more than just a product line from Phenomenex. It is a pledge to provide you with the highest level of satisfaction for your chromatographic goals. Every aspect of Luna products has been engineered to meet the exacting demands placed on today’s chromatographers.

Luna products continue to uphold the quality our customers depend on. If you have never tried Luna columns or media, this brochure will guide you through the various solutions to fit your needs.

For those who use Luna products daily, thank you for making Luna columns one of the world’s leading HPLC columns.
Explore Successful Separations

Your success begins with our commitment to provide the essential solutions to HPLC separations in the Luna® brand. Some of the highest quality and performance standards are incorporated into Luna products, making them an indispensable platform for all areas of HPLC.

Explore Resolution with Luna Selectivities

Phase selectivity has the strongest impact on overall chromatographic resolution. Choosing the optimal selectivity can drive your separation to success. Luna phases span through 10 different chemistries, each offering its own unique selectivity.

<table>
<thead>
<tr>
<th>Luna Phases</th>
<th>Description</th>
<th>Particle Size (µm)</th>
<th>Pore Size (Å)</th>
<th>Surface Area (m²/g)</th>
<th>Carbon Load (%)</th>
<th>Bonded Phase Coverage (µmol/m²)</th>
<th>pH Stability</th>
<th>Application</th>
<th>Reversed Phase</th>
<th>Normal Phase</th>
<th>HILIC</th>
<th>IEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica(2)</td>
<td>Unbonded silica</td>
<td>3, 5, 10, 10-PREP, 15</td>
<td>100</td>
<td>400</td>
<td>—</td>
<td>—</td>
<td>2.0 - 7.5</td>
<td>Non-polar compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5</td>
<td>5 Carbon ligand</td>
<td>5, 10</td>
<td>100</td>
<td>440</td>
<td>12.5</td>
<td>7.85</td>
<td>1.5 - 9.0°</td>
<td>Good alternative to C8 when less retention is desired</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C8(2)</td>
<td>C8 ligand optimized for improved peak shape</td>
<td>3, 5, 10, 10-PREP, 15</td>
<td>100</td>
<td>400</td>
<td>13.5</td>
<td>5.50</td>
<td>1.5 - 9.0°</td>
<td>Great starting phase for method development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C18(2)</td>
<td>C18 ligand optimized for improved peak shape</td>
<td>2.5, 3, 5, 10, 10-PREP, 15</td>
<td>100</td>
<td>400</td>
<td>17.5</td>
<td>3.00</td>
<td>1.5 - 9.0°</td>
<td>From capillary LC/MS to process scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Versatile CN phase</td>
<td>3, 5, 10</td>
<td>100</td>
<td>400</td>
<td>7.0</td>
<td>3.80</td>
<td>1.5 - 7.0</td>
<td>For improving the retention of polar compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH₂</td>
<td>Rugged and reproducible NH₂</td>
<td>3, 5, 10</td>
<td>100</td>
<td>400</td>
<td>9.5</td>
<td>5.80</td>
<td>1.5 - 11</td>
<td>Sugar alcohols, anionic or hydrogen bonding compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenyl-Hexyl</td>
<td>Phenyl phase attached to C6 (hexyl) ligand</td>
<td>3, 5, 10, 10-PREP, 15</td>
<td>100</td>
<td>400</td>
<td>17.5</td>
<td>4.00</td>
<td>1.5 - 9.0°</td>
<td>Unique selectivity for very polar and aromatic compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCX</td>
<td>Benzene sulfonic acid</td>
<td>5, 10</td>
<td>100</td>
<td>400</td>
<td>Binding Capacity: 0.15 meq/g</td>
<td>2.0 - 7.0</td>
<td>Amine and polyamine containing compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HILIC</td>
<td>Reproducible, cross-linked diol</td>
<td>3, 5</td>
<td>200</td>
<td>200</td>
<td>5.7</td>
<td>4.30</td>
<td>1.5 - 8.0</td>
<td>Increased retention and MS sensitivity of polar compounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFP(2)</td>
<td>Pentfluorophenyl with a C3 (propyl) linkage</td>
<td>3, 5</td>
<td>100</td>
<td>400</td>
<td>11.5</td>
<td>2.20</td>
<td>1.5 - 8.0</td>
<td>Highly polar compounds, halogenated compounds and isomers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* pH range is 1.5 - 10 under isocratic conditions. pH range is 1.5 - 9 under gradient conditions.

NEW Preparative Media Luna 100Å C18(3), C8(3), and Silica(3) ... see page 7 for more information.
Successful methods depend on results that can tolerate minor variations in chromatographic parameters. The base silica of Luna® is 99.999 % pure and meticulous care is given to quality control over all aspects of silica structure and chemistry. This ensures that Luna columns will always perform consistently, resulting in method reproducibility you can trust.

**Reliable Performance**

Almost no variation is observed among the batches of Luna. Figure 1 shows quality control test data designed to monitor the slightest differences that may affect reproducibility - particle shape and smoothness, porosimetry, bonding consistency and pH stability.

**Figure 1**
Silica Reproducibility.
Batch No:
- 5291-1
- 5291-2
- 5291-3
- 5291-4
- 5291-5
- 5291-6
- 5291-7
- 5291-8
- 5291-9

**Column-to-Column Reproducibility**

The chromatograms in Figure 2 show consistency of inertness (black) and hydrophobicity (blue) for Luna 5 µm C18(2) columns from 9 different batches. Almost no variation is observed.

**Figure 2**
Column-to-column reproducibility for 9 batches of Luna 5 µm C18(2)
# Fast LC/MS Methods
Luna® media is available in MercuryMS™ cartridges and online columns for quick, cost-effective screening methods.

# Develop Robust Analytical Methods
Analytical HPLC columns are the most widely used format and are available in a wide variety of dimensions and particle sizes.

## High Speed Technology
Luna 2.5 µm C18(2)-HST columns deliver highly efficient separations without the need for expensive high-pressure instruments.

## Lab-Scale Purification Redefined
Axia™ packed Luna preparative columns provide industry-leading lifetimes and efficiencies.

## USP Phases for Virtually Every Application

<table>
<thead>
<tr>
<th>USP Column Classification</th>
<th>Phase</th>
<th>Description</th>
<th>Common Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>C18(2) 2.5, 3, 5, 10, 10-PREP, 15µm</td>
<td>C18 phase. Excellent efficiency, peak shape and resolution. Slightly lower carbon load than original Luna C18.</td>
<td>Acetaminophen, Aspirin, Caffeine, Albuterol, Amitriptyline Hydrochloride, Amoxicillin, Atenolol, Cephalexin, Cephradine capsules, Chloramphenicol, Cortisone Acetate, Dextromethorphan, Diphenhydramine, Pseudoephedrine, Dopamine, Estradiol, Guaifenesin, Ibuprofen, Sterile Imipenem, Imipramine, Lidocaine, Lorazepam, Minoxidil, Naproxen, Phenylephrine Hydrochloride, Phenytoin, Prednisone oral solution, Procainamide, Progesterone, Reserpine</td>
</tr>
<tr>
<td>L3</td>
<td>Silica(2) 3, 5, 10 µm</td>
<td>Ultra-pure silica with high column bed stability enhanced by particle shape uniformity.</td>
<td>Alprazolam, Hydrocodone bitartrate, Hydrocortisone, Fat Soluble Vitamins, Phthalates, Fatty Acids, Lutein, Lycopene, Estradiol</td>
</tr>
<tr>
<td>L7</td>
<td>C8(2) 3, 5, 10, 10-PREP, 15 µm</td>
<td>C8 phase for excellent efficiency, peak shape and resolution. Significantly improved performance over traditional C8 phases due to high surface coverage.</td>
<td>Doxepine, Doxylamine succinate, Fluoxetine, Glyburide, Ibuprofen Oral Suspension, Propranolol, Levonorgestrel, Ethinyl estradiol, Melengestrol acetate, Glucosamine</td>
</tr>
<tr>
<td>L8</td>
<td>NH2 3, 5, 10 µm</td>
<td>Amino phase. Can be used in reversed or normal phase modes. Stable from pH 1.5 to 11.0 and under 100 % aqueous conditions. High performance silica and bonding techniques produce a rugged, highly reproducible column.</td>
<td>Simple sugars, Carboplatin, Lactulose concentrate, Levocarnitine tablets</td>
</tr>
<tr>
<td>L9</td>
<td>SCX 5, 10 µm</td>
<td>A Benzene Sulfonic Acid bonded phase is used to make this Strong Cation Exchange (SCX) column. Offers great peak shape and resolution.</td>
<td>Cough and cold compounds, Rilaclotide, Sodium Acetate, Erythromycin</td>
</tr>
<tr>
<td>L10</td>
<td>CN 3, 5, 10 µm</td>
<td>Cyano phase. Can be used as reversed or normal phase material. The use of Luna base silica results in overall phase reproducibility and performance.</td>
<td>Benzalkonium Chloride, Nortriptyline HCl Capsules, Prednisolone, Tetracaine, Quinapril tablets</td>
</tr>
<tr>
<td>L11</td>
<td>Phenyl-Hexyl 3, 5, 10, 10-PREP, 15 µm</td>
<td>A phenyl phase which employs a hexyl alkyl linker as opposed to the traditional propyl chain. Offers great stability as well as alternative selectivity.</td>
<td>Oxacillin, Captopril, Chlorpheniramine, Pseudoephedrine, Methadone Hydrochloride Oral Concentration</td>
</tr>
<tr>
<td>L20</td>
<td>HILIC 3, 5 µm</td>
<td>HILIC phase that provides excellent selectivity for polar compounds; and improved MS sensitivity with low bleed.</td>
<td>Drug metabolites, Water soluble vitamins, Melamine, Cyanuric acid, Metanephrine, Normalmetanephrine</td>
</tr>
<tr>
<td>L43</td>
<td>PFP(2) 3, 5 µm</td>
<td>A pentafluorophenyl phase that provides excellent selectivity for aromatic compounds from influence of flourine substitution on phenyl ring. Multiple retention mechanisms. Orthogonal selectivity to traditional C18 phases.</td>
<td>Positional isomers, Geometric isomers, Taxanes, Aflatoxins</td>
</tr>
</tbody>
</table>
Preparative Media Luna 100Å C18(3), C8(3), and Silica(3)

For over 15 years, purification chemists have chosen Luna® as their media of choice. Luna high surface area silica media provide optimized properties designed for the purification of a wide array of compounds using dynamic axial compression (DAC) columns. The latest Luna(3) media has narrower particle size distribution providing superior performance with lower backpressure. This new media offers a more uniform, stable, and reproducible chromatography bed, which results in longer lifetime and increased productivity. In addition, Phenomenex's quality management system is ISO 9001:2008 certified. This certification validates that all our processes are fully established, functional, and meet international standards for predictable performance.

Optimized loading parameters include:

- High-surface area for increased loading
- Silica smoothness for stable packed beds
- Optimum particle and pore size/distribution provide outstanding performance
- High pore volume offers increased surface area
- Fine tuned bonding density for excellent reproducibility

Beyond our largest preparative column dimensions, Luna phases are available in bulk quantities for HPLC purification at the process, pilot, and commercial scale. The highly reproducible manufacturing process makes scaling to large scale purification extremely straight-forward.

The wide range of Luna phases provides you with the selectivity choices to optimize parameters such as retention time and resolution. Additionally, the high surface area (400 m²/g) of Luna materials gives you greater loadability than most other media. For those challenging purifications where chromatography is the best option, the Luna family offers an excellent platform for all purification challenges.

### PRODUCT CHARACTERISTICS

- **Particle Size:** 10 µm
- **Surface Area:** 400 m²/g
- **Pore Volume:** 1 mL/g
- **Pore Size:** 100 Å
- **Particle Size Distribution:** d₉₀/d₁₀ ≤ 1.6
- **Chemical Purity:** Total Metal Content ≤ 20 ppm
- **Coverage:**
  - C8(3) 13% C, 4 µmol/m²
  - C18(3) 17% C, 3 µmol/m²
- **Packing Density:**
  - Silica(3) 0.47 g/mL
  - C8(3) 0.58 g/mL
  - C18(3) 0.60 g/mL
- **Chemical Stability:**
  - Silica(3) 2.0-7.5
  - C8(3) 1.5-10
  - C18(3) 1.5-10
- **Mechanical Stability:**
  - Allows repeated packing up to 140 Bar (2000 psi effective piston pressure)

* pH range under isocratic conditions. pH range is 1.5-9 under gradient conditions.
Your Starting-Point for All Reversed Phase Methods

Luna has found a place as one of the world’s top reversed phase columns because it can help optimize two important chromatographic properties: resolution and peak shape. The high efficiencies and bonded phase surface coverage provide for sharp peaks. Whether you need a column for USP methods or just general method development, Luna C18(2) and C8(2) should be your first choice every time.

The result:

- Free exposed silanols virtually eliminated by complete bonding and endcapping
- Sharp peak shape for good method sensitivity
- pH stable from 1.5 to 10.0 for over 10,000 hours

Pyridine Peak Asymmetry Comparison

Comparison of 7 different 5 μm reversed phase columns. This survey measures the degree of silanol activity on the surface of each silica. In this survey, Luna 5 μm C18(2) material demonstrates the lowest silanol activity.

PEAK ASYMMETRY COMPARISON OF COMPETING COLUMNS

Phenomenex Luna 5 μm C18(2)

Waters Symmetry 5 μm C18

Agilent Technologies ZORBAX 5 μm SB-C18

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Applications

POLAR, ACIDIC DRUGS

- Phenomenex Luna® 3 µm C18(2)
- Waters® Symmetry® 3.5 µm C18

HYDROPHOBIC, ACIDIC COMPOUNDS

- Phenomenex Luna 5 µm C18(2)
- Thermo Hypersil-Keystone® HyPURITY® Elite 5 µm C18

BASIC COMPOUNDS

- Phenomenex Luna 5 µm C18(2)
- Macherey-Nagel® Nucleosil® 5 µm C18

α- AND β-ACIDS IN HOP EXTRACT

- Phenomenex Luna® 3 µm C18(2)
- Waters® Symmetry® 3.5 µm C18

Conditions same for both columns
Dimension: 75 x 4.6 mm
Mobile Phase: 20 mM KH2PO4 / Acetonitrile (70:30)
Flow Rate: 0.75 mL/min
Detection: UV @ 202 nm
Sample: 1. Tolmetin  
2. Naproxen  
3. Diflunisal  
4. Fenoprofen  
5. Indomethacin  
6. Ibuprofen

Conditions same for both columns
Dimension: 150 x 4.6 mm
Mobile Phase: 20 mM Potassium phosphate, pH 2.5 / Acetonitrile (75:25)
Flow Rate: 1.5 mL/min
Temperature: 30 °C
Detection: UV @ 254 nm
Sample: 1. p-Hydroxybenzoic acid  
2. Sorbic acid*  
3. Benzoic acid*  
4. Salicylic acid  
5. p-Toluic acid  
* Sorbic acid and Benzoic acid co-elute on HyPURITY Elite

Conditions same for both columns
Dimension: 150 x 4.6 mm
Mobile Phase: 20 mM Potassium phosphate, pH 2.5 / Acetonitrile (75:25)
Flow Rate: 1.5 mL/min
Temperature: 30 °C
Detection: UV @ 210 nm
Sample: 1. Maleic acid  
2. Triprolidine*  
3. Chlorpheniramine*  
4. Diphenhydramine*  
*Peaks 2-4 adsorb on Nucleosil C18

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Phenomenex | WEB: www.phenomenex.com
Applications

EPA METHOD 8330 - EXPLOSIVES

Column: Luna® 5 µm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: Methanol/Water (55:45)
Flow Rate: 1 mL/min
Temperature: 50 °C
Detection: UV @ 282 nm
Sample: 1. HMX 2. RDX 3. 1,3,5-Trinitrobenzene 4. 1,3-Dinitrobenzene 5. Tetryl 6. Nitrobenzene 7. 2,4,6-Trinitrotoluene 8. 4-Amino-2,6-Dinitrotoluene 9. 2-Amino-4,6-Dinitrotoluene 10. 2,6-Dinitrotoluene 11. 2,4-Dinitrotoluene 12. 2-Nitrotoluene 13. 4-Nitrotoluene 14. 3-Nitrotoluene

EPA METHOD 8310 - POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs)

Column: Luna 5 µm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: A: Water B: Acetonitrile
Gradient: A/B (55:45) to A/B (50:50) in 8 min, A/B (35:65) in 15 min, A/B (10:90) in 40 min
Flow Rate: 1 mL/min
Temperature: 50 °C
Detection: UV @ 282 nm
Sample: 1. 6-Gingerol 2. 8-Gingerol + isomer 3. 6-Shogaol 4. 10-Gingerol 5. 8-Shogaol 6. 10-Shogaol

COLD MEDICINE

Column: Luna 5 µm C8(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: Methanol/Acetonitrile with 0.1 % H3PO4/Water with 0.1 % H3PO4 and 0.1% Heptane
Gradient: A/B (25:75) to 100 % B in 25 min
Flow Rate: 2 mL/min
Temperature: 22 °C
Detection: UV @ 214 nm

Phenomenex  WEB: www.phenomenex.com
WATER SOLUBLE VITAMINS

Column: Luna® S μm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: 20 mM Potassium Phosphate, pH 3.0/ Acetonitrile (95:5)
Flow Rate: 1.5 mL/min
Temperature: 22 °C
Detection: UV @ 214 nm
Sample:
1. Thiamine
2. Cyanocobalamin (Vitamin B12)
3. Ascorbic acid
4. Pantothenic acid
5. Niacinamide
6. p-Aminobenzoic acid

Column: Luna 5 μm C5
Dimension: 150 x 4.6 mm
Part No.: 00F-4043-E0
Mobile Phase: A: 0.5 % Acetic acid in water/ Acetonitrile (80:20)
B: 0.5 % Acetic acid in water/ Acetonitrile (20:80)
Gradient: A/B (100:0) to A/B (0:100) in 30 min
Flow Rate: 1 mL/min
Temperature: 25 °C
Detection: UV @ 254 nm
Sample:
1. Propylparaben impurity
2. Benzyl alcohol
3. Phenol
4. Benzonic acid
5. Methylparaben
6. Benzaldehyde
7. Ethylparaben
8. Propylparaben

USP METHOD: LORAZEPAM TABLETS

Column: Luna® 5 μm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 000-4252-E0
Mobile Phase: Water/Methanol/Acetic acid (54:44:2)
Flow Rate: 2 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. Lorazepam

Column: Luna 5 μm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 000-4252-E0
Mobile Phase: Methanol/Water/Acetic acid with 7 mM Docusate sodium pH 3.0 (69.3:29.7:1)
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample:
1. Medroxyprogesterone acetate
2. Minoxidil

Column: Luna® 5 μm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 000-4252-E0
Mobile Phase: Water/Methanol/Acetic acid (54:44:2)
Flow Rate: 2 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. Lorazepam

Column: Luna 5 μm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 000-4252-E0
Mobile Phase: Methanol/Water/Acetic acid with 7 mM Docusate sodium pH 3.0 (69.3:29.7:1)
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample:
1. Medroxyprogesterone acetate
2. Minoxidil

Column: Luna® 5 μm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 000-4252-E0
Mobile Phase: Water/Methanol/Acetic acid (54:44:2)
Flow Rate: 2 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. Lorazepam

Column: Luna 5 μm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 000-4252-E0
Mobile Phase: Methanol/Water/Acetic acid with 7 mM Docusate sodium pH 3.0 (69.3:29.7:1)
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample:
1. Medroxyprogesterone acetate
2. Minoxidil
Applications

**FATTY ACIDS**

**USP METHOD: IMIPRAMINE**

- **Column:** Luna® 5 μm C18(2)
- **Dimension:** 250 x 4.6 mm
- **Part No.:** 000-4252-EO
- **Mobile Phase:** 0.66 M Sodium perchlorate, pH 2.0/Acetonitrile/Triethylamine (62.5:37.5:0.1)
- **Flow Rate:** 1.5 mL/min
- **Temperature:** 22 °C
- **Detection:** UV @ 269 nm
- **Sample:**
  1. Imipramine
  2. Desipramine

**USP METHOD: NAPROXEN TABLETS**

- **Column:** Luna 5 μm C18(2)
- **Dimension:** 150 x 4.6 mm
- **Part No.:** 00F-4252-EO
- **Mobile Phase:** Acetonitrile/Water/Glacial acid, pH 3.0 (50:49:1)
- **Flow Rate:** 1.2 mL/min
- **Temperature:** 22 °C
- **Detection:** UV @ 254 nm
- **Sample:**
  1. Naproxen
  2. Butyrophenone

**USP METHOD: ALBUTEROL TABLETS**

- **Column:** Luna 5 μm C18(2)
- **Dimension:** 150 x 4.6 mm
- **Part No.:** 00F-4252-EO
- **Mobile Phase:** Methanol/Water with 5 mM Hexane sulfonic acid and 1 % Glacial acetic acid (40:60)
- **Flow Rate:** 1.5 mL/min
- **Temperature:** 22 °C
- **Detection:** UV @ 276 nm
- **Sample:**
  1. Albuterol

**USP METHOD: ALBUTEROL TABLETS**

- **Column:** Luna 5 μm C18(2)
- **Dimension:** 150 x 4.6 mm
- **Part No.:** 00F-4252-EO
- **Mobile Phase:** Methanol/Water with 5 mM Hexane sulfonic acid and 1 % Glacial acetic acid (40:60)
- **Flow Rate:** 1.5 mL/min
- **Temperature:** 22 °C
- **Detection:** UV @ 276 nm
- **Sample:**
  1. Albuterol
Applications

SAW PALMETO BERRY, p-BROMOPHENACYL ESTERS

Column: Luna® 3 µm C8(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4248-E0
Mobile Phase: Acetonitrile/Water (87:13)
Flow Rate: 1.5 mL/min
Temperature: 25 °C
Detection: UV @ 254 nm
Sample:
1. Capric acid
2. Lauric acid
3. Linoleic acid
4. Myristic acid
5. Linoleic acid
6. Palmitic acid
7. Oleic acid
8. Stearic acid

USP METHOD: ACETAMINOPHEN

Column: Luna 5 µm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: Water/Methanol/Acetic Acid (69:28:3)
Flow Rate: 1.5 mL/min
Temperature: 45 °C
Detection: UV @ 275 nm
Sample:
1. Acetaminophen
2. Caffeine
3. Benzoic Acid

CYCLOSPORIN - IMMUNOSUPPRESSANTS

Column: Luna 5 µm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: Acetonitrile/Water, pH 3.1 w/1 mM H3PO4 (70:30)
Flow Rate: 1.3 mL/min
Temperature: 75 °C
Detection: UV @ 210 nm
Sample:
1. Cyclosporin A
2. Cyclosporin D

CAPSAICIN

Column: Luna 5 µm C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: A: Acetonitrile/Water (35:65)
B: Acetonitrile/Water (60:40)
Gradient: 100 % A in 1 min to 100 % B in 29 min
Flow Rate: 1.5 mL/min
Temperature: 75 °C
Detection: UV @ 227 nm
Sample:
1. Nordihydrocapsaicin
2. Capsaicin
3. Dihydrocapsaicin
4. Homocapsaicin
Powerful Selectivity for Reversed Phase Methods

Luna® PFP(2) columns provide unique selectivity for highly polar compounds, complex natural products, isomers and other closely related compounds. This is achieved by using a propyl-linked pentafluorophenyl, which provides multiple retention mechanisms unique to typical reversed phase medias.

Halogens can radically increase the polarity of compounds, thus decreasing typical retention characteristics. Luna PFP(2) columns retain, discriminate, and separate halogens easily.

Luna PFP(2) selectivity is achieved through 4 mechanisms of interaction

- **1** Hydrogen Bonding
- **2** Dipole-Dipole Interactions
- **3** Aromatic and π-π Interactions
- **4** Hydrophobic

Achieve unique selectivity using four mechanisms of solute/stationary phase interactions

Extremely discerning for halogenated, aromatic, and conjugated compounds

Provides orthogonal selectivity, even using traditional reversed phase solutions
Isomeric Compounds

Positional changes on an analyte of interest may effect the compound’s dipole moment. This change can be readily seen by the way the highly electronegative fluorine (F) atoms and other retention mechanisms of the Luna PFP(2) are able to separate positional isomers.

Aromatic Compounds

Aromatic compounds show unique retention characteristics on Luna PFP(2) compared to traditional reversed phase columns. The presence of the aromatic benzene ring in Luna PFP(2) increases the relative attraction between the stationary phase and aromatic analytes, leading to increased retention for these types of compounds.
Engineered for Stability

Luna® Phenyl-Hexyl is a reproducible, extremely stable phenyl phase. Most other phenyl phases use a short propyl (3 carbon) linker, which limits the phase stability. This Luna phase uses a hexyl (6 carbon) linker to attach the phenyl group to the silica surface.

The result:

- Highly reproducible phenyl phase
- Dual selectivity of both phenyl phase and a short alkyl phase (such as a C8)
- Excellent retention of amine and polar aromatic compounds
- 1.5 to 10 pH stability for 10,000 hours

**ANTIBACTERIALS: COMPARISON OF PHENYL COLUMNS**

Phenomenex Luna® 5 μm Phenyl-Hexyl

**Waters® Spherisorb® 5 μm Phenyl**

- Peaks 7,8: Some absorption

**Agilent Technologies® ZORBAX® 5 μm SB-Phenyl**

- Peaks 1,2 - Poor resolution

**Agilent Technologies® ZORBAX® 5 μm Phenyl**

- Peaks 4,5,6 - Poor Resolution
- Peaks 7,8 - Total absorption

**Conditions same for all columns**

- **Dimension:** 150 x 4.6 mm
- **Mobile Phase:**
  - A: 20 mM KH₂PO₄, pH 2.5
  - B: Acetonitrile
- **Gradient:** A/B (80:20) to A/B (75:25) in 5 min, then to A/B (55:45) in 15 min
- **Flow Rate:** 1.0 mL/min
- **Temperature:** 22 °C
- **Sample:**
  1. Carbadox
  2. Thiamphenicol
  3. Furazolidone
  4. Oxolinic acid
  5. Sulfadimethoxine
  6. Sulfaquinoxaline
  7. Nalidixic acid
  8. Piromidic acid

Agilent Technologies and ZORBAX are registered trademarks of Agilent Technologies. Spherisorb and Waters are registered trademarks of Waters Corp. Phenomenex is not affiliated with Agilent Technologies or Waters Corp. Comparative separations may not be representative of all applications.
**Applications**

**Cough and Cold-USP Method**

- **Column**: Luna 5 µm Phenyl-Hexyl
- **Dimension**: 150 x 4.6 mm
- **Part No.**: 00F-4257-E0
- **Mobile Phase**: Methanol/Water with 0.1 % H₃PO₄ and 0.1 % Hexane Sulfonate
- **Acetonitrile with 0.1 % H₃PO₄ (35:55:10)**
- **Flow Rate**: 2.05 mL/min
- **Detection**: UV @ 214 nm
- **Temperature**: 22 °C
- **Injection**: 20 ŠL
- **Sample**:
  1. Acetaminophen
  2. Pseudoephedrine
  3. Chlorphenaramine
  4. Dextromethorphan

**Food Additives**

- **Column**: Luna 5 µm Phenyl-Hexyl
- **Dimension**: 150 x 4.6 mm
- **Part No.**: 00F-4257-E0
- **Mobile Phase**: A: 50 mM KH₂PO₄ + 0.1% H₃PO₄
  B: Acetonitrile
- **Gradient**: A/B (75:25) to A/B (25:75) in 18 min, hold at A/B (25:75) for 12 min
- **Flow Rate**: 1.0 mL/min
- **Detection**: UV @ 230 nm
- **Temperature**: 22 °C
- **Injection**: 20 ŠL
- **Sample**:
  1. Saccharin
  2. p-Hydroxybenzoic acid
  3. Sorbic acid
  4. p-Hydroxybenzoic acid methyl ester
  5. Dehydroacetic acid
  6. p-Toluic acid
  7. p-Hydroxybenzoic acid ethyl ester
  8. n-Propyl p-hydroxybenzoate

**Chlorobenzenes**

- **Column**: Luna 5 µm Phenyl-Hexyl
- **Dimension**: 150 x 4.6 mm
- **Part No.**: 00F-4257-E0
- **Mobile Phase**: A: Water
  B: Acetonitrile
- **Gradient**: A/B (60:40) to A/B (45:55) in 10 min
- **Flow Rate**: 1.0 mL/min
- **Detection**: UV @ 254 nm
- **Temperature**: 22 °C
- **Sample**:
  1. Chlorobenzene
  2. 1,2-Dichlorobenzene
  3. 1,4-Dichlorobenzene
  4. 1,2,3-Trichlorobenzene
  5. 1,3,5-Trichlorobenzene
  6. 1,2,3,4-Tetrachlorobenzene

**Cough and Cold Medicine**

- **Column**: Luna 3 µm Phenyl-Hexyl
- **Dimension**: 75 x 4.6 mm
- **Part No.**: 00C-4256-E0
- **Mobile Phase**: A: Acetonitrile
  B: Methanol (80:20) pH 9.0
- **Gradient**: A/B (80:20) to A/B (80:20) in 5 min
- **Flow Rate**: 1.0 mL/min
- **Detection**: UV @ 214 nm
- **Temperature**: 22 °C
- **Injection**: 20 ŠL
- **Sample**:
  1. p-Aminophenol
  2. Benzonic acid
  3. Acetaminophen
  4. Pseudoephedrine
  5. Butylparaben
  6. Chlorphenaramine
  7. Diphenhydramine
  8. Dextromethorphan
Proven Reproducibility

Luna® CN columns were developed to provide reproducible chromatography from run-to-run, column-to-column and batch-to-batch. Luna high-purity silica provides a ridged and dense column bed that allows for improved CN bonding techniques to make a stable CN phase.

The result:

- One of the most stable CN columns under both reversed phase or normal phase conditions.
- Reproducible from run-to-run, column-to-column, batch-to-batch.
- pH stable from 1.5 to 7.0

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Developed for Ruggedness

Luna\(\text{NH}_2\) columns were developed to provide improved amino column lifetime. Column life for most amino columns can be problematic as the amino bonding easily strips off the silica. Luna\(\text{NH}_2\) columns, however, show good bonded phase stability under both normal and reversed phase modes and across a pH range of 1.5 to 11.0. Such a broad pH range indicates the bonded phase ruggedness and the density of the bonded phase coverage.

The result:

- Long lifetimes and low phase bleed for more reproducible methods
- Excellent retention of simple sugars, complex sugars, sugar alcohols by reverse phase conditions and hydrogen bonding compounds under normal phase conditions
- pH stable from 1.5 to 11.0
- Stable in 100 % aqueous mobile phases

**SIMPLE SUGARS**

**STEROIDS**

**NUCLEIC ACID BASES**
Increase MS-Sensitivity and Retention for Polar Compounds

Luna® HILIC columns retain a water-enriched layer on the surface of the silica. This water layer facilitates the transfer of polar compounds into the stationary phase for increased retention.

Separation is achieved through the partitioning of polar solutes from the high concentration, water-miscible, organic mobile phase into the hydrophilic surface environment. Polar solutes exhibit increased retention, and elute in the order of increasing hydrophilicity.

The result:
- Superior retention of polar compounds
- Improve mass spec sensitivity
- Increased laboratory throughput and productivity

Improve Mass Spec Sensitivity

Luna HILIC columns allow low level polar metabolites to be retained on column past the critical ion suppression zone, allowing: Increased MS sensitivity and Higher signal-to-noise ratio (S/N).

![Graph showing MS sensitivity comparison between HILIC and C18 reversed phase](image)

**Polar Compound in HILIC Mode**
- Column: Luna 3 µm HILIC
- Dimension: 100 x 2.0 mm
- Part No.: 00D-4449-B0
- Mobile Phase: Acetonitrile / 100 mM Ammonium Formate, pH 3.2 (90:10)
- Flow Rate: 0.4 mL/min
- Detection: Mass Spectrometer (MS)
- Temperature: Ambient
- Sample: Bamethan

**Polar Compound in C18 Reversed Phase**
- Column: Gemini 3 µm C18
- Dimension: 100 x 2.0 mm
- Part No.: 00D-4435-B0
- Mobile Phase: 0.1 % Formic Acid / Acetonitrile (97:3)
- Flow Rate: 0.4 mL/min
- Detection: Mass Spectrometer (MS)
- Temperature: Ambient
- Sample: Bamethan

**Ion Suppression Region**
Region is from 0.5-1.0 min

\[ t_r = \frac{t_m - t_o}{t_o} = 0.5 \]

WEB: www.phenomenex.com
Unique HILIC Selectivity
Not all HILIC columns are alike. Luna HILIC columns deliver on the exacting standards you've come to trust from the Luna product line.

---

Retain Polar Compounds
Highly polar compounds such as ribavirin may be poorly retained on reversed phase columns. HILIC techniques will increase polar compound retention and sensitivity.

RIBAVIRIN ON LUNA HILIC
0.5 ng on column
Increased retention and sensitivity
Peak area = 20,759

RIBAVIRIN ON C18
0.5 ng on column
Elutes at void peak
area = 17,996

---

HILIC COLUMN COMPARISON

Phenomenex Luna® 5 µm HILIC
- Conditions same for all columns:
  - Column: As noted
  - Dimension: 150 x 4.6 mm
  - Mobile Phase: Acetonitrile/100 mM Ammonium Formate, pH 3.2 (90:10)
  - Flow Rate: 1.0 mL/min
  - Detection: UV @ 260 nm
  - Sample: 1. PABA
  2. Nicotinamide
  3. Riboflavin
  4. Nicotinic Acid
  5. Pyridoxine
  6. Thiamine

Waters® Atlantis® 5 µm HILIC
- Sample: 1. Ribavirin (MRM: 245.2/113.2)

SeQuant® 5 µm ZIC®-HILIC
- Sample: 1. Ribavirin (MRM: 245.2/113.2)

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Develop Robust Strong Cation Exchange Methods

Luna® SCX columns provide excellent resolution and peak shape of basic, cationic compounds. However, most SCX columns show poor peak shape and bad resolution causing many chromatographers to ignore this important phase for small molecule method development, until now.

The result:

- Resolving power and sharp peak shape to separate complex cationic/basic and nitrogen containing compounds
- Benzene sulfonic acid ligand provides mixed-mode interaction improving separation for 2D peptide applications
- Excellent first dimension of 2D LC applications

Luna SCX columns contain a benzene sulfonic acid ligand providing ion-exchange reversed phase, and aromatic interactions. In combination with the ultra pure silica, Luna SCX columns are a stable, robust phase for strong-cation exchange chromatography.

### PEPTIDES

- **Column:** Luna 5 μm SCX
- **Dimension:** 150 x 4.6 mm
- **Part No.:** 00F-4398-E0
- **Mobile Phase:**
  - A: 20 mM Potassium Phosphate, 25 % Acetonitrile, pH 2.5
  - B: 20 mM Potassium Phosphate, 25 % Acetonitrile, 400 mM Potassium Chloride, pH 2.5
- **Gradient:** A/B (95:5) to A/B (10:90) in 45 min
- **Flow Rate:** 1 mL/min
- **Temperature:** 35 °C
- **Detection:** UV @ 215 nm
- **Injection Volume:** 2 µL (5 µg on column)

### TRYPTIC DIGEST OF BOVINE CYTOCHROME c

- **Column:** Luna 5 μm SCX
- **Dimension:** 150 x 4.6 mm
- **Part No.:** 00F-4398-E0
- **Mobile Phase:**
  - A: 20 mM Potassium Phosphate, pH 2.5 /25 % Acetonitrile
  - B: 20 mM Potassium Phosphate, pH 2.5 /25 % Acetonitrile / 350 mM Potassium Chloride
- **Gradient:** 100 % A to 100 % B in 50 min
- **Flow Rate:** 1 mL/min
- **Temperature:** 35 °C
- **Detection:** UV @ 215 nm
- **Injection Volume:** 50 µL (20 µg on column)

*Sample: Bovine Cytochrome c trypsin digest*
Revolutionize Lab-Scale Purification

An advanced column packing and hardware design, Axia columns incorporate patented Hydraulic Piston Compression technology to eliminate bed collapse as a source of failure in preparative columns. Using a single, controlled hydraulic compression, the piston assembly is locked in place without allowing the media to decompress or “relax,” thus maintaining media and column bed integrity.

Axia Gradient Lifetime Study

With Axia technology, the correct slurry amount and packing pressure are automated to give not only higher efficiency and sharper peaks, but also drastically reduced column-to-column variability. This will help improve longer column lifetime, column-to-column reproducibility, and recover higher compound purity with analytical like efficiency.

Axia Packed
Luna® 5 μm C18(2) Axia Packed

Comparing Lifetime

[Diagram showing chromatograms for Luna and Waters X Terra® C18 MS OBD]

Columns: Luna 5 μm C18(2) Axia Packed
Dimension: 50 x 21.2 mm
Part No.: 00B-4252-P0-AX
Mobile Phase: A: 0.5% TFA in Water
B: 0.5% TFA in Acetonitrile
Gradient: Linear 95:5 (A/B) to 5:95 (A/B) over 7 min, hold 3 min
Flow Rate: 30 mL/min
Temperature: Ambient
Detection: UV @ 254 nm
Sample: 1. Triprolidine 1.6 mg
2. Methacycline 16 mg
3. Amitriptyline 5.25 mg

Comparing Lifetime

Leading Competitive Preparative Column
Waters® X Terra® 5 μm Prep MS C18 OBD™

[Diagram showing chromatograms for Waters X Terra and Axia]

Columns: Waters X Terra® 5 μm Prep MS C18 OBD
Dimension: 50 x 19 mm
Part No.: 00B-4252-P0-AX
Mobile Phase: A: 0.5% TFA in Water
B: 0.5% TFA in Acetonitrile
Gradient: Linear 95:5 (A/B) to 5:95 (A/B) over 7 min, hold 3 min
Flow Rate: 24 mL/min
Temperature: Ambient
Detection: UV @ 254 nm
Sample: 1. Triprolidine 1.6 mg
2. Methacycline 16 mg
3. Amitriptyline 5.25 mg

Waters and X Terra are registered trademarks of Waters Corporation. OBD is a trademark of Waters Corporation. Phenomenex is not affiliated with Waters Corporation. The comparative data presented here may not be representative for all applications.

For more detailed information on Axia Preparative columns visit: www.phenomenex.com/axia
When you want Fast LC, you need BALANCE

The ever-increasing demand for high-throughput analysis of drug candidates during the early stages of drug discovery has generated an acute need for rapid methods of analysis.

Developing ultra-fast and efficient methods for potential drugs has become a constant challenge for analysts. Use the chart to the right to determine the HPLC column that meets your performance needs.

Luna®: High Speed Technology (HST) columns

- High efficiency 2.5 µm particles on ultra-pure silica
- Ultra-high performance results on your current HPLC
- Easy method transfer
- Orthogonal selectivity options

Luna HST columns are manufactured in specific dimensions utilizing new, highly controlled and robust packing technologies. The technology allows for consistent, high performance results on newer and existing HPLC instrumentation. Get the benefit of increased speed and efficiency with standard HPLC system pressure capabilities! Luna HST can be used with your current standard HPLC and newer high performance systems so that there will be no need for time consuming method revalidation.

Luna HST 2.5 µm columns allow the scientist to reduce analysis time by increasing flow rates without a loss in performance.

### Three Solutions to Balance Your Speed With Pressure, Efficiency, and Selectivity

<table>
<thead>
<tr>
<th></th>
<th>Speed</th>
<th>Pressure</th>
<th>Efficiency</th>
<th>Selectivity</th>
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</thead>
<tbody>
<tr>
<td>High Speed Technology (HST) Columns</td>
<td>Fast Run Time</td>
<td>&lt; 400 Bar</td>
<td>Highest</td>
<td>Several phases available</td>
</tr>
<tr>
<td>MercuryMS™ Columns and Cartridges</td>
<td>Fastest Run Time</td>
<td>&lt; 400 Bar</td>
<td>High</td>
<td>Most phases available</td>
</tr>
<tr>
<td>Monolithic Columns</td>
<td>Fast Run Time</td>
<td>&lt; 200 Bar</td>
<td>Good</td>
<td>Several phases available</td>
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</tbody>
</table>

**HST COLUMNS: 66 % FASTER. NO LOSS IN RESOLUTION**

- **Luna 5 µm C18(2) 250 x 4.6 mm**
  - Flow Rate: 1.5 mL/min
  - Run time reduced by 20 min with virtually no effect on resolution!

- **Luna 3 µm C18(2) 150 x 4.6 mm**
  - Flow Rate: 1.5 mL/min

- **Luna 2.5 µm C18(2)-HST 100 x 2.0 mm**
  - Flow Rate: 0.65 mL/min

**Conditions for all columns:**
- **Column:** Luna C18(2), particle size as noted
- **Dimension:** as noted
- **Mobile Phase:** A: Water B: Acetonitrile
- **Gradient:** 90:10 (A/B) to 5:95 (A/B)
- **Flow Rate:** As noted
- **Detection:** UV @ 270 nm
- **Sample:** Ketones C₃ to C₆

Phenomenex | WEB: www.phenomenex.com
MercuryMS™: Columns and Cartridges

- Ultra-fast, low-cost analysis for high-throughput laboratories
- Packed with Luna®, Synergi™, and Gemini® material
- Short 10 and 20 mm cartridge formats use a new proprietary slurry packing process

Reduce Analysis Times by 60 %

With the increasing emphasis on high sample throughput for screening combinatorial libraries as well as the need for overall faster cycle time, it has become necessary for the chromatographer to reduce analysis time while still maintaining acceptable resolution. As shown, retention times can be significantly reduced with a 20 x 4.0 mm MercuryMS cartridge column.

60% REDUCTION IN ANALYSIS TIME USING MercuryMS

- 50 x 4.6 mm Column
- 30 x 4.6 mm Column
- 20 x 4.0 mm Cartridge

Rugged Durability for Over 1,000 Injections

When running long sequences, often involving hundreds of valuable samples, it is imperative that the column does not fail during the middle of the run. As shown, the Luna 3 μm C18(2) 20 x 2.0 mm MercuryMS cartridge was stable for over 1000 injections (over 20,000 column volumes of mobile phase) in this gradient assay, offering exceptional reliability for automated screening systems.

MercuryMS: STABLE OVER 1,000 INJECTIONS

**Retention time (min) or Symmetry**

<table>
<thead>
<tr>
<th>Injection#</th>
<th>tR #1</th>
<th>tR #2</th>
<th>tR #3</th>
<th>Symmetry #1</th>
<th>Symmetry #2</th>
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<td>1000</td>
<td></td>
<td></td>
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</tbody>
</table>

**Column:** Luna 3 μm C18(2)
**Dimension:** 20 x 2.0 mm
**Mobile Phase:**
- A: Water with 0.1% TFA
- B: Methanol with 0.1% TFA
**Gradient:**
- 95.5 A/B to 5.95 A/B in 2 min at a flow rate of 0.4 mL/min, then reequilibrate for 3 min at 1.0 mL/min

**Flow Rate:** 0.4 and 1.0 mL/min
**Detection:** UV @ 230 nm
**Temperature:** Ambient
**Sample:** 2 μL containing:
1. Propranolol
2. Metoprolol
3. Pindolol

MercuryMS™: Columns and Cartridges

- Ultra-fast, low-cost analysis for high-throughput laboratories
- Packed with Luna®, Synergi™, and Gemini® material
- Short 10 and 20 mm cartridge formats use a new proprietary slurry packing process

Phenomenex   | WEB: www.phenomenex.com
### 2.5 μm High Speed Technology (HST) Columns (mm)

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<tr>
<th>Phases</th>
<th>50 x 1.0</th>
<th>30 x 2.0</th>
<th>50 x 2.0</th>
<th>100 x 2.0</th>
<th>50 x 3.0</th>
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<tbody>
<tr>
<td>Luna 2.5 μm C18(2)-HST</td>
<td>00A-4446-80</td>
<td>00B-4446-80</td>
<td>00D-4446-80</td>
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### 3 μm and 5 μm Capillary Columns (mm)

#### Guard Columns (mm)

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<th>50 x 0.50</th>
<th>150 x 0.50</th>
<th>250 x 0.50</th>
<th>20 x 0.30</th>
<th>20 x 0.50</th>
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<tbody>
<tr>
<td>3 μm C8(2)</td>
<td>00B-4248-AC</td>
<td>00F-4248-AC</td>
<td>008-4248-AF</td>
<td>00-4248-AF</td>
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<td>3 μm C18(2)</td>
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<td>00F-4251-AC</td>
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<tr>
<td>5 μm Phenyl-Hexyl</td>
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### MercuryMS™ LC/MS Cartridges (mm)

#### Phases

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<th>10 x 4.0</th>
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<td>00M-4251-B0-CE</td>
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<td>00N-4248-D0-CE</td>
<td>00M-4248-B0-CE</td>
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<tr>
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<td>00N-4252-D0-CE</td>
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### 3 μm Microbore and Minibore Columns (mm)

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<td>00D-4162-B0</td>
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<td>PFP(2)</td>
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### SecurityGuard® Cartridges (mm)

*SecurityGuard® Analytical Cartridges require universal holder Part No.: KJ0-4282

---

**Ordering Information**

[For ID: 2.0-3.0 mm](#)

**CARTRIDGE HOLDERS**

<table>
<thead>
<tr>
<th>Standard Cartridge Holders</th>
<th>Description</th>
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<tbody>
<tr>
<td>CH0-5846</td>
<td>10 mm standard holder</td>
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<tr>
<td>CH0-5845</td>
<td>20 mm standard holder</td>
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<table>
<thead>
<tr>
<th>Direct-Connect Cartridge Holders</th>
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<td>CH0-7167</td>
<td>10 mm direct-connect holder</td>
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<tr>
<td>CH0-7188</td>
<td>20 mm direct-connect holder</td>
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### 3 μm MidBore™ and Analytical Columns (mm)

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<th>75 x 4.6</th>
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<tr>
<td>Phenyl-Hexyl</td>
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<td></td>
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<td>00C-4256-E0</td>
<td>00D-4256-E0</td>
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CAUTION: this patent only applies to the analytical-sized guard cartridge holder, and does not apply to SemiPrep, PREP or ULTRA holders, or to any cartridges.

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### 5 μm Analytical and Semi-Prep Columns (mm)

<table>
<thead>
<tr>
<th>Phases</th>
<th>100 x 4.6</th>
<th>150 x 4.6</th>
<th>250 x 4.6</th>
<th>250 x 10</th>
<th>4 x 3.0</th>
<th>10 x 10</th>
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<tbody>
<tr>
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<td>00G-4274-E0</td>
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<td>00G-4249-N0</td>
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<tr>
<td>C18(2)</td>
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<td>00F-4252-E0</td>
<td>00G-4252-E0</td>
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<td>00F-4255-E0</td>
<td>00G-4255-E0</td>
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**SecurityGuard™ Cartridges (mm)**

<table>
<thead>
<tr>
<th>SecurityGuard Cartridges (mm)</th>
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<th>1 kg</th>
<th>5 kg</th>
<th>10 kg</th>
<th>50 kg</th>
<th>100 kg</th>
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<tr>
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<td>AJ0-4293</td>
<td>AJ0-7372</td>
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<td></td>
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<tr>
<td><strong>C8(2)</strong></td>
<td>00G-4252-U0-A0</td>
<td>AJ0-4287</td>
<td>AJ0-7221</td>
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<tr>
<td><strong>CN</strong></td>
<td>00G-4255-U0-A0</td>
<td>AJ0-4305</td>
<td>AJ0-7313</td>
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<td></td>
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<tr>
<td><strong>Phenyl-Hexyl</strong></td>
<td>00G-4257-U0-A0</td>
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### Axia™ Packed Preparative Columns (mm)

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<th>100 x 30</th>
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<th>15 x 21.2</th>
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<td>00D-4249-P0-AX</td>
<td>00F-4249-P0-AX</td>
<td>00G-4249-P0-AX</td>
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<td>AJ0-8302</td>
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<td>00D-4252-P0-AX</td>
<td>00F-4252-P0-AX</td>
<td>00G-4252-P0-AX</td>
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<td>00F-4255-P0-AX</td>
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<td>00G-4255-U0-AX</td>
<td>AJ0-8220</td>
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<tr>
<td><strong>Phenyl-Hexyl</strong></td>
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<td>00F-4257-P0-AX</td>
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<td>AJ0-8311</td>
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<td><strong>Phenyl-Hexyl</strong></td>
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<td>00F-4379-P0-AX</td>
<td>00G-4379-P0-AX</td>
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<td>00G-4379-U0-AX</td>
<td>AJ0-8329</td>
<td>AJ0-8311</td>
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### Luna 10 µm-PREP Columns (mm)

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<tr>
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<th>1 kg</th>
<th>5 kg</th>
<th>10 kg</th>
<th>50 kg</th>
<th>100 kg</th>
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<tr>
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<td>04L-4616</td>
<td>04M-4616</td>
<td>04N-4616</td>
<td>04P-4616</td>
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<td>04K-4623</td>
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### 10 µm Analytical and Semi-Prep Columns (mm)

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<td>00G-4091-E0</td>
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<tr>
<td><strong>C5</strong></td>
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<td>00G-4092-N0</td>
<td>AJ0-4293</td>
<td>AJ0-7372</td>
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<tr>
<td><strong>C8(2)</strong></td>
<td>00G-4255-E0</td>
<td>00G-4255-N0</td>
<td>AJ0-4290</td>
<td>AJ0-7222</td>
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<tr>
<td><strong>C18(2)</strong></td>
<td>00G-4253-E0</td>
<td>00G-4253-N0</td>
<td>AJ0-4305</td>
<td>AJ0-7313</td>
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<tr>
<td><strong>CN</strong></td>
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<td>AJ0-8312</td>
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<td><strong>NH2</strong></td>
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<td>00G-4451-N0</td>
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### 5 μm Analytical and Semi-Prep Columns (mm)

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<tbody>
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<td>AJ0-4293</td>
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</tr>
<tr>
<td><strong>C8(2)</strong></td>
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<td>AJ0-4290</td>
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<tr>
<td><strong>C18(2)</strong></td>
<td>00G-4253-U0-A0</td>
<td>AJ0-4305</td>
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</tr>
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<td>Phenyl-Hexyl</td>
<td>00G-4450-U0-A0</td>
<td>AJ0-8329</td>
<td>AJ0-8312</td>
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</tr>
</tbody>
</table>

### Phenomenex Ordering Information

**Ordering Information**

**Phenomenex**

**WEB:** www.phenomenex.com
Introducing the Core-Shell Advantage

Complementary and Orthogonal Selectivities
To provide alternative and orthogonal selectivity phases, Kinetex columns are available in 8 selectivities: EVO C18, XB-C18, C18, C8, Biphenyl, Phenyl-Hexyl, F5, and HILIC, for resolution of a wide range of compounds from polar to hydrophobic, aromatic, and isomeric.

Kinetex Core-Shell
- High particle density helps create optimal bed structure which reduces band broadening effects of Eddy Diffusion
- Ultra-high performance on UHPLC systems
- Reduced diffusion path improves efficiency

Fully Porous
- Less homogenous bed structure leads to performance loss
- Diffusion path limits efficiencies
- Band broadening due to frictional heating as flow rate increases

Kinetex EVO C18
- Novel pH 1-12 stable C18 that delivers robust methods and improved peak shape for bases
- pH Range: 1 – 12
- USP Classification: L1
- Effective Carbon Load: 11%

Kinetex XB-C18
- This unique C18 phase yields increased hydrogen bonding with hydrophobic selectivity, resulting in improved peak shape for basic compounds and increased retention of acidic compounds
- pH Range: 1.5 – 8.5*
- USP Classification: L1
- Effective Carbon Load: 10%

Kinetex C18
- Balanced C18 phase that provides the highest degree of hydrophobic selectivity relative to the other Kinetex phases
- pH Range: 1.5 – 8.5*
- USP Classification: L1
- Effective Carbon Load: 12%

Kinetex C8
- Moderate hydrophobic and steric selectivity is offered, bringing ultra-high performance to USP L7 and other octyl silane methods
- pH Range: 1.5 – 8.5*
- USP Classification: L7
- Effective Carbon Load: 8%

Kinetex Biphenyl
- 100% aqueous stable reversed phase chemistry with hydrophobic, aromatic, and enhanced polar selectivity
- pH Range: 1.5 – 8.5*
- USP Classification: L1
- Effective Carbon Load: 11%

Kinetex Phenyl-Hexyl
- Aromatic and moderate hydrophobic selectivity result in the great retention and separation of aromatic hydrocarbons
- pH Range: 1.5 – 8.5*
- USP Classification: L1
- Effective Carbon Load: 11%

Kinetex F5
- Highly reproducible pentafluorophenyl phase exceptional for halogenated, conjugated, isomeric, or highly polar compounds
- pH Range: 1.5 – 8.5*
- USP Classification: L43
- Effective Carbon Load: 9%

Kinetex HILIC
- Used under HILIC running conditions, this phase provides the highest polar selectivity for retention and separation of hydrophilic compounds
- pH Range: 2.0 – 7.5
- USP Classification: L3
- Carbon Load: –

*Columns are pH stable from 1.5-10 under isocratic conditions. Columns are pH stable 1.5-8.5 under gradient conditions.
Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at international@phenomenex.com.