

explore

LUNA®

One of The
World's Leading
HPLC Columns

phenomenex®
...breaking with tradition™



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guarantee

If Luna analytical columns do not provide at least an equivalent separation as compared to a competing column of the same particle size, similar phase and dimensions, return the column with comparative data within 45 days FOR A FULL REFUND.

One of the world's leading HPLC columns

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.

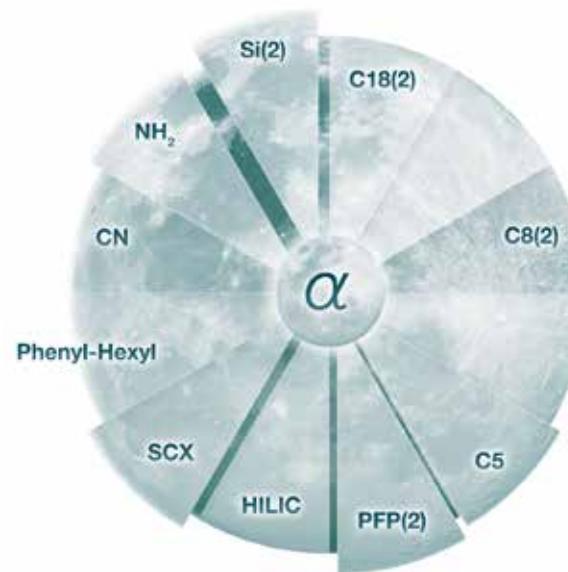


Explore Successful Separations

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.



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

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

NEW Preparative Media Luna 100 \AA C18(3), C8(3), and Silica(3) ... see page 7 for more information.

Explore Robust Methods

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.

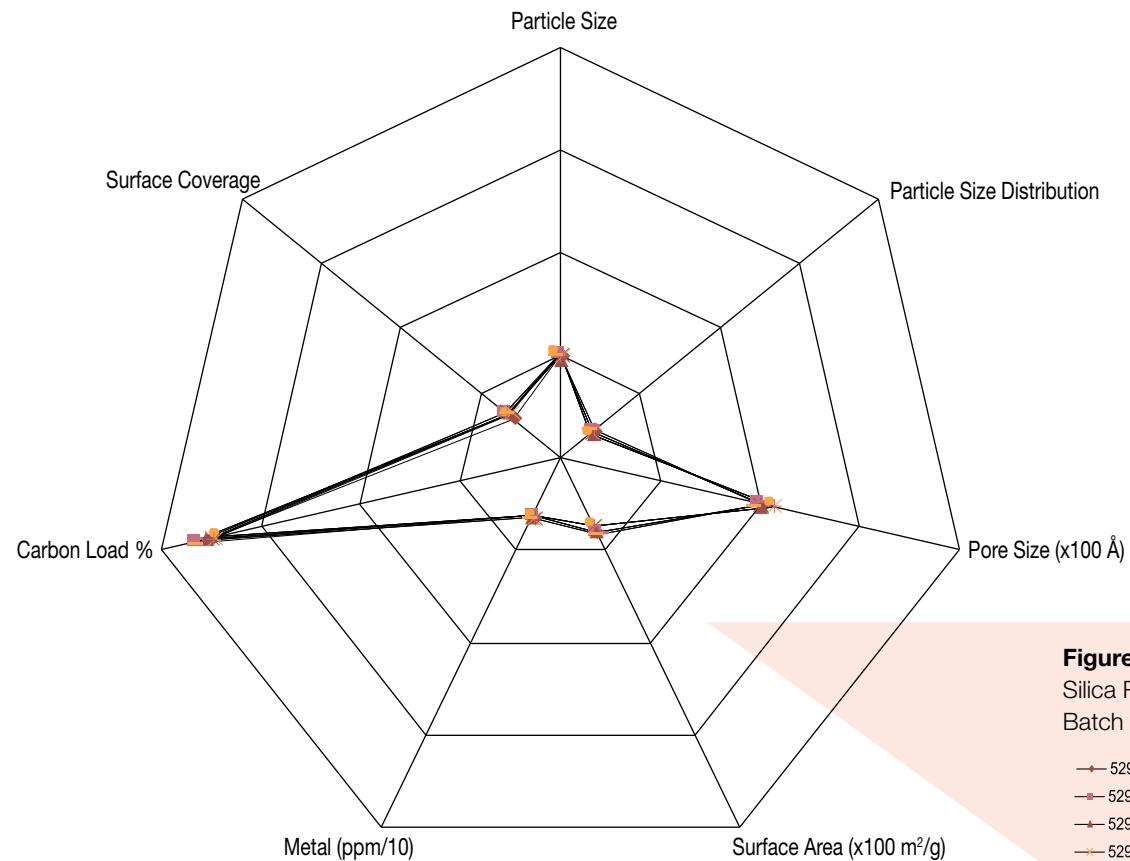


Figure 1
Silica Reproducibility.
Batch No:

- 5291-1 —×— 5291-5
- 5291-2 —○— 5291-6
- △— 5291-3 —▲— 5291-7
- 5291-4 —— 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.

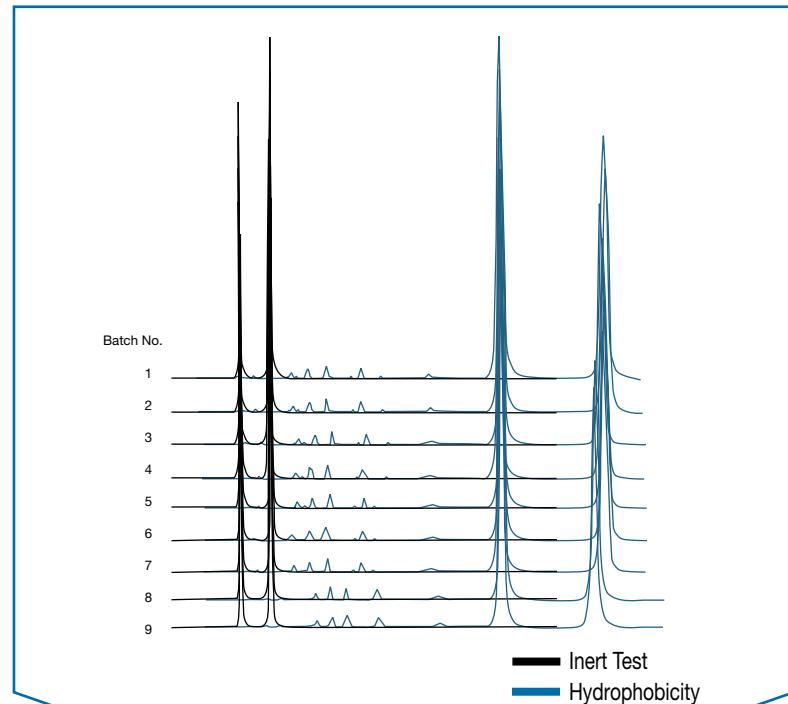


Figure 2
Column-to-column
reproducibility for
9 batches of Luna
5 μm C18(2)

Explore Options for Every Development Route

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

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

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.

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 ($400\text{ m}^2/\text{g}$) 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.

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

Key: ● Best Suited ○ Very Good	Applications			Type of Compounds			Loading Available Surface Area
	Insulin	Peptides	Small Molecules	Acids	Polar	Hydro-phobic	
Packing Material							
LUNA C18(3)	●	●	●	○	●	○	●
LUNA C8(3)	●	●	●	○	●	○	●
LUNA SILICA(3)			●	○	○	○	●

PRODUCT CHARACTERISTICS

Particle Size: $10\text{ }\mu\text{m}$
Surface Area: $400\text{ m}^2/\text{g}$
Pore Volume: 1 mL/g
Pore Size: 100 \AA
Particle Size Distribution: $d_{90}/d_{10} \leq 1.6$
Chemical Purity: Total Metal Content $\leq 20\text{ ppm}$
Coverage: C8(3) 13 % C, $4\text{ }\mu\text{mol/m}^2$
C18(3) 17 % C, $3\text{ }\mu\text{mol/m}^2$

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.



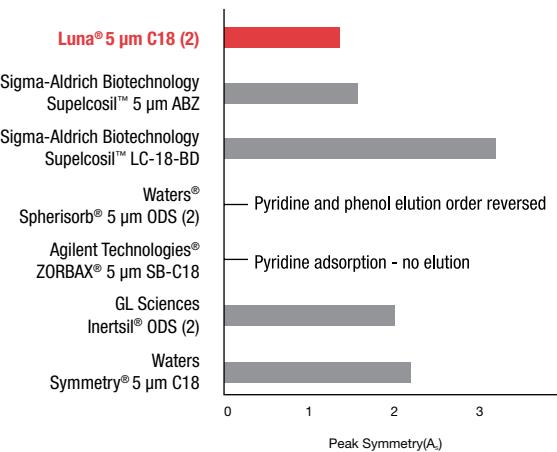
Your Starting-Point for All Reversed Phase Methods

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

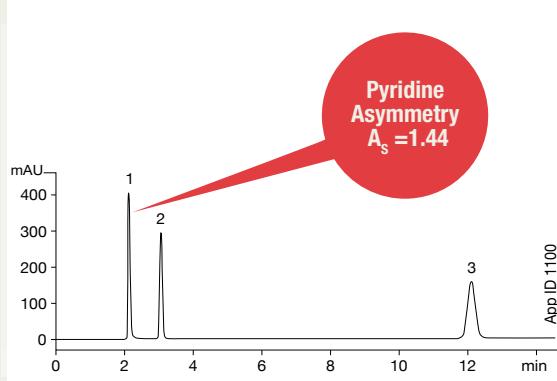
Pyridine Peak Asymmetry Comparison



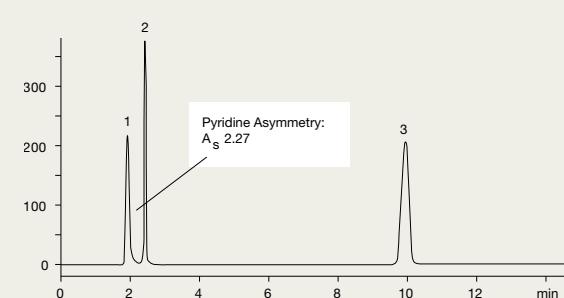
Comparison of 7 different 5 μm reversed phase columns. This survey measures the degree of silanol activity on the surface of each silica. In this survey, Luna 5 μm C18(2) material demonstrates the lowest silanol activity.

PEAK ASYMMETRY COMPARISON OF COMPETING COLUMNS

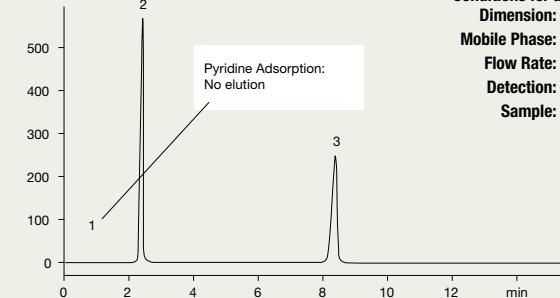
Phenomenex Luna 5 μm C18(2)



Waters Symmetry 5 μm C18



Agilent Technologies ZORBAX 5 μm SB-C18



Conditions for all columns
Dimension: 150 x 4.6 mm
Mobile Phase: Acetonitrile/Water (50:50)
Flow Rate: 1.0 mL/min
Detection: UV @ 254 nm
Sample: 1. Pyridine
2. Phenol
3. Toluene

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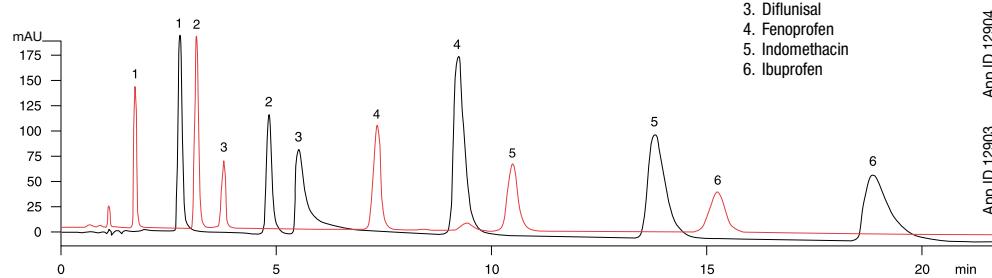
Applications

POLAR, ACIDIC DRUGS

- 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

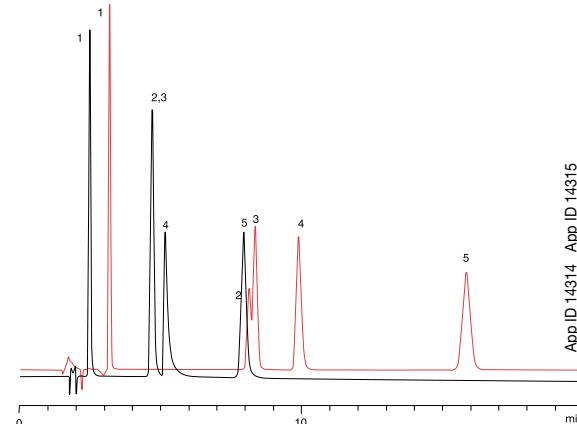


HYDROPHOBIC, ACIDIC COMPOUNDS

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

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

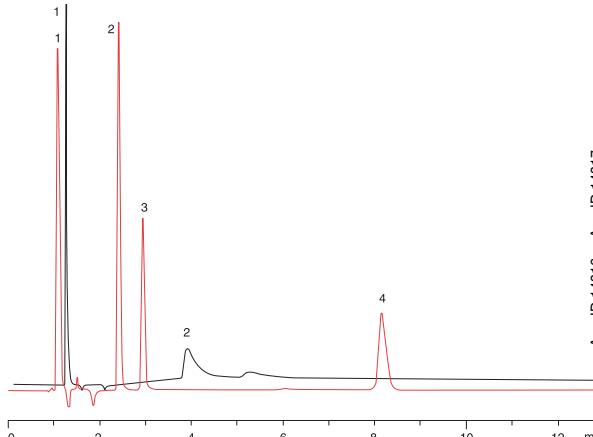


BASIC COMPOUNDS

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

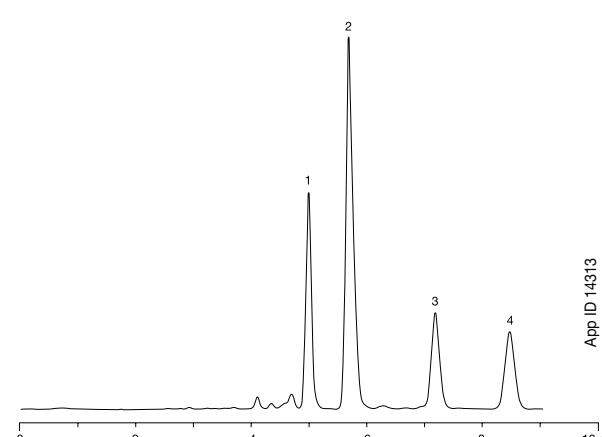
Conditions same for both columns

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



α- AND β-ACIDS IN HOP EXTRACT

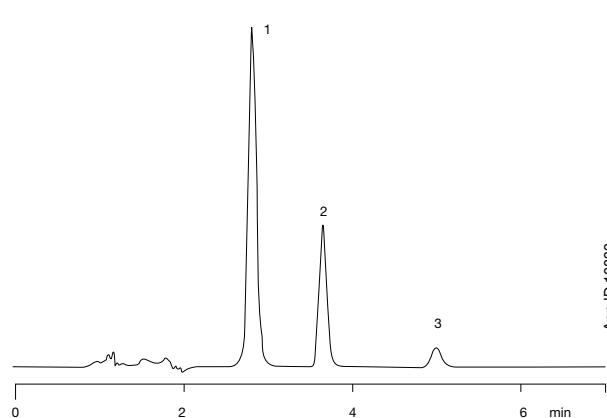
Column: Luna 5 µm C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: Methanol with 0.1 % H₃PO₄ / Water with 0.1 % H₃PO₄ (90:10)
Flow Rate: 1.5 mL/min
Temperature: 30 °C
Detection: UV @ 314 nm
Sample: 1. Cohumulone
 2. Ad-+humulone
 3. Colupulone
 4. Ad-+lupulone



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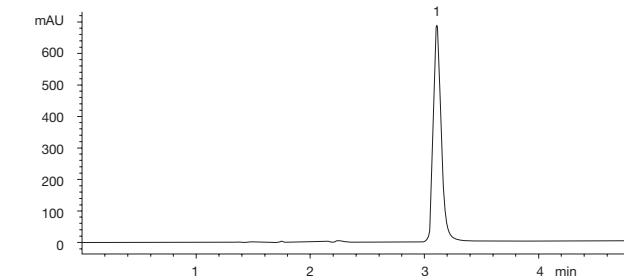
Applications

USP METHOD: ESTRADIOL



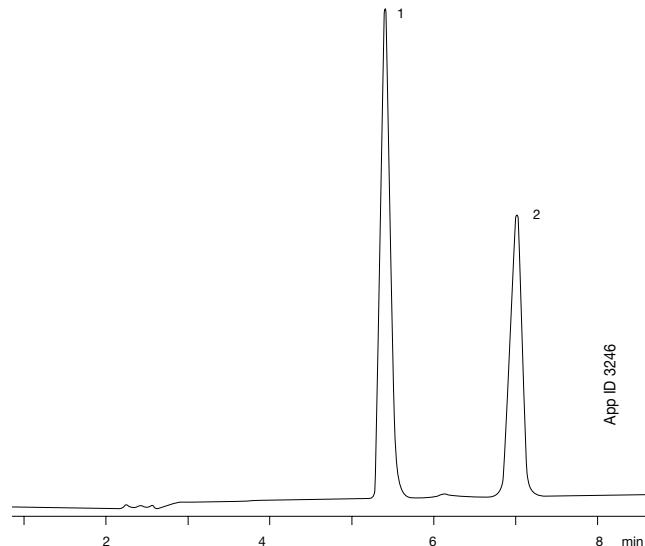
Column: Luna[®] 5 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: Acetonitrile/Water (55:45)
Flow Rate: 1 mL/min
Temperature: 30 °C
Detection: UV @ 254 nm
Sample: 1. Ethylparaben
2. Estrone
3. Estradiol

COCAINE-NARCOTIC DRUG



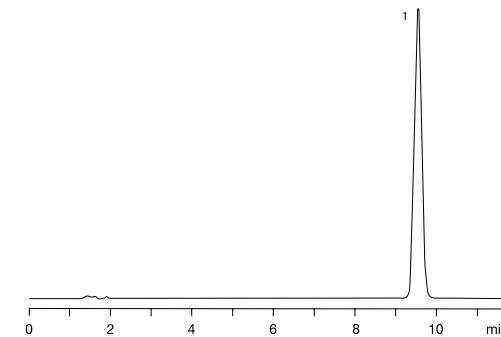
Column: Luna 5 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: Phosphate Buffer, pH 2.5/
Acetonitrile (75:25)
Flow Rate: 1 mL/min
Temperature: 30 °C
Detection: UV @ 233 nm
Sample: 1. Cocaine hydrochloride

USP METHOD: PHENYLEPHRINE HYDROCHLORIDE INJECTION



Column: Luna 5 μ m C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: Water/Methanol with
1.1 % 1-Octanesulfonic
acid pH 3.0 (50:50)
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 280 nm
Sample: 1. Phenylephrine
hydrochloride
2. Epinephrine bitartrate

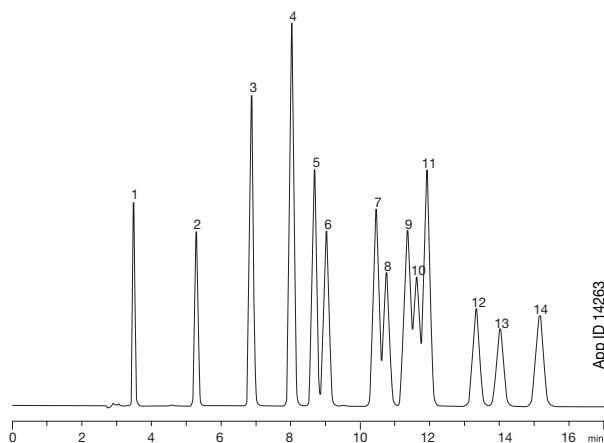
USP METHOD: HYDROCORTISONE CREAM



Column: Luna 5 μ m C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: Water/Acetonitrile (75:25)
Flow Rate: 2 mL/min
Temperature: 30 °C
Detection: UV @ 254 nm
Sample: 1. Hydrocortisone

Applications

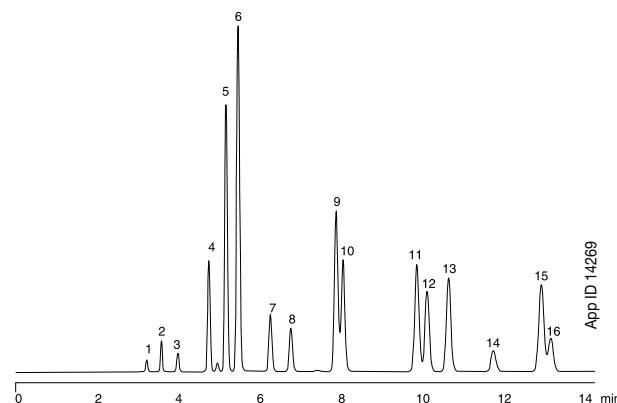
EPA METHOD 8330 - EXPLOSIVES



Column: Luna[®] 5 μ m 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: 35 °C
Detection: UV @ 254 nm
Sample:

- 1. HMX
- 2. RDX
- 3. 1,3,5-Trinitrobenzene
- 4. 1,3-Dinitrobenzene
- 5. Tetralin
- 6. Nitrobenzene
- 7. 2,4,6-Trinitrotoluene
- 8. 4-Amino-2,6-Dinitrotoluene
- 9. 9-Amino-4,6-Dinitrotoluene
- 10. 2,6-Dinitrotoluene
- 11. 2,4-Dinitrotoluene
- 12. 2-Nitrotoluene
- 13. 4-Nitrotoluene
- 14. 3-Nitrotoluene

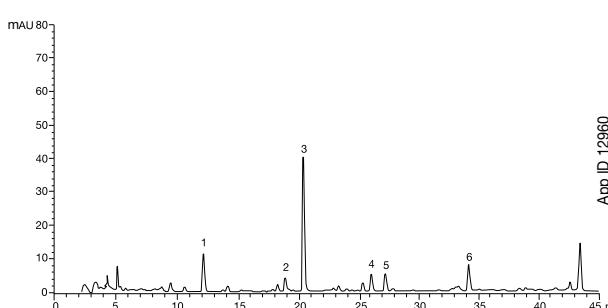
EPA METHOD 8310 - POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs)



Column: Luna 5 μ m C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: A: Water B: Acetonitrile
Gradient: A/B (25:75) to 100 % B in 25 min
Flow Rate: 2 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample:

- 1. Naphthalene
- 2. Acenaphthalene
- 3. Fluorene
- 4. Phenanthrene
- 5. Anthracene
- 6. Fluoranthene
- 7. Pyrene
- 8. Benz[a]anthracene
- 9. Chrysene
- 10. Benzo[e]pyrene
- 11. Benzo[b]fluoranthene
- 12. Benzo[k]fluoranthene
- 13. Benzo[a]pyrene
- 14. Dibenz[a,h]anthracene
- 15. Benzo[g,h,i]perylene
- 16. Indeno[1,2,3-c,d]pyrene

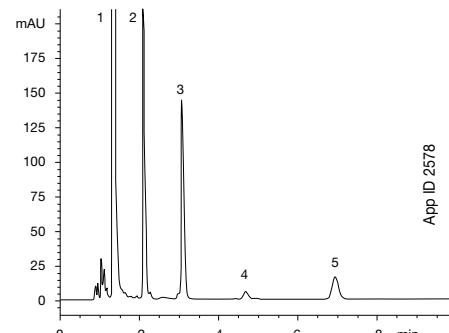
GINGER PUNGENTS



Column: Luna 5 μ m 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

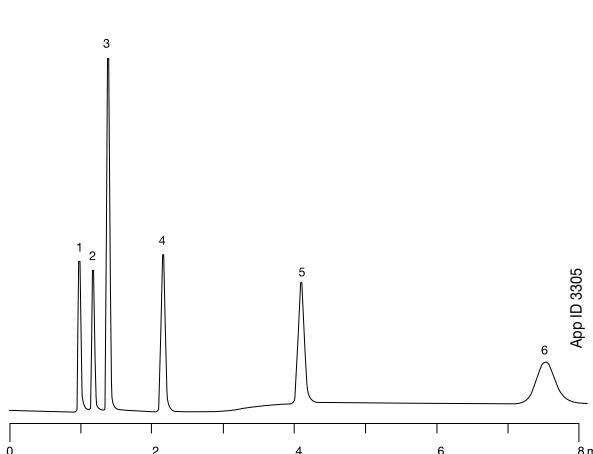


Column: Luna 5 μ m C8(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4249-E0
Mobile Phase: Methanol/Acetonitrile with 0.1 % H_3PO_4 / Water with 0.1 % H_3PO_4 and 0.1% Heptane
Flow Rate: 1.5 mL/min
Temperature: 22 °C
Detection: UV @ 214 nm
Sample:

- 1. Acetaminophen
- 2. Pseudoephedrine
- 3. Benzoic acid
- 4. Chlorpheniramine
- 5. Dextromethorphan

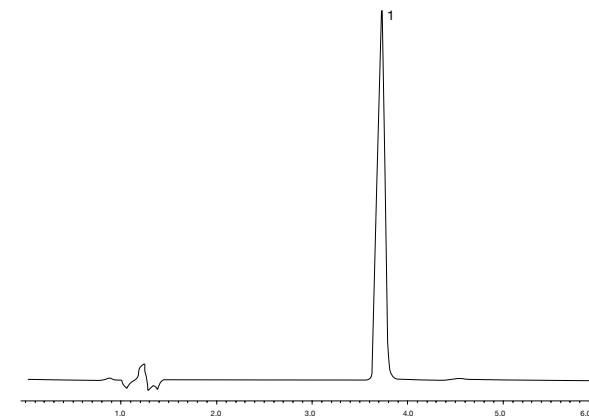
Applications

WATER SOLUBLE VITAMINS



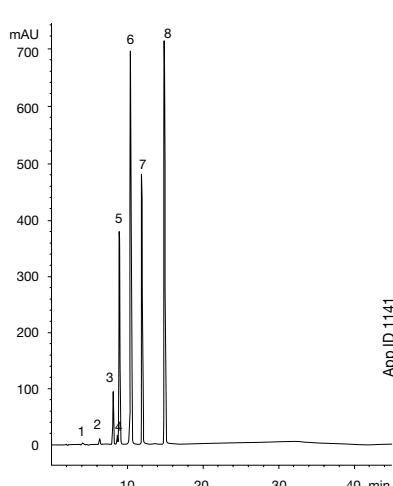
Column: Luna[®] 5 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: 20 mM Potassium Phosphate, pH 3.0/Acetonitrile (95:5)
Flow Rate: 1.5 mL/min
Temperature: 22 °C
Detection: UV @ 214 nm
Sample:
1. Thiamine
2. Cyanocobalamin (Vitamin B12)
3. Ascorbic acid
4. Pantothenic acid
5. Niacinamide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

USP METHOD: LORAZEPAM TABLETS



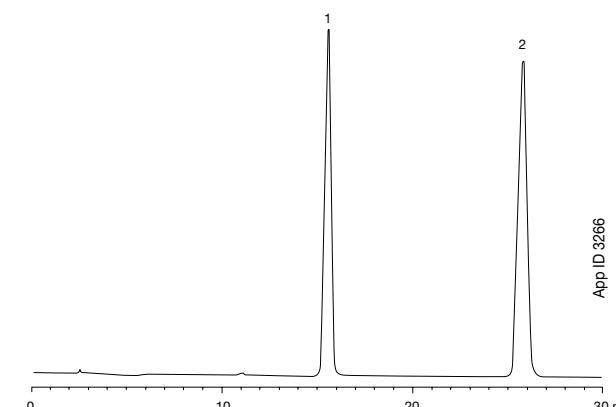
Column: Luna 5 μ m C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: Water/Methanol/Acetic acid (54:44:2)
Flow Rate: 2 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. Lorazepam

PHARMACEUTICAL PRESERVATIVES



Column: Luna 5 μ m 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. Benzoic acid
5. Methylparaben
6. Benzaldehyde
7. Ethylparaben
8. Propylparaben

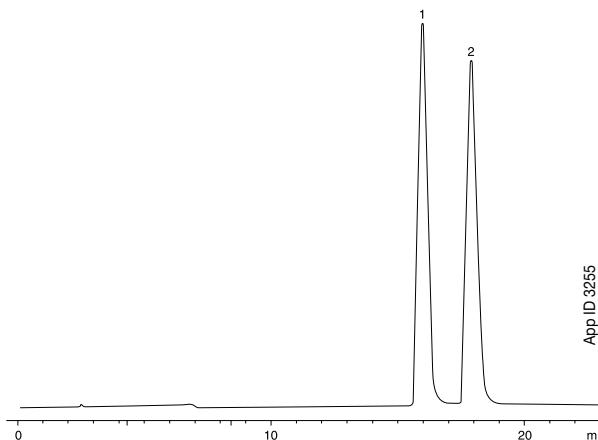
USP METHOD: MINOXIDIL



Column: Luna 5 μ m C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-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

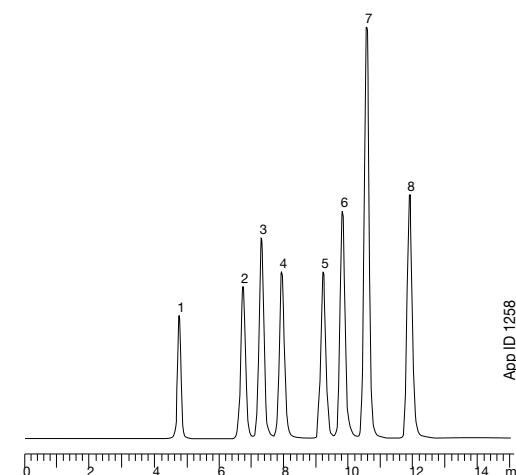
Applications

USP METHOD: IMIPRAMINE



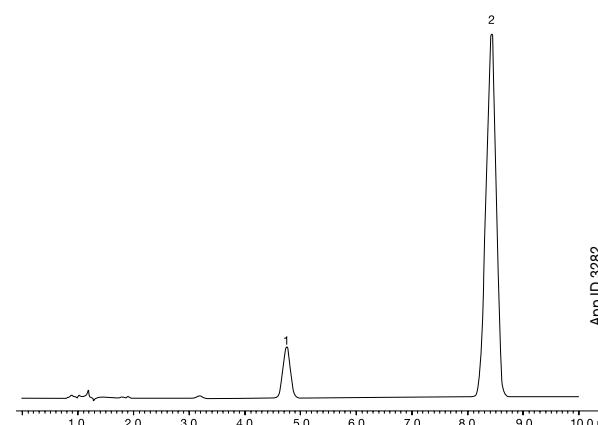
Column: Luna[®] 5 μ m C18(2)
Dimension: 250 x 4.6 mm
Part No.: 00G-4252-E0
Mobile Phase: 0.06 M Sodium perchlorate, pH 2.0/Acetonitrile/Triethylamine (62.5:37.5:0.1)
Flow Rate: 1.5 mL/min
Temperature: 22 °C
Detection: UV @ 269 nm
Sample: 1. Imipramine
2. Desipramine

FATTY ACIDS



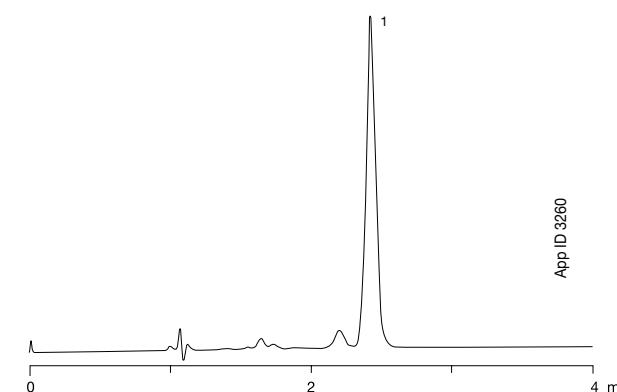
Column: Luna 5 μ m C8(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4249-E0
Mobile Phase: A: Acetonitrile
B: Water (18 Mohms DI)
Gradient: A/B (70:30) to A/B (90:10) in 10 min, A/B (90:10) to A/B (70:30) in 2 min, hold for 4 min
Flow Rate: 0.3 mL/min
Detection: Evaporative Light Scattering (ELSD)
Temperature: 22 °C
Sample: 1. Lauric acid
2. Myristic acid
3. Palmitoleic acid
4. Linoleic acid
5. Palmitic acid
6. Oleic acid
7. Heptadecanoic acid
8. Stearic acid

USP METHOD: NAPROXEN TABLETS



Column: Luna 5 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
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

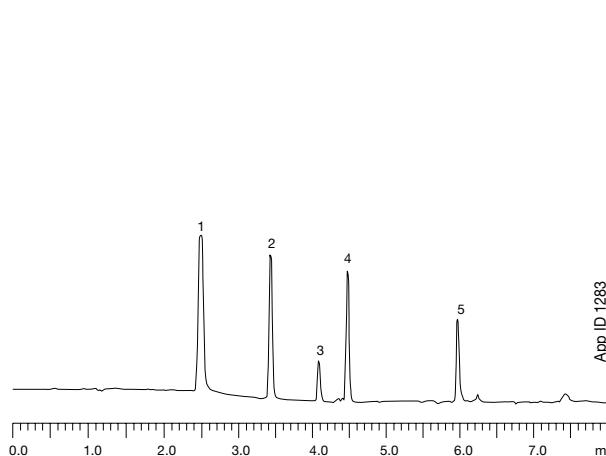
USP METHOD: ALBUTEROL TABLETS



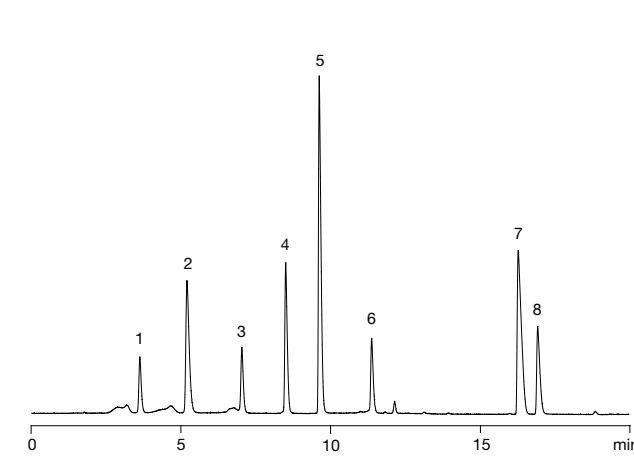
Column: Luna 5 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: Methanol/Water with 5 mM Hexane sulfonic acid and 1 % Glacial acetic acid (40:60)
Flow Rate: 1.5 mL/min
Temperature: 22 °C
Detection: UV @ 276 nm
Sample: 1. Albuterol

Applications

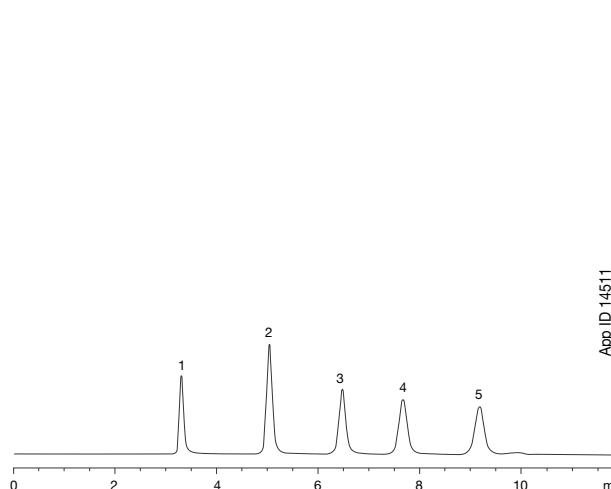
ANTIOXIDANTS



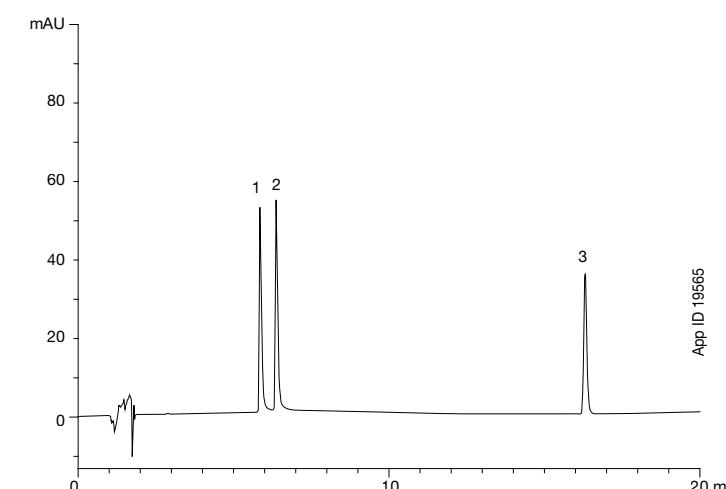
NARCOTICS



STEROIDS

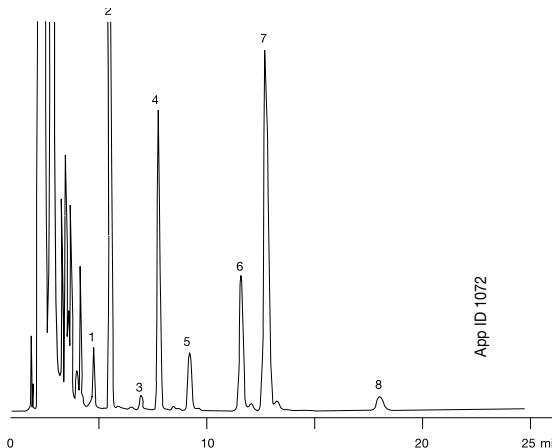


USP METHOD: LORATADINE



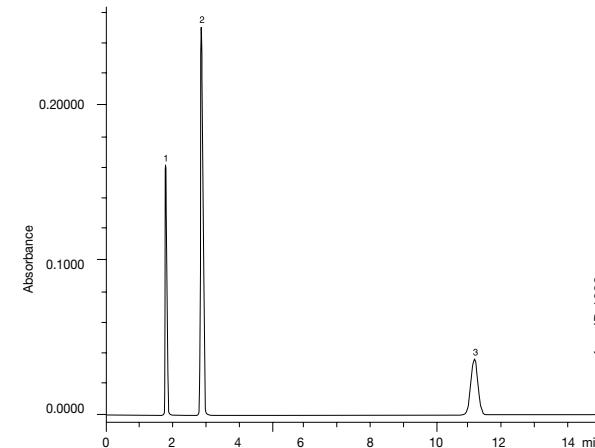
Applications

SAW PALMETTO BERRY, p-BROMOPHENACYL ESTERS



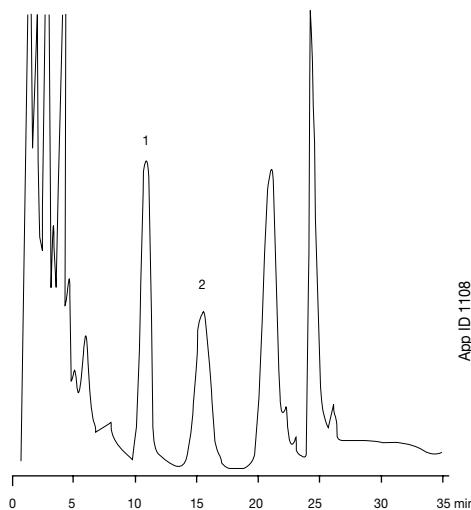
Column: Luna[®] 3 μ m C8(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4248-E0
Mobile Phase: Acetonitrile/Water (87:13)
Flow Rate: 1.5 mL/min
Temperature: 25 °C
Detection: UV @ 254 nm
Sample: 1. Capric acid
 2. Lauric acid
 3. Linolenic acid
 4. Myristic acid
 5. Linoleic acid
 6. Palmitic acid
 7. Oleic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

USP METHOD: ACETAMINOPHEN



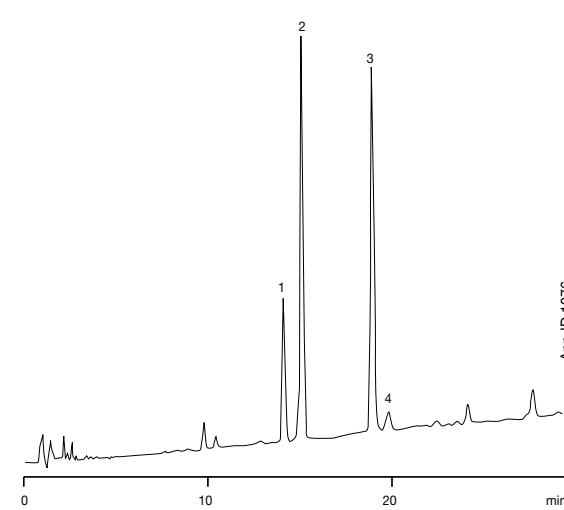
Column: Luna 5 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4252-E0
Mobile Phase: Water/Methanol/Acetic Acid (69:28:3)
Flow Rate: 1.5 mL/min
Temperature: 45 °C
Detection: UV @ 275 nm
Sample: 1. Acetaminophen
 2. Caffeine
 3. Benzoic Acid

CYCLOSPORIN - IMMUNOSUPPRESSANTS



Column: Luna 5 μ m 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 μ m 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

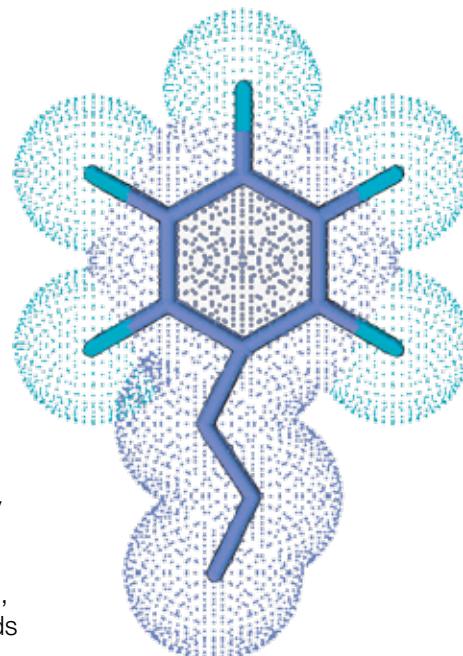
1 Hydrogen Bonding

2 Dipole-Dipole Interactions

3 Aromatic and π - π Interactions

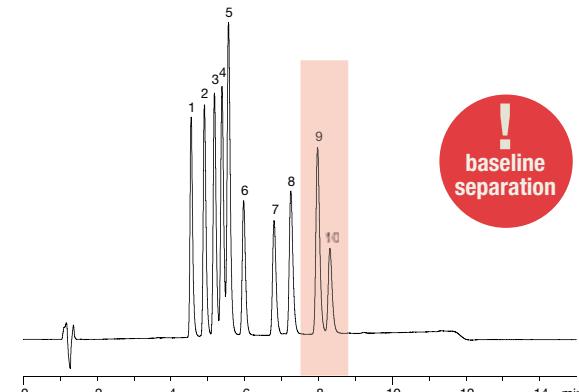
4 Hydrophobic

- » 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



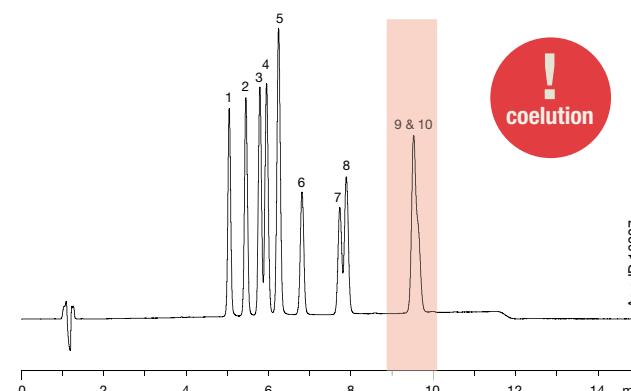
POSITIONAL ISOMERS OF HALOGENATED PHENOLS

Luna 3 μ m PFP(2)



Column: Luna 3 μ m PFP(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4447-E0
Mobile Phase: A: 0.1 % Formic acid in Water
 B: 0.1 % Formic acid in Acetonitrile
Gradient: A/B (60:40) to (50:50) in 10 min
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. 2,3-Dimethylphenol
 2. 2,5-Dimethylphenol
 3. 2,6-Dimethylphenol
 4. 3,4-Dimethylphenol
 5. 3,5-Dimethylphenol
 6. 2,5-Dichlorophenol
 7. 2,6-Dichlorophenol
 8. 3,4-Dichlorophenol
 9. 3,5-Dichlorophenol
 10. 2,4-Dibromophenol

Luna 3 μ m C18(2)



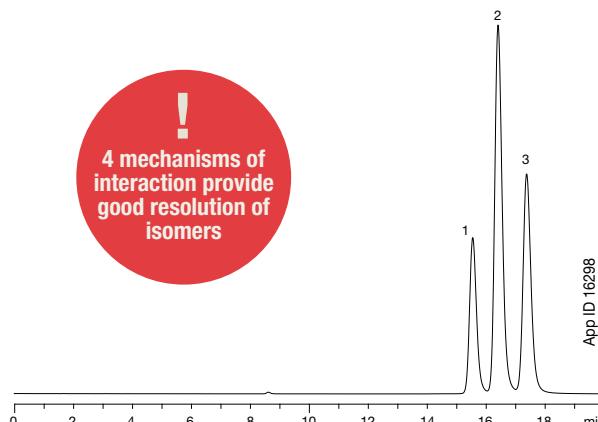
Column: Luna 3 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4251-E0
Mobile Phase: A: 0.1% Formic acid in Water
 B: 0.1% Formic acid in Acetonitrile
Gradient: A/B (60:40) to (50:50) in 10 min
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. 2,3-Dimethylphenol
 2. 2,5-Dimethylphenol
 3. 2,6-Dimethylphenol
 4. 3,4-Dimethylphenol
 5. 3,5-Dimethylphenol
 6. 2,5-Dichlorophenol
 7. 2,6-Dichlorophenol
 8. 3,4-Dichlorophenol
 9. 3,5-Dichlorophenol
 10. 2,4-Dibromophenol

Isomeric Compounds

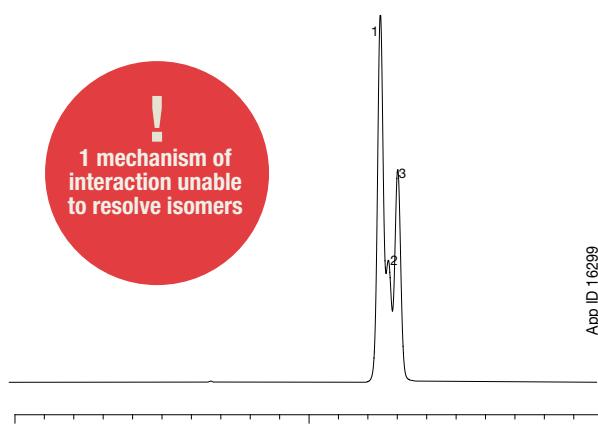
Positional changes on an analyte of interest may effect the compound's dipole moment. This change can be readily seen by the way the highly electronegative fluorine (F) atoms and other retention mechanisms of the Luna PFP(2) are able to separate positional isomers.

POSITIONAL ISOMERS OF METHYLACETOPHENONE

Luna 3 μ m PFP(2)



Luna 3 μ m C18(2)

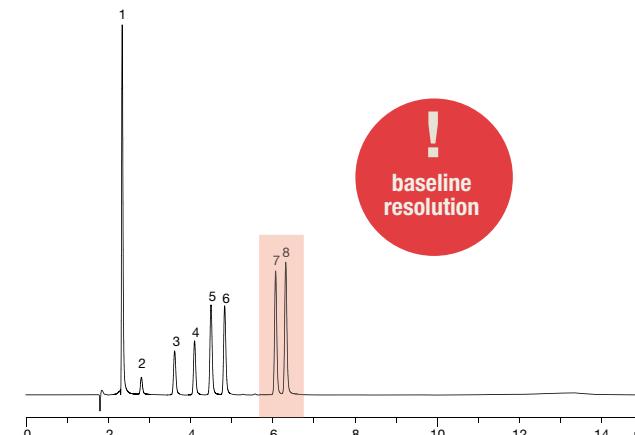


Aromatic Compounds

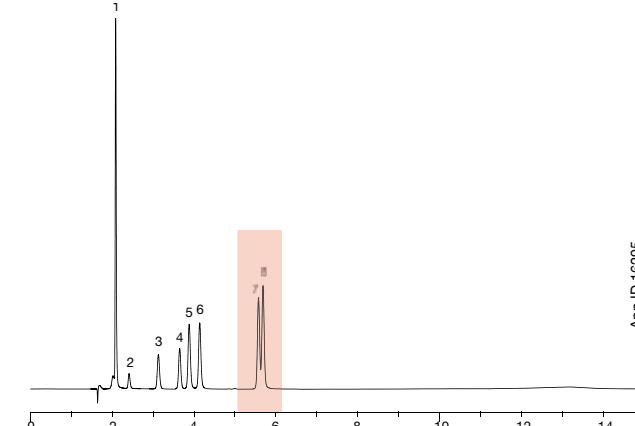
Aromatic compounds show unique retention characteristics on Luna PFP(2) compared to traditional reversed phase columns. The presence of the aromatic benzene ring in Luna PFP(2) increases the relative attraction between the stationary phase and aromatic analytes, leading to increased retention for these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

CATECHINS

Luna 3 μ m PFP(2)



Luna 3 μ m C18(2)



Column: Luna 3 μ m PFP(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4447-E0
Mobile Phase: A: 0.1 % Formic acid in Water
B: 0.1 % Formic acid in Acetonitrile
Gradient: A/B (80:20) to (55:45) in 10 min
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 280 nm
Sample: 1. Gallic acid
2. Epigallo catechin
3. Catechin
4. Epicatechin
5. Epigallocatechin gallate
6. Gallocatechin gallate
7. Epicatechin gallate
8. Catechin gallate

Column: Luna 3 μ m C18(2)
Dimension: 150 x 4.6 mm
Part No.: 00F-4251-E0
Mobile Phase: A: 0.1 % Formic acid in Water
B: 0.1 % Formic acid in Acetonitrile
Gradient: A/B (80:20) to (55:45) in 10 min
Flow Rate: 1 mL/min
Temperature: 22 °C
Detection: UV @ 280 nm
Sample: 1. Gallic acid
2. Epigallo catechin
3. Catechin
4. Epicatechin
5. Epigallocatechin gallate
6. Gallocatechin gallate
7. Epicatechin gallate
8. Catechin gallate

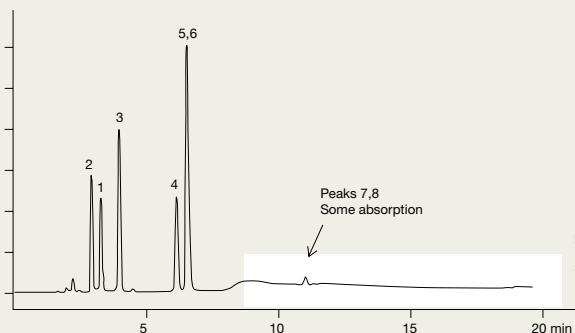
Engineered for Stability

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:

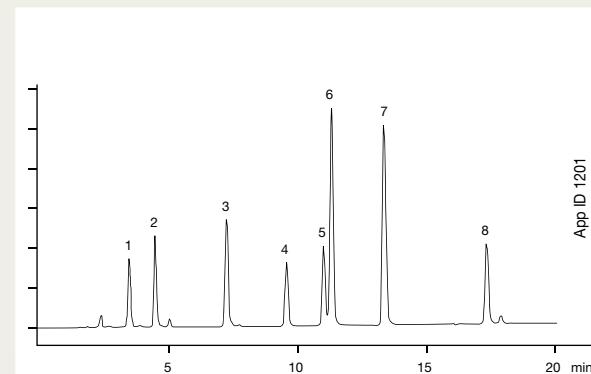
- » Highly reproducible phenyl phase
- » Dual selectivity of both phenyl phase and a short alkyl phase (such as a C8)
- » Excellent retention of amine and polar aromatic compounds
- » 1.5 to 10 pH stability for 10,000 hours

Waters® Spherisorb® 5 µm Phenyl



ANTIBACTERIALS: COMPARISON OF PHENYL COLUMNS

Phenomenex Luna® 5 µm Phenyl-Hexyl



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

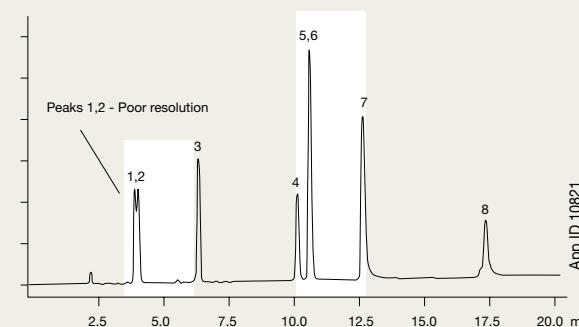
Flow Rate: 1.0 mL/min

Detection: UV @ 254 nm

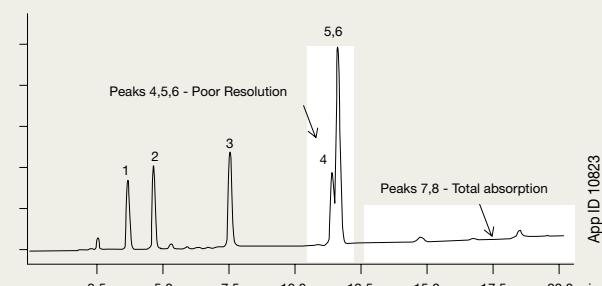
Temperature: 22 °C

Sample:
1. Carbadox
2. Thiamphenicol
3. Furazolidone
4. Oxolinic acid
5. Sulfadimethoxine
6. Sulfaquinoxaline
7. Nalidixic acid
8. Piromidic acid

Agilent Technologies® ZORBAX® 5 µm SB-Phenyl



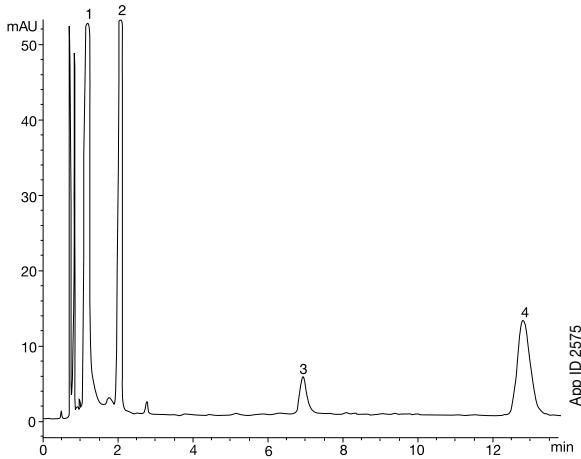
Agilent Technologies® ZORBAX® 5 µm Phenyl



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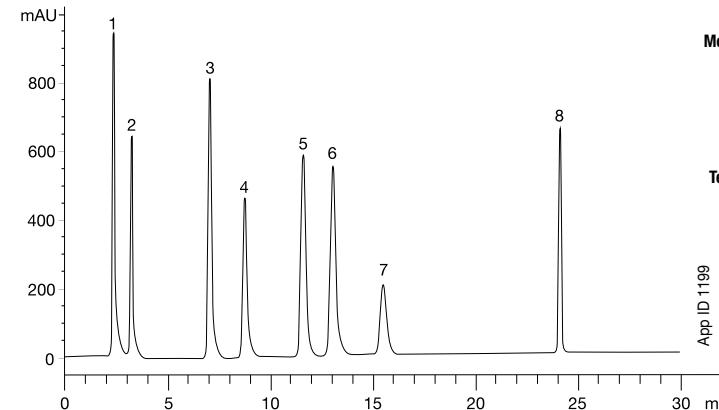
Applications

COUGH AND COLD-USP METHOD



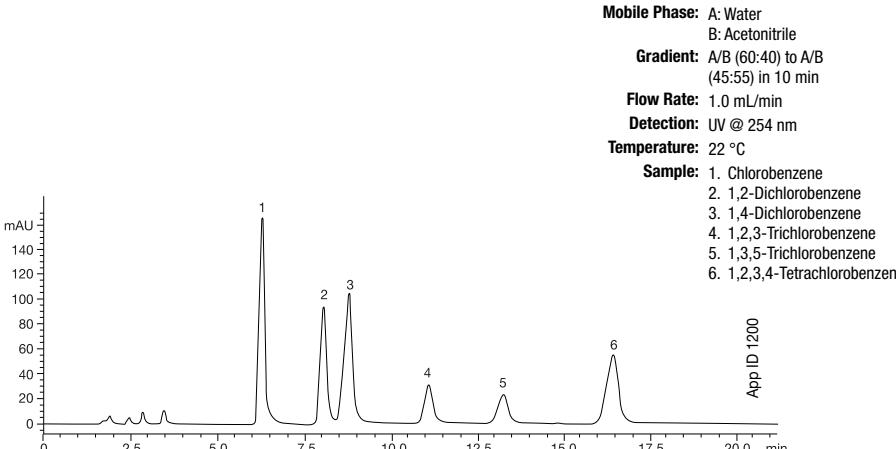
Column: Luna[®] 5 μ m Phenyl-Hexyl
Dimension: 150 x 4.6 mm
Part No.: 00F-4257-E0
Mobile Phase: Methanol/Water with 0.1 % H_3PO_4 and 0.1 % Heptane Sulfonate/Acetonitrile with 0.1 % H_3PO_4 (35:55:10)
Flow Rate: 2.05 mL/min
Detection: UV @ 214 nm
Temperature: 22 °C
Sample: 1. Acetaminophen
 2. Pseudoephedrine
 3. Chlorphenamine
 4. Dextromethorphan

FOOD ADDITIVES



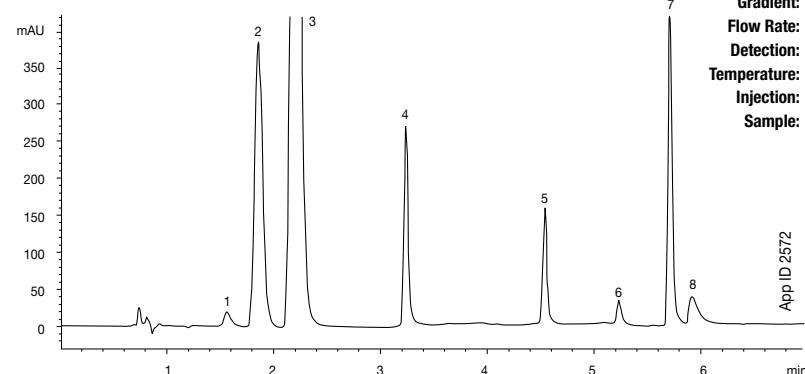
Column: Luna 5 μ m Phenyl-Hexyl
Dimension: 150 x 4.6 mm
Part No.: 00F-4257-E0
Mobile Phase: A: 50 mM KH_2PO_4 + 0.1% H_3PO_4
 B: Acetonitrile
Gradient: A/B (75:25) to A/B (25:75) in 18 min, hold at A/B (25:75) for 12 min
Flow Rate: 1.0 mL/min
Detection: UV @ 230 nm
Temperature: 22 °C
Injection: 20 μ L
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 μ m 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 μ m Phenyl-Hexyl
Dimension: 75 x 4.6 mm
Part No.: 00C-4256-E0
Mobile Phase: A: Acetonitrile
 B: 20 mM KH_2PO_4 / Methanol (80:20) pH 9.0
Gradient: A/B (0:100) to A/B (80:20) in 5 min
Flow Rate: 1.0 mL/min
Detection: UV @ 214 nm
Temperature: 22 °C
Injection: 20 μ L
Sample: 1. p-Aminophenol
 2. Benzoic acid
 3. Acetaminophen
 4. Pseudoephedrine
 5. Butyl paraben
 6. Chlorphenamine
 7. Diphenhydramine
 8. Dextromethorphan

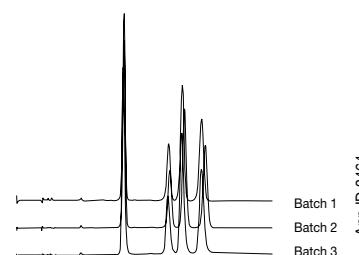
Proven Reproducibility

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:

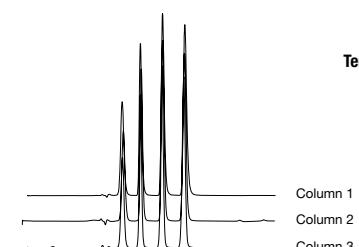
- » One of the most stable CN columns under both reversed phase or normal phase conditions.
- » Reproducible from run-to-run, column-to-column, batch-to-batch.
- » pH stable from 1.5 to 7.0

BATCH-TO-BATCH REPRODUCIBILITY



Column: Luna 5 μm CN
Dimension: 150 x 4.6 mm
Mobile Phase: A: Hexane
 B: Methylene chloride/
 Methanol (80:20), A/B (80:20)
Flow Rate: 2.0 mL/min
Detection: UV @ 254 nm
Injection: 1.0 μL
Temperature: Ambient
Sample: 1. Hydrocortisone
 2. Prednisone
 3. Cortisone
 4. Hydrocortisone acetate

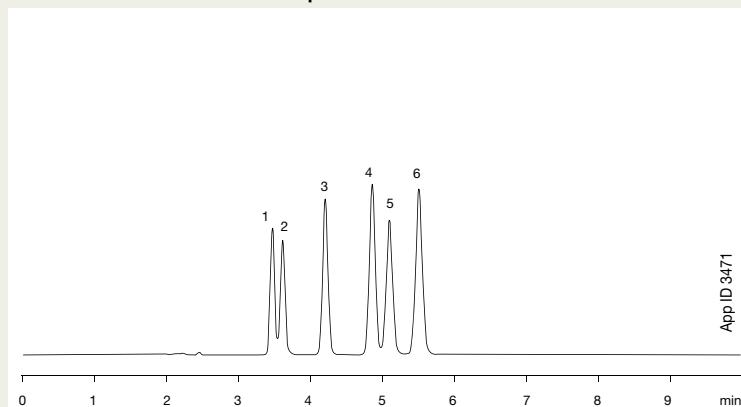
COLUMN-TO-COLUMN REPRODUCIBILITY



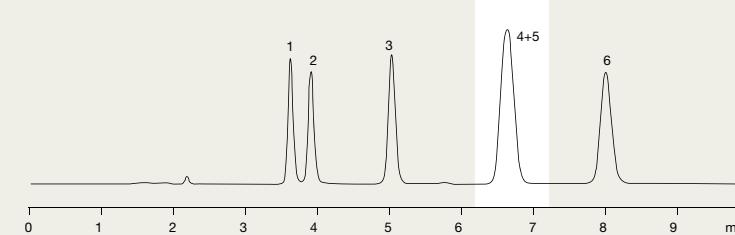
Column: Luna 5 μm CN
Dimension: 150 x 4.6 mm
Mobile Phase: A: Hexane
 B: Methylene chloride/
 Methanol (80:20), A/B (95:5)
Flow Rate: 1.0 mL/min
Detection: UV @ 254 nm
Injection: 5.0 μL
Temperature: Ambient
Sample: 1. Dimethyl phthalate
 2. Diethyl phthalate
 3. Dibutyl phthalate
 4. Diocetyl phthalate

PHTHALATE ESTERS: A COMPARISON OF CN COLUMNS

Phenomenex Luna 5 μm CN



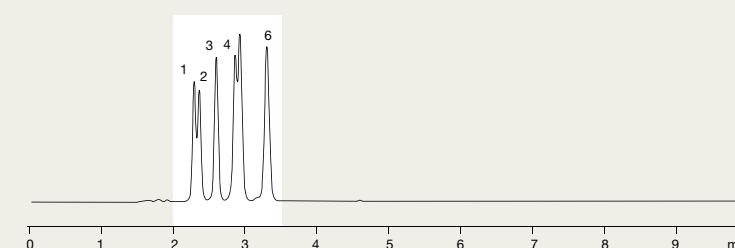
Waters® Spherisorb® 5 μm CN



Conditions same for all columns

Dimension: 150 x 4.6 mm
Mobile Phase: A: Hexane
 B: Methylene chloride/
 Methanol (80:20), A/B (99:1)
Flow Rate: 1.0 mL/min
Detection: UV @ 254 nm
Temperature: Ambient
Sample: 1. Di-n-octyl phthalate
 2. Bis (2-Ethylhexyl) phthalate
 3. Butylbenzyl phthalate
 4. Di-n-butyl phthalate
 5. Diethyl phthalate
 6. Dimethyl phthalate

Agilent Technologies® ZORBAX® 5 μm SB-CN



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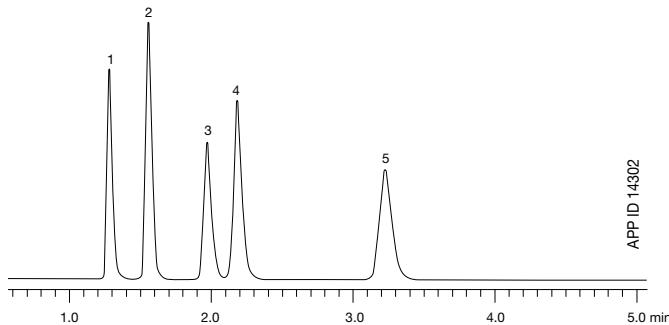
Developed for Ruggedness

Luna® NH₂ 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 NH₂ 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:

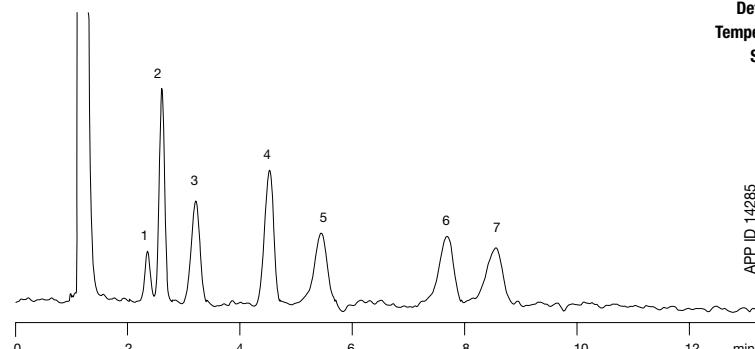
- » Long lifetimes and low phase bleed for more reproducible methods
- » Excellent retention of simple sugars, complex sugars, sugar alcohols by reverse phase conditions and hydrogen bonding compounds under normal phase conditions
- » pH stable from 1.5 to 11.0
- » Stable in 100 % aqueous mobile phases

NUCLEIC ACID BASES



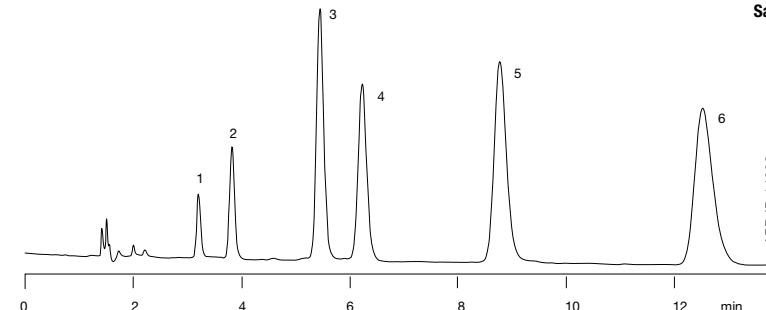
Column: Luna 5 µm NH₂
Dimension: 150 x 4.6 mm
Part No.: 00F-4378-E0
Mobile Phase: Acetonitrile/Water (80:20)
Flow Rate: 1.0 mL/min
Detection: UV @ 254 nm
Temperature: 40 °C
Sample:
 1. Thymine
 2. Uracil
 3. Cytosine
 4. Adenine
 5. Guanosine

SIMPLE SUGARS



Column: Luna 5 µm NH₂
Dimension: 250 x 4.6 mm
Part No.: 00G-4378-E0
Mobile Phase: Acetonitrile/Water (80:20)
Flow Rate: 3.0 mL/min
Detection: RI
Temperature: 40 °C
Sample:
 1. Xylose
 2. Fructose
 3. Glucose
 4. Sucrose
 5. Maltose
 6. Melezitose
 7. Raffinose

STEROIDS



Column: Luna 5 µm NH₂
Dimension: 250 x 4.6 mm
Part No.: 00G-4378-E0
Mobile Phase: Hexane/Ethanol (85:15)
Flow Rate: 2.0 mL/min
Detection: UV @ 240 nm
Temperature: 22 °C
Sample:
 1. 11-Ketoprogesterone
 2. 11-Hydroxyprogesterone
 3. Cortisone acetate
 4. Prednisolone 21-acetate
 5. Cortisone
 6. Prednisolone

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.

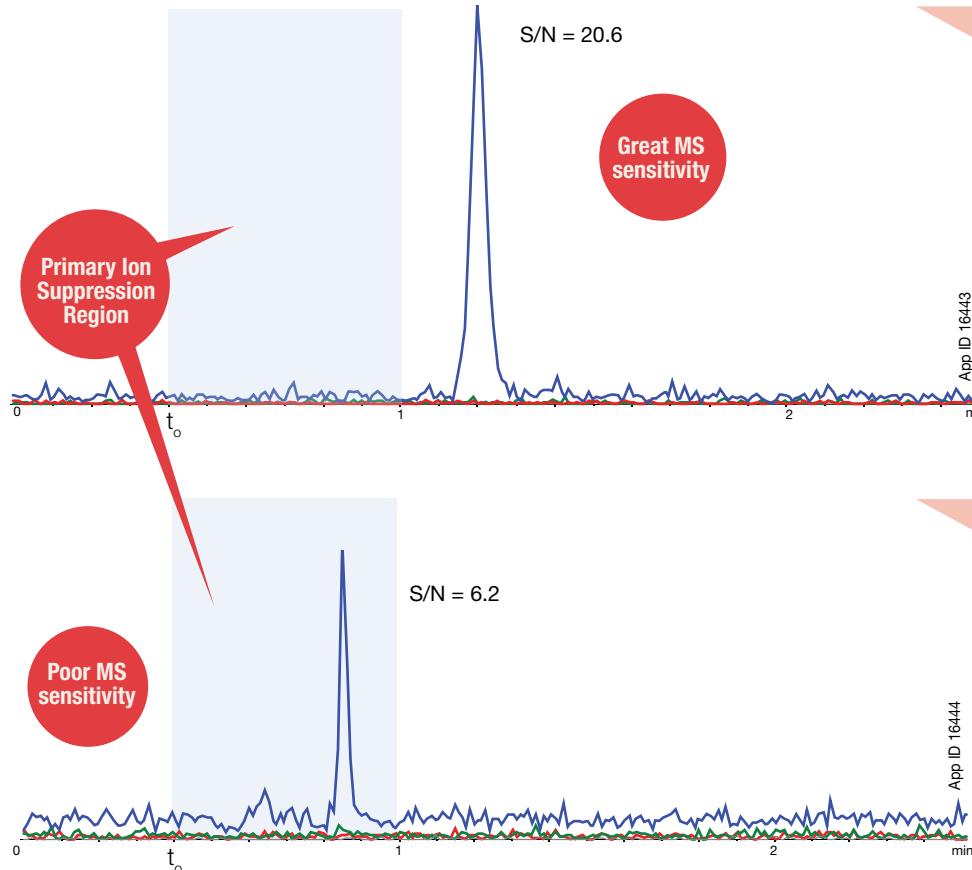
Separation is achieved through the partitioning of polar solutes from the high concentration, water-miscible, organic mobile phase into the hydrophilic surface environment. Polar solutes exhibit increased retention, and elute in the order of increasing hydrophilicity.

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).



POLAR COMPOUND IN HILIC MODE

Column: Luna 3 μ m 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 μ m 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 IS FROM 0.5-1.0 MIN

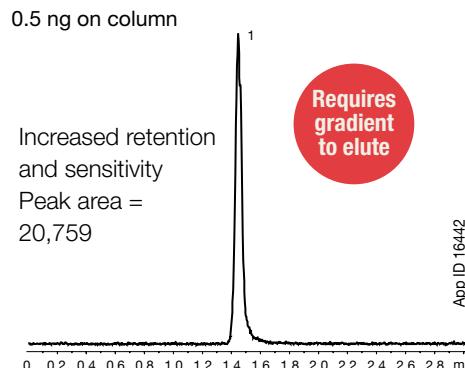
$$t_o \approx 0.5 \text{ min}$$

$$k' = 1 = \frac{t_R - t_o}{t_o} = \frac{1 - 0.5}{0.5}$$

Retain Polar Compounds

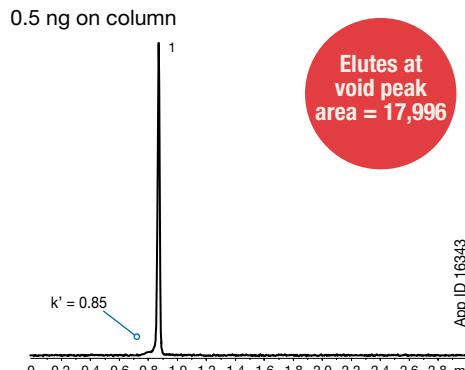
Highly polar compounds such as ribavirin may be poorly retained on reversed phase columns. HILIC techniques will increase polar compound retention and sensitivity.

RIBAVIRIN ON LUNA HILIC



Column: Luna 3 μ m HILIC
Dimension: 100 x 2.0 mm
Part No.: 00D-4449-80
Mobile Phase: A: Acetonitrile/100 mM Ammonium Formate, pH 3.2 (90:10)
B: Acetonitrile/20 mM Ammonium Formate, pH 3.2 (50:50)
Gradient: 100 % A for 3 min, then 100 % B to 4.5 min, switch to 100 % A for 10 min
Flow Rate: 0.4 mL/min
Detection: Mass Spectrometer (MS)
Temperature: Ambient
Sample: 1. Ribavirin (MRM: 245.2/113.2)

RIBAVIRIN ON C18



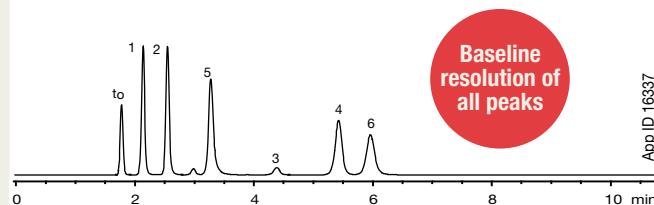
Column: Gemini® 5 μ m C18
Dimension: 100 x 2.0 mm
Part No.: 00D-4435-80
Mobile Phase: Acetonitrile with 0.1 % v/v Formic Acid/Water with 0.1 v/v % Formic Acid (3:97)
Flow Rate: 0.4 mL/min
Detection: Mass Spectrometer (MS) (ambient)
Temperature: Ambient
Sample: 1. Ribavirin (MRM: 245.2/113.2)

Unique HILIC Selectivity

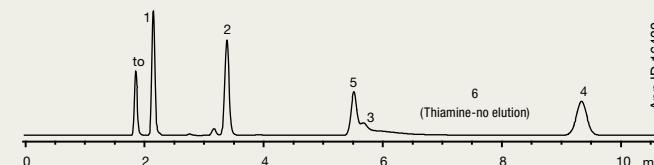
Not all HILIC columns are alike. Luna HILIC columns deliver on the exacting standards you've come to trust from the Luna product line.

HILIC COLUMN COMPARISON

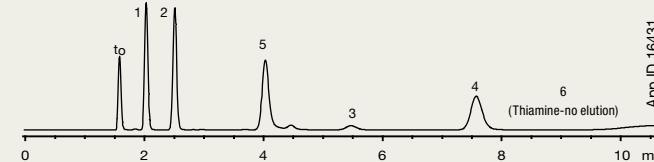
Phenomenex Luna® 5 μ m HILIC



Waters® Atlantis® 5 μ m HILIC



SeQuant® 5 μ m ZIC® -HILIC



SeQuant and ZIC are registered trademarks of Merck KGaA, Darmstadt, Germany. Waters and Atlantis are registered trademarks of Waters Corporation. Phenomenex is not affiliated with Merck KGaA or Waters Corporation. The comparative data presented here may not be representative for all applications.

Develop Robust Strong Cation Exchange Methods

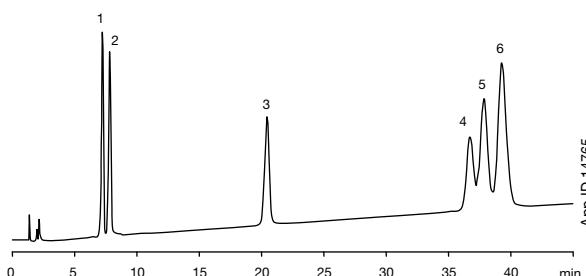
Luna® SCX columns provide excellent resolution and peak shape of basic, cationic compounds. However, most SCX columns show poor peak shape and bad resolution causing many chromatographers to ignore this important phase for small molecule method development, until now.

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

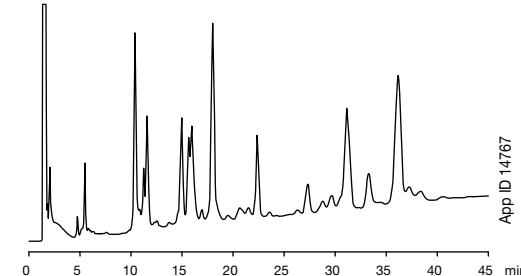
Luna SCX columns contain a benzene sulfonic acid ligand providing ion-exchange reversed phase, and aromatic interactions. In combination with the ultra pure silica, Luna SCX columns are a stable, robust phase for strong-cation exchange chromatography.

PEPTIDES



Column: Luna 5 μ m 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 μ L (5 μ g on column)
Sample: Peptide Mixture - Substance P
1. Fragment 5-11 (+1)
2. Fragment 4-11 (+1)
3. Fragment 2-11 (+2)
4. Fragment 1-9 (+3)
5. Intact (+3)
6. (ARG-PHE-TRP-LEU) (+3)

TRYPTIC DIGEST OF BOVINE CYTOCHROME c



Column: Luna 5 μ m 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 μ L (20 μ g on column)
Sample: Bovine Cytochrome c trypsin digest

AXIA™ Packed Preparative HPLC

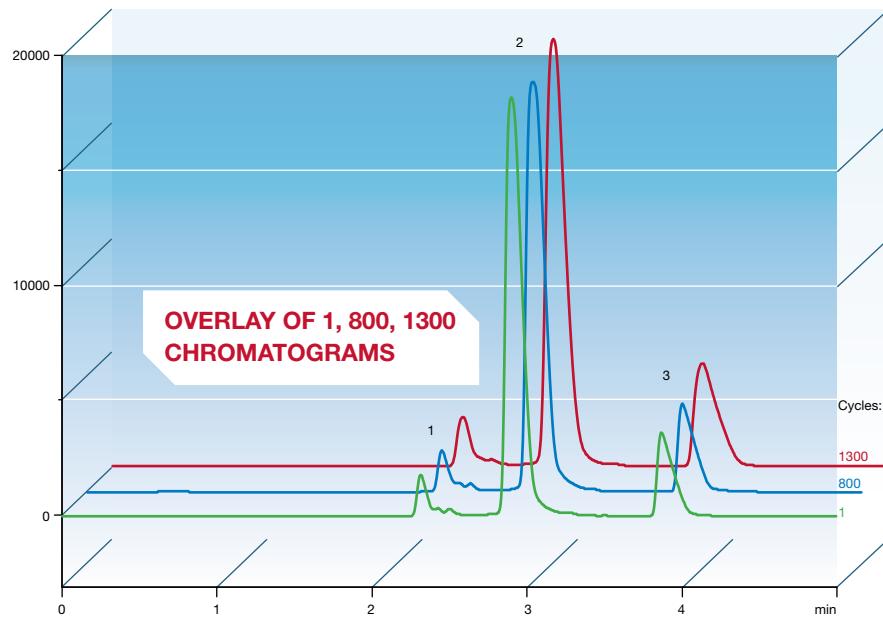
Revolutionize Lab-Scale Purification

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.

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.



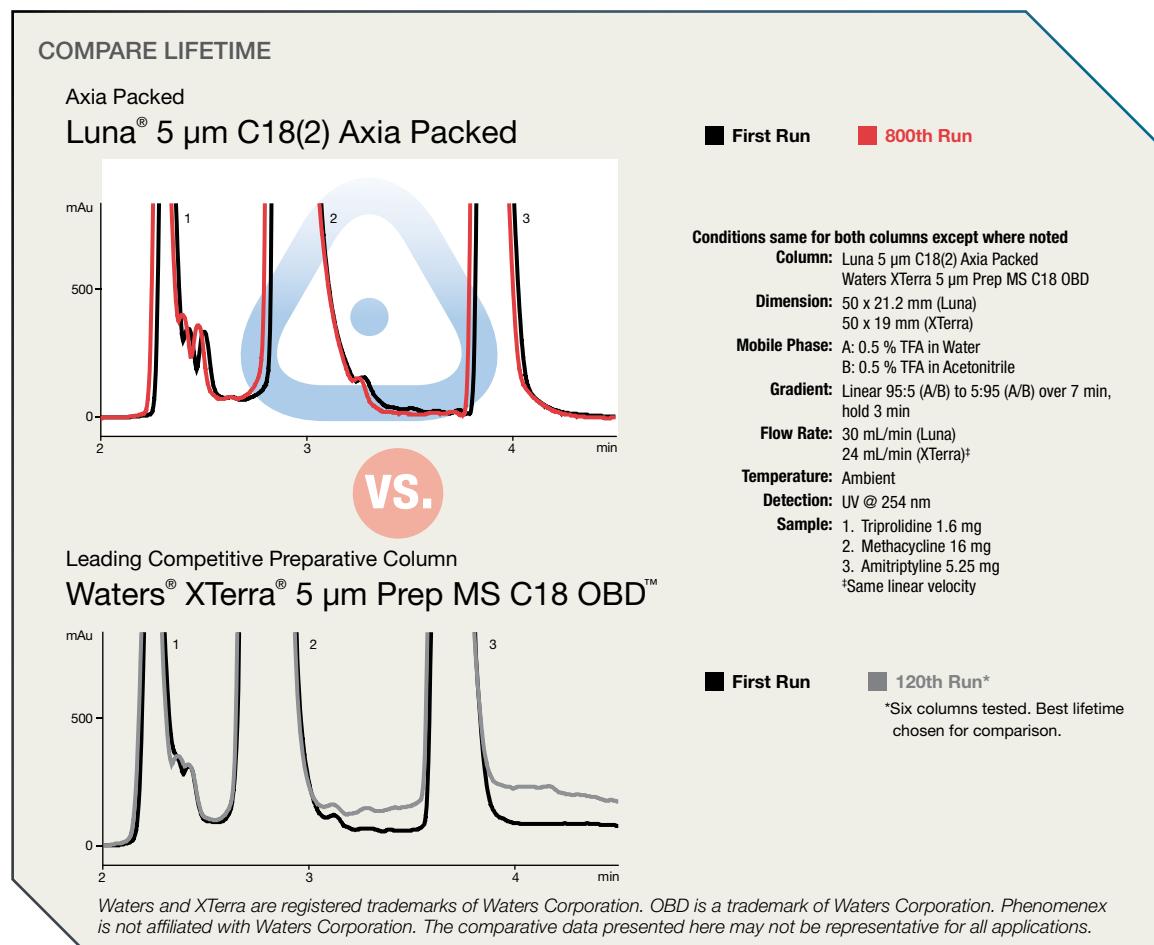
Axia Gradient Lifetime Study



Columns: Luna 5 μ m C18(2) Axia Packed
Dimensions: 50 x 21.2 mm
Part No.: 00B-4252-PO-AX
Mobile Phase: A: 0.5% TFA in Water
B: 0.5% TFA in Acetonitrile
Gradient: Linear 95:5 to 5:95 (A/B) over 7 min, hold 3 min
Injection Volume: 500 μ L
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



2006 R&D 100 Award Recipient



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.

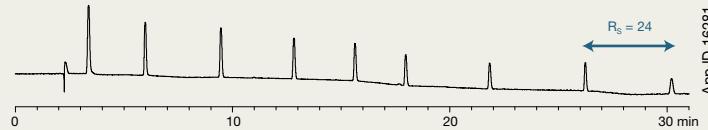


Three Solutions to Balance Your Speed With Pressure, Efficiency, and Selectivity

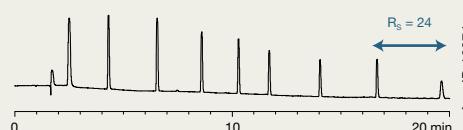
		Speed	Pressure	Efficiency	Selectivity
1	High Speed Technology (HST) Columns	Fast Run Time	< 400 Bar	Highest	Several phases available
2	MercuryMS™ Columns and Cartridges	Fastest Run Time	< 400 Bar	High	Most phases available
3	Monolithic Columns	Fast Run Time	< 200 Bar	Good	Several phases available

HST COLUMNS: 66 % FASTER. NO LOSS IN RESOLUTION

Luna 5 µm C18(2) 250 x 4.6 mm
Flow Rate: 1.5 mL/min

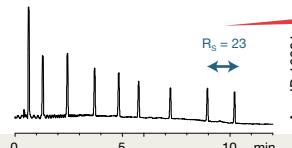


Luna 3 µm C18(2) 150 x 4.6 mm
Flow Rate: 1.5 mL/min



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 95:5 (A/B)
Flow Rate: As noted
Detection: UV @ 270 nm
Sample: Ketones C_3 to C_{16}

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



Run time reduced by 20 min with virtually no effect on resolution!

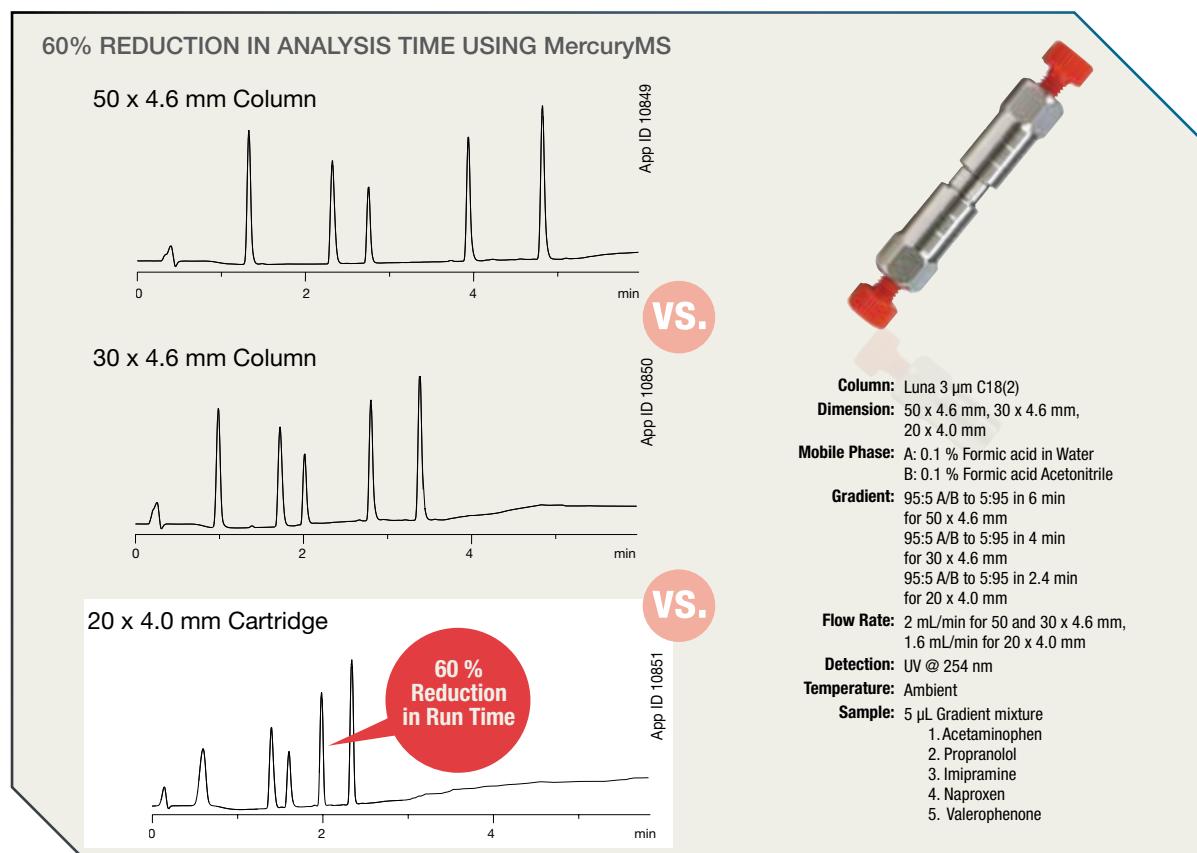


MercuryMS™: Columns and Cartridges

- » 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

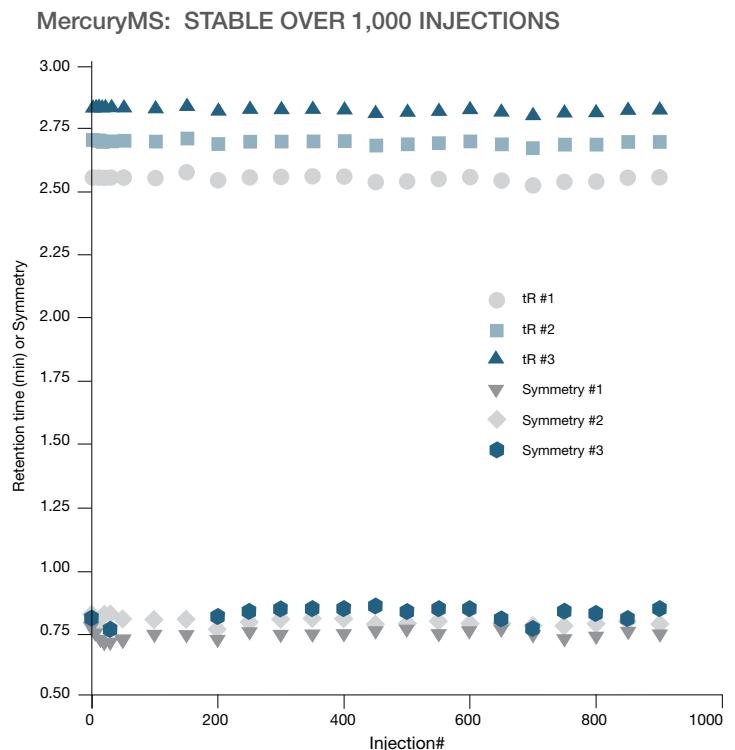
Reduce Analysis Times by 60 %

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.



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.



Column: Luna 3 µm C18(2) 20 x 2.0 mm MercuryMS Cartridge
Part No.: 00M-4251-B0-CE
Mobile Phase: A: Water with 0.1 % Trifluoroacetic acid (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

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.

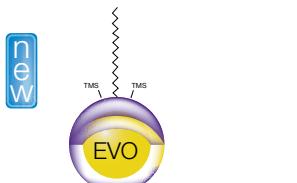
Kinetex Core-Shell

- » 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

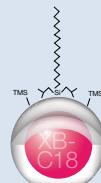
Kinetex EVO C18



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%

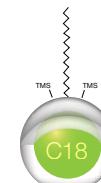
Kinetex XB-C18



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%

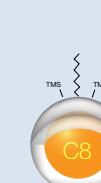
Kinetex C18



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%

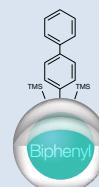
Kinetex C8



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%

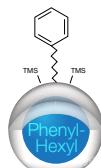
Kinetex Biphenyl



100 % aqueous stable reversed phase chemistry with hydrophobic, aromatic, and enhanced polar selectivity

pH Range: 1.5 – 8.5*
USP Classification: L11
Effective Carbon Load: 11%

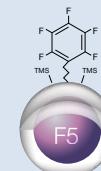
Kinetex Phenyl-Hexyl



Aromatic and moderate hydrophobic selectivity result in the great retention and separation of aromatic hydrocarbons

pH Range: 1.5 – 8.5*
USP Classification: L11
Effective Carbon Load: 11%

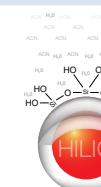
Kinetex F5



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.

Visit
www.phenomenex.com/kinetex
to learn more about Kinetex

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