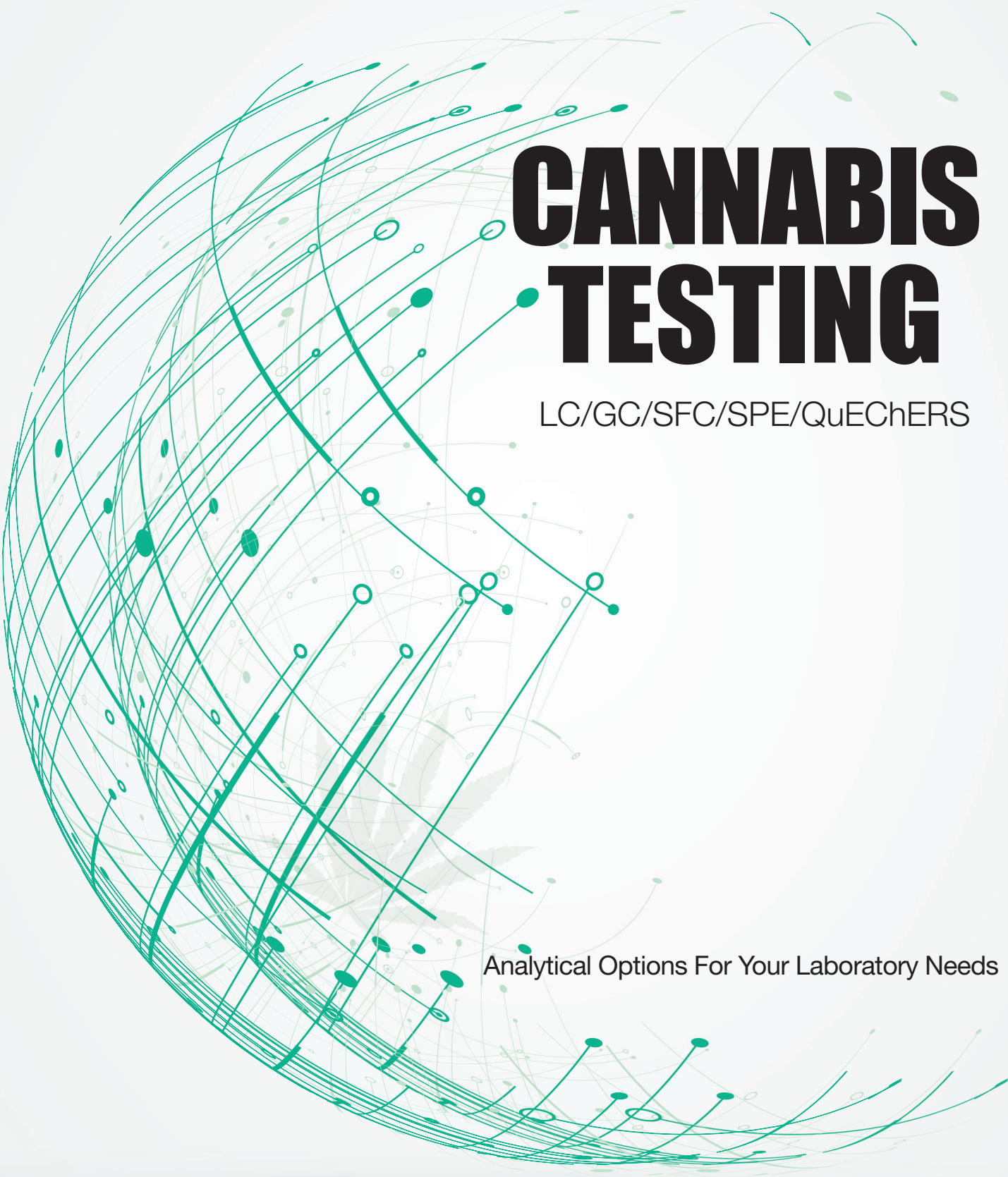




CANNABIS TESTING

LC/GC/SFC/SPE/QuEChERS

Analytical Options For Your Laboratory Needs

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guarantee

If Phenomenex products in this guide do not provide at least an equivalent separation as compared to other products of the same phase and dimensions, return the product with comparative data within 45 days for a FULL REFUND!

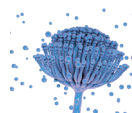
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Your Testing Needs

Get Started pp. 4-5



Potency pp. 6-8



Mycotoxins p. 8



Pesticides pp. 10-11



Purifications/Extractions pp. 13-14



Terpenes p. 15



Residual Solvents p. 16



Phenomenex Products pp. 17-25

For complete details on applications visit:

www.phenomenex.com/Applications

Search:

Sample Preparation

The key to successful and effective analysis is sample preparation. Sample matrix effects can result in an array of interferences which can lead to poor chromatography as well as instrumentation drawbacks.

- ✓ Simple Extraction
- ✓ Targeted Clean up
- ✓ Targeted Extraction

Choose your options:
pp.17-18

Gas Chromatography

Advancements in GC technology have provided more options to achieve the best separation and identification of a variety of pesticides, cannabinoids, terpenes and residual solvents for safer, higher quality cannabis products.

- ✓ Rugged and Versatile
- ✓ Dependable
- ✓ Support and Options

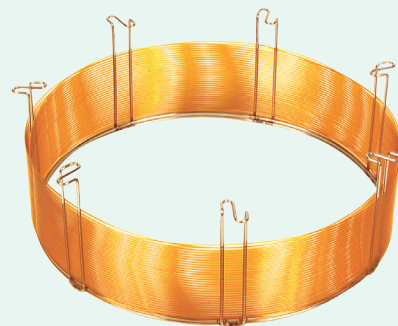
Choose your options:
p.19

strata[®]X
Polymeric SPE

roQ
QuEChERS Kits



Zebron[™]
GC Columns



Liquid Chromatography

Improvements in particle morphologies and surface chemistries have increased analysis selectivity and productivity options.

- ✓ Speed
- ✓ Efficiency
- ✓ Polar Selectivity
- ✓ Portability (HPLC ↔ UHPLC)
- ✓ Great Reproducibility

Choose your options:
pp. 20-21

SFC Columns

High efficiency and great loading capacity for cannabis extractions purifications

- ✓ Excellent Loadability
- ✓ Stable in:
 - Normal Phase
 - Reversed Phase
 - Polar Organic
 - SFC Conditions

Choose your options:
p. 22

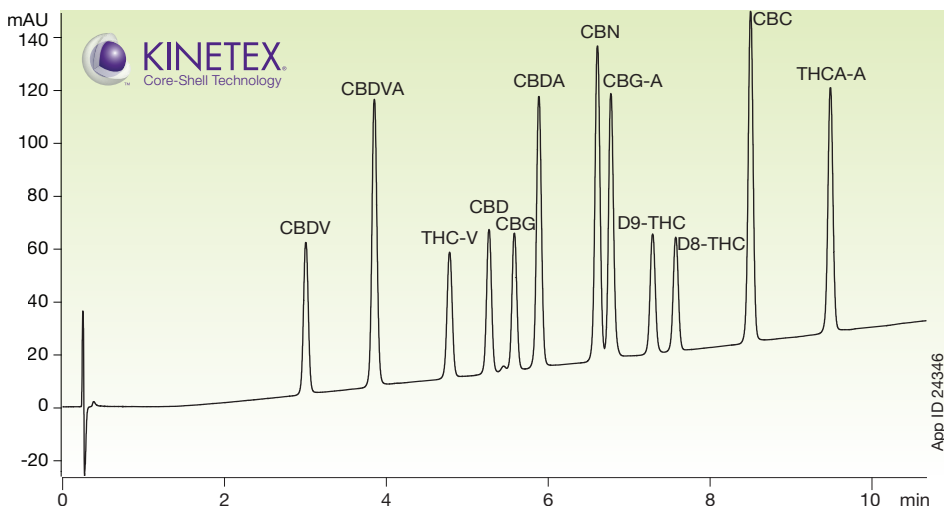


Your Tools for Success

Potency

HPLC/UHPLC

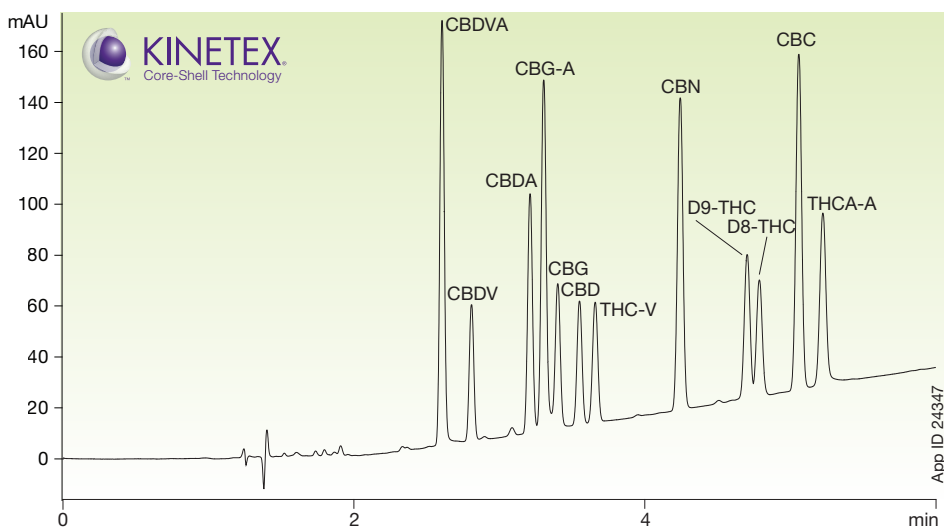
12 Cannabinoids using Methanol and Kinetex 2.6 µm C18 LC Columns



Column: Kinetex 2.6 µm C18
Dimensions: 50 x 2.1 mm
Part No.: 00B-4462-AN
Mobile Phase: A: Water with 0.1 % Formic acid
 B: Methanol with 0.1 % Formic acid
 Different acidic modifiers might affect the retention behavior of matrix peaks
Gradient: Time (min) % B
 0 60
 10 85
Flow Rate: 0.5 mL/min
Back Pressure: 240 Bar
Temperature: 50 °C
Detection: UV @ 230 nm

	Elution Order MeOH	Elution Order AcCN
CBDV	1	2
CBDVA	2	1
THC-V	3	7
CBD	4	6
CBG	5	5
CBDA	6	3
CBN	7	8
CBG-A	8	4
D9-THC	9	9
D8-THC	10	10
CBC	11	11
THCA-A	12	12

12 Cannabinoids using Acetonitrile and Kinetex 2.6 µm Polar C18 LC Columns



Column: Kinetex 2.6 µm Polar C18
Dimensions: 150 x 4.6 mm
Part No.: 00F-4759-E0
Mobile Phase: A: Water with 0.1 % TFA
 B: Acetonitrile with 0.1 % TFA
 Different acidic modifiers might affect the retention behavior of matrix peaks
Gradient: Time (min) % B
 0 75
 7 100
Flow Rate: 1 mL/min
Back Pressure: 150 Bar
Temperature: 55 °C
Detection: UV @ 230 nm

For more details visit

www.phenomenex.com/Search

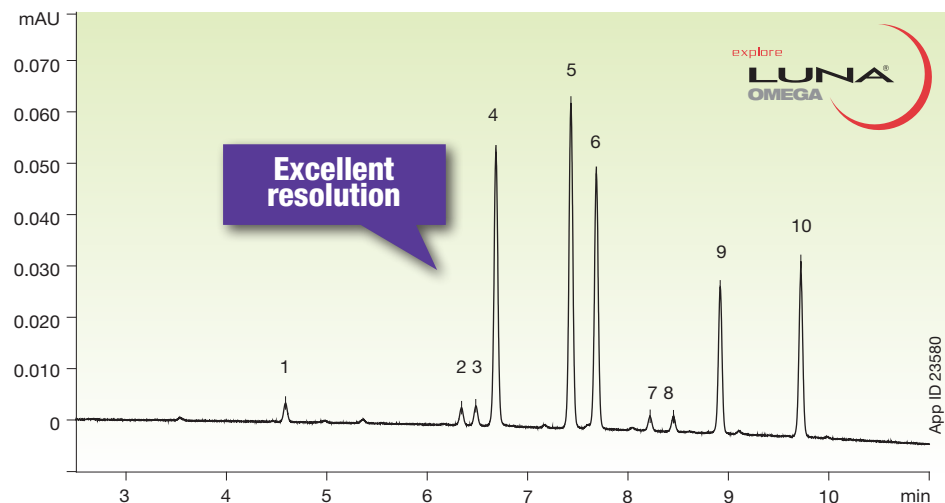
TN-1225

Potency

UHPLC



10 Cannabinoids using Luna Omega 1.6 µm Polar C18 UHPLC Columns



Conditions for both columns:

Columns: Luna Omega 1.6 µm Polar C18
Kinetex 1.7 µm F5

Dimension: 100 x 2.1 mm

Mobile Phases: A: 20 mM Ammonium formate pH 3.2
B: Acetonitrile

Gradient:	Time (min)	% B
	0	60
	12	95
	13	95
	13.01	60
	15	60

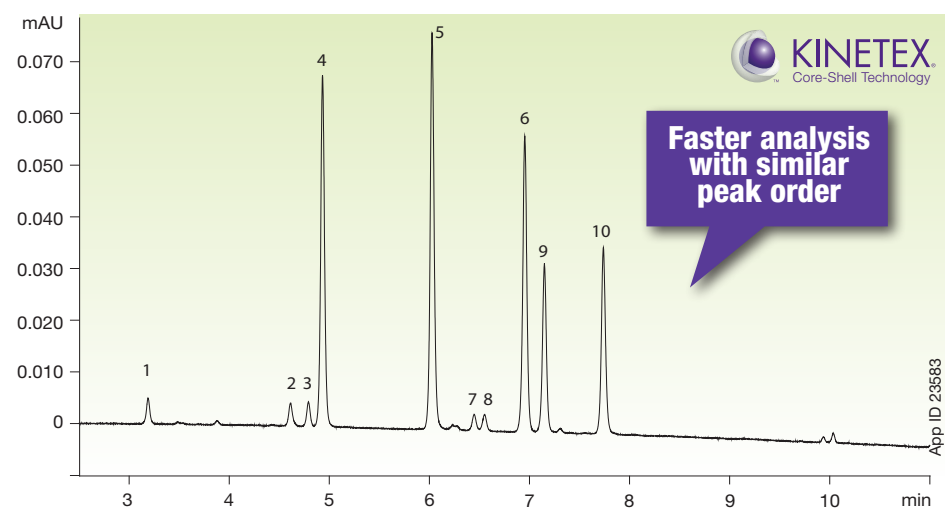
Flow Rate: 0.4 mL/min

Temperature: 40 °C

Detection: UV @ 256 nm

Sample: 1. CBVD
2. Cannabidiol
3. CBG
4. Cannabidiolic Acid
5. CBG-A
6. Cannabinol
7. Δ-9 THC
8. Δ-8 THC
9. CBC
10. THCA-A

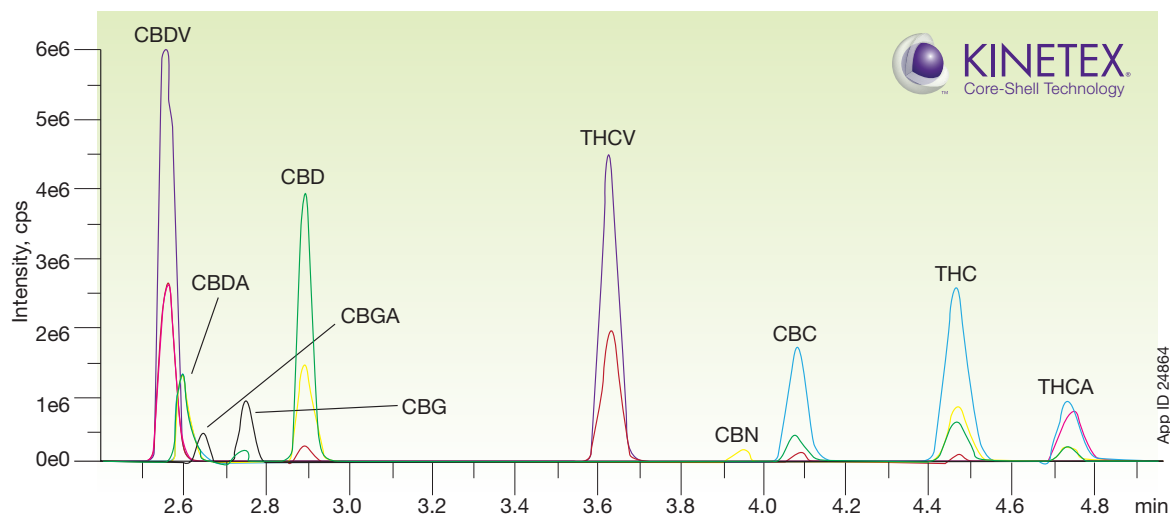
10 Cannabinoids using Kinetex 1.7 µm F5 UHPLC Columns



Potency and Mycotoxins

LC-MS/MS

10 Cannabinoids using Kinetex Biphenyl by LC-MS/MS



Conditions for both applications

Column: Kinetex 2.6 μ m Biphenyl

Dimension: 150 x 4.6 mm

Part No.: 00F-4622-E0

Mobile Phases: A: Water + 5 mM Ammonium acetate + 0.1% Formic acid
B: Methanol/Water (98:2) + 5 mM Ammonium acetate

Gradient	Time (min)	% B
	0.75	5
	4	50
	5	60
	5.01	78
	8	88
	10	92
	12	100
	13.80	100
	13.90	5
	16	0

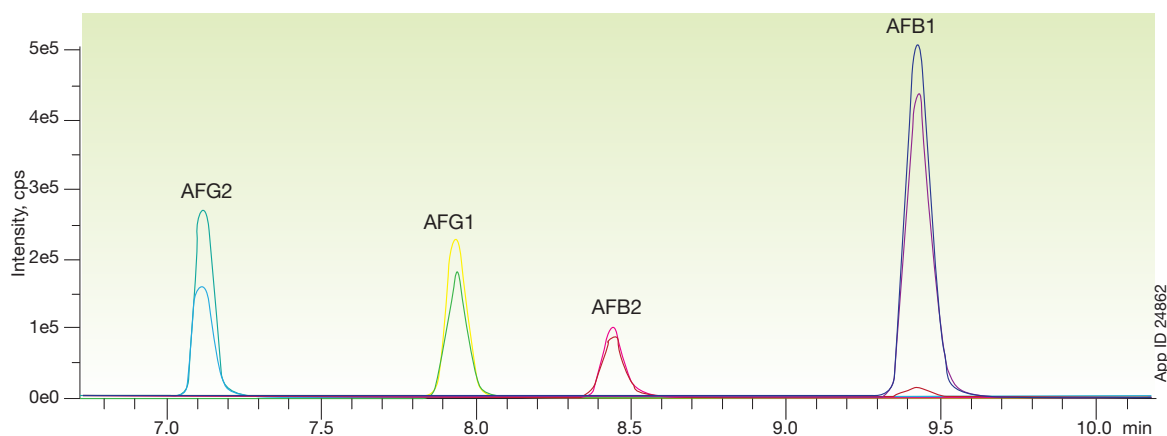
Flow Rate: 1 mL/min

Injection: 2 μ L

Temperature: Ambient

Detector: SCIEX QTRAP[®] 6500+

4 Aflatoxins using Kinetex Biphenyl by LC-MS/MS



Find More Applications
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Certificate No. 2427.03



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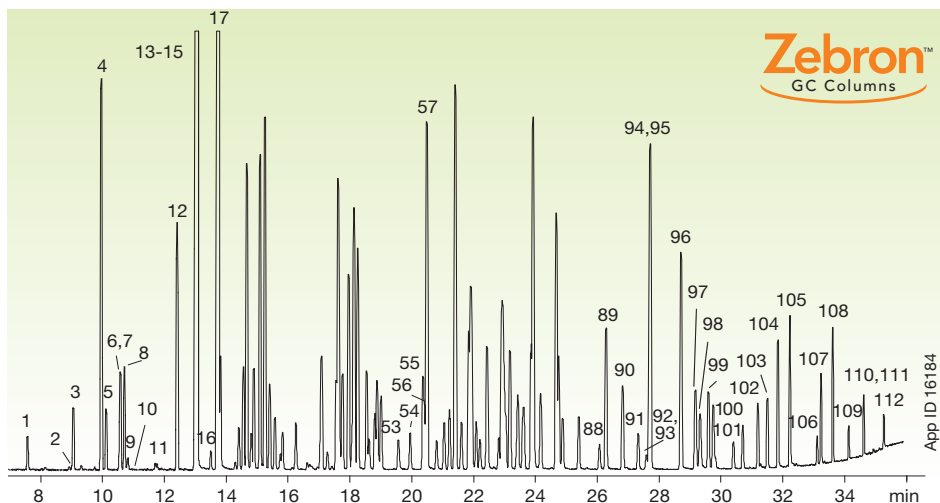
www.phenova.com/cannabis

Pesticides

GC-MS

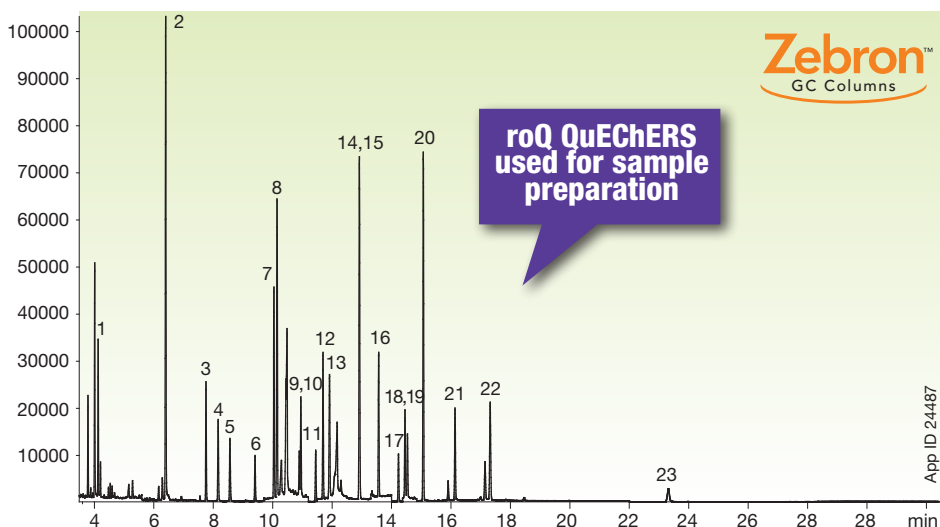


112 Pesticides Screen using Zebron ZB-MultiResidue-1 GC Columns



Column: Zebron ZB-MultiResidue™-1
Dimensions: 30 meter x 0.25 mm x 0.25 µm
Part No.: 7HG-G016-11
Injection: Splitless @ 260 °C, 1 µL
Recommended Liner: Zebron PLUS Single Taper Z-liner™
Liner Part No.: AG2-0A10-05
Carrier Gas: Helium @ 0.9 mL/min (constant flow)
Oven Program: 80 °C for 0.5 min to 150 °C @ 10 °C/min to 240 °C @ 4 °C/min to 320 °C @ 15 °C/min for 3 min
Detector: MSD @ 320 °C; 45-400 amu
Sample: Analytes are 1 ppm in Dichloromethane

23 Pesticides from Leafy Produce using Zebron ZB-5PLUS™ GC Columns



Column: Zebron ZB-5PLUS with 5 µm Guardian™
Dimensions: 30 m x 0.25 mm x 0.25 µm
Part No.: 7HG-G032-11-GGA
Injection: Splitless @ 250 °C, 2 µL
Recommended Liner: Zebron PLUS Single Taper Z-liner™
Liner Part No.: AG2-0A10-05
Carrier Gas: Helium @ 1 mL/min (constant flow)
Oven Program: 100 °C to 150 °C @ 25 °C/min to 280 °C @ 10 °C/min for 10 min then to 340 °C @ 25 °C/min for 5 min
Detector: MSD @ 350 °C
Sample:

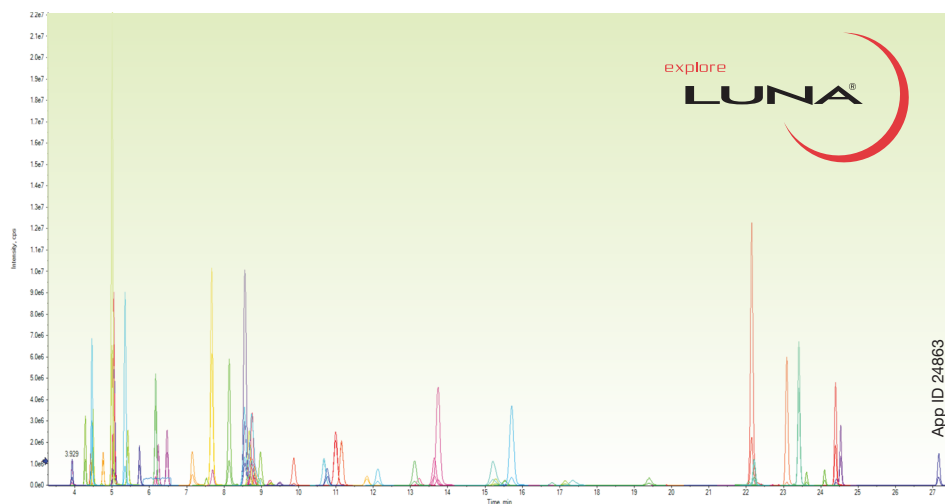
1. Dichlorvos	13. Procymidone
2. o-phenylphenol	14. o,p-DDD
3. Trifluarlin	15. Kresoxim-methyl
4. α-HCH-d6	16. Ethion
5. Atrazine	17. Endosulfan Sulfate
6. Chlorothalonil	18. Tebuconazole
7. Chlorpyrifos-methyl	19. Triphenyl Phosphate
8. Carbaryl	20. Bifenthrin
9. d10-Parathion	21. L-Cyhalothrin
10. Chlorpyrifos	22. Permethrins
11. Cyprodnil	23. Azoxystrobin
12. Tolyfluandil	

Pesticides

LC-MS/MS



65 Pesticides using Luna Omega Polar C18 (California List)

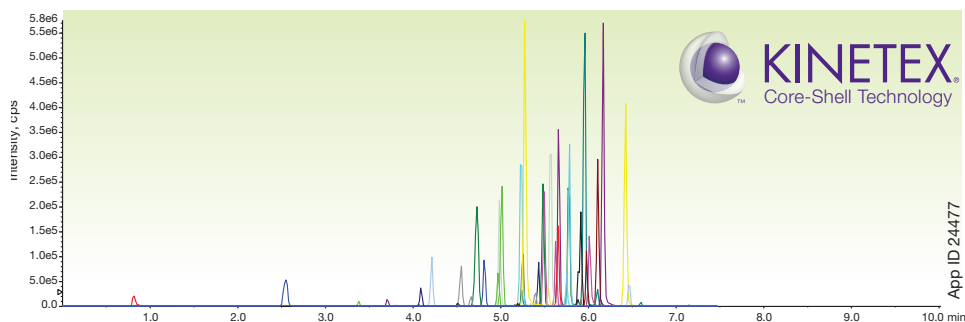


Column: Luna Omega 3 μ m Polar C18
Dimension: 150 x 4.6 mm
Part No.: 00F-4760-E0
Mobile Phase: A: 5 mM Ammonium acetate + 0.1% Formic acid
 B: Methanol/Water (98:2) + 5 mM Ammonium acetate
Gradient:

Time (min)	% B
0	10
2	60
3	65
4	70
18	80
20	88
22	95
27	100
28	100
28.1	10
30	10

Flow Rate: 0.8 mL/min
Injection: 2 μ L
Temperature: 30 $^{\circ}$ C
Detection: MS/MS
Instrument: SCIEX QTRAP[®] 6500+ with DuoSpray APCI/ESI
Analytes: For full list search APP ID 24863

Pesticides using Kinetex Biphenyl (Oregon List)



Column: Kinetex 2.6 μ m Biphenyl
Dimensions: 50 x 4.6 mm
Part No.: 00B-4622-E0
Mobile Phase: A: 5mM Ammonium formate + 0.1% Formic acid in Water
 B: 5mM Ammonium formate + 0.1% Formic acid in 98:2 Methanol/Water
Gradient:

Time (min)	B (%)
0	10
1	10
4.3	80
8.7	95
10.5	95
10.6	10
16	10

Flow Rate: 0.4 mL/min
Inj. Volume: 10 μ L
Temperature: 40 $^{\circ}$ C
Detection: MS/MS (ESI+)
Detector: SCIEX 3500 Triple Quad[™]

For more details visit

www.phenomenex.com/Search

TN-1224

LC-MS/MS Solutions

for Comprehensive Cannabis Analysis

SCIEX instruments have been designed with the production laboratory in mind. Our cannabis method was developed to allow the analysis for potency, pesticides and mycotoxins in one injection. SCIEX also has a terpene LC-MS/MS method. All of your method requests for potency, pesticides and terpenes may be accomplished on one instrument.

The Triple Quad™ 6500+ from SCIEX.

The Triple Quad 6500+ provides the ultimate solution for laboratories that need to screen for unknown compounds while still achieving triple quadrupole quantitation.



For more information visit

<https://ter.li/gol4po> or call 1-877-740-2129



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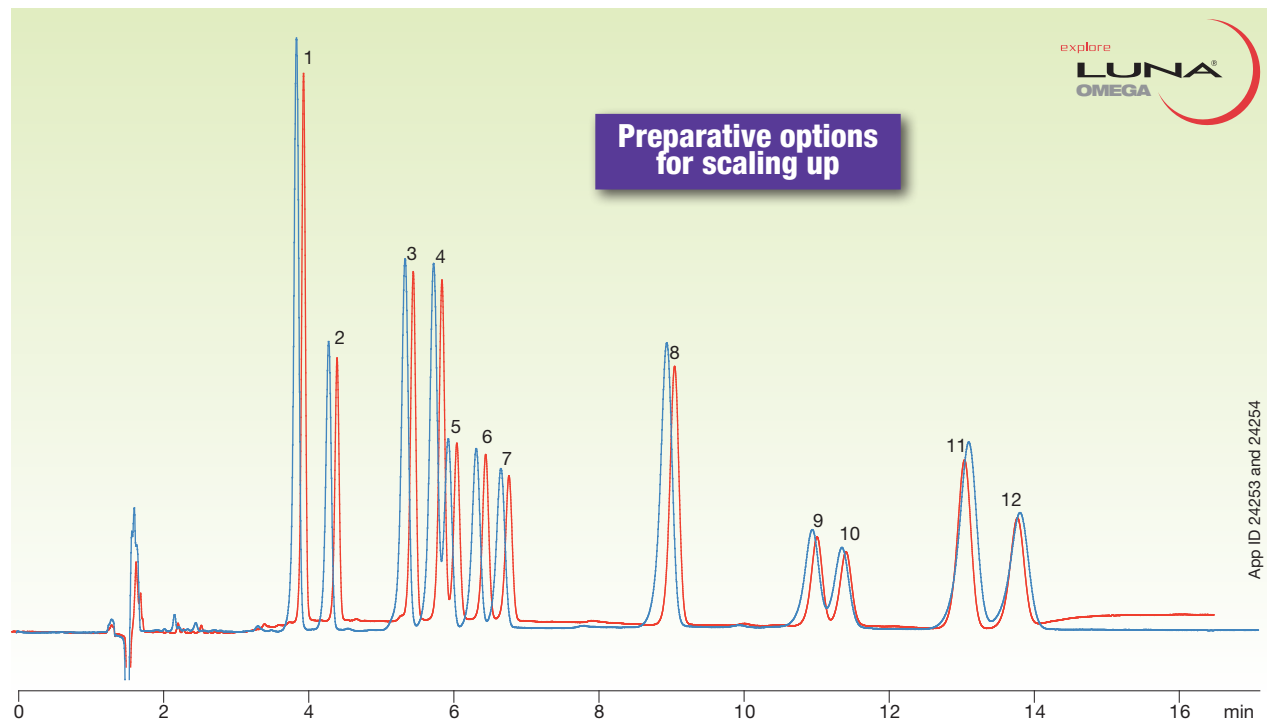
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Purifications

Analytical/PREP

Separation of 12 Cannabinoids using Luna Omega Polar C18 LC Columns



Overlaid Chromatograms

Column: Luna Omega 3 µm Polar C18
Luna Omega 5 µm Polar C18
Dimensions: 150 x 4.6 mm
Part No.: 00F-4760-E0
00F-4754-E0
Mobile Phase: Water with 0.1 % Formic acid /
Acetonitrile with 0.1 % Formic acid (25:75)
Flow Rate: 1 mL/min
Temperature: 22°C
Detection: UV @ 230 nm
Analytes:

1. Cannabidiol
2. Cannabidiolic Acid (CBDA)
3. Cannabinol (CBN)
4. Δ-9-Tetrahydrocannabinol (THC)
5. Δ-9-Tetrahydrocannabinolic Acid (THCA-A)
6. Cannabichromene (CBC)
7. Cannabigerol (CBG)
8. Δ-8-Tetrahydrocannabinol (THC)
9. Cannabidivarinic Acid (CBDVA)
10. Cannabigerolic Acid (CBGA)
11. Cannabidivarin (CBDV)
12. Tetrahydrocannabivarin (THCV)

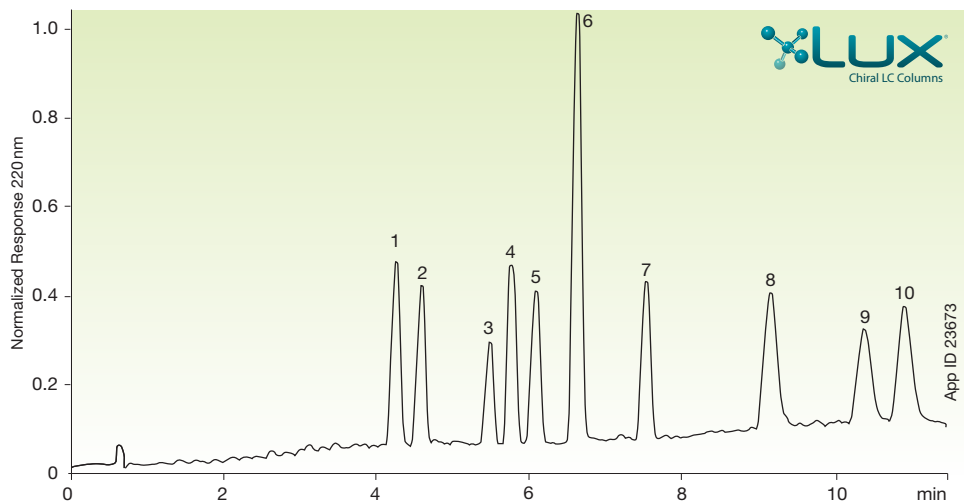
■ Luna 3 µm Omega Polar C18
■ Luna 5 µm Omega Polar C18

Purifications

Analytical/PREP



10 Cannabinoids using Lux 5 µm Cellulose-2 Chiral LC Columns



Column: Lux 5 µm Cellulose-2
Dimensions: 250 x 4.6 mm
Part No.: 00G-4457-E0
Mobile Phase: A: Carbon dioxide
 B: Ethanol
Gradient:

Time (min)	% B
0	1.5
2.8	4
9.7	17
10.6	17
10.9	1.5
11.5	1.5

Injection: 2 µL
Flow Rate: 6 mL/min
Temperature: Ambient
Backpressure: 120 Bar

Detection: UV @ 220 nm

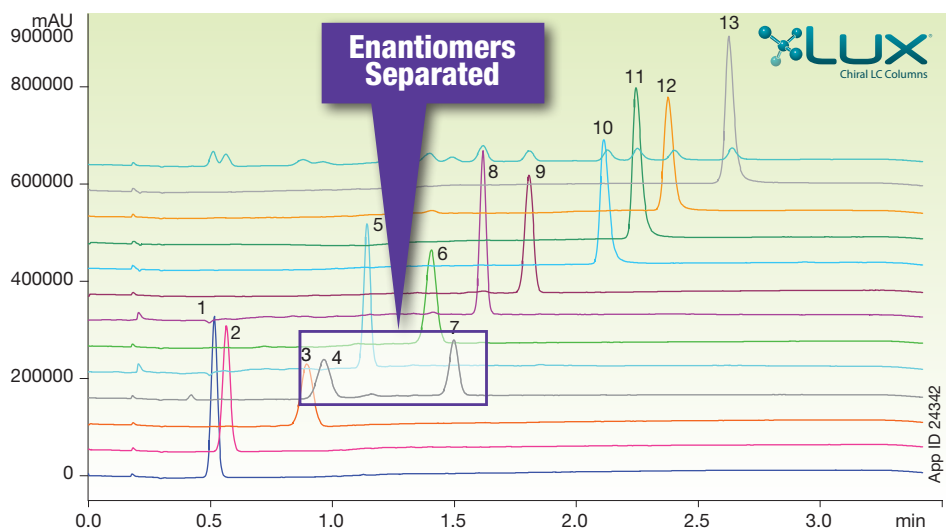
Sample:

1. Cannabidiol (CBD)
2. Cannabidiol (CBD)
3. Cannabichromene (CBC)
4. Tetrahydrocannabinol (THC)
5. Tetrahydrocannabinol (THC)
6. Cannabinol (CBN)
7. Cannabigerol (CBG)
8. Cannabidiolic acid (CBD-A)
9. Tetrahydrocannabinolic acid (THCA)
10. Cannabigerolic acid (CBG-A)

Note: 100 µg/mL mix of 10 cannabinoid standards obtained from Restek® and Cayman Chemicals®

Instrument: JASCO® 4000 analytical SFC (C02 pump PU-4350, Co-solvent PU-4380, PDA MD-4010, BPR BP-4340 AS AS-4350)

13 Cannabinoids using Lux 3 µm Cellulose-2 Chiral LC Columns



Column: Lux 3 µm Cellulose-2
Dimensions: 150 x 3.0 mm
Part No.: 00F-4456-Y0
Mobile Phase: A: Carbon dioxide
 B: Methanol

Gradient:

Time (min)	% B
0	4
3	25
3.5	25

Flow Rate: 5 mL/min
Detection: UV @ 220 nm
Temperature: 40 °C

Sample: Cannabinoid mix of 12

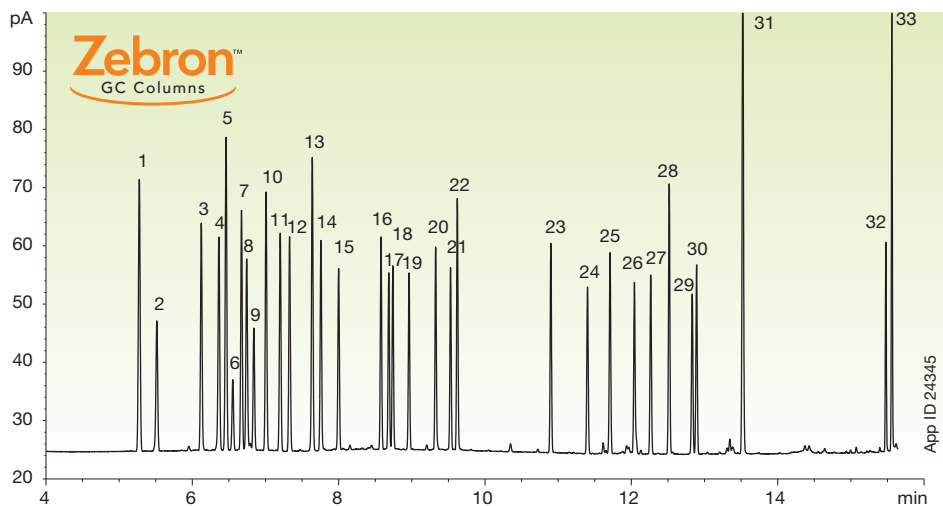
1. CBDV	8. THCV
2. CBN	9. CBG
3. Δ-8-THC	10. CBDA
4. CBC (Enantiomer 1)	11. CBDVA
5. CBD	12. THCA
6. Δ-9-THC	13. CBG-A
7. CBC (Enantiomer 2)	

Terpenes

GC-FID



33 Primary and Secondary Terpenes by GC-FID using Zebron ZB-5PLUS™ GC Columns

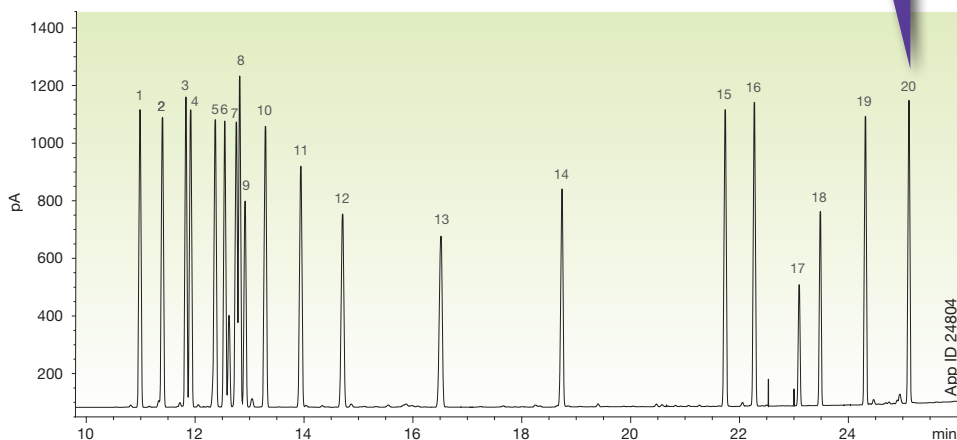


Column: Zebron ZB-5PLUS
Dimensions: 20 m x 0.18 mm x 0.36 µm
Part No.: 7FD-G032-53
Guard: 5 m Z-Guard™ (7AD-G000-00-GZ0)
Injection: Split 20:1 @ 250 °C, 1 µL
Recommended Liner: Zebron PLUS Single Taper Z-Liner™
Liner Part No.: AG2-0A13-01
Carrier Gas: Helium @ 1.9 mL/min
Oven Program: 35 °C to 105 °C @ 10 °C/min to 205 °C @ 15 °C/min to 360 °C @ 35 °C/min for 1.9 min
Detector: FID @ 340 °C
Sample: Terpenes are 50-100 ppm in acetonitrile

- | | | |
|-------------------|----------------------|-------------------------|
| 1. α-Pinene | 12. Sabinine hydrate | 23. Geranyl acetate |
| 2. Camphene | 13. Terpineolene | 24. Trans-Caryophyllene |
| 3. Myrcene | 14. Linalool | 25. α-Humulene |
| 4. α-Phellandrene | 15. Fenchol | 26. Valencene |
| 5. 3-Carene | 16. Isoborneol | 27. Nerolidol-1 |
| 6. α-Terpinene | 17. Borneol | 28. Nerolidol-2 |
| 7. p-Cymene | 18. Menthol | 29. Caryophyllene oxide |
| 8. Limonene | 19. α-Terpineol | 30. Guaiol |
| 9. Ocimene-1 | 20. Citronellol | 31. α-Bisabolol |
| 10. Ocimene-2 | 21. Pulegone | 32. Phytol-1 |
| 11. γ-Terpinene | 22. Geraniol | 33. Phytol-2 |

20 Terpenes using Zebron ZB-624PLUS™

Last analyte elutes around 280 °C



Column: Zebron ZB-624PLUS
Dimensions: 30 m x 0.25 mm x 1.40 µm
Part No.: 7HG-G040-27
Recommended Liner: Straight Z-Liner™
Injection: Split 20:1 1 µL @ 250 °C,
Carrier Gas: Helium @ 1.0 mL/min (constant flow)
Oven Program: 50 °C for 1 minute, 160 °C @ 10 °C/min for 4 min, then go to 280 °C @ 12 °C/min
Detection: FID @ 300 °C
Analytes:

- | | |
|-----------------|---------------------|
| 1. α-Pinene | 11. Terpinolene |
| 2. Camphene | 12. Linalool |
| 3. β-Myrcene | 13. Isopulegol |
| 4. (-)-β-Pinene | 14. Geraniol |
| 5. Δ-3-Carene | 15. β-Caryophyllene |
| 6. α-Terpinene | 16. α-Humulene |
| 7. d-Limonene | 17. Nerolidol 1 |
| 8. Δ-Cymene | 18. Nerolidol 1 |
| 9. Ocimene | 19. Guaiol |
| 10. γ-Terpinene | 20. α-Bisabolol |

For more details visit

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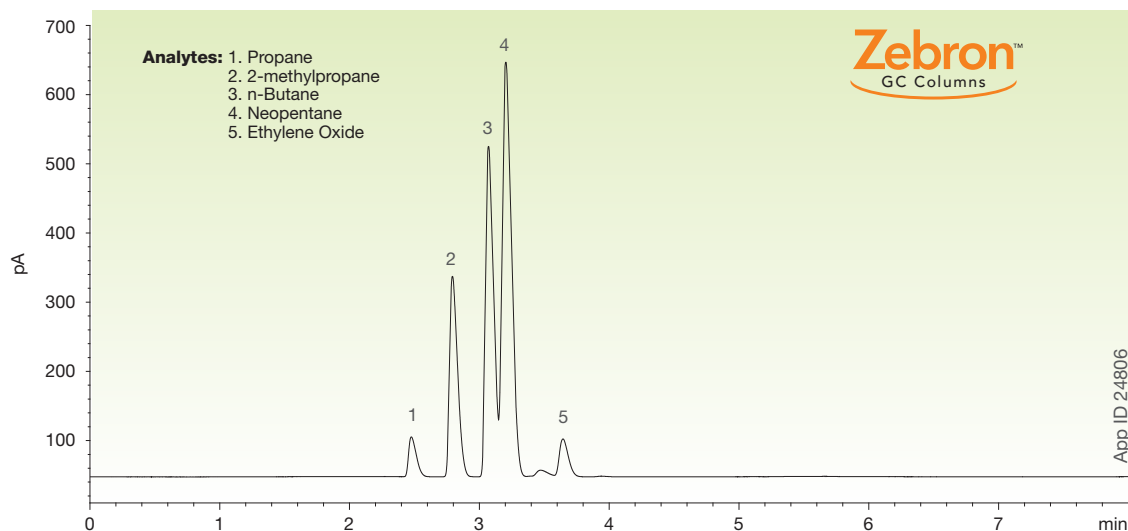
TN-1277

Residual Solvents

GC-FID



Cannabis Residual Solvents by GC-FID using Zebron ZB-624^{PLUS}

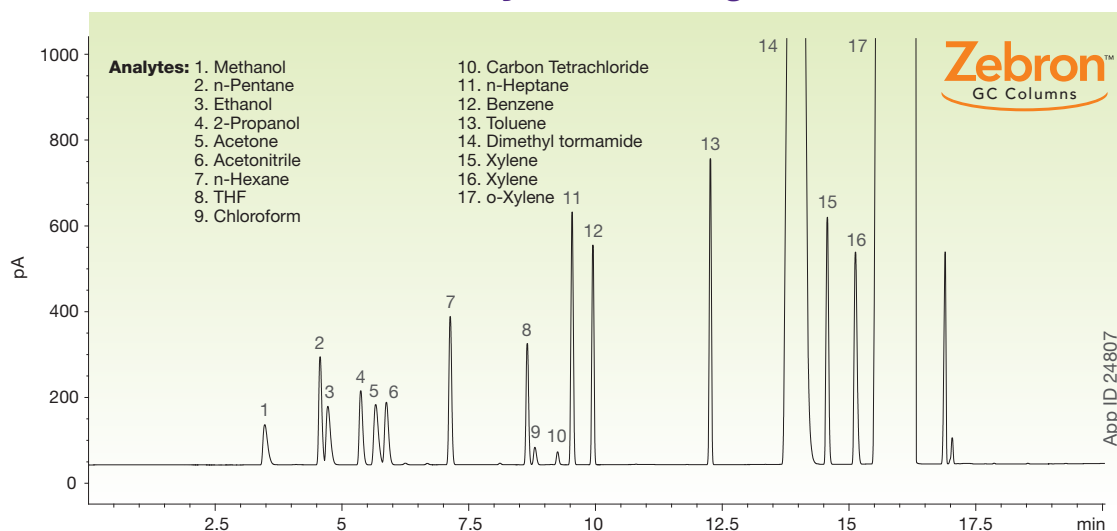


One Column Solution for Cannabis Residual Solvents and Terpenes

Same conditions for all separations:

Column: Zebron ZB-624^{PLUS}
Dimensions: 30 m x 0.25 mm x 1.4 μ m
Part No.: 7HG-G040-27
Recommended Liner: Zebron PLUS Liner Straight Z-Liner™
Liner Part No.: AG2-0A03-05
Injection: Split 10:1 1 μ L @ 200 °C,
Carrier Gas: Helium @ 1.0 mL/min (constant flow)
Oven Program: 35 °C for 4.0 min, 50 °C at 20 °C/min for 1.0 min, 160 °C at 10 °C/min for 4.0 min, 300 °C at 15 °C/min for 5.0 min.
Detection: FID @ 240 °C

Cannabis Residual Solvents by GC-FID using Zebron ZB-624^{PLUS}



Sample Preparation

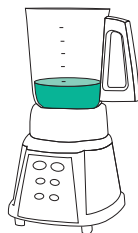
Ordering Information

QuEChERS, a quicker and easier sample preparation choice

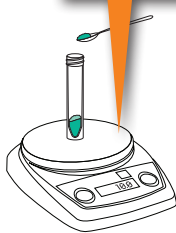
roQ
QuEChERS Kits

Step 1

Extraction



Blend fruits or vegetables to be analyzed.



Weigh blended sample.

Easily Weigh Out Samples

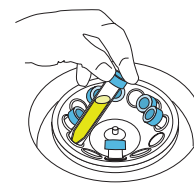


Add salts and acetonitrile.

No Mess Salt Packets



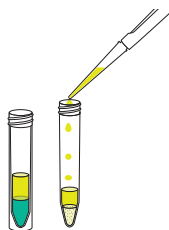
Shake tube for 1 minute.



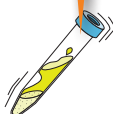
Centrifuge tube for 5 minutes.

Step 2

Clean Up/dSPE

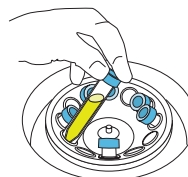


Add supernatant from extraction procedure into a roQ dSPE tube.



Shake dSPE tube for 30 seconds.

Avoid Leaky Tubes!
Our tubes are designed to seal completely



Centrifuge dSPE tube for 5 minutes.

roQ Extraction Kits

Extraction kits contain fifty easy-pour salt packets and fifty 50 mL stand-alone centrifuge tubes

Description	Unit	Part No.
AOAC 2007.01 Method Extraction Kits		
6.0g MgSO ₄ , 1.5g NaOAc	50/pk	KS0-8911*
EN 15662 Method Extraction Kits		
4.0g MgSO ₄ , 1.0g NaCl, 1.0g SCTD, 0.5g SCDS	50/pk	KS0-8909*
Original Non-buffered Method Extraction Kits		
4.0g MgSO ₄ , 1.0g NaCl	50/pk	KS0-8910
6.0g MgSO ₄ , 1.5g NaCl	50/pk	KS0-8912

*AOAC and EN Extraction Kits also available in traditional non-collared 50 mL centrifuge tubes, Part No.: KS0-8911-NC and KS0-8909-NC

roQ dSPE Kits

dSPE kits contain pre-weighed sorbents/salts inside 2 mL or 15 mL centrifuge tubes

Description	Unit	Part No.
2 mL dSPE Kits		
150 mg MgSO ₄ , 25 mg PSA, 25 mg C18E	100/pk	KS0-9504
150 mg MgSO ₄ , 25 mg PSA, 2.5 mg GCB	100/pk	KS0-9505
150 mg, MgSO ₄ , 25 mg PSA, 7.5 mg GCB	100/pk	KS0-8906
150 mg MgSO ₄ , 25 mg PSA	100/pk	KS0-9503
150 mg MgSO ₄ , 50 mg PSA, 50 mg C18E, 50 mg GCB	100/pk	KS0-9514
150 mg MgSO ₄ , 50 mg PSA, 50 mg C18E	100/pk	KS0-9512
150 mg MgSO ₄ , 50 mg PSA, 50 mg GCB	100/pk	KS0-9513
150 mg MgSO ₄ , 50 mg PSA	100/pk	KS0-9513
15 mL dSPE Kits		
900 mg MgSO ₄ , 150 mg PSA, 150 mg C18E	100/pk	KS0-9508
900 mg MgSO ₄ , 150 mg PSA, 15 mg GCB	100/pk	KS0-9509
900 mg MgSO ₄ , 150 mg PSA, 45 mg GCB	100/pk	KS0-9510
900 mg MgSO ₄ , 150 mg PSA	100/pk	KS0-9507
1200 mg MgSO ₄ , 400 mg PSA, 400 mg C18E, 400 mg GCB	100/pk	KS0-9518
1200 mg MgSO ₄ , 400 mg PSA, 400 mg C18E	100/pk	KS0-9516
1200 mg MgSO ₄ , 400 mg PSA, 400 mg GCB	100/pk	KS0-9517
1200 mg MgSO ₄ , 400 mg PSA	100/pk	KS0-9515

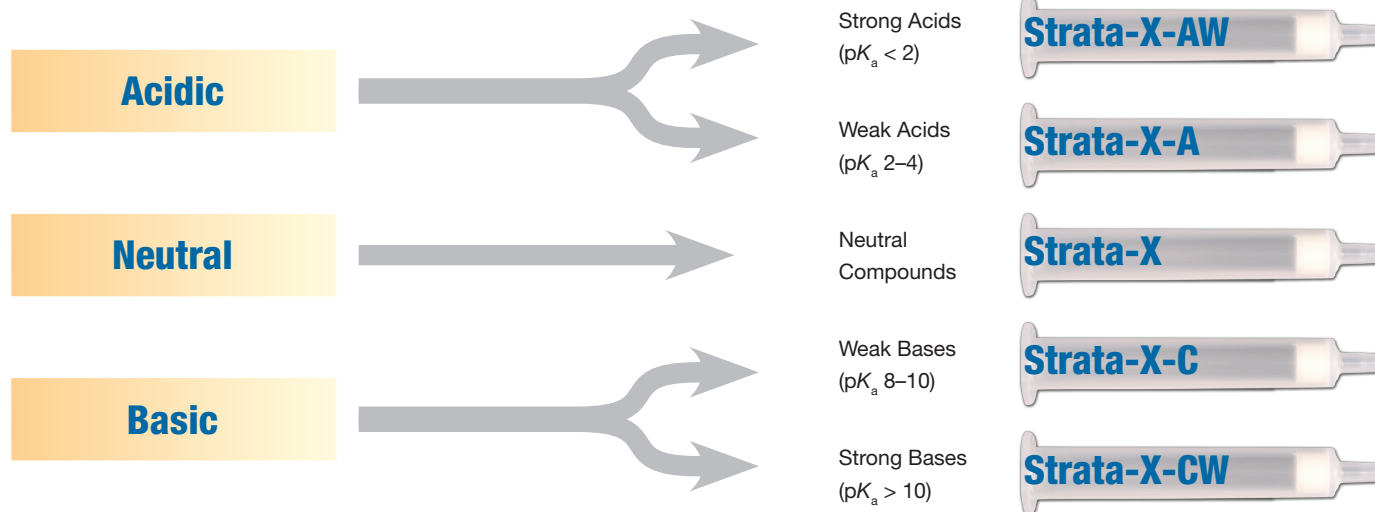
Sample Preparation

Ordering Information



Solid Phase Extraction (SPE) Targeted Extraction & Clean-up

Strata-X polymer-based SPE sorbent designed to meet your separation needs.



Ordering Information

			Strata-X	Strata-X-A	Strata-X-AW	Strata-X-C	Strata-X-CW
Format	Sorbent Mass	Unit	Part Number	Part Number	Part Number	Part Number	Part Number
Tube							
	100 mg	6 mL (30/box)	8B-S100-ECH	8B-S123-ECH	8B-S038-ECH	8B-S029-ECH	8B-S035-ECH
	200 mg	3 mL (50/box)	8B-S100-FBJ	8B-S123-FBJ	8B-S038-FBJ	8B-S029-FBJ	8B-S035-FBJ
	200 mg	6 mL (30/box)	8B-S100-FCH	8B-S123-FCH	8B-S038-FCH	8B-S029-FCH	8B-S035-FCH
	500 mg	6 mL (30/box)	8B-S100-HCH	8B-S123-HCH	8B-S038-HCH	8B-S029-HCH	8B-S035-HCH
Giga™ Tube							
	500 mg	12 mL (20/box)	8B-S100-HDG	8B-S123-HDG	8B-S038-HDG	8B-S029-HDG	—
	1 g	12 mL (20/box)	8B-S100-JDG	8B-S123-JDG	8B-S038-JDG	8B-S029-JDG	8B-S035-JDG
	1 g	20 mL (20/box)	8B-S100-JEG	8B-S123-JEG	8B-S038-JEG	8B-S029-JEG	8B-S035-JEG
	2 g	20 mL (20/box)	8B-S100-KEG	8B-S123-KEG	—	8B-S029-KEG	8B-S035-KEG
	5 g	60 mL (16/box)	8B-S100-LFF	8B-S123-LFF	8B-S038-LFF	8B-S029-LFF	8B-S035-LFF



Watch How SPE Works

www.phenomenex.com/SPE

GC Chromatography

Ordering Information



Zebron ZB-MultiResidue™ GC Columns

ZB-MultiResidue-1 GC Columns				
Length (m)	ID (mm)	df (μm)	Temp. Limits (°C)	Part No.
20	0.18	0.18	-60 to 320/340	7FD-G016-08
30	0.25	0.25	-60 to 320/340	7HG-G016-11
30	0.32	0.25	-60 to 320/340	7HM-G016-11
30	0.32	0.50	-60 to 320/340	7HM-G016-17
30	0.53	0.50	-60 to 320/340	7HK-G016-17

ZB-MultiResidue-2 GC Columns				
Length (m)	ID (mm)	df (μm)	Temp. Limits (°C)	Part No.
30	0.25	0.20	-60 to 320/340	7HG-G017-10
30	0.32	0.25	-60 to 320/340	7HM-G017-11
30	0.53	0.50	-60 to 320/340	7HK-G017-17

Zebron ZB-624PLUS™ GC Columns

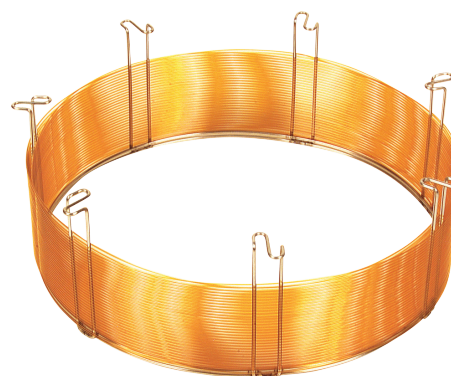
Length (m)	ID (mm)	df (μm)	Temp. Limits (°C)	Part No.
20	0.18	1.00	-20 to 300/320	7FD-G040-22
30	0.25	1.40	-20 to 300/320	7HG-G040-27
30	0.32	1.80	-20 to 300/320	7HM-G040-31
30	0.53	3.00	-20 to 300/320	7HK-G040-36
60	0.25	1.40	-20 to 300/320	7KG-G040-27
60	0.32	1.80	-20 to 300/320	7KM-G040-31
60	0.53	3.00	-20 to 300/320	7KK-G040-36

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G005-27-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

Zebron ZB-5PLUS™ GC Columns

Length (m)	ID (mm)	df (μm)	Temp. Limits (°C)	Part No.
10	0.18	0.18	-60 to 360/370	7CD-G032-08
15	0.25	0.25	-60 to 360/370	7EG-G032-11
20	0.18	0.18	-60 to 360/370	7FD-G032-08
30	0.25	1.00	-60 to 360/370	7HG-G032-22
30	0.25	0.25	-60 to 360/370	7HG-G032-11
30	0.25	0.5	-60 to 360/370	7HG-G032-17
30	0.32	1.00	-60 to 360/370	7HM-G032-22
30	0.32	0.50	-60 to 360/370	7HM-G032-17
30	0.32	0.25	-60 to 360/370	7HM-G032-11
60	0.25	0.25	-60 to 360/370	7KG-G032-11

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G005-27-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.



For more details visit

www.phenomenex.com/Zebtron

HPLC/UHPLC Chromatography

Ordering Information



1.7 µm Minibore Columns (mm)		SecurityGuard™ ULTRA Cartridges†			
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
F5	—	00B-4722-AN	00D-4722-AN	00F-4722-AN	AJO-9322
Biphenyl	00A-4328-AN	00B-4628-AN	00D-4628-AN	00F-4628-AN	AJO-9209
XB-C18	00A-4498-AN	00B-4498-AN	00D-4498-AN	00F-4498-AN	AJO-8782
C18	00A-4475-AN	00B-4475-AN	00D-4475-AN	00F-4475-AN	AJO-8782

for 2.1 mm ID

1.7 µm MidBore Columns (mm)		SecurityGuard ULTRA Cartridges†		
Phases	30 x 3.0	50 x 3.0	100 x 3.0	3/pk
XB-C18	00A-4498-YO	00B-4498-YO	00D-4498-YO	AJO-8775
C18	—	00B-4475-YO	00D-4475-YO	AJO-8775
HILIC	—	00B-4474-YO	—	AJO-8779

for 3.0 mm ID

2.6 µm Microbore Columns (mm)		50 x 1.0	100 x 1.0	150 x 1.0
Phases				
XB-C18	00B-4496-AO	00D-4496-AO	00F-4496-AO	

2.6 µm Minibore Columns (mm)		SecurityGuard ULTRA Cartridges†				
Phases	30 x 2.1	50 x 2.1	75 x 2.1	100 x 2.1	150 x 2.1	3/pk
Polar C18	00A-4759-AN	00B-4759-AN	—	00D-4759-AN	00F-4759-AN	AJO-9532
F5	00A-4723-AN	00B-4723-AN	—	00D-4723-AN	00F-4723-AN	AJO-9322
Biphenyl	00A-4622-AN	00B-4622-AN	—	00D-4622-AN	00F-4622-AN	AJO-9209
XB-C18	00A-4496-AN	00B-4496-AN	00C-4496-AN	00D-4496-AN	00F-4496-AN	AJO-8782
C18	00A-4462-AN	00B-4462-AN	00C-4462-AN	00D-4462-AN	00F-4462-AN	AJO-8782

for 2.1 mm ID

2.6 µm MidBore Columns (mm)		SecurityGuard ULTRA Cartridges†				
Phases	30 x 3.0	50 x 3.0	75 x 3.0	100 x 3.0	150 x 3.0	3/pk
Polar C18	—	00B-4759-YO	—	00D-4759-YO	00F-4759-YO	AJO-9531
F5	—	00B-4723-YO	—	00D-4723-YO	00F-4723-YO	AJO-9321
Biphenyl	—	00B-4622-YO	—	00D-4622-YO	00F-4622-YO	AJO-9208
XB-C18	00A-4496-YO	00B-4496-YO	00C-4496-YO	00D-4496-YO	00F-4496-YO	AJO-8775
C18	00A-4462-YO	00B-4462-YO	00C-4462-YO	00D-4462-YO	00F-4462-YO	AJO-8775

for 3.0 mm ID

2.6 µm Analytical Columns (mm)		SecurityGuard ULTRA Cartridges†				
Phases	30 x 4.6	50 x 4.6	75 x 4.6	100 x 4.6	150 x 4.6	3/pk
Polar C18	—	00B-4759-E0	—	00D-4759-E0	00F-4759-E0	AJO-9530
F5	—	00B-4723-E0	—	00D-4723-E0	00F-4723-E0	AJO-9320
Biphenyl	—	00B-4622-E0	—	00D-4622-E0	00F-4622-E0	AJO-9207
XB-C18	—	00B-4496-E0	00C-4496-E0	00D-4496-E0	00F-4496-E0	AJO-8768
C18	00A-4462-E0	00B-4462-E0	00C-4462-E0	00D-4462-E0	00F-4462-E0	AJO-8768

for 4.6 mm ID

5 µm Minibore Columns (mm)		SecurityGuard™ ULTRA Cartridges†			
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
F5	00A-4724-AN	00B-4724-AN	00D-4724-AN	00F-4724-AN	AJO-9322
Biphenyl	00A-4627-AN	00B-4627-AN	00D-4627-AN	—	AJO-9209
XB-C18	00A-4605-AN	00B-4605-AN	00D-4605-AN	—	AJO-8782
C18	00A-4601-AN	00B-4601-AN	00D-4601-AN	00F-4601-AN	AJO-8782

for 2.1 mm ID

5 µm MidBore™ Columns (mm)		SecurityGuard ULTRA Cartridges†		
Phases	50 x 3.0	100 x 3.0	150 x 3.0	3/pk
F5	00B-4724-YO	00D-4724-YO	00F-4724-YO	AJO-9321
Biphenyl	00B-4627-YO	00D-4627-YO	00F-4627-YO	AJO-9208
XB-C18	00B-4605-YO	00D-4605-YO	00F-4605-YO	AJO-8775
C18	00B-4601-YO	00D-4601-YO	00F-4601-YO	AJO-8775

for 3.0 mm ID

5 µm Analytical Columns (mm)				SecurityGuard ULTRA Cartridges†	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	3/pk
F5	00B-4724-E0	00D-4724-E0	00F-4724-E0	00G-4724-E0	AJO-9320
Biphenyl	00B-4627-E0	00D-4627-E0	00F-4627-E0	00G-4627-E0	AJO-9207
XB-C18	00B-4605-E0	00D-4605-E0	00F-4605-E0	00G-4605-E0	AJO-8768
C18	00B-4601-E0	00D-4601-E0	00F-4601-E0	00G-4601-E0	AJO-8768

for 4.6 mm ID

‡ SecurityGuard ULTRA Cartridges require holder, Part No.: AJO-9000

* PREP SecurityGuard Cartridges require holder, Part No.: AJO-8223

** PREP SecurityGuard Cartridges require holder, Part No.: AJO-8277

*** SemiPrep SecurityGuard Cartridges require holder, Part No.: AJO-9281

HPLC/UHPLC Chromatography

Ordering Information



1.6 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
Polar C18	00B-4748-A0	00D-4748-A0	00F-4748-A0

1.6 µm Minibore Columns (mm)				SecurityGuard™ ULTRA Cartridges [‡]	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk
Polar C18	00A-4748-AN	00B-4748-AN	00D-4748-AN	00F-4748-AN	AJ0-9505
C18	00A-4742-AN	00B-4742-AN	00D-4742-AN	00F-4742-AN	AJ0-9502
					for 2.1 mm ID

3 µm Minibore Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	4 x 2.0*
Polar C18	00A-4760-AN	00B-4760-AN	00D-4760-AN	00F-4760-AN	AJ0-7600
				for ID:	2.0 - 3.0 mm

3 µm MidBore™ Columns (mm)				SecurityGuard Cartridges (mm)
Phases	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0*
Polar C18	00B-4760-Y0	00D-4760-Y0	00F-4760-Y0	AJ0-7600
				for ID: 2.0 - 3.0 mm

3 µm Analytical Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0*
Polar C18	00B-4760-E0	00D-4760-E0	00F-4760-E0	00G-4760-E0	AJ0-7601
				for ID:	3.1-8.0 mm

5 µm Minibore Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	4 x 2.0*
Polar C18	00A-4754-AN	00B-4754-AN	00D-4754-AN	00F-4754-AN	AJ0-7600
				for ID:	2.0 - 3.0 mm

5 µm MidBore™ Columns (mm)				SecurityGuard Cartridges (mm)
Phases	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0*
Polar C18	00B-4754-Y0	00D-4754-Y0	00F-4754-Y0	AJ0-7600
				for ID: 2.0 - 3.0 mm

5 µm Analytical Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0*
Polar C18	00B-4754-E0	00D-4754-E0	00F-4754-E0	00G-4754-E0	AJ0-7601
				for ID:	3.1-8.0 mm

5 µm Axia™ Packed Preparative Columns (mm)				SecurityGuard Cartridges (mm)	
Phases	150 x 21.2	250 x 21.2	150 x 30	15 x 21.2**	15 x 30.0*
Polar C18	00F-4754-P0-AX	00G-4754-P0-AX	00F-4754-U0-AX	AJ0-7603	AJ0-7604
				for ID: 21.2 mm	for ID: 30 mm

5 µm Axia™ Packed Preparative Columns (mm)				SecurityGuard Cartridges (mm)
Phases	250 x 30	250 x 50	15 x 21.2**	15 x 30.0*
Polar C18	00G-4754-U0-AX	00G-4754-V0-AX	AJ0-7603	AJ0-7604
			for ID: 21.2 mm	for ID: 30 mm

- † SecurityGuard ULTRA Cartridges require holder, Part No.: AJ0-9000
- * SecurityGuard Analytical Cartridges require holder, Part No.: KJ0-4282
- ** PREP SecurityGuard Cartridges require holder, Part No.: AJ0-8223
- PREP SecurityGuard Cartridges require holder, Part No.: AJ0-8277

Straggering UHPLC and HPLC
Efficiency and Performance

www.phenomenex.com/LunaOmega

Supercritical Fluid Extractions

Ordering Information

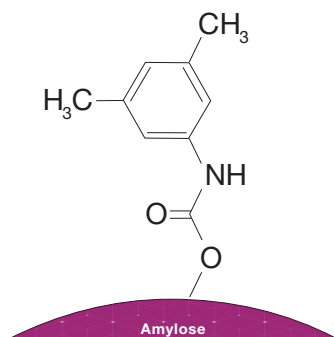
Lux

- High efficiency and loading capacity
- Stable in normal phase, polar organic, SFC, and reversed phase conditions
- 3 μ m and 5 μ m packed columns for separation and speed preferences

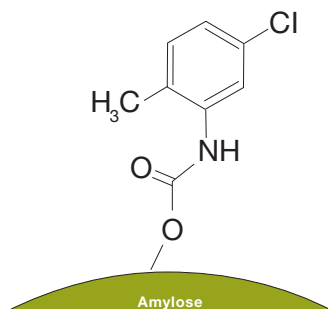


5 μ m Minibore and Analytical Columns (mm)						SecurityGuard™ Cartridges (mm)	
Phases	50 x 2.0	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 2.0*	4 x 3.0*
i-Cellulose-5	—	00B-4756-E0	00D-4756-E0	00F-4756-E0	00G-4756-E0	AJO-8631	AJO-8632
Cellulose-1	00B-4459-B0	00B-4459-E0	00D-4459-E0	00F-4459-E0	00G-4459-E0	AJO-8402	AJO-8403
Cellulose-2	00B-4457-B0	00B-4457-E0	00D-4457-E0	00F-4457-E0	00G-4457-E0	AJO-8398	AJO-8366
Cellulose-3	00B-4493-B0	00B-4493-E0	00D-4493-E0	00F-4493-E0	00G-4493-E0	AJO-8621	AJO-8622
Cellulose-4	00B-4491-B0	00B-4491-E0	00D-4491-E0	00F-4491-E0	00G-4491-E0	AJO-8626	AJO-8627
Amylose-1	00B-4732-B0	00B-4732-E0	00D-4732-E0	00F-4732-E0	00G-4732-E0	AJO-9337	AJO-9336
Amylose-2	00B-4472-B0	00B-4472-E0	00D-4472-E0	00F-4472-E0	00G-4472-E0	AJO-8471	AJO-8470
						for ID: 2.0–3.0 mm	3.2–8.0 mm

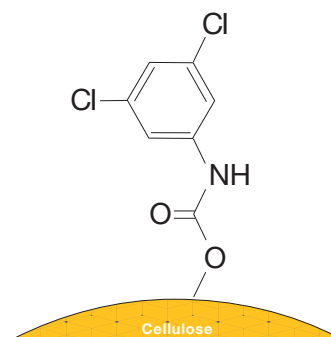
*SecurityGuard Analytical Cartridges require holder, Part No.: KJO-4282



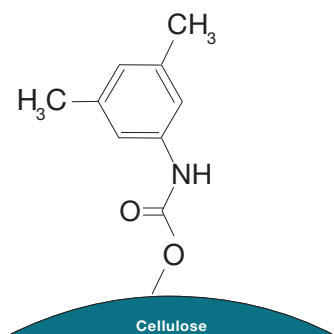
Lux Amylose-1
Amylose tris
(3,5-dimethylphenylcarbamate)



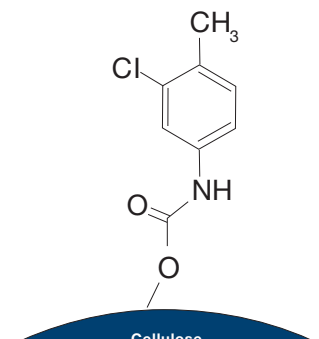
Lux Amylose-2
Amylose tris
(5-chloro-2-methylphenylcarbamate)



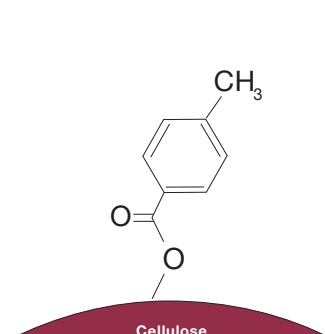
Lux i-Cellulose-5
Cellulose tris
(3,5-dichlorophenylcarbamate)



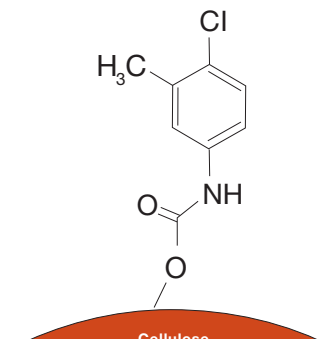
Lux Cellulose-1
Cellulose tris
(3,5-dimethylphenylcarbamate)



Lux Cellulose-2
Cellulose tris
(3-chloro-4-methylphenylcarbamate)



Lux Cellulose-3
Cellulose tris(4-methylbenzoate)



Lux Cellulose-4
Cellulose tris
(4-chloro-3-methylphenylcarbamate)

Accessories Selection

Ordering Information

Phenex™ Syringe Filters

- Increase column life and save money!
- Ensure more accurate, consistent results

1. 26 mm diameter.
2. Hydrophobic membrane. Can be made hydrophilic by pre-wetting with IPA.
3. 28 mm diameter.
4. 17 mm diameter



	4 mm diameter for ≤ 2 mL sample volumes			15 mm diameter for 2 – 10 mL sample volumes			25 - 28 mm diameter for 10 – 100 mL sample volumes		
	Part No.		Unit	Part No.		Unit	Part No.		Unit
	0.20 µm	0.45 µm		0.20 µm	0.45 µm		0.20 µm	0.45 µm	
Phenex-RC (Regenerated Cellulose)	AF0-3203-12	AF0-3103-12	100/pk	AF0-2203-12	AF0-2103-12	100/pk	AF0-8203-12 ¹	AF0-8103-12 ¹	100/pk
	AF0-3203-52	AF0-3103-52	500/pk	AF0-2203-52	AF0-2103-52	500/pk	AF0-8203-52 ¹	AF0-8103-52 ¹	500/pk
Phenex-PTFE ² (Polytetrafluoroethylene)	AF0-3202-12	AF0-3102-12	100/pk	AF0-2202-12	AF0-2102-12	100/pk	AF0-1202-12	AF0-1102-12	100/pk
	AF0-3202-52	AF0-3102-52	500/pk	AF0-2202-52	AF0-2102-52	500/pk	AF0-1202-52	AF0-1102-52	500/pk
Phenex-NY (Nylon)	AF3-3207-12	AF3-3107-12	100/pk	AF0-2207-12	AF0-2107-12	100/pk	AF0-1207-12	AF0-1107-12	100/pk
	AF3-3207-52	AF3-3107-52	500/pk	AF0-2207-52	AF0-2107-52	500/pk	AF0-1207-52	AF0-1107-52	500/pk
Phenex-GF/NY (Glass Fiber/Nylon)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a Nylon (NY) membrane. Excellent for filtration of particle-laden samples. Use less hand pressure to filter even the most difficult samples. Outlet connection is luer lock.						AF0-1A47-12 ³	AF0-1B47-12 ³	100/pk
							AF0-1A47-52 ³	AF0-1B47-52 ³	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	—	AF6-5206-12 ⁴	AF6-5106-12 ⁴	100/pk	AF6-6206-12	AF6-6106-12	100/pk
	—	—	—	AF6-5206-52 ⁴	AF6-5106-52 ⁴	500/pk	AF6-6206-52	AF6-6106-52	500/pk
Phenex-GF/PVDF (Glass Fiber / Polyvinylidene Fluoride)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a PVDF membrane. The hydrophilic PVDF membrane provides high flow rates and throughput, low extractables and broad chemical compatibility. This membrane binds less protein than nylon or PTFE.						AF6-6C06-12	AF6-6D06-12	100/pk
							AF6-6C06-52	AF6-6D06-52	500/pk

Verex™ Assembled Vial Kits and Storage Vial Kits

- Clear or amber, with open top or closed caps
- PTFE (Teflon®) faced 0.125 in. silicone septa or PTFE with foam urethane backing



Part No.	Description	Unit
ARO-9540-12	VOA/ASE 40 mL Screw, Clear w/ Caps 24-400 white PTFE/Silicone, open top	100/pk
ARO-9540-12-A	VOA/ASE 40 mL Screw, Clear w/ Caps 24-400 white PTFE/Silicone, (assembled), open top	100/pk
ARO-9551-12	Storage, 20 mL Screw, Amber w/ Caps 24-400 white PTFE/Foam Urethane liner, closed top	100/pk
ARO-9559-12	Storage, 20 mL Screw, Clear w/ Caps 24-400 white PTFE/Foam Urethane liner, closed top	100/pk

Verex Vials and Caps (Separate)

Part No.	Description	Unit
ARO-35V0-22	Vial, VOA/ASE, 40 mL Screw, Clear, 24-400 Threads (No Cap)	200/pk
ARO-8557-13-B	Cap (pre-assembled), Screw (24-414), w/ Bonded-in PTFE/Silicone septa, white	1000/pk

Headspace Screw-Top and Crimp-Top Seals / Closures

Part No.	Description	Unit
Crimp-Top		
ARO-5255-13	Seal, 20 mm Diameter, PTFE/Silicone magnetic cap	1000/pk
ARO-5250-13	Seal, 20 mm Diameter, PTFE/Silicone, silver	1000/pk
ARO-5220-13	Seal, 20 mm Diameter, PTFE/Silicone Pressure Release, silver	1000/pk
Screw-Top		
ARO-815M-13	Screw Cap, 18 mm, Magnetic, Silver, PTFE/Silicone septa (red/white)	1000/pk
ARO-81AM-13	Screw Cap, 18 mm, Magnetic, Silver, PTFE/Silicone septa (blue/white)	1000/pk

Headspace Vials - Screw-Top and Crimp-Top Headspace Vials

Part No.	Description	Unit
Crimp-Top		
ARO-3260-13	Headspace Vial, 23 x 75 mm, 20 mL Beveled Edge, Flat Bottom, Clear, No Patch	1000/pk
ARO-3263-13	Headspace Vial, 23 x 75 mm, 20 mL Beveled Rim, Flat Bottom., Clear, No Patch, Silanized	1000/pk
ARO-3290-13	Headspace Vial, 23 x 75 mm, 20 mL Square Rim, Flat Bottom, Clear, No Patch	1000/pk
ARO-3270-13	Headspace Vial, 23 x 75 mm, 20 mL Beveled Edge, Round Bottom, Clear, No Patch	1000/pk
Screw-Top		
ARO-3280-13	Headspace Vial, 23 x 75 mm, 20 mL 18 mm Screw, Round Bottom, Clear, No Patch	1000/pk
ARO-3281-13	Headspace Vial, 23 x 75 mm, 20 mL 18 mm Screw, Round Bottom, Amber, No Patch	1000/pk

Part No.	Description	Unit
Crimp-Top		
ARO-3260-13	Headspace Vial, 23 x 75 mm, 20 mL Beveled Edge, Flat Bottom, Clear, No Patch	1000/pk
ARO-3263-13	Headspace Vial, 23 x 75 mm, 20 mL Beveled Rim, Flat Bottom., Clear, No Patch, Silanized	1000/pk
ARO-3290-13	Headspace Vial, 23 x 75 mm, 20 mL Square Rim, Flat Bottom, Clear, No Patch	1000/pk
ARO-3270-13	Headspace Vial, 23 x 75 mm, 20 mL Beveled Edge, Round Bottom, Clear, No Patch	1000/pk
Screw-Top		
ARO-3280-13	Headspace Vial, 23 x 75 mm, 20 mL 18 mm Screw, Round Bottom, Clear, No Patch	1000/pk
ARO-3281-13	Headspace Vial, 23 x 75 mm, 20 mL 18 mm Screw, Round Bottom, Amber, No Patch	1000/pk

Accessories Selection

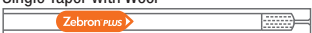
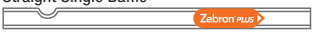
Ordering Information

Easy Seals™

Description	Unit	Part No.
Easy Seal Inlet Base Seal, Gold Plated, for Agilent GCs	2/pk	AG0-8619
Easy Seal Inlet Base Seal, Gold Plated, for Agilent GCs	10/pk	AG0-8620



Zebtron™ PLUS GC Inlet Liners for Agilent® Systems

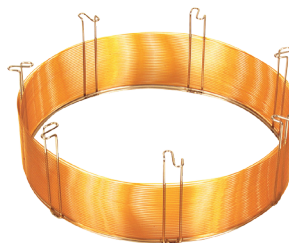
Description	Applications	Dimensions ID x L (mm)	Unit	Part No.
Single Taper with Wool 	Semi-volatiles	4 x 78.5	5/pk 25/pk	AG2-0A11-05 AG2-0A11-25
Single Taper 	Pesticides	4 x 78.5	5/pk 25/pk	AG2-0A10-05 AG2-0A10-25
Single Taper Z-Liner™ 	Semi-volatiles Dirty samples	4 x 78.5	5/pk 25/pk	AG2-0A13-05 AG2-0A13-25
Straight Z-Liner 	Dirty samples Volatiles High initial oven temperatures	4 x 78.5	5/pk 25/pk	AG2-0A03-05 AG2-0A03-25
Straight Single Baffle 	Semi-volatiles Pesticides	1.8 x 71	5/pk 25/pk	AG2-1F06-05 AG2-1F06-25



Zebtron Z-Guard™ GC Column Protection

- Improve separation and peak shapes (especially early eluters)
- Extend column lifetime by preventing stationary phase damage

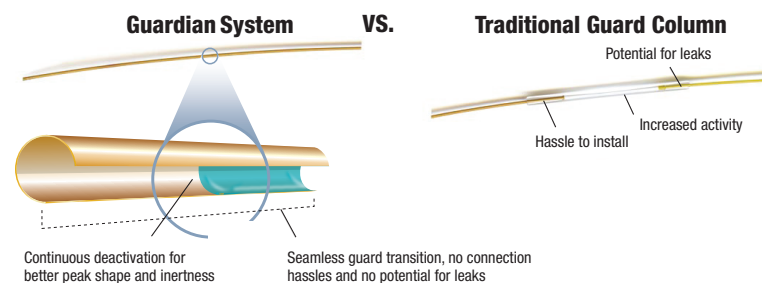
ID (mm)	Description	Part No. 5 Meter	Part No. 10 Meter
0.25	Guard Column Guard Column Kit	7AG-G000-00-GZ0 7AG-G000-00-GZK	7CG-G000-00-GZ0 7CG-G000-00-GZK
0.32	Guard Column Guard Column Kit	7AM-G000-00-GZ0 7AM-G000-00-GZK	7CM-G000-00-GZ0 7CM-G000-00-GZK
0.53	Guard Column Guard Column Kit	7AK-G000-00-GZ0 7AK-G000-00-GZK	7CK-G000-00-GZ0 7CK-G000-00-GZK



Zebtron Guardian™ Integrated Guard Columns

Built-In Column Protection: No Leaks, No Worries!

- Eliminate the potential for leaks
- Extend column life



Accessories Selection

Ordering Information

SecurityGuard™ Standard and PREP Column Protection*

- Effectively removes both contaminants and particulates to increase column lifetime
- Prevents micro-particulates and chemical contaminants from damaging your column and detector

Choose your HPLC Column ID (mm)

			2.0 - 3.0	3.2 - 8.0	9.0 - 16.0	18.0 - 29.0	30.0 - 49.0
Material	Description	pH Stability	Analytical		SemiPrep	Prep	
Cartridges for General Purpose			10/pk	10/pk	3/pk	Ea	Ea
C18	(ODS, Octadecyl)	1.5 - 10	AJO-4286	AJO-4287	AJO-7221	AJO-7839	AJO-8301
C8	(MOS, Octyl)	1.5 - 10	AJO-4289	AJO-4290	AJO-7222	AJO-7840	AJO-8302
Silica	—	—	AJO-4347	AJO-4348	AJO-7223	AJO-7229	AJO-8312
HILIC	HILIC	1.5 - 8	AJO-8328	AJO-8329	AJO-8902	—	—
NH2	(Amino, Aminopropyl)	1.5 - 11	AJO-4301	AJO-4302	AJO-7364	AJO-8162	AJO-8309
CN	(Cyano, Cyanopropyl)	2 - 7.5	AJO-4304	AJO-4305	AJO-7313	AJO-8220	AJO-8311
Phenyl	(Phenylhexyl)	1.5 - 10	AJO-4350	AJO-4351	AJO-7314	AJO-7841	AJO-8303
PFP(2)	Pentafluorophenyl	1.5 - 8	AJO-8326	AJO-8327	AJO-8376	AJO-8377	AJO-8378
Polar-RP	(Ether-linked Phenyl)	1.5 - 7	AJO-6075	AJO-6076	AJO-7276	AJO-7845	AJO-8307
Fusion-RP	(C18 Polar Embedded)	1.5 - 10	AJO-7556	AJO-7557	AJO-7558	AJO-7844	AJO-8306
Gemini® NX-C18	(C18 TWIN-NX™ Technology)	1 - 12	AJO-8367	AJO-8368	AJO-8369	AJO-8370	AJO-8371
Gemini C18	(C18 TWIN-NX™ Technology)	1 - 12	AJO-7596	AJO-7597	AJO-7598	AJO-7846	AJO-8308
Gemini C6-Phenyl	(C6-Phenyl TWIN Technology)	1 - 12	AJO-7914	AJO-7915	AJO-9156	AJO-9157	AJO-9158
Luna® Omega Polar C18	(Polar Function C18)	1.5 – 10	AJO-7600	AJO-7601	AJO-9519	AJO-7603	AJO-7604
Guard Cartridge Holders (one-time purchase only)			/kit	/holder	/kit	/kit	
*For additional guard column phases see www.phenomenex.com/securityguard			KJO-4282		AJO-9281	AJO-8223	AJO-8277
							

SecurityGuard ULTRA Column Protection**

- Protects your columns and detectors from micro-particulates in the sample, solvent, or instrument
- Improve your UHPLC column lifetime

Part No.	Description	Unit
Cartridges for 4.6 mm ID UHPLC columns		
AJO-8768	C18 (ODS, Octadecyl) with 1.5 - 8.5 * pH stability	3/pk
AJO-9320	F5 (Pentafluorophenyl) with 1.5 - 8.5 pH stability	3/pk
AJO-8770	C8 (MOS, Octyl) with 1.5 - 8.5 * pH stability	3/pk
AJO-8774	Phenyl (Phenylhexyl) with 1.5 - 8.5 * pH stability	3/pk
AJO-8772	HILIC (HILIC) with 2.0 - 7.5 pH stability	3/pk
Holder		
AJO-9000	SecurityGuard ULTRA Cartridge Holder	Ea

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

**For additional guard column phases see www.phenomenex.com/securityguardultra



HPLC / UHPLC Core-Shell Performance Enhancement Kits

- Increase method efficiency, resolution, and detection
- Improve results for sensitive and demanding applications

Part No.	Description	Unit
AQO-8892	Core-Shell Performance Enhancement Kit, Includes: PEEKsil™ Tubing, Fittings and Tool	Ea
*Kit AQO-8892 includes the following components:		
	PEEKsil Tubing 0.100 mm ID x 1/16 in. OD x 20 cm L, Red	2/pk
	PEEKsil Tubing 0.100 mm ID x 1/16 in. OD x 10 cm L, Red	Ea
	Sure-Lok™ High Pressure PEEK 1-Pc Nut, 10-32, for 1/16 in. Tubing	10/pk
	Sure-Lok Fitting Tightening Tool, Aluminum	Ea



Free Method Development Support and Guidance



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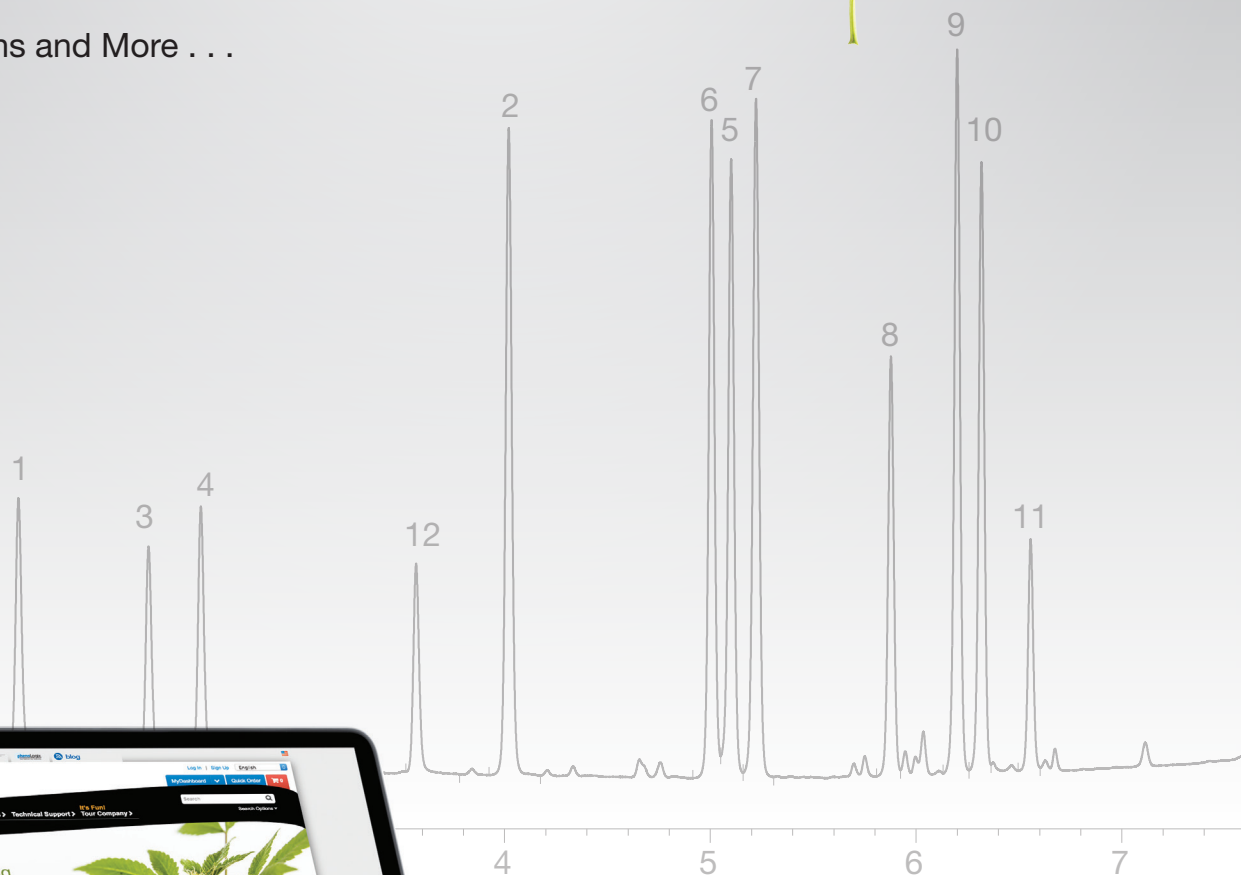
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Strata-X is patented by Phenomenex. U.S. Patent No. 7,119,145.

SecurityGuard is patented by Phenomenex. U.S. Patent No. 6,162,362

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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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