

ZB-624PLUS™

Zebron™
GC Columns

- Enhanced Peak Shape with Superior Deactivation
- Increased Sensitivity for High Boiling Solvents
- Extremely Low Bleed for GC-MS
- High Temperature Stability (300/320 °C)



The Next Generation of
GC Inertness

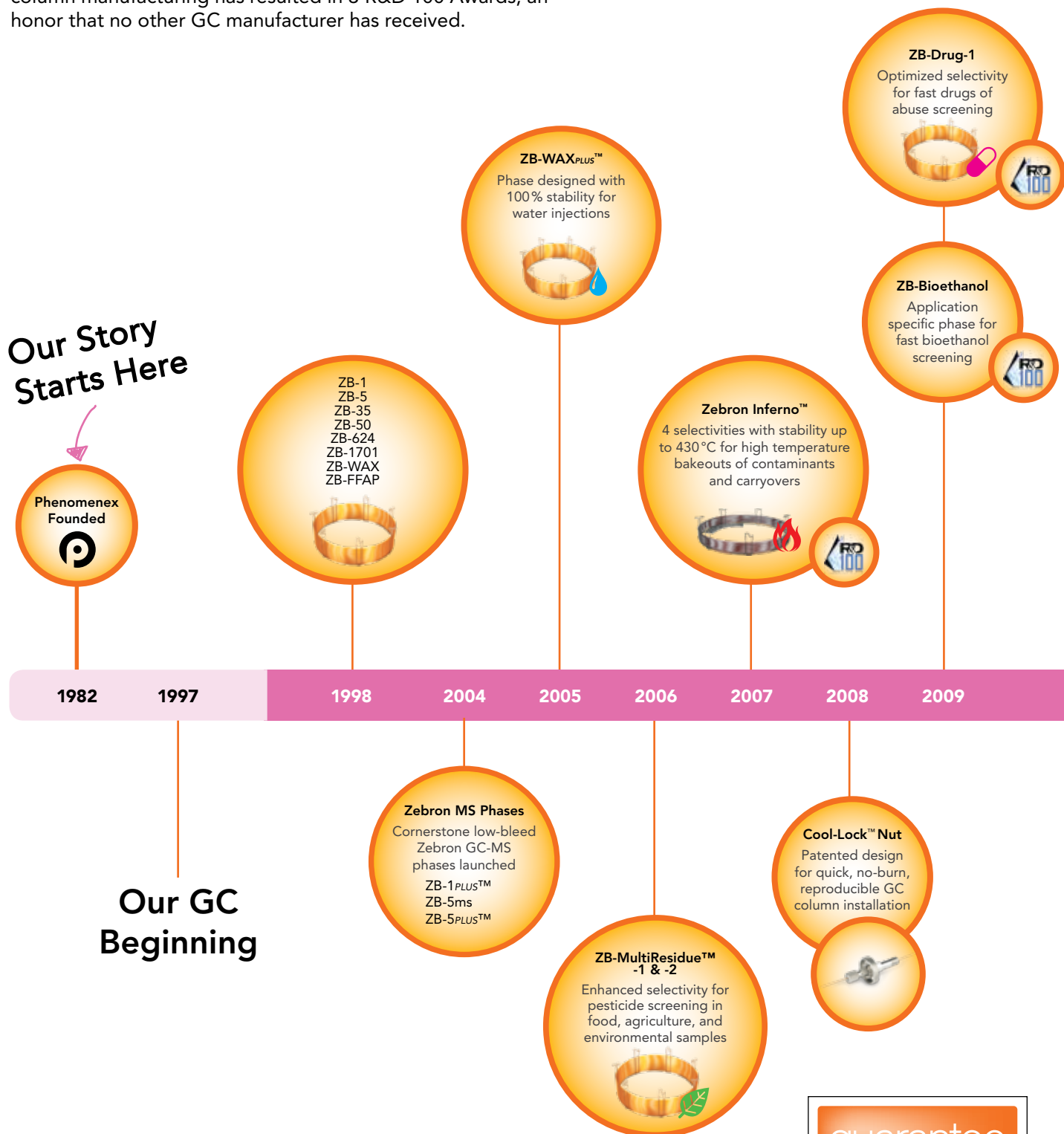
phenomenex®
...breaking with tradition™



www.phenomenex.com/zb624plus

Get to Know the Zebron™ GC Column Family!

Zebron GC columns are engineered by expert Phenomenex GC scientists to better support our Gas Chromatography consumers. Our inventive philosophy and expertise in GC column manufacturing has resulted in 3 R&D 100 Awards, an honor that no other GC manufacturer has received.



guarantee

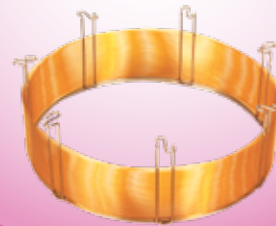
If Zebron columns do not provide you with equivalent or better separations as compared to any other GC column of the same phase and comparable dimensions, return the column with comparative data within 45 days for a FULL REFUND.

Zebtron™ Columns are Guaranteed to Perform!

Our R&D and production team has on average 25+ years of GC experience, and many spent years creating keystone phases at J&W Scientific prior to joining the Phenomenex team. This expertise means Zebtron products are designed to work out-of-the-box, headache free. We guarantee it!

NEW ZB-624PLUS™

The Next Generation of GC Inertness



ZB-1XT SimDist
Metal column for robust simulated distillation with Glass Infusion™ technology



ZB-CLPesticides -1 & -2
Enhanced selectivity for dual-column pesticide screening by GC-ECD



ZB-SemiVolatiles
Premier phase with supreme inertness for bases, neutrals, and acids with Enviro-Inert™ Deactivation Technology



Zebtron PLUS Inlet Liners

Inert, easy install liners for superior sample protection



2010

2011

2012

2014

2015

2016

2017

2018

Easy Seals™

Easy, washerless, leak-tight inlet base seals with 2x the gold plating



ZB-5MSPLUS™

Better peak shapes and responses for pharmaceutical, speciality chemicals, toxicology, and food samples



ZB-FAME

Faster results and improved separation of cis/trans FAME isomers

ZB-88

Olive Oil and Hydrogenated Oil Analysis

ZB-23

Omega-3 Fatty Acids and Fish Oil Testing

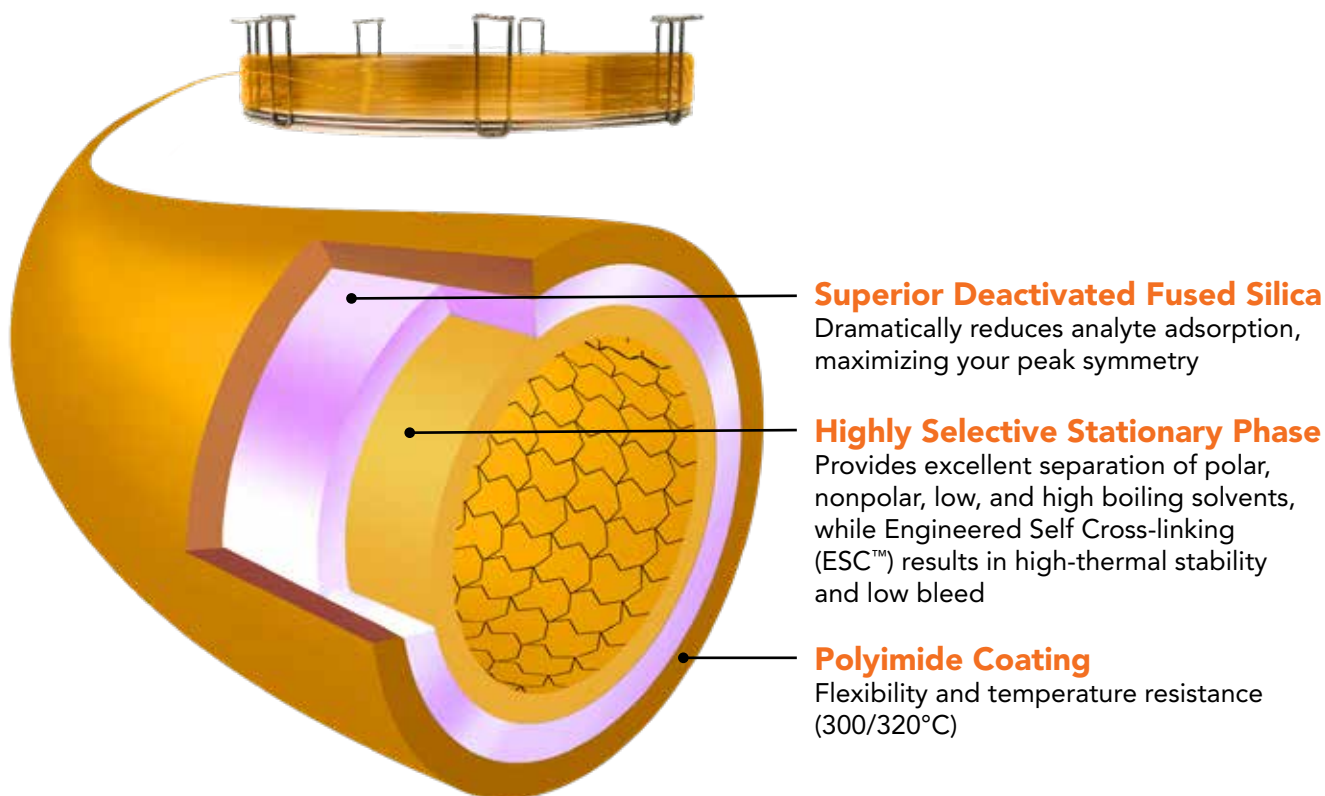


ZB-PAH

Accurate PAH analysis from food and environmental samples

Meet Your NEW Zebron™ ZB-624PLUS™!

Zebron ZB-624PLUS is the optimal choice for the analysis of volatile compounds for Environmental, Pharmaceutical, Food, Cannabis, and Specialty Chemicals. The unique "Plus" deactivation process enhances peak shape, improves signal-to-noise levels and increases sensitivity for qualitative and quantitative analysis. Upgrade your existing 624 phase to Zebron ZB-624PLUS GC columns and get all the analytical benefits of proven inertness.



Superior Deactivated Fused Silica

Dramatically reduces analyte adsorption, maximizing your peak symmetry

Highly Selective Stationary Phase

Provides excellent separation of polar, nonpolar, low, and high boiling solvents, while Engineered Self Cross-linking (ESC™) results in high-thermal stability and low bleed

Polyimide Coating

Flexibility and temperature resistance (300/320°C)

What makes the PLUS in ZB-624PLUS?

<p>Low Bleed Engineered Self Cross-linking (ESC) provides high thermal stability with maximum column temperatures up to 300/320°C.</p>	<p>Enhanced Inertness Proprietary superior deactivation gives great peak shape for troublesome compounds.</p>
<p>High Selectivity A G43 phase that's highly selective for polar, non polar, low and high boiling solvents.</p>	<p>Column-to-Column Reproducibility Excellent column-to-column reproducibility well suited for validated methods.</p>
<p>Temperature Limits: Push the temperature limits of traditional 624 and elute/bake high boiling analytes at 300/320°C.</p>	<p>MS Certified Low bleed characteristics makes it the ideal choice for GC-MS</p>

0.53 mm ID ZB-624PLUS™ columns are not MS Certified.

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Low Bleed and High Temperature Limit

Low Bleed = Better Signal-to-Noise Ratio = Lower Detection Limits

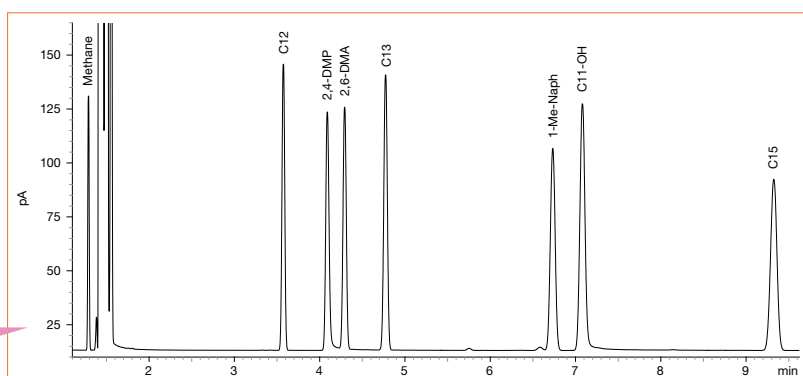
The low bleed character of Zebron™ ZB-624PLUS™ columns is the result of advances in cross-linking manufacturing processes that we established for these columns.

With ZB-624PLUS, your GC column undergoes a proprietary cross-linking process to get extensive Engineered Self Cross-linking (ESC™). This results in extremely low bleed.

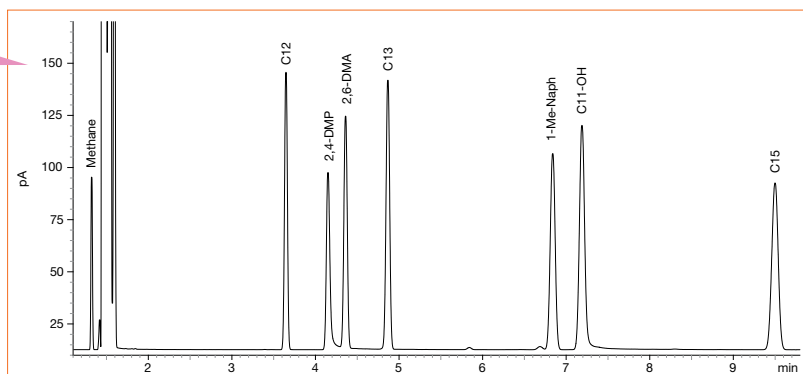
After 5 hours bake out at 300 °C

Consistent retention and sensitivity even after 115 hours bake out @ 300 °C

After 115 hours bake out at 300 °C

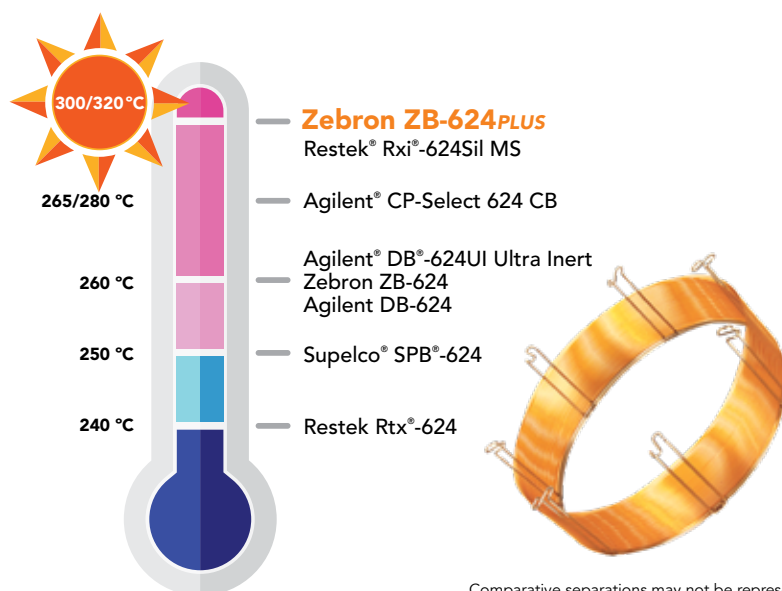


App ID 24780



App ID 24781

Elute High Boiling Analytes and Bake Out Contaminants to 300/320 °C



Comparative separations may not be representative of all applications.

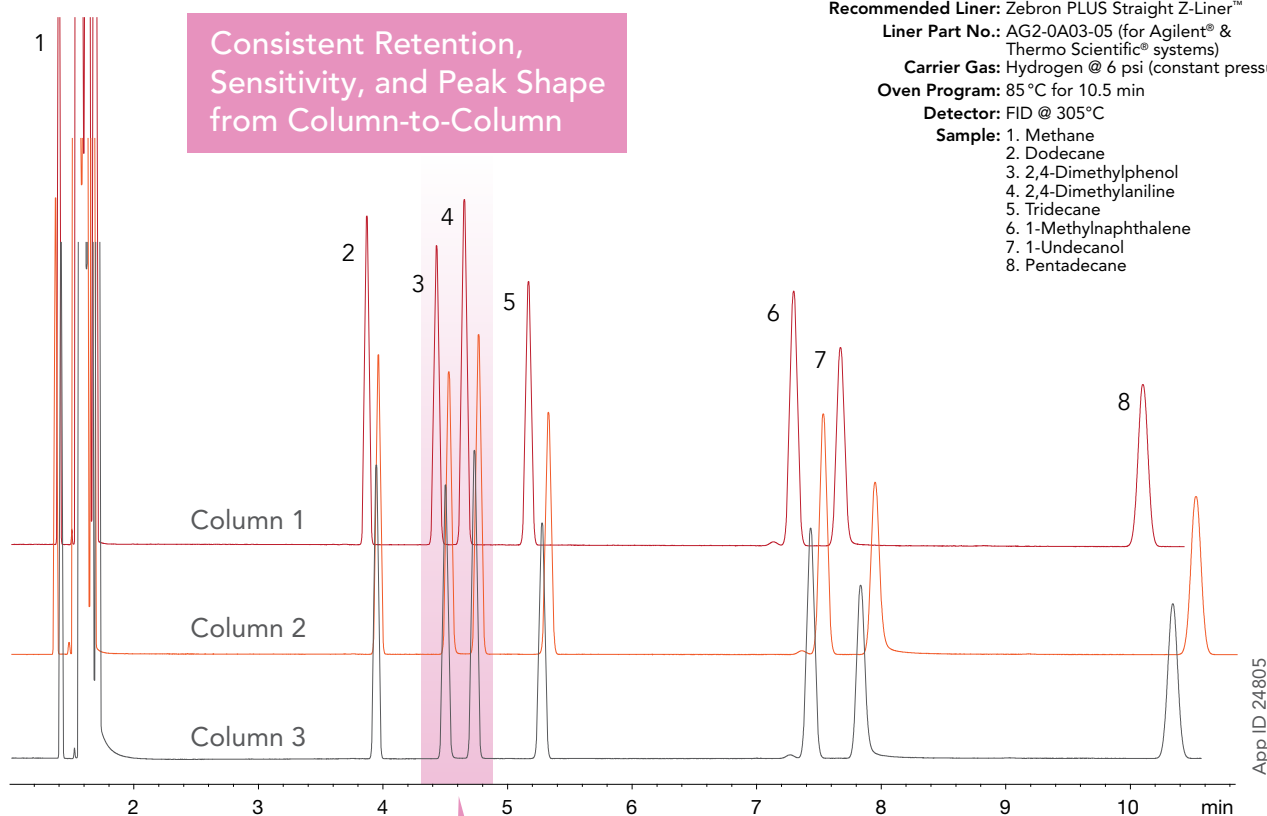
Enhanced Inertness and Reproducibility

We QC Test for the Compounds You Analyze

We added challenging and troublesome analytes to our QC test to make sure each ZB-624^{PLUS}™ column provides superior deactivation and improved inertness.

Conditions for all separations:

- Column:** Zebtron™ ZB-624^{PLUS}
- Dimensions:** 30 meter x 0.32 mm x 1.80 μm
- Part No.:** 7HM-G040-31
- Injection:** Split 50:1 @ 250°C, 1 μL
- Recommended Liner:** Zebtron PLUS Straight Z-Liner™
- Liner Part No.:** AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)
- Carrier Gas:** Hydrogen @ 6 psi (constant pressure)
- Oven Program:** 85°C for 10.5 min
- Detector:** FID @ 305°C
- Sample:**
 1. Methane
 2. Dodecane
 3. 2,4-Dimethylphenol
 4. 2,4-Dimethylaniline
 5. Tridecane
 6. 1-Methylnaphthalene
 7. 1-Undecanol
 8. Pentadecane



App ID 24805

Added to ensure inertness

Test Probe	The Plus Advantage	Property
2,4-Dimethylphenol	We screen challenging analytes like acids and bases to mimic your most challenging compounds.	Inertness
2,4-Dimethylaniline		

Check for Yourself

Zebtron ZB-624^{PLUS} Test Mix



Part No.: AG0-9203

Improved Peak Shape of Volatile Amines



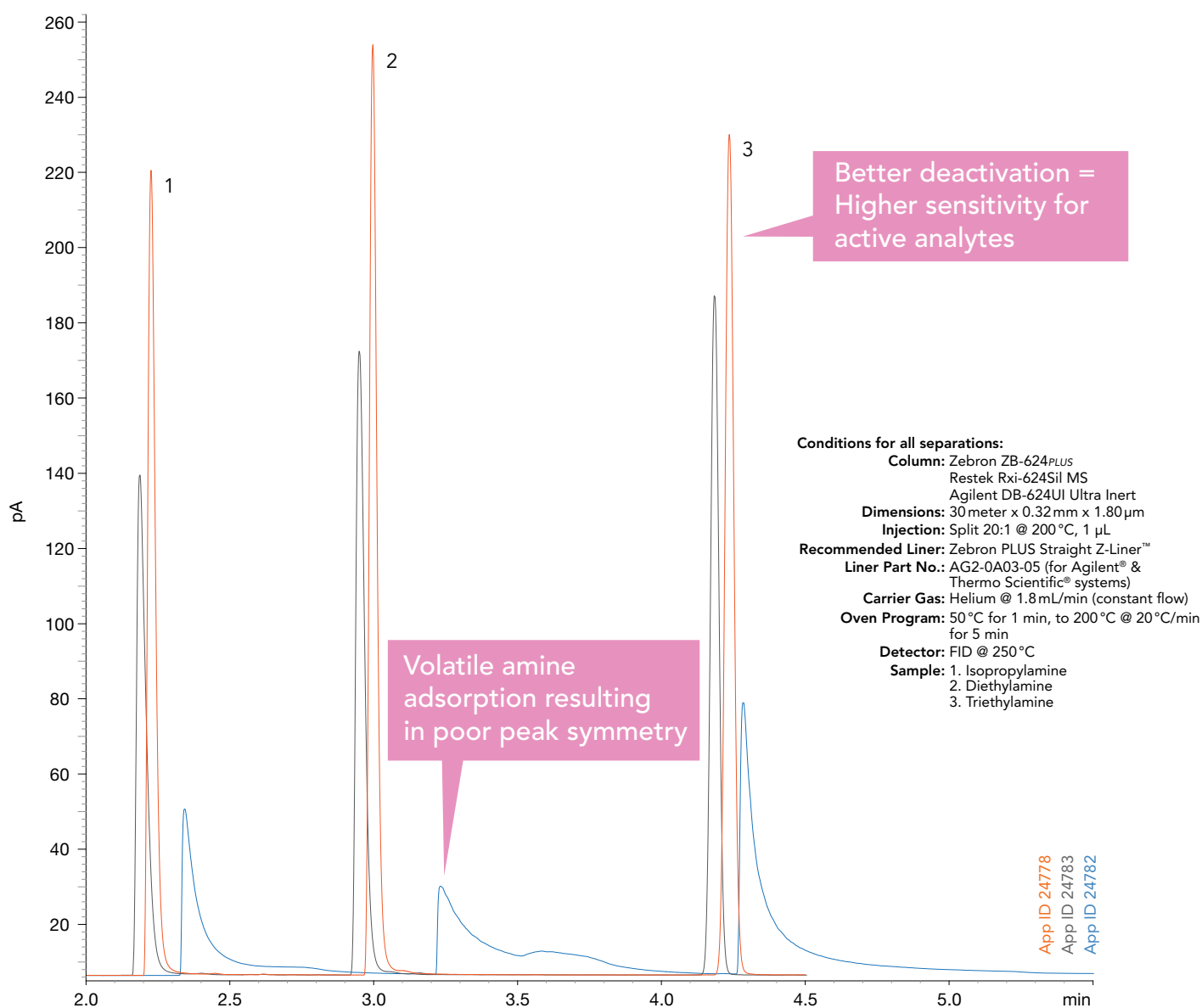
Volatile amines are challenging analytes for GC analysis. They can adsorb to even the smallest imperfections in fused silica. ZB-624^{PLUS}[™] undergoes a superior deactivation process which minimizes active compound adsorption leading to gains in Peak response and shape

Comparison of Volatile Amines on Various 624 Columns

Volatile Amines on a Zebron[™] ZB-624^{PLUS} - 500 ppm

Volatile Amines on a Restek[®] Rxi[®]-624Sil MS - 500 ppm

Volatile Amines on a Agilent[®] DB[®]-624UI Ultra Inert - 500 ppm



Comparative separations may not be representative of all applications.

Better Recovery and Peak Shape for Amines Even at Low Concentrations

At low concentrations, volatile amines tend to adsorb to GC columns and display poor peak shape. ZB-624^{PLUS}™ is a good fit for volatile amines because its superior deactivation prevents adsorption while the phase chemistry allows for excellent retention.

Even at low problematic concentrations, good peak shape is maintained by ZB-624^{PLUS}.

Conditions for all separations:

Column: Zebron™ ZB-624^{PLUS}

Dimensions: 30 meter x 0.32 mm x 1.80 μm

Part No.: 7HM-G040-31

Injection: Split 20:1 @ 200 °C, 1 μL

Recommended Liner: Zebron PLUS Straight Z-Liner™

Liner Part No.: AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)

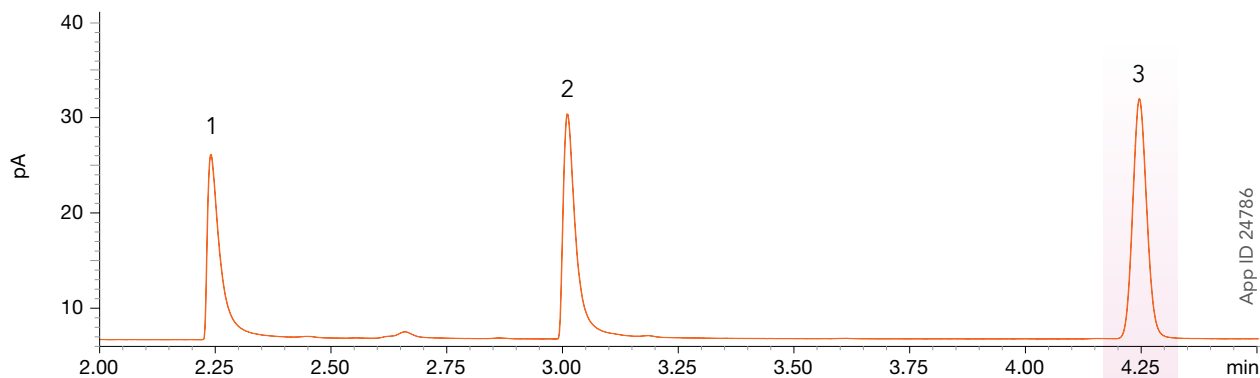
Carrier Gas: Helium @ 1.8 mL/min (constant flow)

Oven Program: 50 °C for 1 min, to 200 °C @ 20 °C/min for 5 min

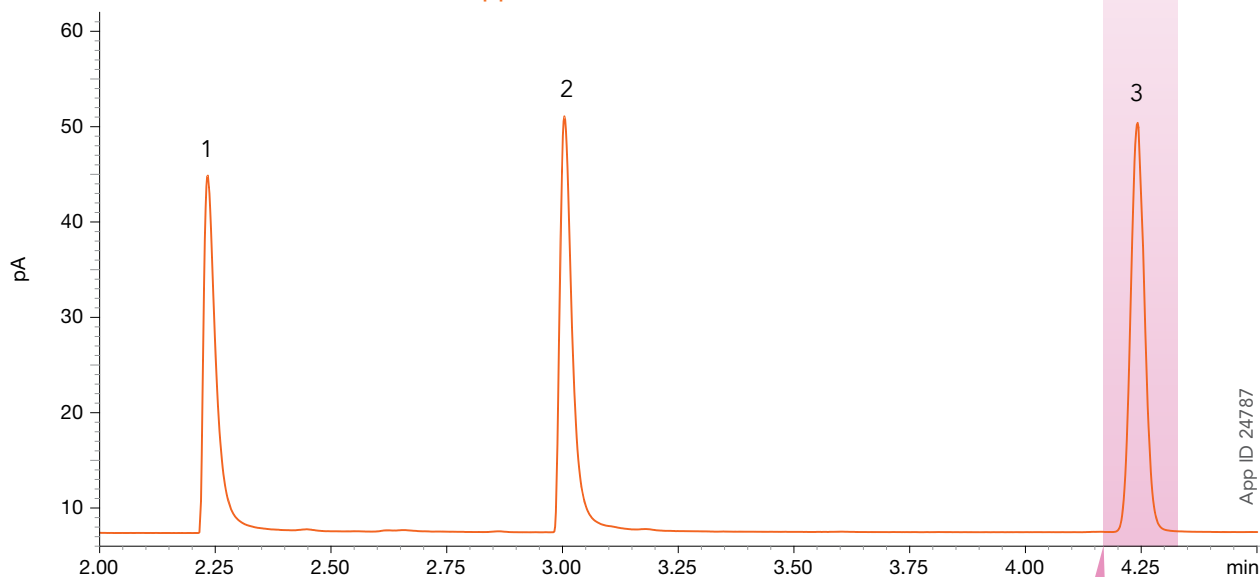
Detector: FID @ 250 °C

Sample: 1. Isopropylamine
2. Diethylamine
3. Triethylamine

Volatile Amines on a ZB-624^{PLUS} - @ 50 ppm



Volatile Amines on a ZB-624^{PLUS} - @ 100 ppm



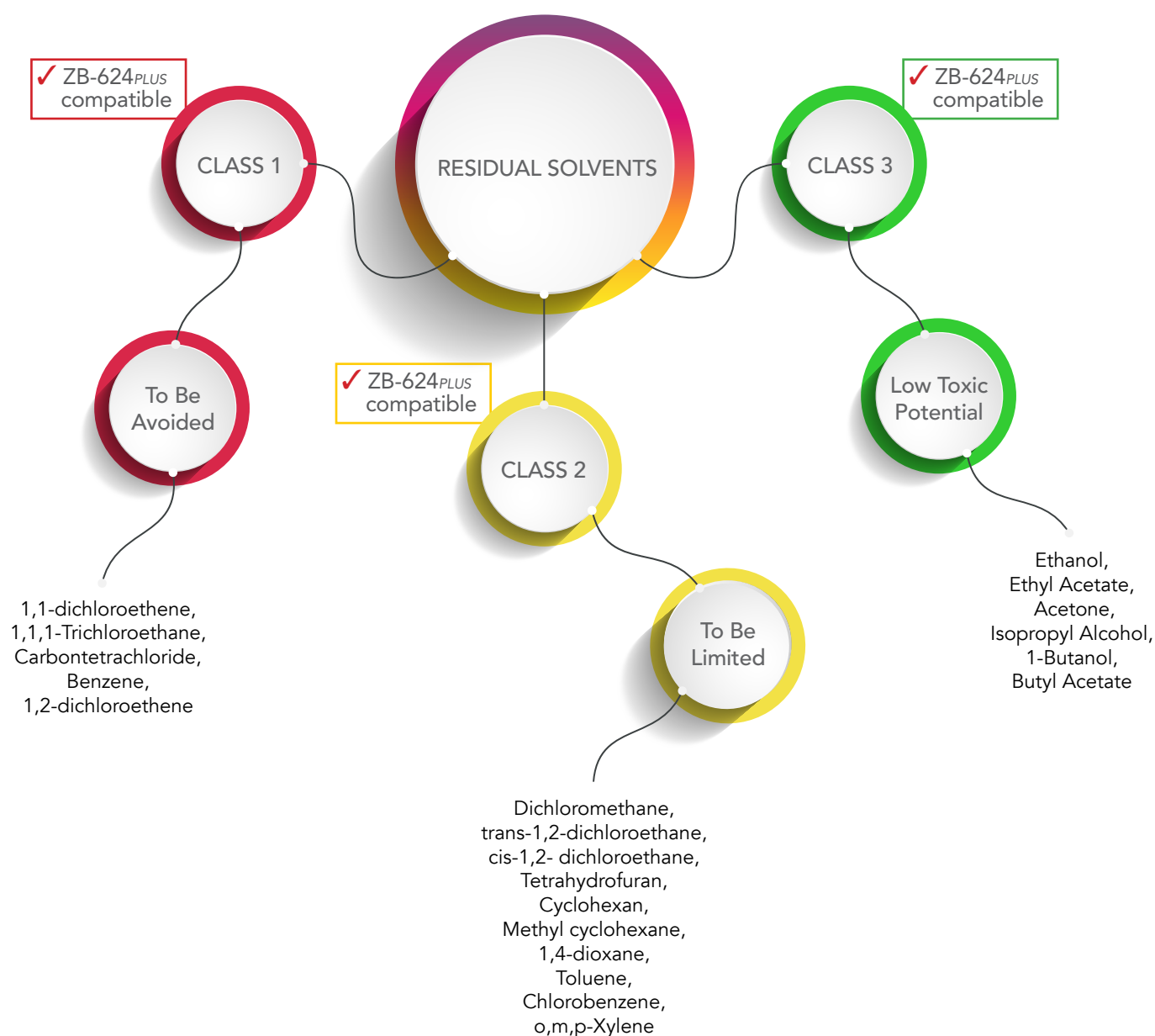
Excellent peak shape
at low concentrations

Streamline Your USP <467> Residual Solvent Detection

With the combined enhanced deactivation and G43 selectivity, the new Zebron™ ZB-624_{PLUS}™ will allow you to qualify and quantify a large range of residual solvents and attain:

- Resolution of critical pairs
- Good signal-to-noise ratio
- Pyridine peak shape

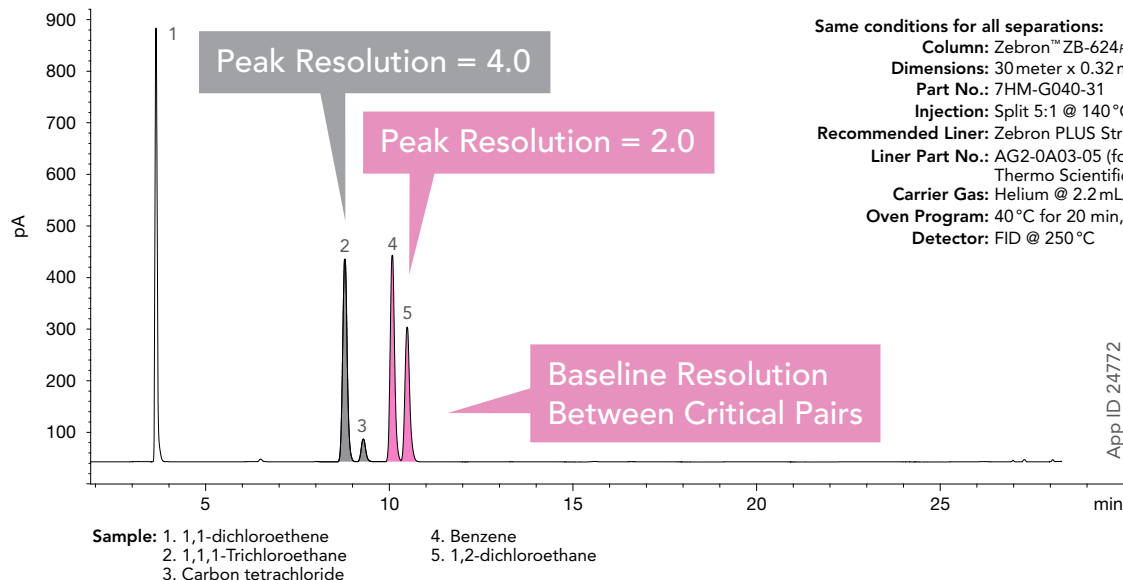
Classification of Residual Solvents by Risk Assessment



Exceeding USP <467> System Suitability

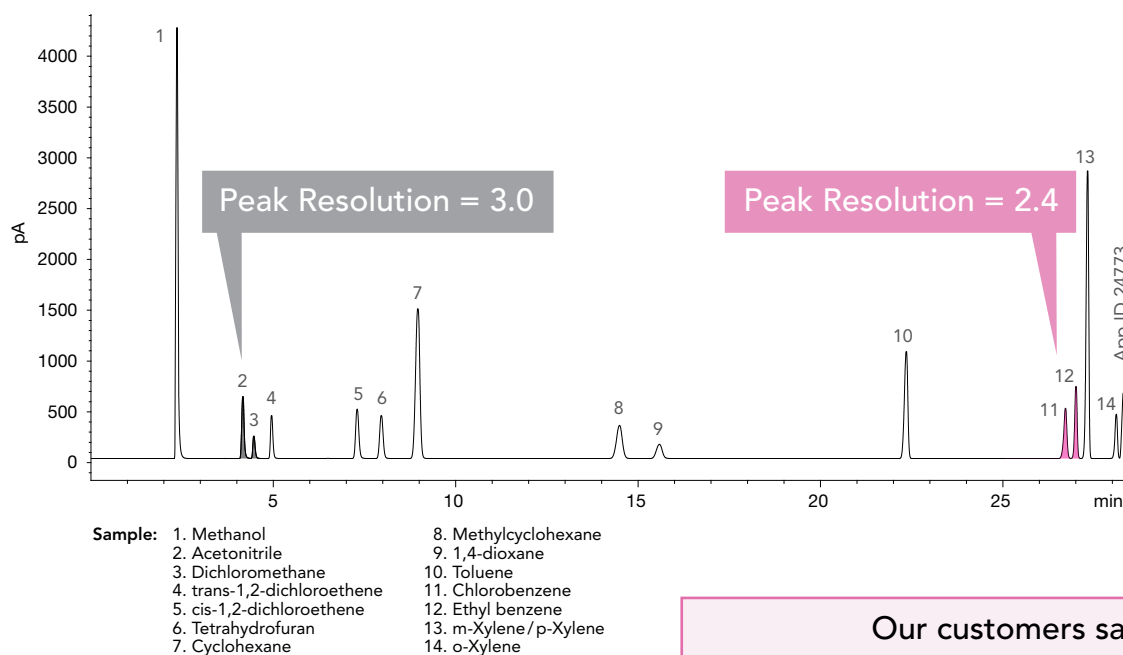
USP 467 method requires Resolution of 1.5 for critical pairs. Zebtron™ ZB-624PLUS™ took the challenge and succeeded.

Class 1 Residual Solvents



Same conditions for all separations:
Column: Zebtron™ ZB-624PLUS
Dimensions: 30 meter x 0.32 mm x 1.80 μm
Part No.: 7HM-G040-31
Injection: Split 5:1 @ 140°C, 1 μL
Recommended Liner: Zebtron PLUS Straight Z-Liner™
Liner Part No.: AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)
Carrier Gas: Helium @ 2.2 mL/min (constant flow)
Oven Program: 40°C for 20 min, to 240°C @ 10°C/min
Detector: FID @ 250°C

Class 2A Residual Solvents



Our customers said,
"YES!"

“The number of plates is better for later eluting (higher boiling) solvents. We can use this column directly for routine analysis, with the bonus that higher temperatures can be used!”

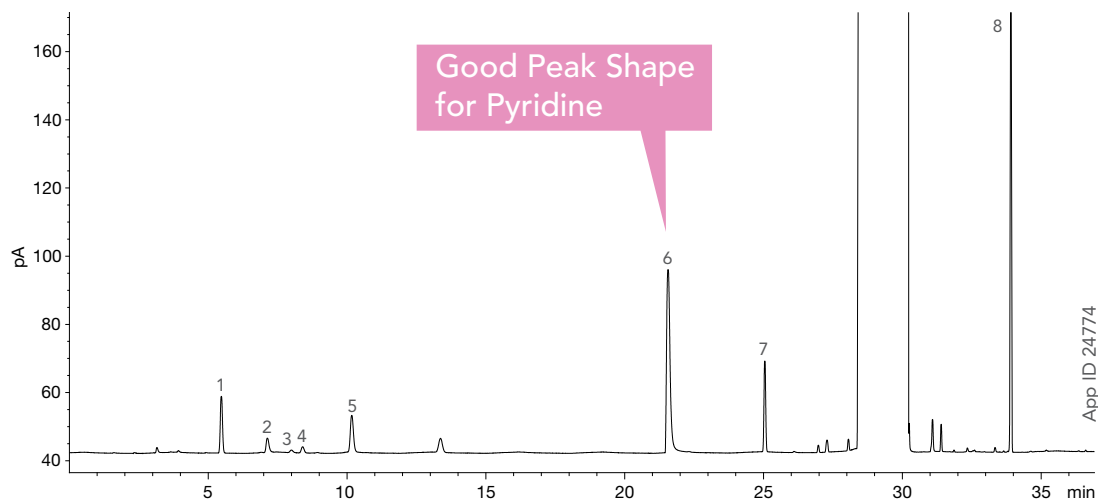
– Dr. Marek Mahut
 Novartis
 Switzerland

The opinions stated herein are solely those of the speaker and not necessarily those of any company or organization.

Exceeding USP <467> System Suitability

USP <467> method requires resolution of 1.5 for critical pairs. Zebtron™ ZB-624PLUS™ took this challenge and succeeded with even greater resolution!

Class 2B Residual Solvents



Sample: 1. Hexane
2. Nitromethane
3. Chloroform
4. 1,2-dimethoxyethane
5. Trichlorethylene
6. Pyridine
7. 2-Hexanone
8. Tetralin

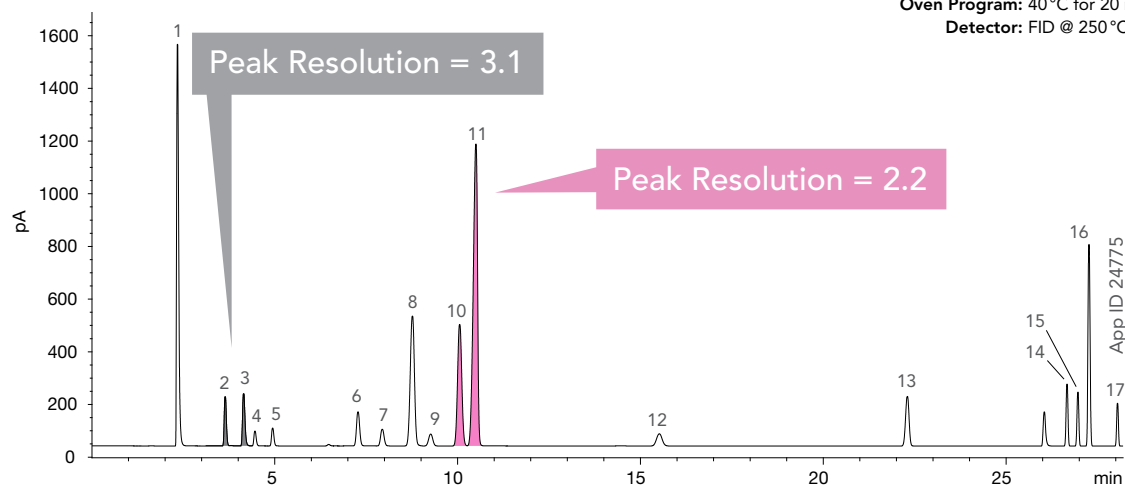
Same conditions for both separations:

Column: Zebtron™ ZB-624PLUS
Dimensions: 30 meter x 0.32 mm x 1.80 μm
Part No.: 7HM-G040-31
Injection: Split 5:1 @ 140 °C, 1 μL

Recommended Liner: Zebtron PLUS Straight Z-Liner™
Liner Part No.: AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)

Carrier Gas: Helium @ 2.2 mL/min (constant flow)
Oven Program: 40 °C for 20 min, to 240 °C @ 10 °C/min
Detector: FID @ 250 °C

Class 1 and 2A Residual Solvents



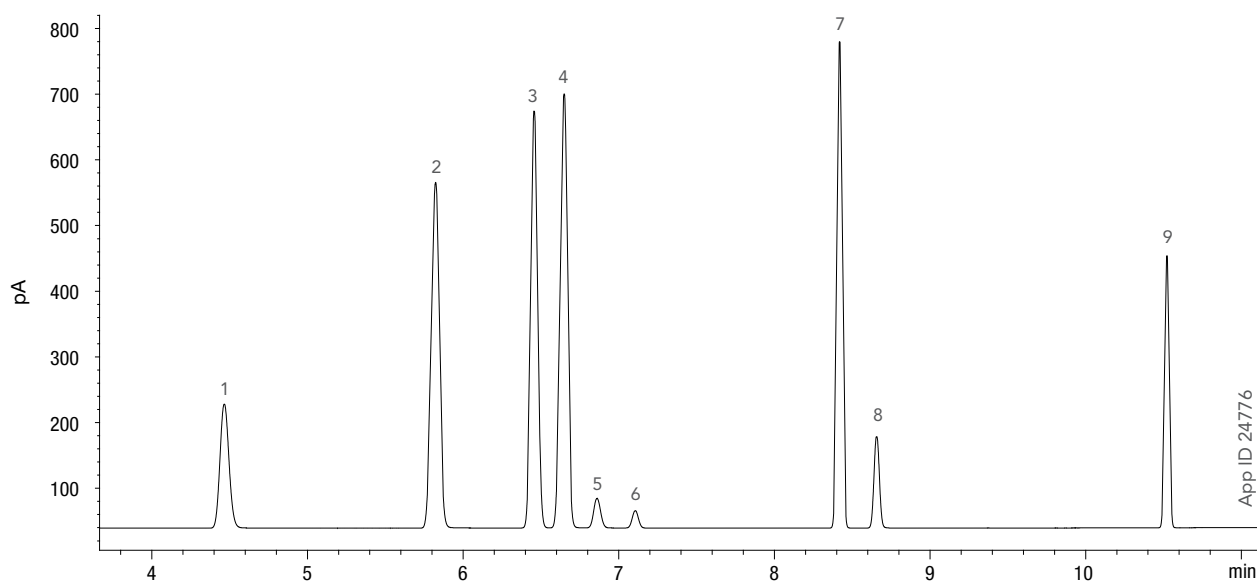
Sample: 1. Methanol
2. 1,1-dichloroethene
3. Acetonitrile
4. Dichloromethane
5. trans-1,2-dichloroethene
6. cis-1,2-dichloroethene
7. Tetrahydrofuran
8. 1,1,1-tetrachloride
9. Carbon tetrachloride
10. Benzene
11. 1,2-dichloroethane
12. 1,4-Dioxane
13. Toluene
14. Chlorobenzene
15. Ethyl benzene
16. m-Xylene/ p-Xylene
17. o-Xylene

Shorter Residual Solvent Analysis by GC-FID

Why wait for an hour long method.
Upgrade to ZB-624^{PLUS}™ and get
a short runtime, low bleed, high
temperature resistance, and the
624 selectivity, all in one column.



Separation of Residual Solvent Critical Pairs in Less than 15 min



App ID 24776

Column: Zebtron™ ZB-624^{PLUS}
Dimensions: 30 meter x 0.32mm x 1.80 μm
Part No.: 7HM-G040-31
Injection: Split 20:1 @ 200 °C, 1 μL
Recommended Liner: Zebtron PLUS Straight Z-Liner™
Liner Part No.: AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)
Carrier Gas: Helium @ 1 mL/min (constant flow)
Oven Program: 40 °C for 5 min to 260 °C @ 25 °C/min for 3 min
Detector: FID @ 250 °C
Sample: 1. Methanol 6. DCM
 2. Ethanol 7. Ethyl Acetate
 3. Acetone 8. THF
 4. IPA 9. Toluene
 5. Acetonitrile

Analyte Name	Retention Time (min)	Symmetry	Resolution
Methanol	4.47	0.9	–
Ethanol	5.82	1.1	14.0
Acetone	6.46	0.9	7.5
IPA	6.65	1.1	2.4
Acetonitrile	6.86	0.9	2.6
DCM	7.11	1.0	3.3
Ethyl Acetate	8.42	1.0	20.4
THF	8.66	1.0	4.0
Toluene	10.52	1.0	33.5

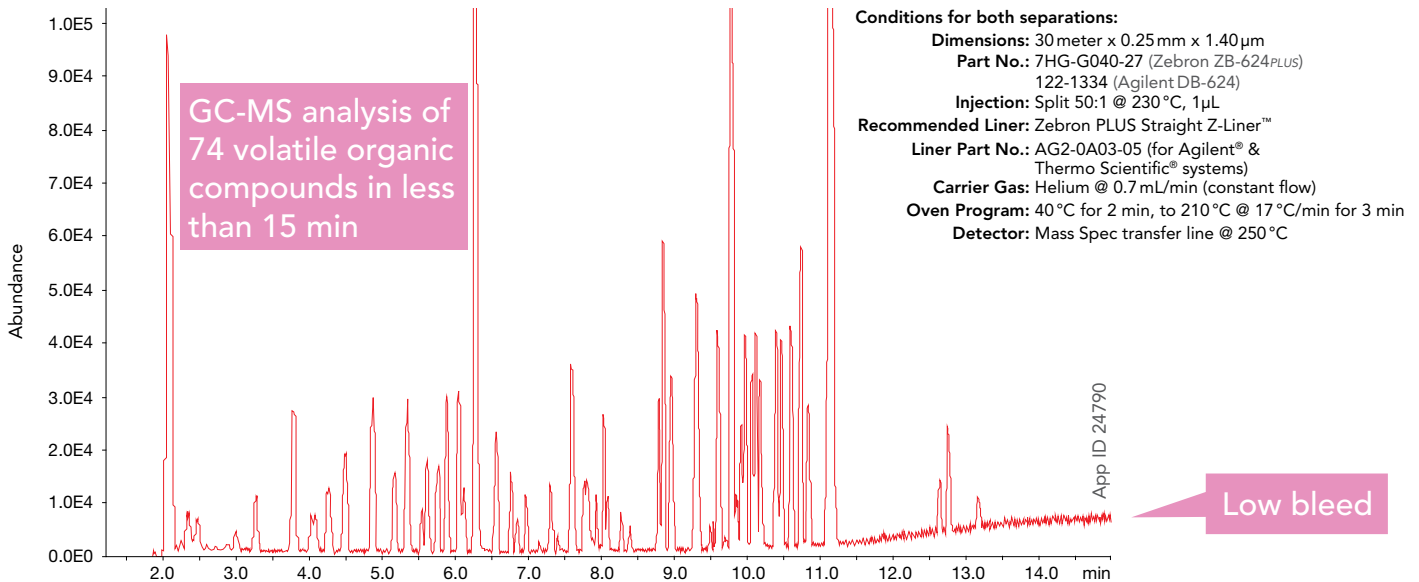
Volatile Organic Compounds by GC-MS

EPA 8260, 524 and 624

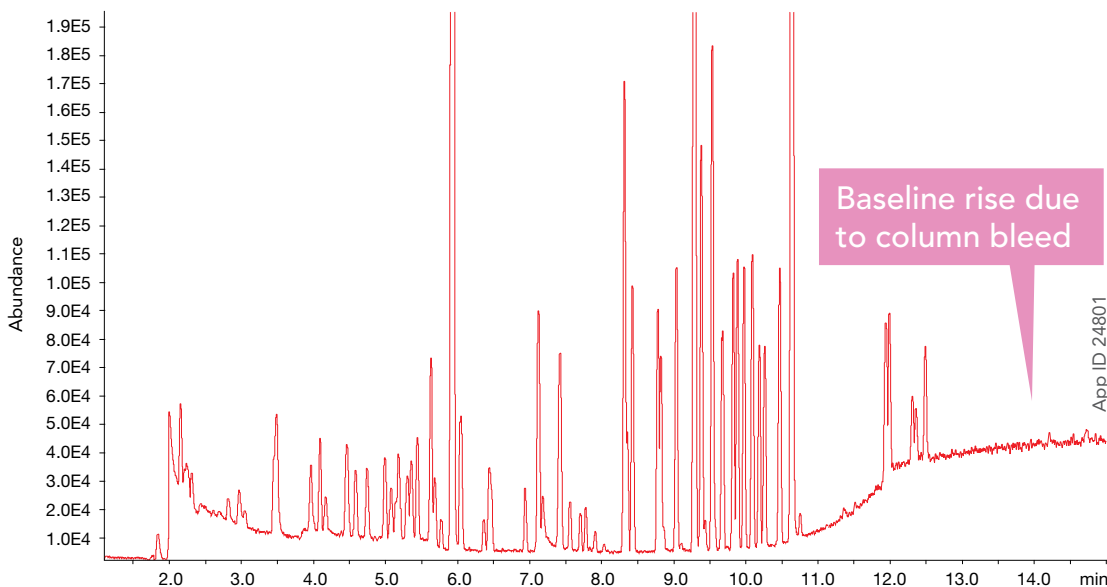
Challenging Matrix! No Problem!

Our high efficiency dimension and superior deactivation can stand real world samples. In addition, MS certification provides extreme low bleed to your GC-MS analysis.

Zebron™ ZB-624PLUS™



Agilent® DB®-624



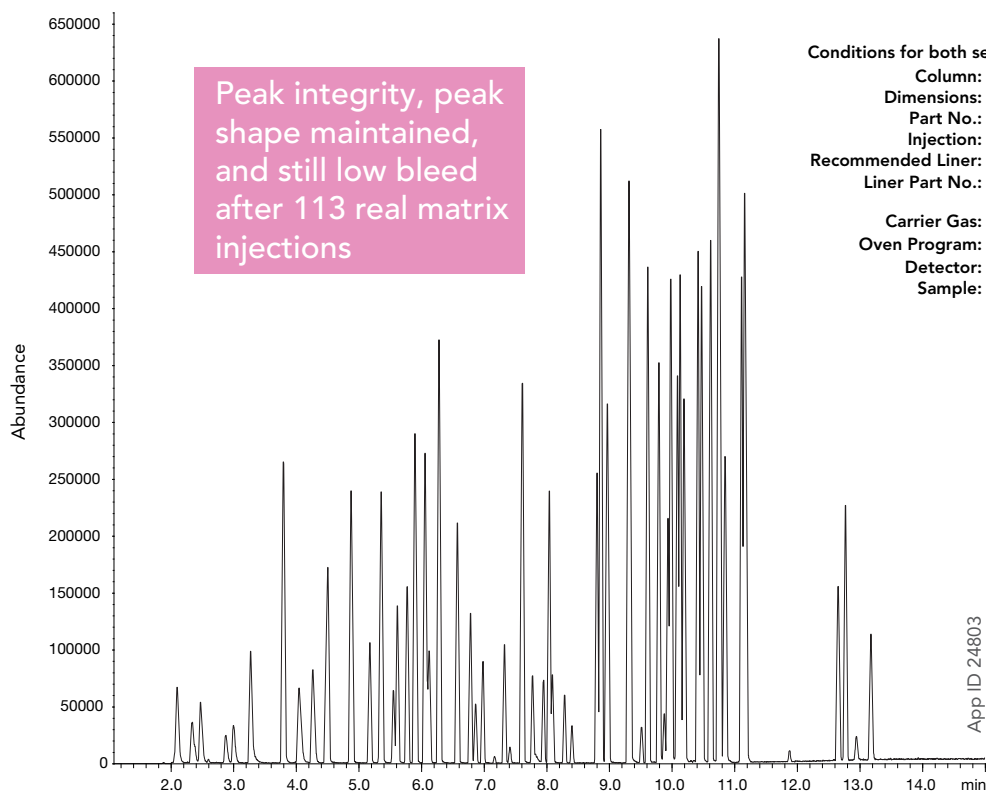
Sample:	1. Dichlorodifluoromethane	20. 2,2-Dichloropropane	39. Toluene	57. n-Propylbenzene
	2. Fluorobenzene (IS)	21. Bromochloromethane	40. 1,3-Dichloropropane	58. 2-Chlorotoluene
	3. Chloromethane	22. Chloroform	41. Dibromochloromethane	59. 4-Chlorotoluene
	4. Vinyl chloride	23. Carbon tetrachloride	42. 1,2-Dibromoethane	60. 1,3,5-Trimethylbenzene
	5. Bromomethane	24. 1,1,1-Trichloroethane	43. Tetrachloroethene (PCE)	61. tert-Butylbenzene
	6. Chloroethane	25. 2-butanone (MEK)	44. 2-hexanone	62. 1,2,4-Trimethylbenzene
	7. Trichlorofluoromethane	26. 1,1-Dichloropropene	45. 1,1,1,2-Tetrachloroethane	63. sec-Butylbenzene
	8. 1,1-Dichloroethene	27. Benzene	46. Chlorobenzene	64. 1,3-Dichlorobenzene
	9. Carbon disulfide	28. t-Amyl methyl ether	47. Ethylbenzene	65. 4-Isopropyltoluene
	10. Trichlorotrifluoroethane	29. 1,2-Dichloroethane	48. m,p-Xylene	66. 1,4-Dichlorobenzene
	11. Methylene chloride	30. Trichloroethene	49. Bromoform	67. 1,2-Dichlorobenzene
	12. Acetone	31. Dibromomethane	50. Styrene	68. 1,2-Dichlorobenzene-d4 Surrogate 2
	13. trans-1,2-Dichloroethene	32. 1,2-Dichloropropane	51. o-Xylene	69. n-Butylbenzene
	14. Methyl-t-butyl ether	33. Bromodichloromethane	52. 1,1,2,2-Tetrachloroethane	70. 1,2-Dibromo-3-chloropropane
	15. Tert-butyl alcohol (TBA)	34. cis-1,3-Dichloropropene	53. 1,2,3 Trichloropropane	71. 1,2,4-Trichlorobenzene
	16. Diisopropyl ether	35. 2-chloroethyl vinyl ethane	54. Isopropylbenzene	72. Naphthalene
	17. 1,1-Dichloroethane	36. MIBK	55. 4-Bromofluorobenzene Surrogate 1	73. Hexachlorobutadiene
	18. Ethyl-t-butyl ether	37. trans-1,3-Dichloropropene	56. Bromobenzene	74. 1,2,3-Trichlorobenzene
	19. cis-1,2-Dichloroethene	38. 1,1,2-Trichloroethane		

Comparative separations may not be representative of all applications.

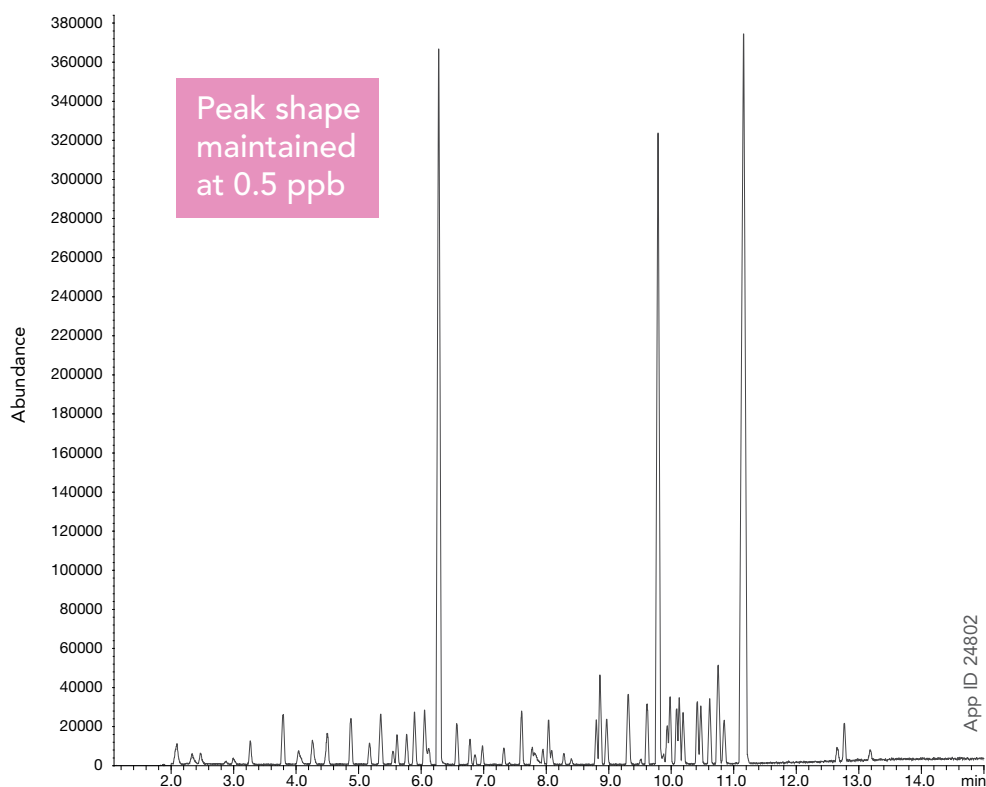
Volatile Organic Compounds by GC-MS

EPA 8260, 524 and 624

Zebron™ ZB-624PLUS™: 5 ppb after 113 Real Matrix Injections



Zebron ZB-624PLUS: 0.5 ppb after 113 Real Matrix Injections

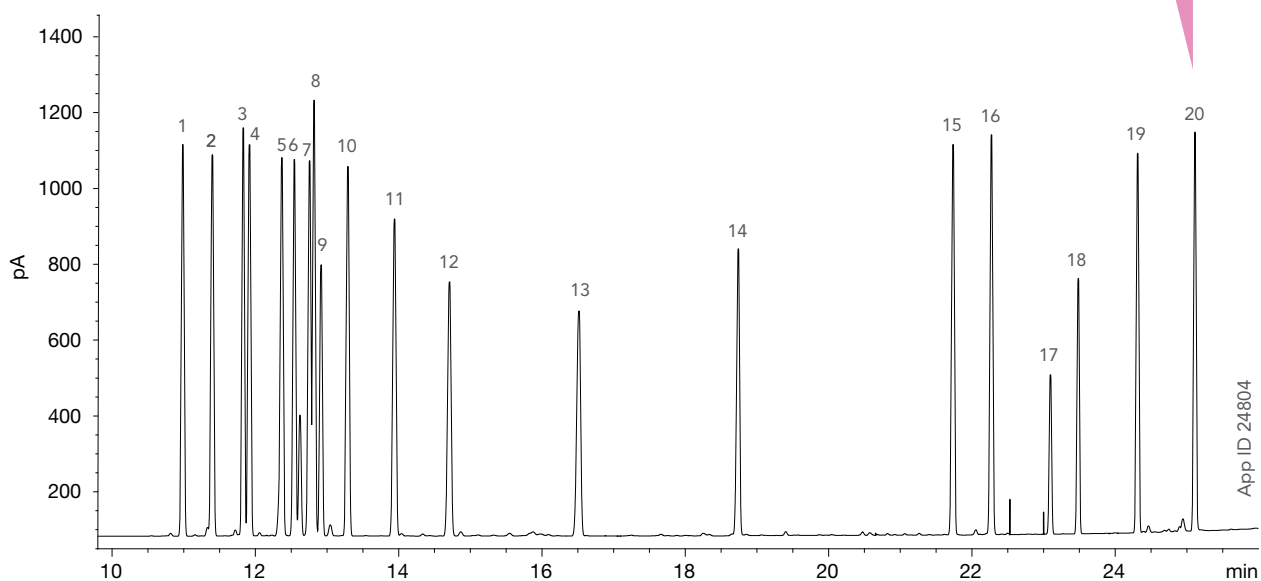


Cannabis Terpenes by GC-FID

Simple, Fast and Accurate Method to Analyze Terpenes

High heat resistance of ZB-624^{PLUS}™ allows for the use of higher temperatures to help elute high boiling terpenes while the 624 selectivity helps with the separation.

Last analyte elutes around 280 °C



Column: Zebron™ ZB-624^{PLUS}
Dimensions: 30 meter x 0.25 mm x 1.40 μm
Part No.: 7HG-G040-27
Injection: Split 20:1 @ 250 °C, 1 μL
Recommended Liner: Zebron PLUS Straight Z-Liner™
Liner Part No.: AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)
Carrier Gas: Helium @ 1 mL/min (constant flow)
Oven Program: 50 °C for 1 min, to 160 °C @ 10 °C/min, hold for 4 min, to 280 °C @ 12 °C/min
Detector: FID @ 300 °C

Sample:

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 2
9. Ocimene	19. Guaiol
10. γ-Terpinene	20. α-Bisabolol

Our customers said,
"YES!"

“ Great column resolution and comparable to other columns we've used from Restek and Supelco. We tested this column with Terpenes and Residual Solvents and found sharp peaks and good baseline resolution! Thanks for the opportunity to give it a go. ”

– Gautam Dutta
Senior Chemist
Capitol Analysis

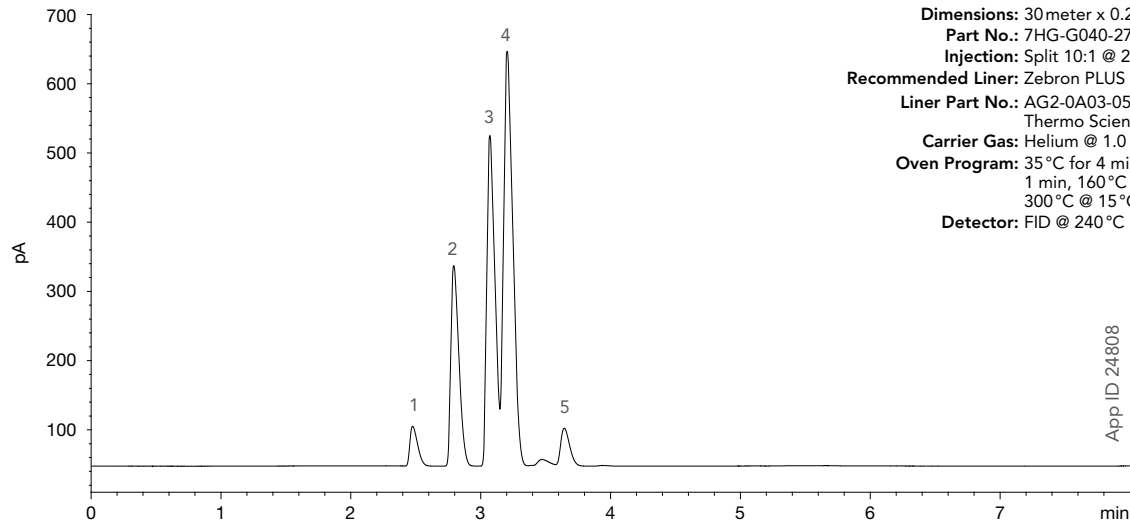
The opinions stated herein are solely those of the speaker and not necessarily those of any company or organization.

Cannabis Residual Solvents by GC-FID



Great selectivity provides excellent resolution for polar and nonpolar solvents while an upper temperature limit of 300/320 °C provides steady baseline at higher temperature.

Low Boiling Cannabis Residual Solvents



Same conditions for all separations:

Column: Zebron™ ZB-624^{PLUS}

Dimensions: 30 meter x 0.25 mm x 1.40 μm

Part No.: 7HG-G040-27

Injection: Split 10:1 @ 200 °C, 1 μL

Recommended Liner: Zebron PLUS Straight Z-Liner™

Liner Part No.: AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)

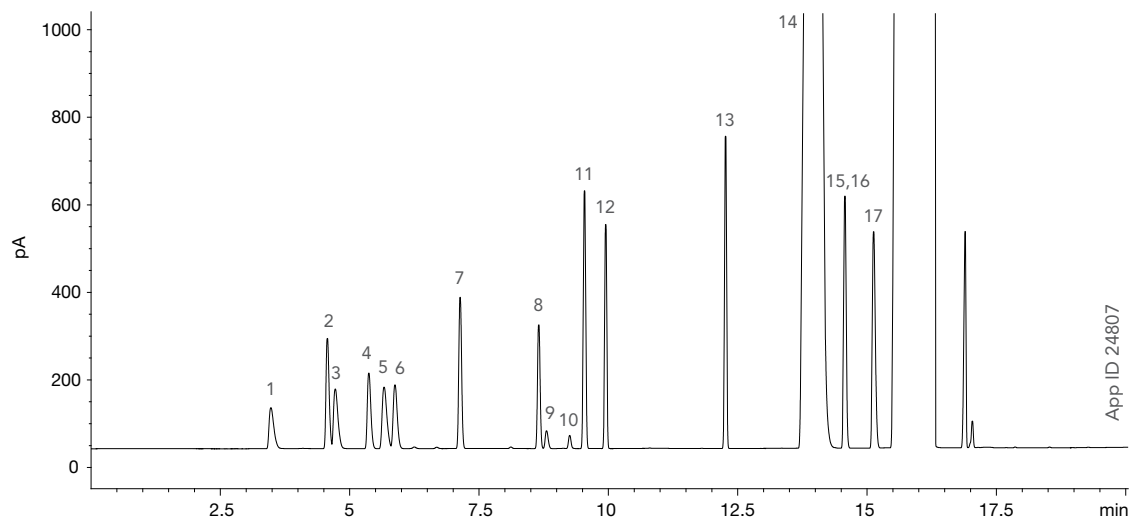
Carrier Gas: Helium @ 1.0 mL/min (constant flow)

Oven Program: 35 °C for 4 min, 50 °C @ 20 °C/min for 1 min, 160 °C @ 10 °C/min for 4 min, 300 °C @ 15 °C/min for 5 min

Detector: FID @ 240 °C

- Sample: 1. Propane
2. 2-methylpropane
3. n-Butane
4. Neopentane
5. Ethylene Oxide

Cannabis Residual Solvents (17 mix)



- | | |
|---------------------|--------------------------|
| Sample: 1. Methanol | 10. Carbon Tetrachloride |
| 2. n-Pentane | 11. n-Heptane |
| 3. Ethanol | 12. Benzene |
| 4. 2-Propanol | 13. Toluene |
| 5. Acetone | 14. Dimethylformamide |
| 6. Acetonitrile | 15. m-Xylene |
| 7. n-Hexane | 16. p-Xylene |
| 8. THF | 17. o-Xylene |
| 9. Chloroform | |



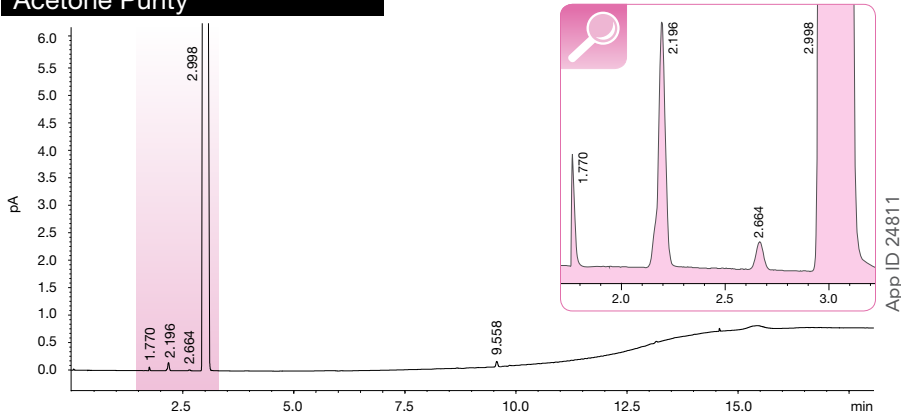
**One Column Solution
for Cannabis Residual
Solvents and Terpenes**

Why waste time changing
columns when you can run
both Terpenes and Residual
Solvents on one column!

Solvent Purity by GC-FID

Efficient Separation of Impurities in Solvents

Acetone Purity



Same conditions for all separations:

Column: Zebtron™ ZB-624PLUS
 Dimensions: 30 meter x 0.53 mm x 3.00 μm
 Part No.: 7HK-G040-36

Injection: Split 50:1 @ 250°C, 1μL

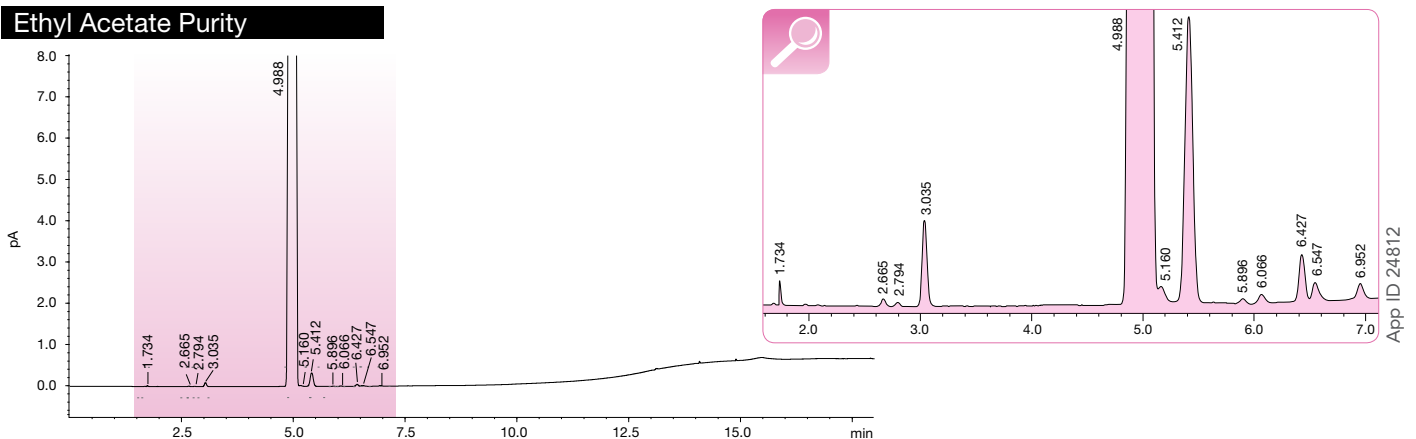
Recommended Liner: Zebtron PLUS Straight Z-Liner™
 Liner Part No.: AG2-0A03-05 (for Agilent® & Thermo Scientific® systems)

Carrier Gas: Helium @ 3.9 mL/min (constant flow)
 Oven Program: 60°C for 5 min, 260°C at 25°C/min for 5 min

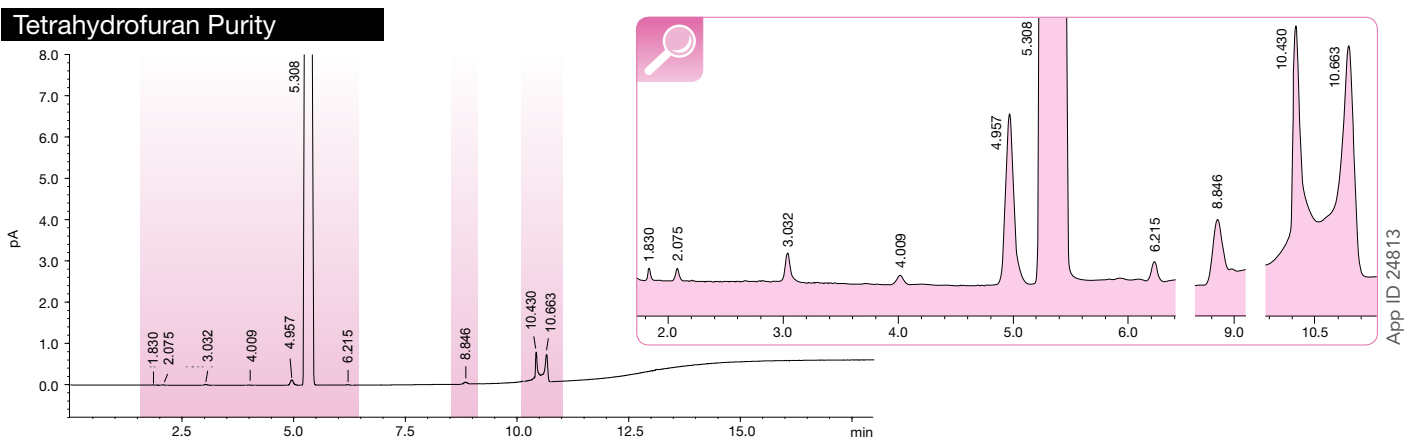
Detector: FID @ 300°C

Sample: Acetone
 Ethyl Acetate
 Tetrahydrofuran
 n,n-Dimethylformamide

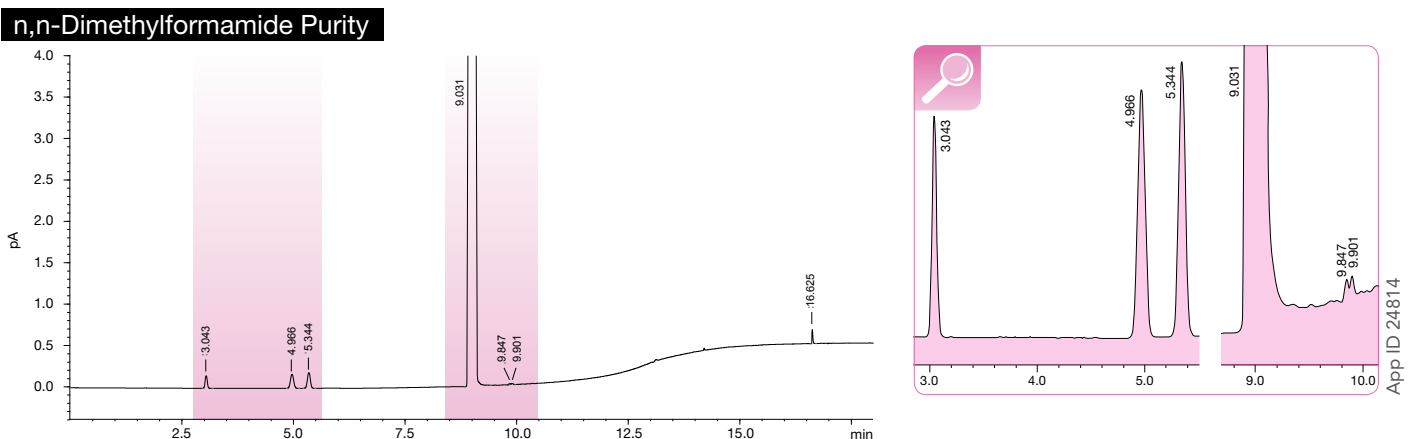
Ethyl Acetate Purity



Tetrahydrofuran Purity



n,n-Dimethylformamide Purity



Explore the **PLUS** Line of GC Columns

Zebron ZB-624PLUS™ GC Columns

ID(mm)	df(μm)	Temp. Limits °C	Part No.
20-Meter			
0.18	1.00	-20 to 300/320	7FD-G040-22
30-Meter			
0.25	1.40	-20 to 300/320	7HG-G040-27
0.32	1.80	-20 to 300/320	7HM-G040-31
0.53	3.00	-20 to 300/320	7HK-G040-36
60-Meter			
0.25	1.40	-20 to 300/320	7KG-G040-27
0.32	1.80	-20 to 300/320	7KM-G040-31
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-G040-27-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages. 0.18mm, 0.25 mm and 0.32mm are MS certified.

Zebron ZB-1PLUS™ GC Columns

ID(mm)	df(μm)	Temp. Limits °C	Part No.
15-Meter			
0.25	0.25	-60 to 360/370	7EG-G031-11
0.32	0.25	-60 to 360/370	7EM-G031-11
30-Meter			
0.25	0.10	-60 to 360/370	7HG-G031-02
0.25	0.25	-60 to 360/370	7HG-G031-11
0.32	0.25	-60 to 360/370	7HM-G031-11
60-Meter			
0.25	0.25	-60 to 360/370	7KG-G031-11
0.25	1.00	-60 to 360/370	7KG-G031-22
0.32	0.25	-60 to 360/370	7KM-G031-11

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G031-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

Zebron ZB-5PLUS™ GC Columns

ID(mm)	df(μm)	Temp. Limits °C	Part No.
15-Meter			
0.25	0.25	-60 to 360/370	7EG-G032-11
30-Meter			
0.25	0.25	-60 to 360/370	7HG-G032-11
0.25	0.50	-60 to 360/370	7HG-G032-17
0.25	1.00	-60 to 360/370	7HG-G032-22
0.32	0.25	-60 to 360/370	7HM-G032-11
0.32	0.50	-60 to 360/370	7HM-G032-17
60-Meter			
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-G032-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

Zebron ZB-WAXPLUS™ GC Columns

ID(mm)	df(μm)	Temp. Limits °C	Part No.
10-Meter			
0.10	0.10	20 to 250/260	7CB-G013-02
15-Meter			
0.25	0.25	20 to 250/260	7EG-G013-11
0.53	1.00	20 to 230/240	7EK-G013-22
20-Meter			
0.18	0.18	20 to 250/260	7FD-G013-08
30-Meter			
0.25	0.25	20 to 250/260	7HG-G013-11
0.25	0.50	20 to 250/260	7HG-G013-17
0.32	0.25	20 to 250/260	7HM-G013-11
0.32	0.50	20 to 250/260	7HM-G013-17
0.32	1.00	20 to 230/240	7HM-G013-22
0.53	1.00	20 to 230/240	7HK-G013-22
60-Meter			
0.25	0.15	20 to 250/260	7KG-G013-05
0.25	0.25	20 to 250/260	7KG-G013-11
0.25	0.50	20 to 250/260	7KG-G013-17
0.32	0.25	20 to 250/260	7KM-G013-11
0.32	0.50	20 to 250/260	7KM-G013-17
0.53	1.00	20 to 230/240	7KK-G013-22

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G013-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

Zebron ZB-5MSPLUS™ GC Columns

ID(mm)	df(μm)	Temp. Limits °C	Part No.
15-Meter			
0.25	0.25	-60 to 325/350	7EG-G030-11
20-Meter			
0.18	0.18	-60 to 325/350	7FD-G030-08
0.18	0.36	-60 to 325/350	7FD-G030-53
30-Meter			
0.25	0.25	-60 to 325/350	7HG-G030-11
0.25	0.50	-60 to 325/350	7HG-G030-17
0.25	1.00	-60 to 325/350	7HG-G030-22
0.32	0.25	-60 to 325/350	7HM-G030-11
0.32	1.00	-60 to 325/350	7HM-G030-22
30-Meter with 5-Meter Guardian™ Integrated Guard			
0.25	0.25	-60 to 325/350	7HG-G030-11-GGA
30-Meter with 10-Meter Guardian Integrated Guard			
0.25	0.25	-60 to 325/350	7HG-G030-11-GGC
0.25	0.50	-60 to 325/350	7HG-G030-17-GGC
60-Meter			
0.25	0.25	-60 to 325/350	7KG-G030-11

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G030-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

guarantee

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- Remarkably Inert
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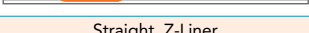
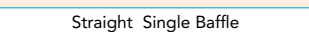

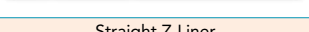
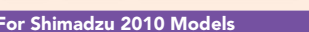


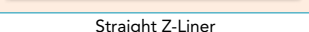

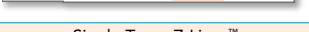




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- Application
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- Injection Type
- Part Number

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GC Inlet Liner Ordering Information

Zebtron PLUS GC Liners

Description	Application	Inlet Style	Dimensions ID x L (mm)	Deactivation	Part No.	Unit
For Agilent® and Thermo Scientific® GC Systems						
Direct Connect 	Trace analysis, Splitless injections	S/SL	4 x 78.5	PLUS Inert	AG2-0A50-01 AG2-0A50-05 AG2-0A50-25	Ea 5/pk 25/pk
Single Taper 	Pesticides	S/SL	4 x 78.5	PLUS Inert	AG2-0A10-01 AG2-0A10-05 AG2-0A10-25	Ea 5/pk 25/pk
Single Taper Z-Liner™ 	Semi-volatiles, Dirty samples	S/SL	4 x 78.5	PLUS Inert	AG2-0A13-01 AG2-0A13-05 AG2-0A13-25	Ea 5/pk 25/pk
Single Taper with Wool 	Semi-volatiles	S/SL	4 x 78.5	PLUS Inert	AG2-0A11-01 AG2-0A11-05 AG2-0A11-25	Ea 5/pk 25/pk
Straight 	Volatiles	S/SL	4 x 78.5	PLUS Inert	AG2-0A00-01 AG2-0A00-05 AG2-0A00-25	Ea 5/pk 25/pk
Straight Z-Liner 	Dirty samples, Volatiles, High initial oven temperatures	S/SL	4 x 78.5	PLUS Inert	AG2-0A03-01 AG2-0A03-05 AG2-0A03-25	Ea 5/pk 25/pk
Straight Single Baffle 	Semi-volatiles, Pesticides	S/SL	1.8 x 71	PLUS Inert	AG2-1F06-01 AG2-1F06-05 AG2-1F06-25	Ea 5/pk 25/pk
For Shimadzu® 17A, 2014 and 2025 Models						
Single Taper Z-Liner™ 	Pesticides	S/SL	3.4 x 95	PLUS Inert	AG2-3B13-01 AG2-3B13-05 AG2-3B13-25	Ea 5/pk 25/pk
Straight Z-Liner 	Volatiles, Dirty samples, High initial oven temperatures	S/SL	3.4 x 95	PLUS Inert	AG2-3B03-01 AG2-3B03-05 AG2-3B03-25	Ea 5/pk 25/pk
For Shimadzu 2010 Models						
Single Taper 	Volatiles, Dirty samples, High initial oven temperatures	S/SL	3.4 x 95	PLUS Inert	AG2-4B10-01 AG2-4B10-05 AG2-4B10-25	Ea 5/pk 25/pk
Single Taper Z-Liner 	Pesticides	S/SL	3.4 x 95	PLUS Inert	AG2-4B13-01 AG2-4B13-05 AG2-4B13-25	Ea 5/pk 25/pk
Straight 	Volatiles	S/SL	3.4 x 95	PLUS Inert	AG2-4B00-01 AG2-4B00-05 AG2-4B00-25	Ea 5/pk 25/pk
Straight Z-Liner 	Volatiles, Dirty samples, High initial oven temperatures	S/SL	3.4 x 95	PLUS Inert	AG2-4B03-01 AG2-4B03-05 AG2-4B03-25	Ea 5/pk 25/pk
For PerkinElmer® GC Systems						
Single Taper 	Pesticides	S/SL	4 x 92	PLUS Inert	AG2-2A10-01 AG2-2A10-05 AG2-2A10-25	Ea 5/pk 25/pk
Single Taper Z-Liner™ 	Semi-volatiles, Dirty samples	S/SL	4 x 92	PLUS Inert	AG2-2A13-01 AG2-2A13-05 AG2-2A13-25	Ea 5/pk 25/pk
Straight 	Volatiles	S/SL	4 x 92	PLUS Inert	AG2-2A00-01 AG2-2A00-05 AG2-2A00-25	Ea 5/pk 25/pk
Straight Z-Liner 	Volatiles, Dirty samples	PSS	2 x 86.2	PLUS Inert	AG2-2E03-01 AG2-2E03-05 AG2-2E03-25	Ea 5/pk 25/pk
Straight Z-Liner 	High initial oven temperatures	S/SL	4 x 92	PLUS Inert	AG2-2A03-01 AG2-2A03-05 AG2-2A03-25	Ea 5/pk 25/pk

Inlet Styles Key

S/SL: Split/Splitless

PSS: Programmed-Temperature Split/Splitless

ZB-624PLUS™



The Next Generation of
GC Inertness

- Enhanced Peak Shape with Superior Deactivation
- Increased Sensitivity for High Boiling Solvents
- Extremely Low Bleed for GC-MS
- High Temperature Stability (300/320 °C)

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