



Guaranteed, Drop-In Performance for Chlorinated Pesticides

ZB-CLPesticides-1 & -2

- Direct replacement for Restek® Rtx®-CLPesticides column pair
- 7 EPA methods, one column set
- Reduce downtime – run multiple methods without changing columns

The Zebron
"Do More With Less"
Everyday Low List Price

Instantly Save On
Every Column & Kit, Every Time

phenomenex®
...breaking with tradition™



www.phenomenex.com/PesticidesGC

Introducing the Zebron™ Experience

Get More Than Just A Column

When you choose Zebron, you get more than just high quality GC products. Choosing Zebron means you get access to a wide variety of tools, resources, and personalized support to help make your GC work easier, faster, and simply better.

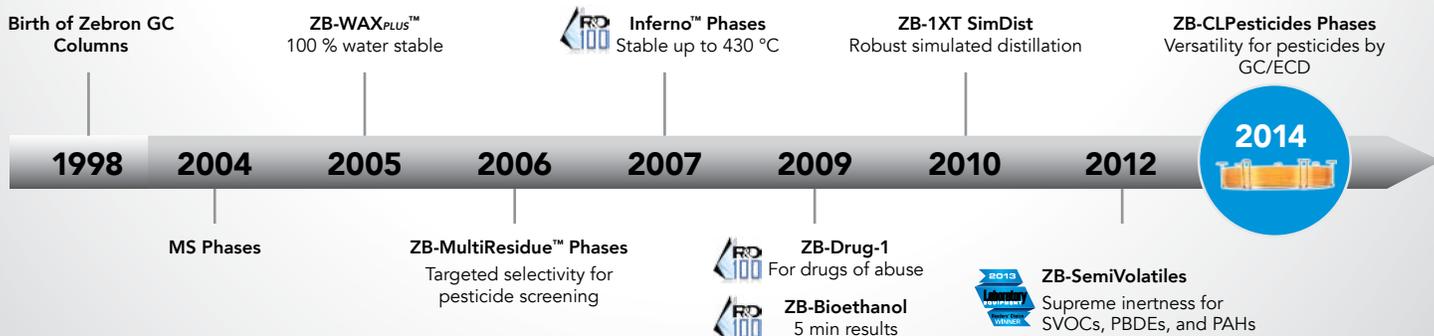
Our Customers Come First

“ Phenomenex has always given superb customer support. I changed suppliers from... Agilent to Phenomenex based on your customer support...about 10 years ago and you have not failed me since that point ! ”

Marie Coschigano
Genzyme Corp. USA

Continued Innovation

Our inventive GC scientists have 25+ years of experience, and many helped create keystone phases at J&W Scientific before joining the Phenomenex team. Zebron's track record of innovation is the only to be recognized with 3 R&D 100 Awards and 2 Readers' Choice awards!



ZB-CLPesticides-1 & -2

A Drop-In Alternative for Pesticide Testing by GC/ECD



p.4 Do More With Less

Run 7 EPA Methods On One Column Set

Save On Every Column & Kit with Everyday Low List Pricing

6 Get All of the Benefits with None of the Risk

Choose A Direct Replacement for Restek® Rtx®-CLPesticides Phases

Guaranteed Performance With Quality by Design

8 See the Zebtron vs. Restek Comparison Tests

EPA 8081: Chlorinated Pesticides

EPA 8082: Polychlorinated Biphenyls (PCBs)

EPA 8151: Chlorinated Herbicides

EPA 504: EDB, DBCP, and TCP

EPA 505: Organohalide Pesticides

EPA 508: Chlorinated Pesticides, Herbicides, and Organohalides

EPA 552: Haloacetic Acids (HAAs) and Dalapon

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18 Get More Than Just A Column

Meet Your Pesticide Support Team

Access Free Resources 24/7

Keep in Calibration with Phenova® CRMs

Explore the Pesticide Column Family

23 Ordering Information



guarantee

If Zebtron 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.



Do More With Less

Run 7 EPA Methods On One Column Set

Zebron™ ZB-CLPesticides-1 and -2 allow you to run multiple methods without changing columns for faster, easier pesticide analysis. Save time and gain flexibility – run multiple pesticide classes on one instrument, on one column pair.

- **Resolve multiple pesticide classes with enhanced, fine-tuned selectivity**
- **Meet dual-column requirements for 7 EPA methods by GC/ECD**

8081: Chlorinated Pesticides

8082: Polychlorinated Biphenyls (PCBs)

8151: Chlorinated Herbicides

504: EDB, DBCP, and TCP

505: Organohalide Pesticides

508: Chlorinated Pesticides, Herbicides, and Organohalides

552: Haloacetic Acids (HAAs) and Dalapon



Wouldn't You Rather Be On Vacation?

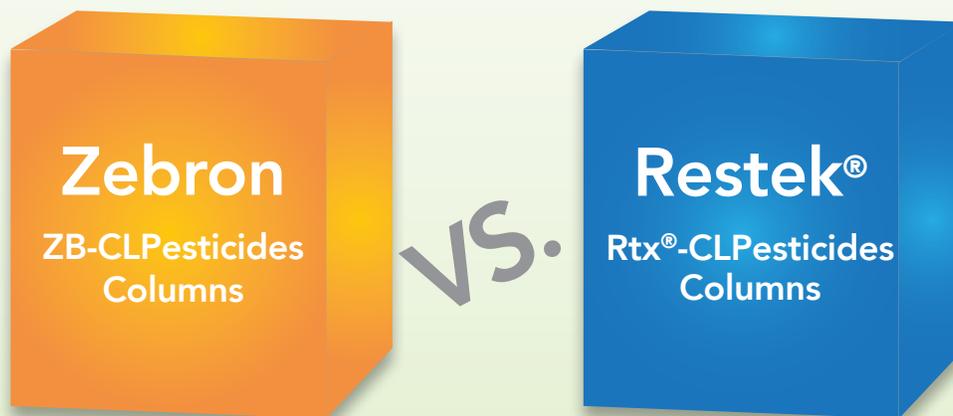
The time and money you save when you choose ZB-CLPesticides columns allows you to invest your resources elsewhere. Increase your lab's productivity and take a well-deserved break!

Learn more at
www.phenomenex.com/VacationCLP

Instantly Save On Every Column & Kit

Today's pesticide testing labs are pushed to deliver more precise results with less resources. Switching to ZB-CLPesticides columns you get robust, reliable performance – and you save money too! Our "Do More With Less" everyday low list pricing saves you money on every column and kit you purchase.

Make the
Switch and
SAVE!



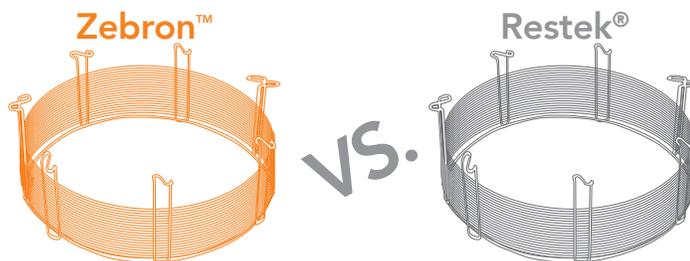
Want to Know How Much You Save?

Contact your GC specialist to see your everyday low list price. You may even qualify for extra savings with special offers! Learn more at www.phenomenex.com/PesticidesGC

All of the Benefit, None of the Risk

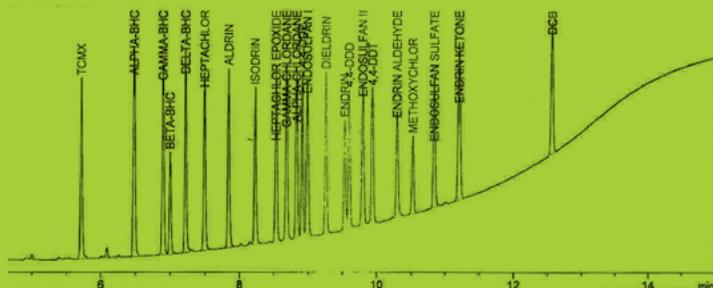
Direct Replacement for Restek® Rtx®-CLPesticides Phases

You asked for optimized performance for pesticides by GC/ECD detectors, without time-consuming method development. We've delivered a direct replacement*! ZB-CLPesticides-1 and -2 provide guaranteed drop-in performance compared to your current Rtx-CLPesticides column set, without the hassle.

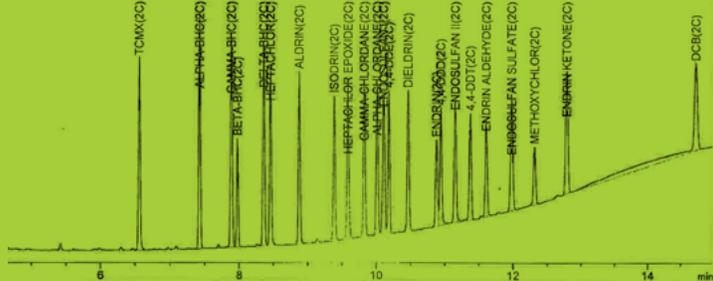


Drop-In Results: Real Customer Data, Real Performance

ZB-CLPesticides-1



ZB-CLPesticides-2



“ I was able to install the ZB-CLPesticides-1 and ZB-CLPesticides-2 columns as a direct replacement for the Restek Rtx-CLPesticides and Rtx-CLPesticides2 columns that I currently use. I made no changes to the method and saw very little difference between the two columns. ”

Joanne Foy, Chemist
TriMatrix Laboratories, Inc.

Ready To See The Method Comparison Tests?
Go to page 8 ➔

* Direct Replacement: this category indicates an alternative column which will likely give a similar selectivity.

Guaranteed Performance With Quality by Design

Choosing ZB-CLPesticides-1 and -2 means you get accurate, reproducible results with guaranteed performance and dramatic cost savings from Phenomenex. Our GC R&D and manufacturing team has on average 25+ years of experience – this expertise means you get products designed to work out-of-the-box, headache free.

- Stringent individual QC testing – no batch tests
- Aggressive test mixes that check for efficiency, bleed, activity, and retention characteristics
- Excellent sensitivity and reproducibility
- Good stability and long column lifetimes

Our 100 % Risk-Free Guarantee

guarantee

If Zebtron 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.

EPA 8081

Chlorinated Pesticides by GC/ECD

Drop-In Method Performance

ZB-CLPesticides columns combine Zebron™ high quality with drop-in selectivity. Achieve near-exact elution profiles and run times, without the time-consuming method development and headaches typical of traditional selectivities!

Conditions for all columns:

- Columns:** As listed
- Dimensions:** As listed
- Part Number:** 7HM-G028-51 (ZB-CLPesticides-1)
7HM-G029-11 (ZB-CLPesticides-2)
- Injection:** Splitless (hold 0.3 min) @ 250 °C, 1 µL
- Carrier Gas:** Helium @ 3.9 mL/min (constant flow)
- Oven Program:** 120 °C to 200 °C @ 45 °C/min to 230 °C @ 15 °C/min to 330 °C @ 30 °C/min for 2 min
- Detector:** ECD @ 330 °C
- Y-Connector:** AG0-4717 (Borosilicate Glass)
- Guard Column:** 7AM-G000-00-GZ0 (5 m Z-Guard™)
- Liner:** AG0-8499 (Single Taper with Wool at Bottom)
- Septum:** AG0-4696 (PhenoRed™ -400)
- Inlet Seal:** AG0-8620 (Gold-Plated Easy Seal™)
- Reference Standards:** See page 21.
- Sample:** Analytes are 250 ng/mL in hexane.

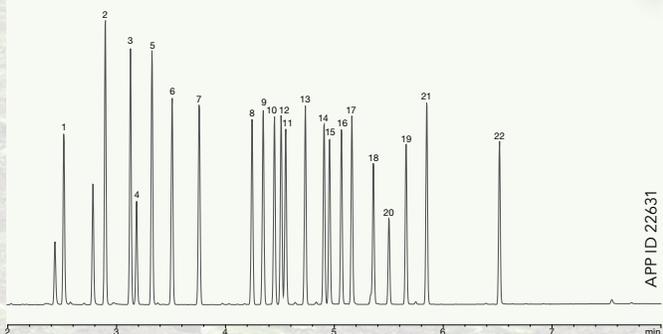
See p. 9 for analytes

Equivalent Elution Profile

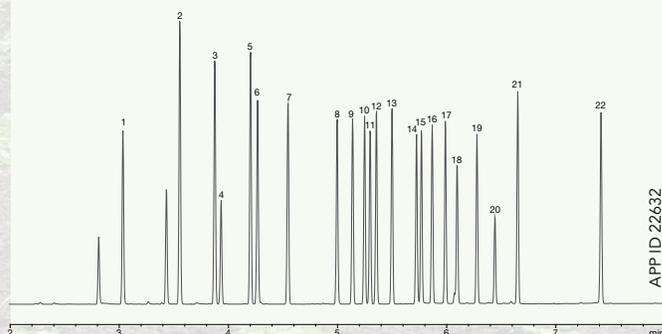
Why pay more when you can drop in a direct replacement for less?

Zebron

ZB-CLPesticides-1
30 m x 0.32 mm x 0.32 µm

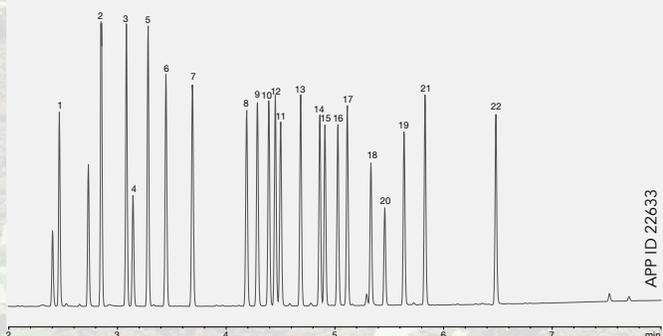


ZB-CLPesticides-2
30 m x 0.32 mm x 0.25 µm

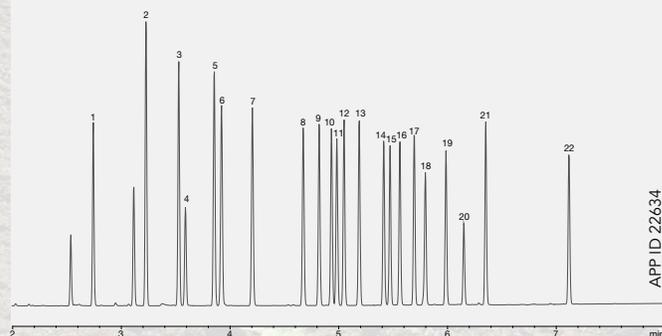


Restek®

Rtx®-CLPesticides
30 m x 0.32 mm x 0.32 µm



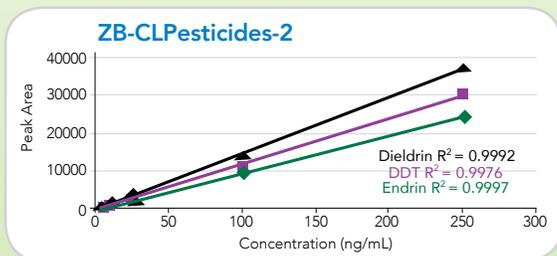
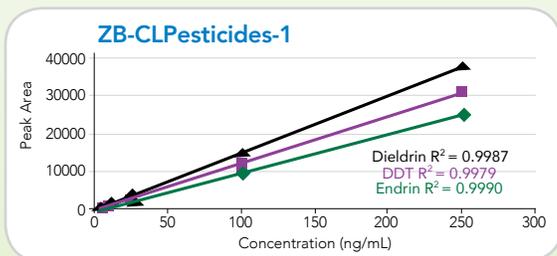
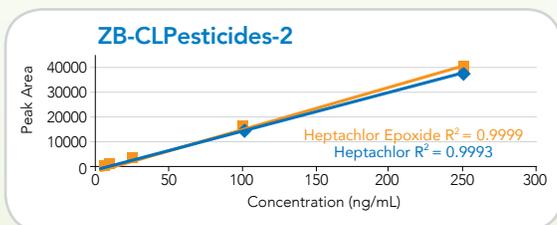
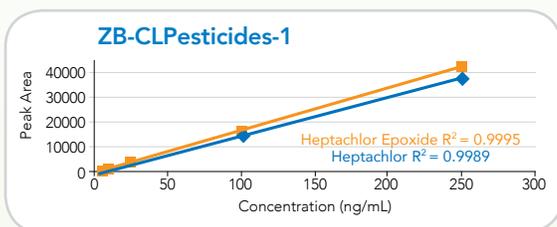
Rtx-CLPesticides2
30 m x 0.32 mm x 0.25 µm



Conditions for each method were the same for all columns tested. Comparative separations are not representative of all applications.

Easily Meet EPA Specifications

The EPA outlines strict performance requirements for compound linearity, percent relative standard deviation (% RSD), and breakdown of DDT and Endrin. The ZB-CLPesticides column pair meets these guidelines, providing accurate data well-suited for your analysis.



Five-Point Calibration Curve at 5, 15, 25, 100, and 250 ng/mL

Peak No.	Analyte	ZB-CLPesticides-1 % RSD*	ZB-CLPesticides-2 % RSD*	US EPA Specifications
1	2,4,5,6-TCMX (Surr)	3.8	3.0	< 20
2	α -BHC	8.3	3.8	< 20
3	γ -BHC	5.9	5.6	< 20
4	β -BHC	6.9	6.9	< 20
5	δ -BHC	4.9	5.7	< 20
6	Heptachlor	8.0	6.5	< 20
7	Aldrin	4.2	2.3	< 20
8	Heptachlor epoxide	3.8	2.3	< 20
9	trans-Chlordane	4.1	3.8	< 20
10	cis-Chlordane	4.0	3.3	< 20
11	4,4'-DDE	4.8	2.9	< 20
12	Endosulfan I	6.0	2.5	< 20
13	Dieldrin	7.7	4.9	< 20
14	Endrin	9.4	6.6	< 20
15	4,4'-DDD	9.2	3.6	< 20
16	Endosulfan II	6.6	4.1	< 20
17	4,4'-DDT	11.6	6.9	< 20
18	Endrin aldehyde	8.3	7.3	< 20
19	Endosulfan sulfate	8.0	7.1	< 20
20	Methoxychlor	6.7	6.1	< 20
21	Endrin ketone	6.5	7.2	< 20
22	Decachlorobiphenyl (Surr)	6.7	6.6	< 20
Average		6.6%	4.9%	< 20

* Calculated as response factors as per EPA guidelines

Tech Tip: Minimize Activity

Inlet deactivation is critical for obtaining stable calibration curves. Use a well-deactivated liner and remember to change your gold seal regularly when working with Agilent® 5890, 6890, and 7890 instruments.

EPA Method 8082

Polychlorinated Biphenyls (PCBs)

Conditions for all columns:

Columns: As listed
Dimensions: As listed
Part Number: 7HM-G028-51 (ZB-CLPesticides-1)
7HM-G029-11 (ZB-CLPesticides-2)
Injection: Pulsed Splitless @ 30 psi (hold 20 sec) @ 250 °C, 1 µL
Carrier Gas: Helium @ 60 cm/sec (constant flow)
Oven Program: 120 °C to 200 °C @ 45 °C/min to 330 °C @
15 °C/min for 2 min
Detector: ECD @ 330 °C
Y-Connector: AG0-4717 (Borosilicate Glass)
Guard Column: 7AM-G000-00-GZ0 (5 m Z-Guard™)
Liner: AG0-8499 (Single Taper with Wool at Bottom)
Septum: AG0-4696 (PhenoRed™-400)
Inlet Seal: AG0-8620 (Gold-Plated Easy Seal™)
Reference Standards: See page 21.
Sample: Aroclor is 1000 ng/mL and SS and IS are 100 ng/mL in hexane.
1. Tetrachloro-meta-xylene (TCMX)*
2. Decachlorobiphenyl**
* surrogate standard
** internal standard

Compare All the PCB Aroclors

Download the full PCB application note and see comparisons for all 7 aroclors in EPA 8082 online!

Need Detailed Congener Resolution?

Zebron ZB-MultiResidue™ columns provide enhanced separations in under 30 minutes.

Learn more at

www.phenomenex.com/PesticidesGC

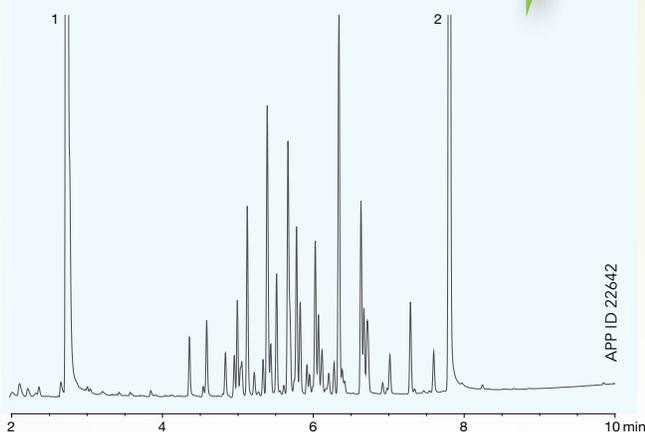
Would you pay more for your reflection's clothes?

No! With drop-in performance, making the smart choice to save with Zebron is simple. Learn how you can do more with less on p. 5.

Zebron™

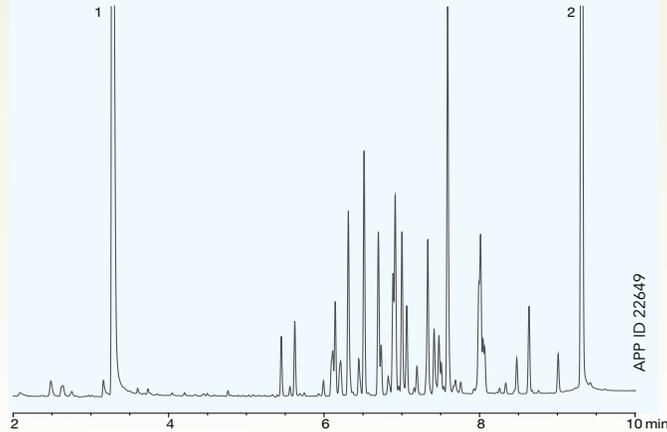
ZB-CLPesticides-1
30 m x 0.32 mm x 0.32 µm

Aroclor 1260



ZB-CLPesticides-2
30 m x 0.32 mm x 0.25 µm

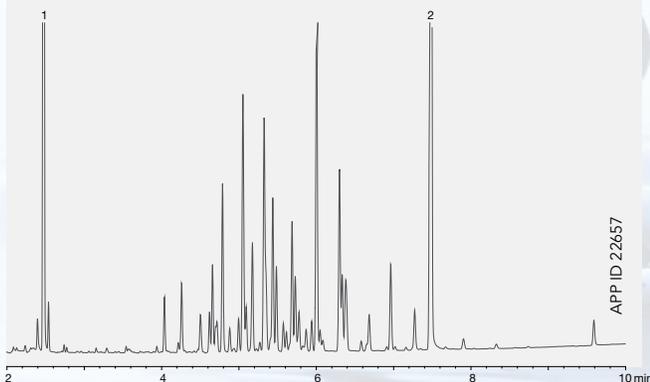
Aroclor 1260



Restek®

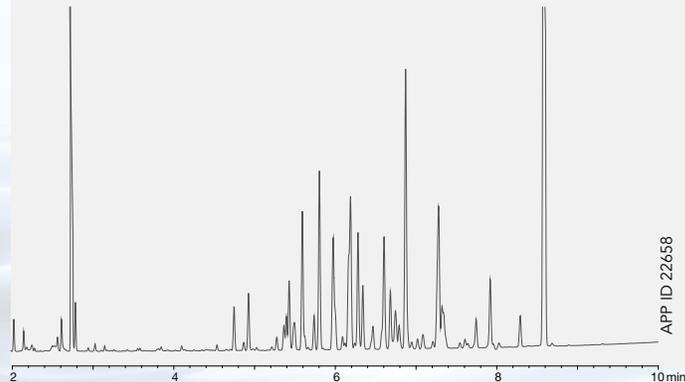
Rtx®-CLPesticides
30 m x 0.32 mm x 0.32 µm

Aroclor 1260



Rtx-CLPesticides2
30 m x 0.32 mm x 0.25 µm

Aroclor 1260



Conditions for each method were the same for all columns tested. Comparative separations are not representative of all applications.

EPA Method 8151

Chlorinated Herbicides

Conditions for all columns:

Columns: As listed
Dimensions: As listed
Part Number: 7HM-G028-51 (ZB-CLPesticides-1)
 7HM-G029-11 (ZB-CLPesticides-2)
Injection: Splitless (hold 0.75 min) @ 250 °C, 1 µL
Carrier Gas: Helium @ 36 cm/sec (constant flow)
Oven Program: 70 °C for 0.5 min to 190 °C @ 25 °C/min for
 1 min to 300 °C @ 11 °C/min for 5 min
Detector: ECD @ 325 °C
Y-Connector: AGO-4717 (Borosilicate Glass)
Guard Column: 7AM-G000-00-GZ0 (5 m Z-Guard™)
Liner: AGO-8499 (Single Taper with Wool at Bottom)
Septum: AGO-4696 (PhenoRed™-400)
Inlet Seal: AGO-8620 (Gold-Plated Easy Seal™)
Reference Standards: See page 21.

Sample: Analytes are 100 ng/mL in hexane.

1. Dalapon methyl ester
2. 3,5-Dichlorobenzoic acid methyl ester*
3. 4-Nitroanisole
4. DCAA methyl ester*
5. Dicamba methyl ester
6. MCPP methyl ester
7. MCPA methyl ester
8. Dichlorprop, methyl ester
9. 4,4'-DBOB**
10. 2,4-D methyl ester
11. Pentachloroanisole
12. 2,4,5-TP methyl ester
13. 2,4,5-T methyl ester
14. Chloramben methyl ester
15. 2,4-DB methyl ester
16. Dinoseb methyl ester
17. Bentazon methyl ester
18. DCPA methyl ester (Chlorthal-dimethyl)
19. Pichloram methyl ester
20. Acifluorfen methyl ester

* surrogate standard
 ** internal standard

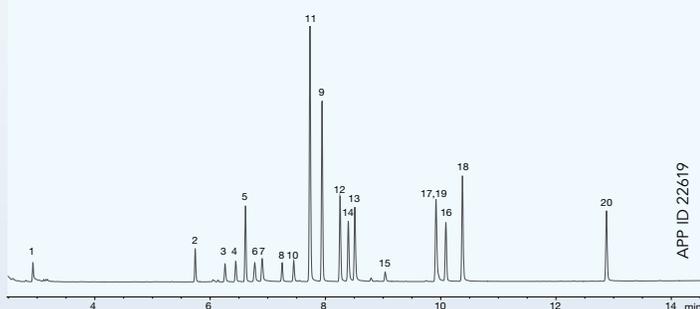
With drop-in, guaranteed performance, at a lower price, the ZB-CLPesticides pair is better than:

- a. Sliced Bread
- b. Rainbows and Unicorns
- c. @%\$#!

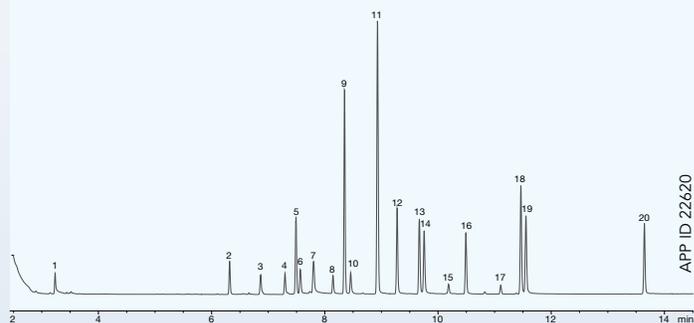
Answer: all of the above! Our customers said so. See more of their thoughts on p. 17.

Zebtron™

ZB-CLPesticides-1
 30 m x 0.32 mm x 0.32 µm

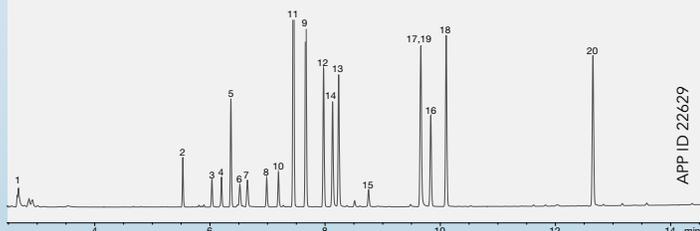


ZB-CLPesticides-2
 30 m x 0.32 mm x 0.25 µm

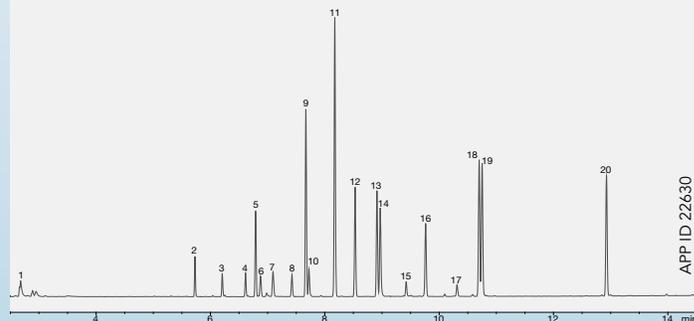


Restek®

Rtx®-CLPesticides
 30 m x 0.32 mm x 0.32 µm



Rtx-CLPesticides2
 30 m x 0.32 mm x 0.25 µm



Conditions for each method were the same for all columns tested. Comparative separations are not representative of all applications.

EPA Method 504

EDB, DBCP, and TCP

Conditions for all columns:

Columns: As listed
Dimensions: As listed
Part Number: 7HM-G028-51 (ZB-CLPesticides-1)
 7HM-G029-11 (ZB-CLPesticides-2)
Injection: Pulsed Splitless @ 25 psi (hold 0.5 min) @ 200 °C, 2 µL
Carrier Gas: Helium @ 60 cm/sec (constant flow)
Oven Program: 30 °C for 2 min to 200 °C @ 30 °C/min
Detector: ECD @ 220 °C
Y-Connector: AGO-4717 (Borosilicate Glass)
Guard Column: 7AM-G000-00-GZ0 (5 m Z-Guard™)
Liner: AGO-8499 (Single Taper with Wool at Bottom)
Septum: AGO-4696 (PhenoRed™-400)
Inlet Seal: AGO-8620 (Gold-Plated Easy Seal™)

Sample: Analytes are 250 ng/mL in hexane.
 1. Bromodichloromethane
 2. Chlorodibromomethane
 3. 1,2-Dibromomethane (EDB)
 4. 1,1,1,2-Tetrachloroethane
 5. Bromoform
 6. 1,2,3-Trichloropropane
 7. 1,2-Dibromo-3-chloropropane (DBCP)

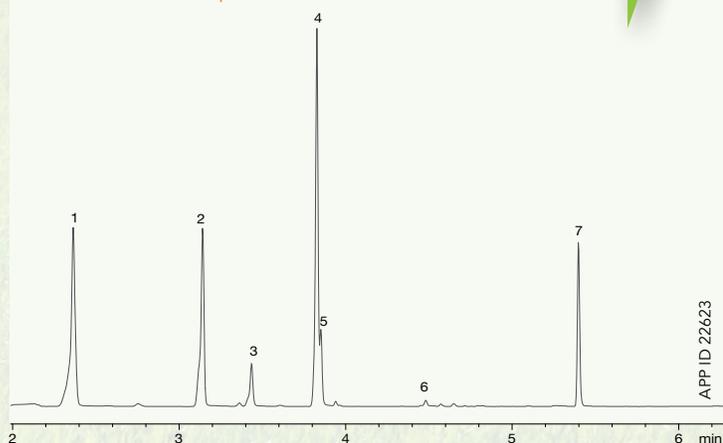
Reference Standards: See page 21.

Don't Rely On Magic To Save You Money

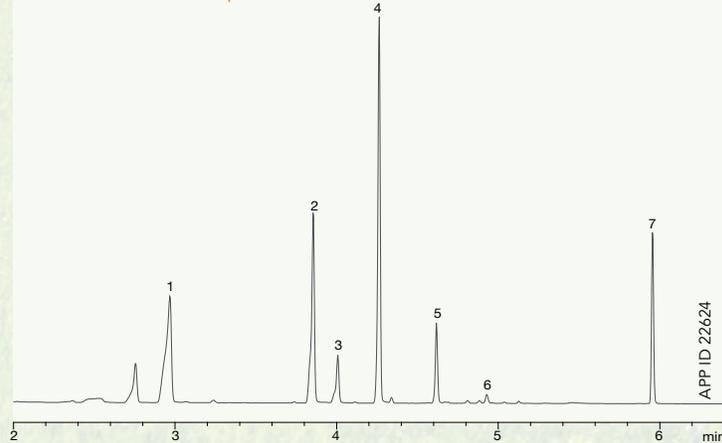
Trust guaranteed performance. Try ZB-CLPesticides columns and get the same results you're used to, risk-free. Learn more on p. 7.

Zebtron™

ZB-CLPesticides-1 30 m x 0.32 mm x 0.32 µm

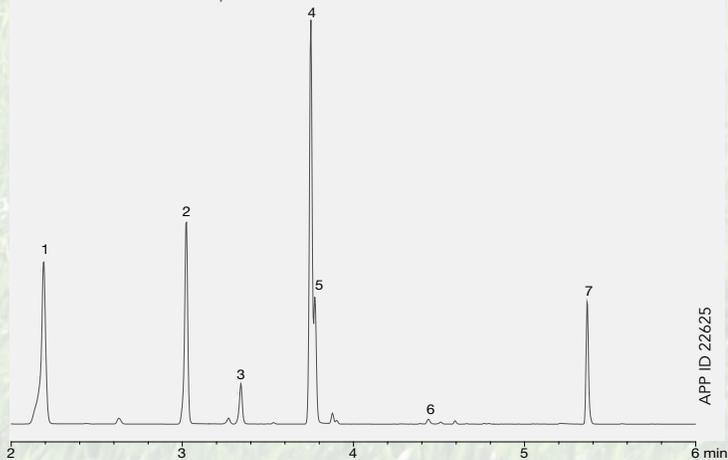


ZB-CLPesticides-2 30 m x 0.32 mm x 0.25 µm

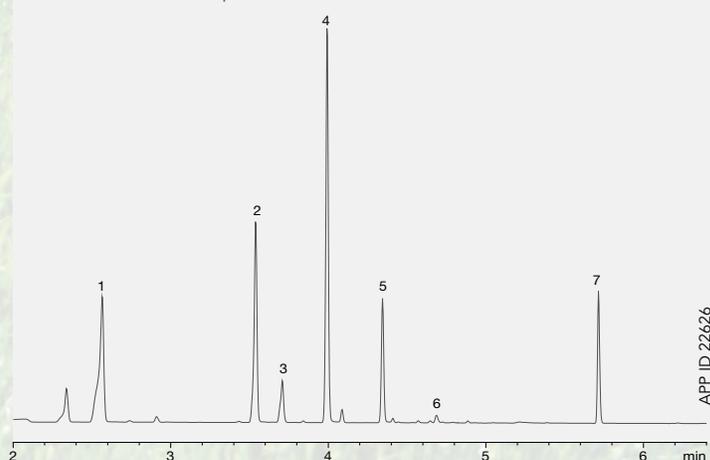


Restek

Rtx®-CLPesticides 30 m x 0.32 mm x 0.32 µm



Rtx-CLPesticides2 30 m x 0.32 mm x 0.25 µm



Conditions for each method were the same for all columns tested. Comparative separations are not representative of all applications.

Tech Tip: Improve Signal-to-Noise

Proper column conditioning reduces unnecessary column bleed and improves your analysis. For best results, be sure to condition your Zebtron column at max isothermal temperature until a constant baseline is achieved.

EPA Method 505 Organohalide Pesticides

Conditions for all columns:

Columns: As listed
Dimensions: As listed
Part Number: 7HM-G028-51 (ZB-CLPesticides-1)
 7HM-G029-11 (ZB-CLPesticides-2)
Injection: Splitless (hold 0.75 min) @ 250 °C, 2 µL
Carrier Gas: Helium @ 40 cm/sec (constant flow)
Oven Program: 90 °C for 1 min to 310 °C @ 10 °C/min for 5 min
Detector: ECD @ 325 °C
Y-Connector: AG0-4717 (Borosilicate Glass)
Guard Column: 7AM-G000-00-GZ0 (5 m Z-Guard™)
Liner: AG0-8499 (Single Taper with Wool at Bottom)
Septum: AG0-4696 (PhenoRed™-400)
Inlet Seal: AG0-8620 (Gold-Plated Easy Seal™)

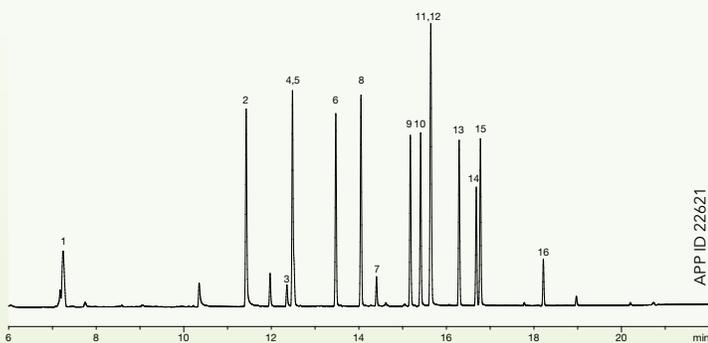
Sample: Analytes are 200 ng/mL in ethanol except atrazine and simazine at 4.2 µg/mL.

- | | |
|------------------------------|-----------------------|
| 1. Hexachlorocyclopentadiene | 9. Heptachlor Epoxide |
| 2. Hexachlorobenzene | 10. γ-Chlordane |
| 3. Simazine | 11. trans-Nonachlor |
| 4. Atrazine | 12. α-Chlordane |
| 5. γ-BHC | 13. Dieldrin |
| 6. Heptachlor | 14. Endrin |
| 7. Alachlor | 15. cis-Nonachlor |
| 8. Aldrin | 16. Methoxychlor |

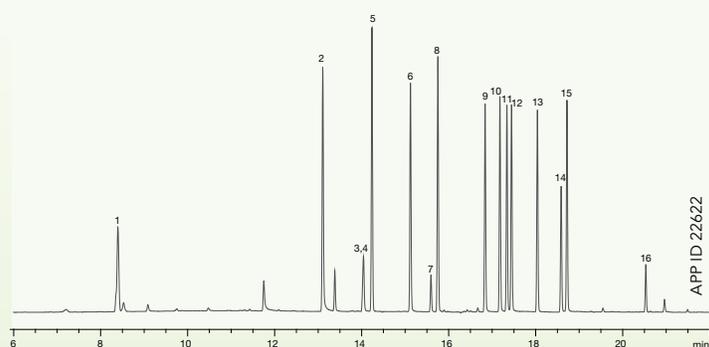
Reference Standards: See page 21.

Zebtron™

ZB-CLPesticides-1
30 m x 0.32 mm x 0.32 µm

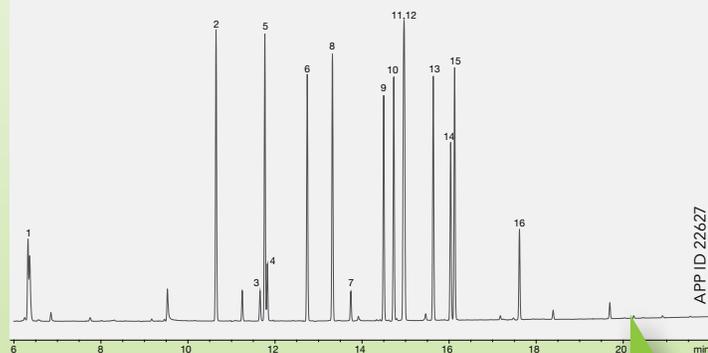


ZB-CLPesticides-2
30 m x 0.32 mm x 0.25 µm

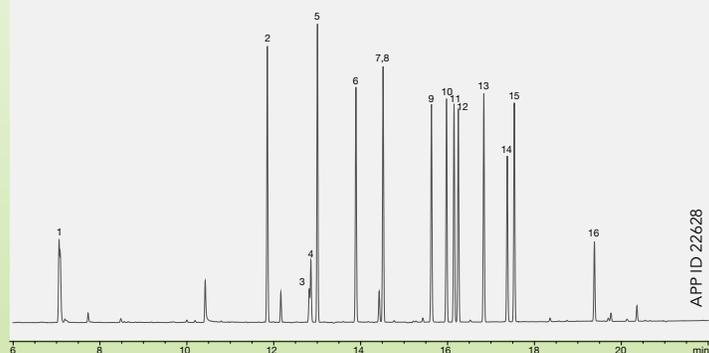


Restek

Rtx®-CLPesticides
30 m x 0.32 mm x 0.32 µm



Rtx-CLPesticides2
30 m x 0.32 mm x 0.25 µm



Looking For Love In Aldrin Places?

Start a cheap romance with Zebtron ZB-CLPesticides columns. Their elution orders and run times are consistent, so they show up on time for dates. And they bring flowers and chocolates, too.

Conditions for each method were the same for all columns tested. Comparative separations are not representative of all applications.

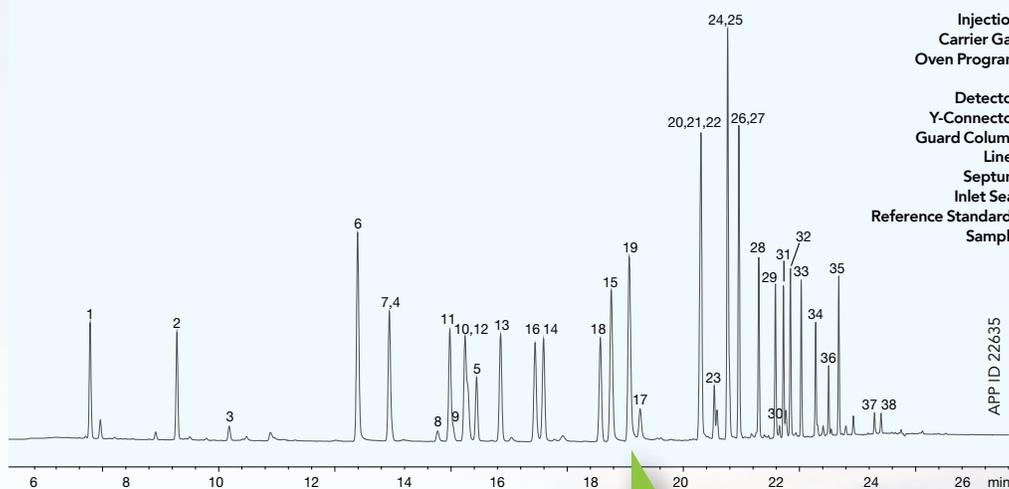
EPA Method 508 Chlorinated Pesticides, Herbicides, & Organohalides

Zebron™

ZB-CLPesticides-1
30 m x 0.32 mm x 0.32 μm

Conditions for all columns:

- Columns:** As listed
- Dimensions:** As listed
- Part Number:** 7HM-G028-51 (ZB-CLPesticides-1)
7HM-G029-11 (ZB-CLPesticides-2)
- Injection:** Splitless (hold 0.75 min) @ 250 °C, 2 μL
- Carrier Gas:** Helium @ 26 cm/sec (constant flow)
- Oven Program:** 80 °C for 0.5 to 155 °C @ 19 °C/min for 1 min to 210 °C @ 4 °C/min to 310 °C @ 25 °C/min for 10 min
- Detector:** ECD @ 325 °C
- Y-Connector:** AG0-4717 (Borosilicate Glass)
- Guard Column:** 7AM-G000-00-GZ0 (5 m Z-Guard™)
- Liner:** AG0-8499 (Single Taper with Wool at Bottom)
- Septum:** AG0-4696 (PhenoRed™-400)
- Inlet Seal:** AG0-8620 (Gold-Plated Easy Seal™)
- Reference Standards:** See page 21.
- Sample:** Analytes are various concentrations in ethyl acetate.



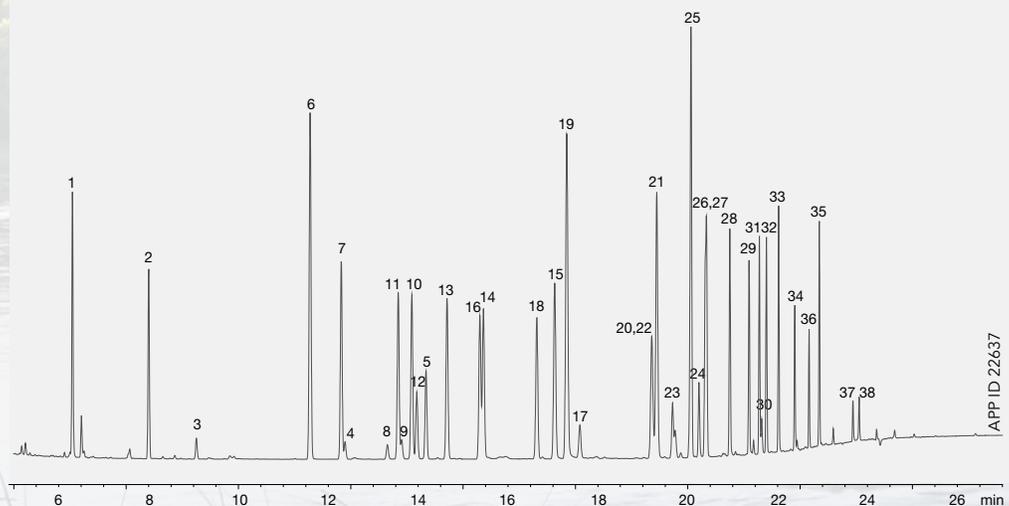
See p. 15 for analytes

Restek

Rtx-CLPesticides
30 m x 0.32 mm x 0.32 μm

ZB-CLPesticides Columns Are Tastier Than DDT!

That doesn't make any sense, but saving money does. Why pay more when you get equivalent or better results with Zebron?

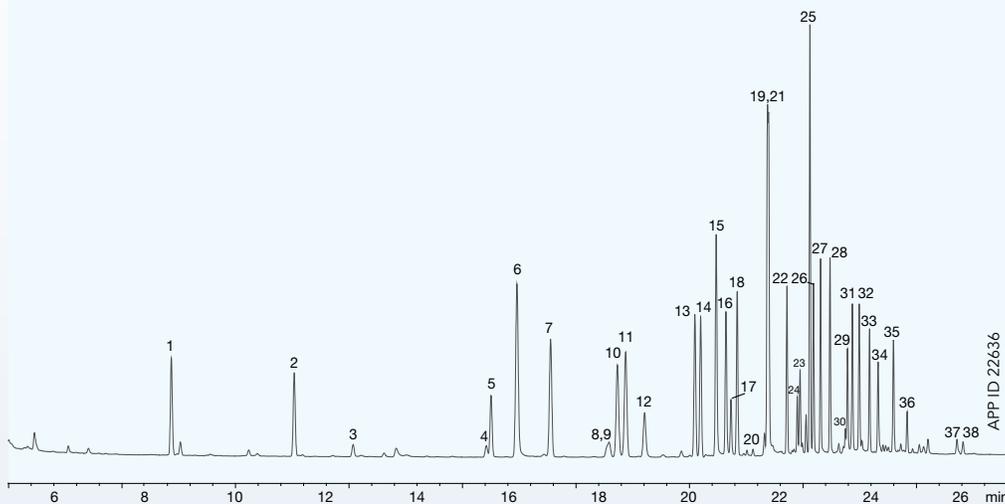


Conditions for each method were the same for all columns tested.
Comparative separations are not representative of all applications.



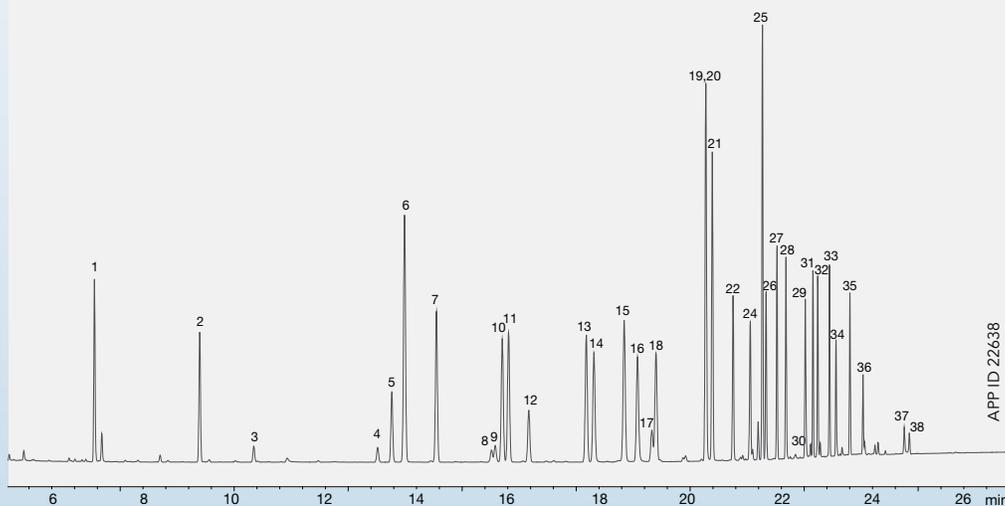
Zebron™

ZB-CLPesticides-2
30 m x 0.32 mm x 0.25 μm



Restek

Rtx-CLPesticides2
30 m x 0.32 mm x 0.25 μm



Peak No.	Analyte	Concentration (ng/mL)
1.	Hexachlorocyclopentadiene	100
2.	Etridiazole	100
3.	Chloroneb	100
4.	Propachlor	100
5.	Trifluralin	100
6.	Hexachlorobenzene	100
7.	α-BHC	50
8.	Simazine	100
9.	Atrazine	100
10.	Pentachloronitrobenzene **	50
11.	γ-BHC	50
12.	β-BHC	50
13.	δ-BHC	50
14.	Heptachlor	50
15.	Chlorothalonil	100
16.	Metribuzin	100
17.	Alachlor	100
18.	Aldrin	50
19.	4,4'-Dibromobiphenyl*	250
20.	Metachlor	100
21.	DCPA(dacthal)	100
22.	Heptachlor epoxide (isomer B)	50
23.	trans-Chlordane	100
24.	Cyanazine	100
25.	cis-Chlordane	100
26.	Endosulfan I	50
27.	4,4'-DDE	50
28.	Dieldrin	50
29.	Endrin	50
30.	Chlorobenzilate	100
31.	4,4'-DDD	50
32.	Endosulfan II	50
33.	4,4'-DDT	50
34.	Endrin aldehyde	50
35.	Endosulfan sulfate	50
36.	Methoxychlor	50
37.	cis-Permethrin	100
38.	trans-Permethrin	100

* surrogate standard
** internal standard

Keep In Calibration!

Improve your pesticide analysis and throughput with Phenova® Certified Reference Materials.

Learn more on page 20 ➔

Conditions for each method were the same for all columns tested. Comparative separations are not representative of all applications.

EPA Method 552

Haloacetic Acids (HAAs) and Dalapon

Conditions for all columns:

Columns: As listed
Dimensions: As listed
Part Number: 7HM-G028-51 (ZB-CLPesticides-1)
 7HM-G029-11 (ZB-CLPesticides-2)
Injection: Pulsed Splitless @ 25 psi (hold 0.75 min) @ 250 °C,
 1 µL
Carrier Gas: Helium @ 25 cm/sec (constant flow)
Oven Program: 35 °C for 4 min to 250 °C @ 15 °C/min, hold 5 min
Detector: ECD @ 300 °C
Y-Connector: AG0-4717 (Borosilicate Glass)
Guard Column: 7AM-G000-00-GZ0 (5 m Z-Guard™)
Liner: AG0-8499 (Single Taper with Wool at Bottom)
Septum: AG0-4696 (PhenoRed™-400)
Inlet Seal: AG0-8620 (Gold-Plated Easy Seal™)
Reference Standards: See page 21.
Sample: Analytes are various concentrations in ethyl acetate.

Peak No.	Analyte	Concentration (ng/mL)
1.	Methyl chloroacetate	1500
2.	Methyl bromoacetate	1000
3.	Methyl dichloroacetate	1500
4.	Dalapon methyl ester	1000
5.	Methyl trichloroacetate	500
6.	1,2,3-Trichloropropane**	4000
7.	Methyl bromochloroacetate	1000
8.	Methyl bromodichloroacetate	1000
9.	Methyl dibromoacetate	500
10.	Methyl chlorodibromoacetate	2500
11.	2,3 dibromopropionate*	2000
12.	Methyl tribromoacetate	5000

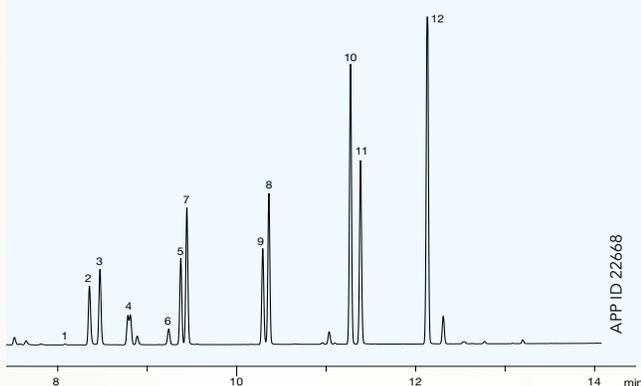
* surrogate standard
 ** internal standard

Wow, These Chromatograms Look The Same

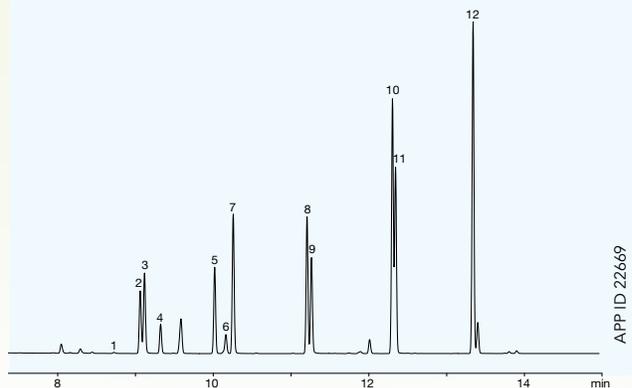
Good thing they do – they're supposed to! Performance is headache and hassle-free, so you can drop-in and run with minimal method development – and pay less!

Zebtron™

ZB-CLPesticides-1
 30 m x 0.32 mm x 0.32 µm

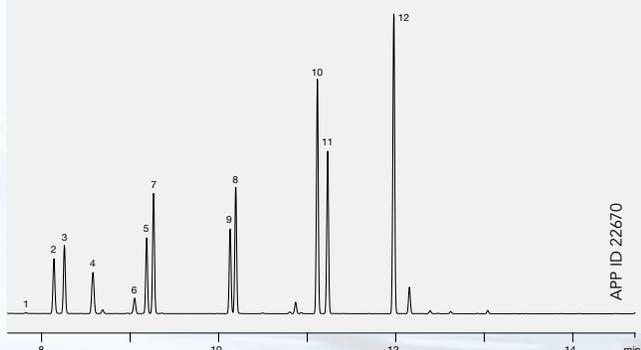


ZB-CLPesticides-2
 30 m x 0.32 mm x 0.25 µm

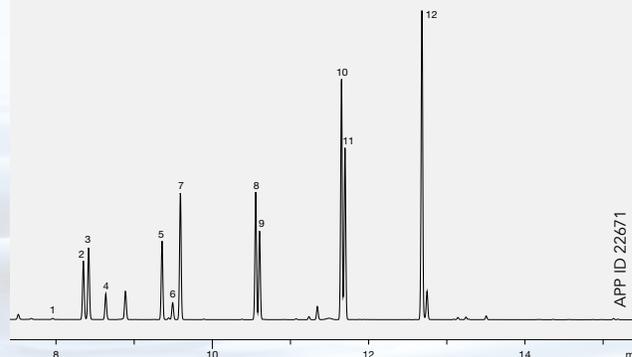


Restek®

Rtx®-CLPesticides
 30 m x 0.32 mm x 0.32 µm



Rtx-CLPesticides2
 30 m x 0.32 mm x 0.25 µm



Conditions for each method were the same for all columns tested. Comparative separations are not representative of all applications.



Customer Spotlight

Real-World Results with Zebron™ ZB-CLPesticides

Run Faster Methods With Minimal Development Time

“ We installed Zebron ZB-CLPesticides-1 and -2 columns with our current method and did no further optimization. Overall, the Zebron columns are fairly impressive. ZB-CLPesticides columns are comparable to our current columns, with the added benefit of no co-eluting peaks. There is also the potential to optimize our method parameters using these columns to run a slightly faster analysis. ”

Shealy Environmental
Services, Inc.

Equivalent Elution Orders & Calibration Success

“ I tried the Zebron ZB-CLPesticides column pair and compared them to the Restek® Rtx®-CLPesticides and Rtx-CLPesticides2 columns. The elution of the Aroclor 1016/1260 standards looked very similar to the Restek columns. I ran a five point curve for the 1016/1260 Aroclors and single points for the rest of the Aroclors (1221 through 1268). The % RSD for the 1016/1260 peaks were also very similar to the Restek column results.” ”

TriMatrix Laboratories, Inc.

Share With Us!

Our innovation is fueled by your feedback! We take every opportunity to learn about your GC challenges, how your dream column would perform, and how best to support you.

www.phenomenex.com/WeListen



Meet Your Pesticide Support Team

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Let us put you first. Your GC technical consultant is available to provide unlimited, personalized support to help you solve your unique GC challenges. From troubleshooting support to liner selection, we're committed to getting your questions answered, fast and friendly!



Our Lab Is Your Lab

PhenoLogix is our full-service analytical support laboratory. Let our GC gurus save your lab time and money!

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- Method optimization and development support
- GC column screening and recommendations
- On-site method development
- On-site, hands-on training

www.phenomenex.com/PhenoLogix



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You asked for a better online experience. One filled with technical resources, easy-to-find products, and useful tools to make your pesticide work easier. Good news... it's here!

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- Watch technical demonstrations and “how-to” videos
- Create a virtual stockroom for your lab
- Try tools that make selecting the right product easier than ever
- Get FREE samples and special offers

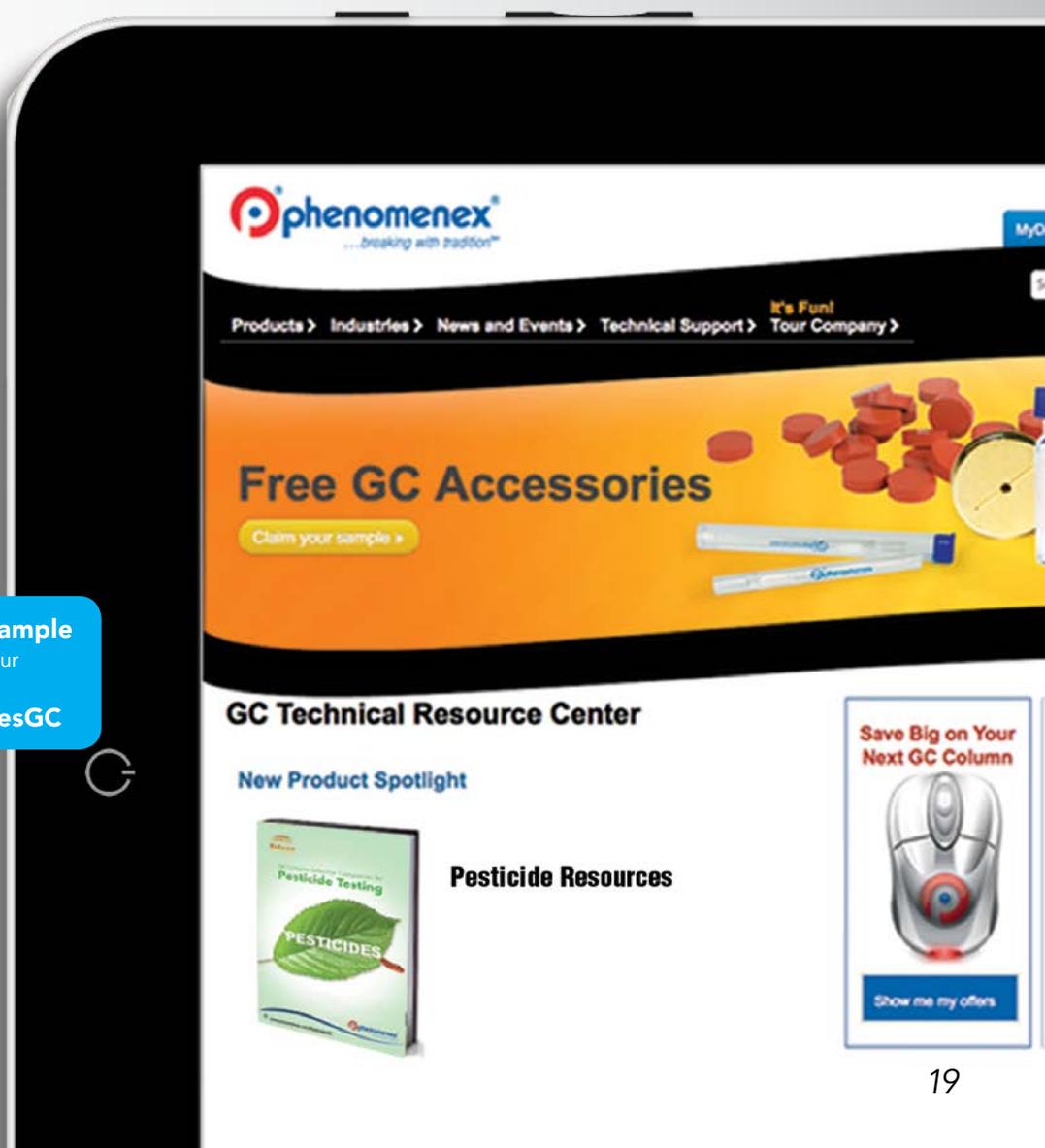
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Request A FREE GC Accessory Sample

Need inlet liners, septa, or gold seals for your pesticide work? Try a sample on us!

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Available in USA and Canada.
Soon to arrive in regions around
the globe!



Improve Pesticide Analysis & Throughput with Phenova® Certified Reference Materials

Keeping You in Calibration

Phenova CRMs provide lot-to-lot consistency by analytically verifying with internal and external CRMs. This means you will experience minimal trending and fewer out of control calibrations.

- Take control
- Extend your calibration window
- Improve your sample throughput

Consistent Quality

Using ISO/IEC 17025 and ISO Guide 34 compliant quality programs, Phenova CRMs are manufactured and analytically verified, promising you consistency and accuracy each time.

- Get accurate results
- Improve your data quality and analysis

A New Standard of Confidence

Phenova CRMs are manufactured by Phenova, Inc. (Golden, Colorado, USA), a Phenomenex Company, which is accredited to ISO Guide 34:2009, and ISO/IEC 17025:2005



Chemical Testing Laboratory
Certificate No. 2427.03



Reference Material Producer
Certificate No. 2427.02



Who Needs to Use Certified Reference Materials?

All environmental labs accredited to ISO/IEC 17025 must use CRMs. Even if your lab does not have this accreditation it still benefits from having a high standard, quality product.

Discover A New Standard of Confidence

- Extended calibration
- High quality and confidence
- Dependable inventory
- Simple and smart packaging
- Personalized technical support
- Streamlined product search
- ...and more

guarantee

Make the Switch to Reliability and Convenience

Part No.	Product Name	Description	Calibration Standard	Internal Standard	Surrogate Standard	Price
AL0-101253	8081 Chlorinated Pesticides	1000 µg/mL in Hexane/Toluene	✓			
AL0-101254	Chlorinated Pesticides Standard	2000 µg/mL in Hexane/Toluene	✓			
AL0-101258	Toxaphene	2000 µg/mL in Methanol	✓			
AL0-101260	Technical Chlordane	1000 µg/mL in Methanol	✓			
AL0-101255	8141 OP Pesticides	200 µg/mL in Hexane/Acetone (90:10)	✓			
AL0-101256	8270 OP Pesticides Mix	2000 µg/mL in Methylene Chloride	✓			
AL0-101290	Pentachloronitrobenzene	100 µg/mL in Ethyl Acetate		✓		
AL0-101259	4,4'-Dibromobiphenyl	500 µg/mL in Ethyl Acetate			✓	
AL0-101267	Pentachloronitrobenzene	5000 µg/mL in Acetone		✓		
AL0-101268	1-Bromo-2-nitrobenzene	5000 µg/mL in Acetone		✓		
AL0-101269	1-Bromo-2-nitrobenzene	1000 µg/mL in Acetone		✓		
AL0-101272	4-Chloro-3-Nitrobenzotrifluoride	1000 µg/mL in Acetone		✓	✓	
AL0-101257	Pesticide Surrogate Mix	500 µg/mL in Acetone			✓	
AL0-101263	2,4,5,6-Tetrachloro-m-xylene	200 µg/mL in Acetone		✓	✓	
AL0-101274	Decachlorobiphenyl Standard	200 µg/mL in Acetone		✓	✓	
AL0-101288	Chlorinated Acid Herbicides	100 µg/mL in Acetonitrile	✓			
AL0-101289	MCPP & MCPA	20000 µg/mL in Acetonitrile	✓			
AL0-101265	Simazine	1000 µg/mL in Acetone	✓			
AL0-101271	Atrazine	1000 µg/mL in Acetone	✓			
AL0-101266	Triazine Herbicides Mix	200 µg/mL in Acetone	✓			
AL0-101270	4,4'-Dibromooctofluorobiphenyl	250 µg/mL in Hexane		✓		
AL0-101261	2,4-Dichlorophenylacetic Acid	1000 µg/mL in Acetone			✓	

Available in the USA and Canada.
Soon to arrive in regions around the globe!

We're Here to Help!

For a full selection of Phenova CRMs and analyte listing by EPA Method visit

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PhenovaCRM@phenomenex.com



A Full-Solutions Family for Pesticide Testing

The Choice Is Yours

Though many pesticide methods are standardized, every lab is different! We know that today's labs test for an increasingly diverse list of methods and compounds. The Zebron™ pesticide column family is up to the challenge.



ZB-CLPesticides-1 & -2

7 Chlorinated Pesticides Methods On One Set

- Guaranteed results for 7 EPA methods by GC/ECD
- Drop-in performance equivalent to Restek® Rtx®-CLPesticides phases



ZB-MultiResidue™-1 & -2

Optimized Selectivity, Enhanced Separations

- Reliably detect to low levels on-column
- Sensitive, accurate results for GC/ECD and GC/MS



ZB-SemiVolatiles

Supreme Inertness for Tough Pesticide Samples

- Good peak shapes and response at trace levels for active pesticide compounds
- No retention time shifts from other 5 % phenyl-arylene phases



Guaranteed Alternatives

Traditional Selectivities With A Twist

- Improve your separations, without time-consuming method development
- ZB-XLB, ZB-35, ZB-1701P and other direct replacements available



Free Column Selection Guide!

Download your free GC Selection Companion and get the details on the pesticide column family.

www.phenomenex.com/PesticidesGC

Ordering Information

ZB-CLPesticides GC Columns

ZB-CLPesticides-1 GC Columns

Length (m)	ID (mm)	df (µm)	Temperature Limits (°C)	Restek Part No.	Part No.	Price
30	0.25	0.25	40 to 320/340	11123	7HG-G028-11	
	0.32	0.32	40 to 320/340	11141	7HM-G028-51	
	0.32	0.50	40 to 320/340	11139	7HM-G028-17	
	0.53	0.50	40 to 320/340	11140	7HK-G028-17	

ZB-CLPesticides-2 GC Columns

Length (m)	ID (mm)	df (µm)	Temperature Limits (°C)	Restek Part No.	Part No.	Price
30	0.25	0.20	40 to 320/340	11323	7HG-G029-10	
	0.32	0.25	40 to 320/340	11324	7HM-G029-11	
	0.32	0.50	40 to 320/340	11325	7HM-G029-17	
	0.53	0.42	40 to 320/340	11340	7HK-G029-16	

ZB-CLPesticides GC Column Kits

ZB-CLPesticides 0.25 mm ID Kit	Part No.: KGO-9285	Price: \$880	Restek Part No.: 11199
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Includes 1 of Each Below

Description	Dimension	Restek Part No.	Part No.	Price
ZB-CLPesticides-1	30 meter x 0.25 mm x 0.25 µm	11123	7HG-G028-11	
ZB-CLPesticides-2	30 meter x 0.25 mm x 0.20 µm	11323	7HG-G029-10	
Z-Guard™ Column	5 meter x 0.25 mm	10026	7AG-G000-00-GZO	
Y-Connector	Universal Borosilicate Glass	20403-261	AG0-4717	
Polyimide Resin	0.5 mL, rated to 350 °C	-	AG0-5722	

ZB-CLPesticides 0.32 mm ID Kit	Part No.: KGO-9286	Price: \$920	Restek Part No.: 11196
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Includes 1 of Each Below

Description	Dimension	Restek Part No.	Part No.	Price
ZB-CLPesticides-1	30 meter x 0.32 mm x 0.32 µm	11123	7HM-G028-51	
ZB-CLPesticides-2	30 meter x 0.32 mm x 0.25 µm	11323	7HM-G029-11	
Z-Guard Column	5 meter x 0.32 mm	10027	7AM-G000-00-GZO	
Y-Connector	Universal Borosilicate Glass	20403-261	AG0-4717	
Polyimide Resin	0.5 mL, rated to 350 °C	-	AG0-5722	

ZB-CLPesticides 0.53 mm ID Kit	Part No.: KGO-9290	Price: \$1,015	Restek Part No.: 11197
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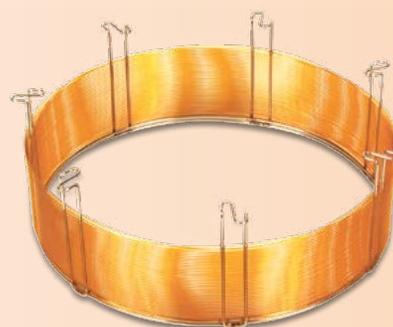
Includes 1 of Each Below

Description	Dimension	Restek Part No.	Part No.	Price
ZB-CLPesticides-1	30 meter x 0.53 mm x 0.50 µm	11140	7HK-G028-17	
ZB-CLPesticides-2	30 meter x 0.53 mm x 0.42 µm	11340	7HK-G029-16	
Z-Guard Column	5 meter x 0.53 mm	10045	7AK-G000-00-GZO	
Y-Connector	Universal Borosilicate Glass	20403-261	AG0-4717	
Polyimide Resin	0.5 mL, rated to 350 °C	-	AG0-5722	

Recommended Accessories

Liners for Agilent Technologies® (HP) GC Systems (GC Model No. 5880/5890/6890/7890)

Description	Benefits / Uses	Dimensions ID x L x OD (mm)	Units	Similar to Mfr. No.**	Part No.	Unit	Price
Split / Splitless, FocusLiner™ Single Taper with wool 	General use or dirty samples	4 x 78.5 x 6.3	ea 5/pk 25/pk	5183-4711 20994 5183-4712 20995 5183-4713 20996	- AG0-4680 AG0-7514	5/pk 25/pk	
Splitless, Single Taper Liner with wool 	Large injection, trace analysis	4 x 78.5 x 6.3	5/pk 25/pk	5183-4693 5183-4694	AG0-8499 AG0-9170	5/pk 25/pk	
Single Taper Direct Connect with Side Hole (top) 	Great recovery and linearity for trace analysis of active compounds	4 x 78.5 x 6.3	ea 5/pk 25/pk	G1544 21054 21055 20998	- AG0-7850 -	5/pk	
Split Liner with wool 	General use or dirty samples	4 x 78.5 x 6.3	ea 5/pk 25/pk	5183-4647 21032 5183-4701 21033 5183-4702 -	- AG0-8172 -	5/pk	
Splitless Single Taper Liner 	Large injection, trace analysis	4 x 78.5 x 6.45	ea 5/pk 25/pk	5181-3316 20798 5183-4695 20799 5183-4696 20780	- AG0-7516 AG0-7640	5/pk 25/pk	



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.



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GC Columns

Guaranteed, Drop-In Performance for Chlorinated Pesticides

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Austria

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

Belgium

t: 02 503 4015 (French)
t: 02 511 8666 (Dutch)
f: +31 (0)30-2383749
beinfo@phenomenex.com

Canada

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

Denmark

t: 4824 8048
f: +45 4810 6265
nordicinfo@phenomenex.com

Finland

t: 09 4789 0063
f: +45 4810 6265
nordicinfo@phenomenex.com

France

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

Germany

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

India

t: 040-3012 2400
f: 040-3012 2411
indiainfo@phenomenex.com

Ireland

t: 01 247 5405
f: +44 1625-501796
eireinfo@phenomenex.com

Italy

t: 051 6327511
f: 051 6327555
italiainfo@phenomenex.com

Luxembourg

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

Mexico

t: 001-800-844-5226
f: 001-310-328-7768
tecnicomx@phenomenex.com

The Netherlands

t: 030-2418700
f: 030-2383749
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New Zealand

t: 09-4780951
f: 09-4780952
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Norway

t: 810 02 005
f: +45 4810 6265
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Puerto Rico

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

Sweden

t: 08 611 6950
f: +45 4810 6265
nordicinfo@phenomenex.com

United Kingdom

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

United States

t: (310) 212-0555
f: (310) 328-7768
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