

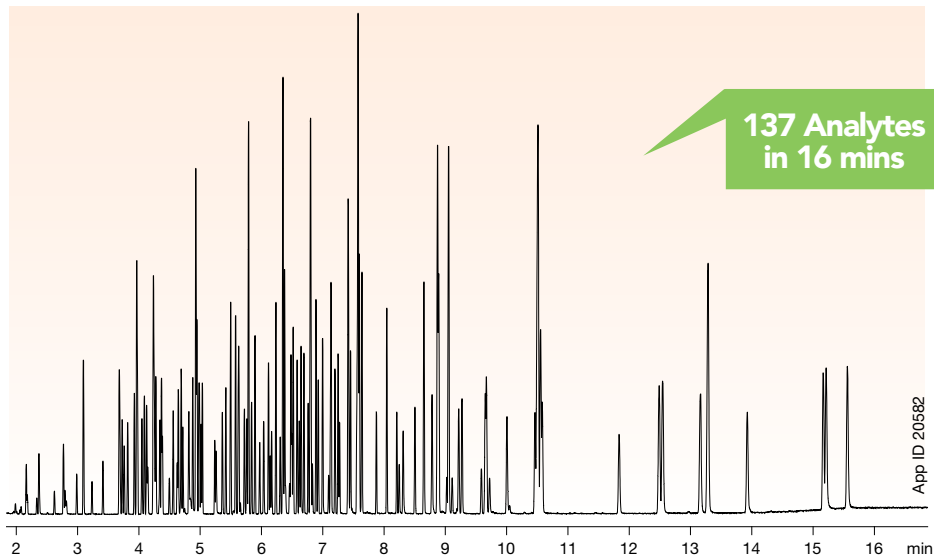
Fast, Accurate Environmental Testing

Using Zebron GC Columns

Featuring

- Pesticides
- Diesel Range Organics
- Semivolatiles
- Dioxane
- And more.....

Semi-Volatile Organic Compounds



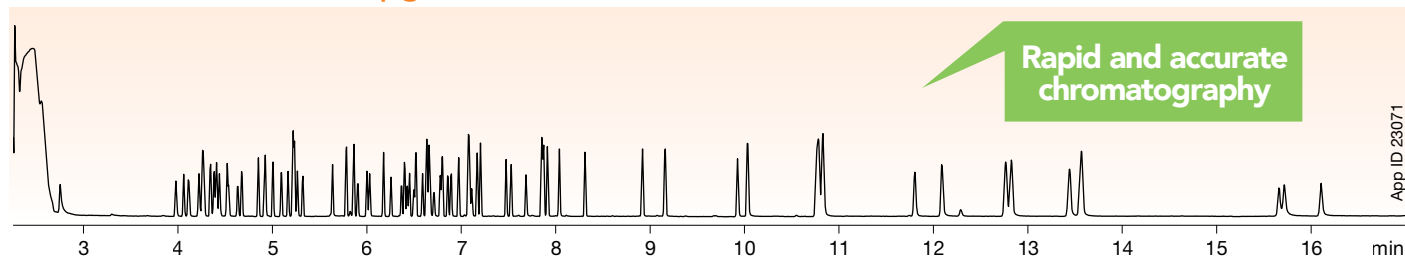
Column: Zebron™ ZB-SemiVolatiles
Dimensions: 30 meter x 0.25 mm x 0.25 μ m
Part No.: 7HG-G027-11
Injection: Split 10:1 @ 280 °C, 1 μ L
Recommended Liner: Zebron PLUS Single Taper with Wool, 4 mm ID
Liner Part No.: AG2-0A11-05 (for Agilent® Systems)
Septum: AG0-4697 (PhenoRed™-400)
Inlet Seal: AG0-8620 (Easy Seals™)
Carrier Gas: Helium @ 1.4 mL/min (constant flow)
Oven Program: 40 °C for 0.5 min to 260 °C @ 40 °C/min to 295 °C @ 6 °C/min to 325 °C @ 25 °C/min for 2 min
Detector: MSD @ 340 °C; 45 – 450 amu
Sample: Analytes are 25 ppm in dichloromethane

See entire analyte list and technical note at www.phenomenex.com/search

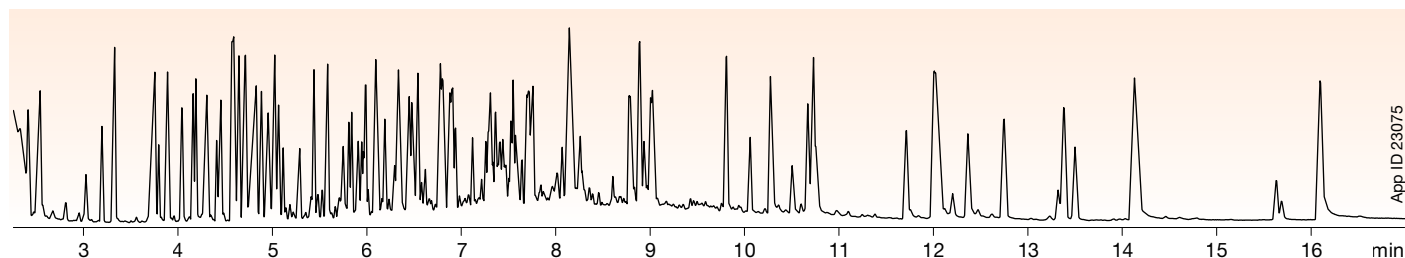
TN-2039

Bases, Acids, and Neutrals by GC-MS

Standard Curve at 25 μ g/mL



Waste Water Matrix Extraction

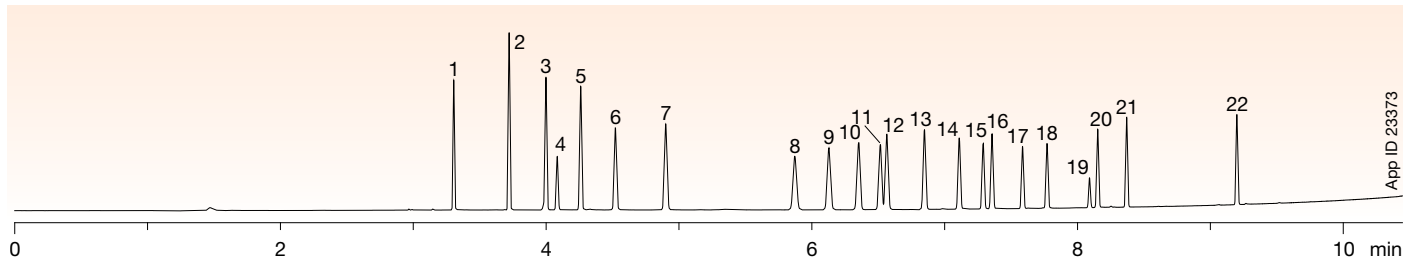


Column: Zebron ZB-SemiVolatiles
Dimensions: 30 meter x 0.25 mm x 0.25 μ m
Part No.: 7HG-G027-11
Injection: Splitless @ 250 °C, 1 μ L
Recommended Liner: Zebron PLUS Single Taper with Wool, 4 mm ID
Liner Part No.: AG2-0A11-05 (for Agilent Systems)
Septum: AG0-4697 (PhenoRed™-400)
Inlet Seal: AG0-8620 (Easy Seals)

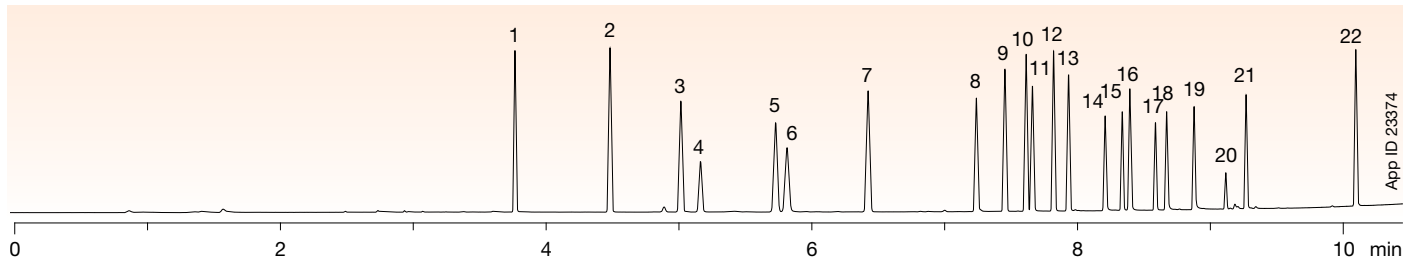
Carrier Gas: Helium @ 1.6 mL/min (constant flow)
Oven Program: 40 °C for 0.66 min to 260 °C @ 30 °C/min to 295 °C @ 6 °C/min to 325 °C @ 25 °C/min for 2 min
Detector: MSD @ 300 °C; 40-500 amu

Chlorinated Pesticides using Hydrogen

A) Zebron™ ZB-CLPesticides-1



B) Zebron ZB-CLPesticides-2



Column: As listed
Dimensions: A) 30 meter x 0.32 mm x 0.32 µm
 B) 30 meter x 0.32 mm x 0.25 µm
Part No.: A) 7HM-G028-51
 B) 7HM-G029-11
Injection: Splitless @ 250 °C, 1 µL
Recommended Liner: Zebron PLUS Single Taper with Wool,
 4 mm ID
Liner Part No.: AG2-0A11-05 (for Agilent® Systems)
Septum: AG0-4697 (PhenoRed™-400)

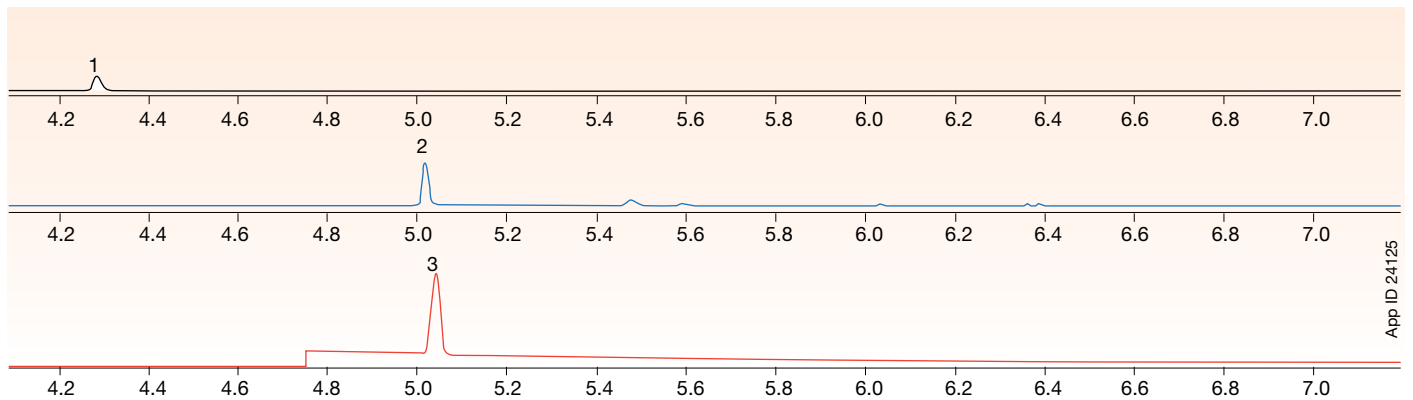
Inlet Seal: AG0-8620 (Easy Seals™)
Carrier Gas: Hydrogen @ 3.5 mL/min (constant flow)
Oven Program: 85 °C for 0.5 min to 195 °C @ 45 °C/min
 for 3 min to 330 °C @ 30 °C/min
Detector: ECD @ 330 °C

Sample: Analytes are 100ng/mL in hexane

1. 2,4,5,6-TCMX (Surr)	12. 4,4'-DDE
2. a-BHC	13. Dieldrin
3. γ-BHC	14. Endrin
4. β-BHC	15. 4,4'-DDD
5. δ-BHC	16. Endosulfan II
6. Heptachlor	17. 4,4'-DDT
7. Aldrin	18. Endrin aldehyde
8. Heptachlor epoxide	19. Methoxychlor
9. trans-Chlordane	20. Endosulfan sulfate
10. cis-Chlordane	21. Endrin ketone
11. Endosulfan I	22. Decachlorobiphenyl (Surr)

1,4-Dioxane by GC-MS

Tap Water Extracted Ion Chromatogram at 25 ng/mL

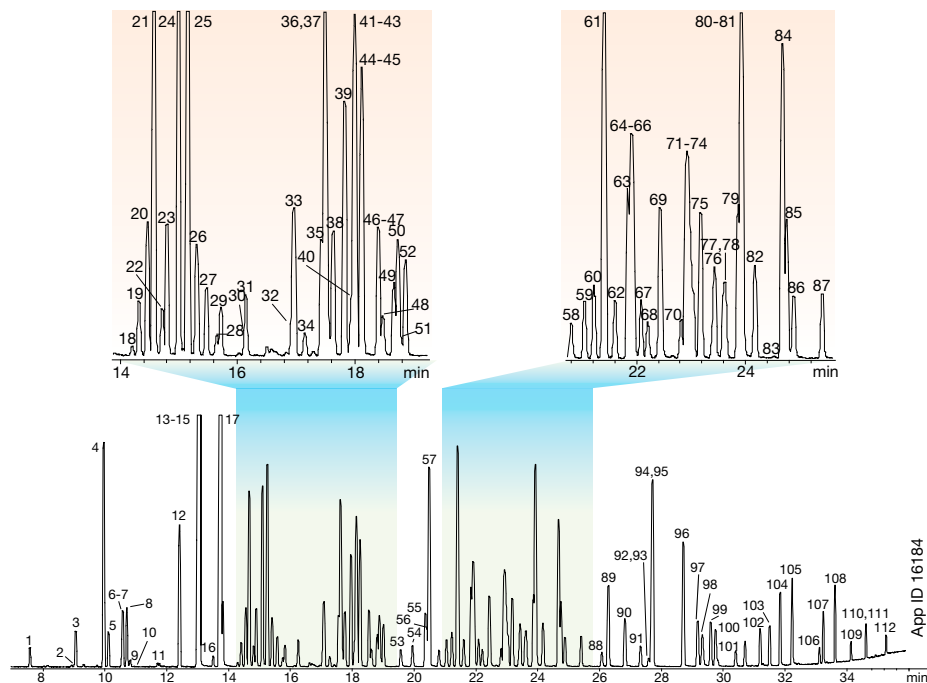


Column: Zebron ZB-624
Dimensions: 30 meter x 0.25 mm x 1.4 µm
Part No.: 7HG-G005-27
Guard Column: 5 m Z-Guard™ (7AG-G000-00-GZ0)
Injection: Splitless @ 200 °C (hold 0.5 min), 2.0 µL

Recommended Liner: Zebron PLUS Single Taper Z-Liner™,
 4 mm ID
Liner Part No.: AG2-0A13-05 (for Agilent Systems)
Septum: AG0-4697 (PhenoRed-400)
Inlet Seal: AG0-8620 (Easy Seals)

Carrier Gas: Helium @ 1.5 mL/min (constant flow)
Oven Program: 30 °C for 1 min to 90 °C @ 20 °C/min to
 250 °C @ 50 °C/min
Detector: MSD @ 250 °C
Sample: 1. THF-d8
 2. 1,4-dioxane-d8
 3. 1,4-dioxane

Multi-Residue Pesticides by GC-MS



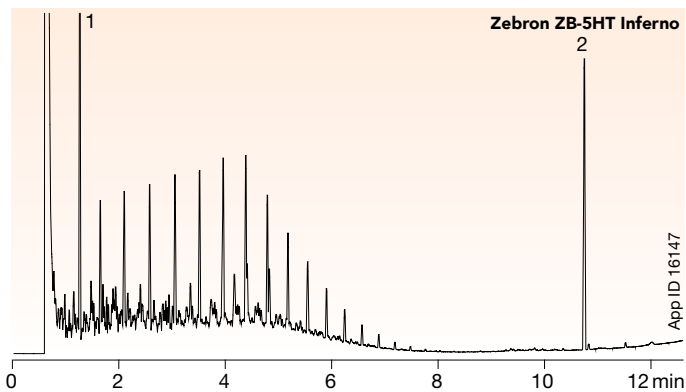
Column: Zebtron™ ZB-MultiResidue™-1
Dimensions: 30 meter x 0.25 mm x 0.25 μm
Part No.: 7HG-G016-11
Injection: Splitless @ 260°C, 1 μL
Recommended Liner: Zebtron PLUS Single Taper with Wool, 4 mm ID
Liner Part No.: AG2-0A11-05 (for Agilent® Systems)
Septum: AG0-4697 (PhenoRed™-400)
Inlet Seal: AG0-8620 (Easy Seals™)
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

See entire analyte list and technical note at www.phenomenex.com/search

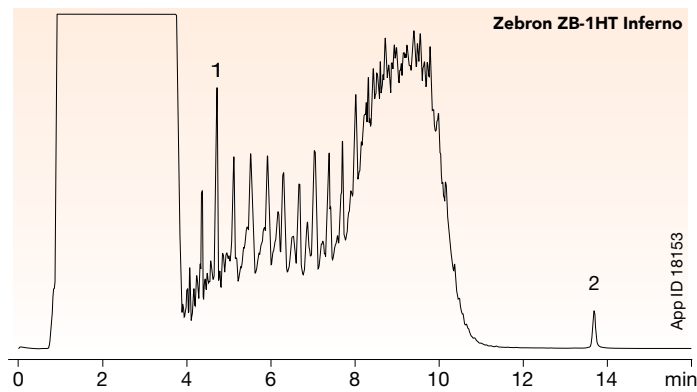
TN-2021

Diesel Range Organics (DROs) by GC

Diesel Fuel



Hydrocarbons



Column: Zebtron ZB-5HT Inferno™	ZB-1HT Inferno
Dimensions: 15 meter x 0.32 mm x 0.10 μm	15 meter x 0.32 mm x 0.25 μm
Part No.: 7EM-G015-02	7EM-G014-11
Injection: On-Column @ 63°C, 0.1 μL	Splitless @ 300°C, 20 μL
Carrier Gas: Helium @ 2.7 mL/min (constant flow)	Helium @ 2 mL/min (constant flow)
Oven Program: 60°C to 375°C at 25°C/min	50°C for 2 min to 320°C @ 30°C/min for 5 min
Detector: FID @ 400°C	FID @ 330°C
Sample: Diesel Fuel was 200 ppm in Dichloromethane with Internal Standards at 50 ppm	
1. Decane	
2. Tetracontane	

Recommended Liner: Zebtron PLUS Single Taper, 4 mm ID
Liner Part No.: AG2-0A10-05
Septum: AG0-4696 (PhenoRed-400)
Inlet Seal: AG0-8620 (Easy Seals)

Select the GC Column for your Environmental Methods

Please contact your Phenomenex representative for additional products and assistance.

Essentials	Inferno™	Plus	Unlimited
ZB-624	ZB-50	ZB-WAX	ZB-5HT
	ZB-1 _{PLUS}	ZB-5 _{PLUS}	ZB-WAX _{PLUS}
			ZB-CLPesticides-1 & 2
			ZB-MultiResidue™-1 & 2
			ZB-SemiVolatiles



Drinking Water

Trihalomethanes by GC/MS with Selected Ion Monitoring (SIM)	●				
Volatile Halogenated Organics by Purge & Trap GC/PID/ELCD	●				
Volatile Aromatics and Unsaturated Organics by Purge & Trap GC	●				
1,2-Dibromoethane (EDB), 1,2-Dibromo-3-chloropropane (DBCP), and 1,2,3-Trichloropropane (123TCP) by GC				●	
Organohalide Pesticides & Aroclors by GC/ECD				●	●
Nitrogen & Phosphorus Containing Pesticides by GC/NPD					●
Chlorinated Pesticides by GC/ECD					●
Ethylene Thiourea (ETU) by GC/NPD				●	
2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin by GC/HRMS					●
Chlorinated Acids by Liquid-Liquid Extraction, Derivatization and GC/ECD				●	
Nitrosamines by Solid Phase Extraction (SPE) and GC/MS/MS with Large Volume injection					●
1,4-Dioxane by Solid Phase Extraction (SPE) and GC/MS with Selected Ion Monitoring (SIM)					●
Triazine Pesticides and their Degradates by GC/MS		●			
Purgeable Organic Compounds by GC/MS	●				
Semi-volatile Organic Chemicals by Solid Phase Extraction (SPE) and GC/MS					●
Phenols by Solid Phase Extraction (SPE) and GC/MS					●
Explosives and Related Compounds by Solid Phase Extraction (SPE) and GC/MS				●	
Endothall by Aqueous Derivatization, Liquid-Solid Extraction, and GC/ECD					●
Chlorinated Solvents & Disinfection Byproducts by Liquid-Liquid Extraction and GC/ECD				●	●
Halooacetic Acids and Dalapon by Liquid-Liquid Extraction, Derivatization, and GC/ECD				●	
Carbonyl Compounds by Pentafluorobenzylhydroxylamine Derivatization and GC/ECD					●



Waste Water

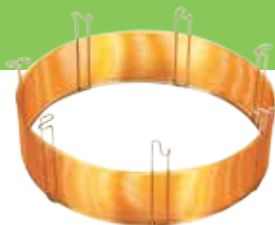
Purgeable Halocarbons by Purge & Trap GC	●				
Purgeable Aromatics by Purge & Trap GC	●				
Acrolein & Acrylonitrile Purge & Trap GC	●				
Phenols by GC/ECD					●
Phthalate Esters by GC/ECD				●	
Nitrosamines by GC/NPD					●
Organochlorine Pesticides and PCBs by GC/ECD					●
Nitroaromatics & Isophorone by GC/FID and GC/ECD					●
Polynuclear Aromatic Hydrocarbons by GC/FID					●
Haloethers by GC/ECD					●
2,3,7,8-Tetrachlorodibenzo-p-dioxin by GC/MS					●
Chlorinated Herbicides by GC/ECD				●	
Triazine Herbicides by GC/MS		●			
Organophosphorus Pesticides by GC/MS					●
Purgeable Volatiles by Purge & Trap GC/MS	●				
Base/Neutral and Acids by GC/MS					●
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS			●		
Polybrominated Diphenyl Esters (PBDEs) by HRGC/HRMS					●
Organohalide Pesticides, Organophosphorus Pesticides, and Phenoxy-Acid Herbicides by GC					●
Volatile Organic Compounds by Isotope Dilution GC/MS	●				
Semi-volatile Organic Compounds by Isotope Dilution GC/MS					●
Organophosphorus Pesticides by GC/FPD					●
Phenoxy-Acid Herbicides by GC/ECD					●
Dazomet by GC/NPD					●
Pharmaceutical Volatile Organic Compounds by Purge & Trap GC or Isotope Dilution GC/MS	●				●
Polychlorinated Biphenyl (PCB) Congeners by HRGC/HRMS					●
Pharmaceutical Manufacturing Volatile Organic Compounds by GC/FID				●	



Solid Waste

Halogenated Volatile Organics by GC/ELCD	●				
Nonhalogenated Organics by GC				●	
Aromatic Volatile Organics by GC/PID		●			
Aromatic and Halogenated Volatiles by GC/PID or GC/ELCD	●				
Acrolein and Acrylonitrile by GC/FID	●				
Acrylamide by GC/ECD				●	
Phenols by GC/ECD or GC/FID					●
Phthalate Esters by GC/ECD					●
Organochlorine Pesticides by GC/ECD				●	●
Polychlorinated Biphenyls (PCBs) by GC/ECD				●	●
Nitroaromatics and Cyclic Ketones by GC/ECD or GC/NPD					●
Explosives by GC/ECD		●			
Polynuclear Aromatic Hydrocarbons by GC/FID					●
Chlorinated Hydrocarbons by GC/ECD					●
Aniline and Selected Derivatives by GC/NPD					●
Organophosphorus Pesticides by GC/FPD or GC/NPD					●
Chlorinated Herbicides by GC/ECD				●	
Volatile Organic Compounds by GC/MS	●				
Semi-volatile Organic Compounds by GC/MS					●
Polynuclear Aromatic Hydrocarbons (PAHs) by SPME and GC/MS with Selected Ion Monitoring (SIM)					●
Polychlorinated Dibenzo-P-Dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) By HRGC/LRMS					●
Polychlorinated Dibenzo-P-Dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) By HRGC/LRMS					●
Semi-Volatile Organic Compounds by GC/FT-IR					●
Bis(2-chloroethyl) Ether and Hydrolysis Products by Direct Aqueous Injection GC/FT-IR				●	

Ordering Information



Zebtron™ ZB-SemiVolatiles GC Columns

ZB-SemiVolatiles GC Columns

Length (m)	ID (mm)	df (µm)	Temp. Limits (°C)	Part No.
15	0.25	0.25	-60 to 325/350	7EG-G027-11
15	0.25	0.50	-60 to 325/350	7EG-G027-17
20	0.18	0.18	-60 to 325/350	7FD-G027-08
20	0.18	0.36	-60 to 325/350	7FD-G027-53
30	0.25	0.25	-60 to 325/350	7HG-G027-11
30	0.25	0.50	-60 to 325/350	7HG-G027-17
60	0.25	0.25	-60 to 325/350	7KG-G027-11

Zebtron ZB-1HT Inferno™ GC Columns

Length (m)	ID (mm)	df (µm)	Temp. Limits (°C)	Part No.
5	0.53	0.10	-60 to 400/430	7AK-G014-02
10	0.32	0.25	-60 to 400/430	7CM-G014-11
15	0.25	0.10	-60 to 400/430	7EG-G014-02
15	0.25	0.25	-60 to 400/430	7EG-G014-11
15	0.32	0.10	-60 to 400/430	7EM-G014-02
15	0.32	0.25	-60 to 400/430	7EM-G014-11
15	0.53	0.15	-60 to 400	7EK-G014-05
20	0.18	0.18	-60 to 400/430	7FD-G014-08
30	0.25	0.10	-60 to 400/430	7HG-G014-02
30	0.25	0.25	-60 to 400/430	7HG-G014-11
30	0.32	0.10	-60 to 400/430	7HM-G014-02
30	0.32	0.25	-60 to 400/430	7HM-G014-11
30	0.53	0.15	-60 to 400	7HK-G014-05

Zebtron ZB-5HT Inferno GC Columns

Length (m)	ID (mm)	df (µm)	Temp. Limits (°C)	Part No.
15	0.25	0.10	-60 to 400/430	7EG-G015-02
15	0.25	0.25	-60 to 400/430	7EG-G015-11
15	0.32	0.10	-60 to 400/430	7EM-G015-02
15	0.32	0.25	-60 to 400/430	7EM-G015-11
15	0.53	0.15	-60 to 400	7EK-G015-05
20	0.18	0.18	-60 to 400/430	7FD-G015-08
30	0.25	0.10	-60 to 400/430	7HG-G015-02
30	0.25	0.25	-60 to 400/430	7HG-G015-11
30	0.32	0.10	-60 to 400/430	7HM-G015-02
30	0.32	0.25	-60 to 400/430	7HM-G015-11
30	0.53	0.15	-60 to 400	7HK-G015-05
60	0.25	0.25	-60 to 400/430	7KG-G015-11

Note: If you need a 5 in. cage, simply add a (-B) after the part number, e.g., 7HG-G015-11-B. Some exceptions may apply. Agilent 6850 and some SRI and process GC systems use only 5 in. cages.

Ordering Information



Zebron™ ZB-CLPesticides GC Columns

ZB-CLPesticides-1 GC Columns

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

ZB-CLPesticides-2 GC Columns

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

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-624 GC Columns

Length (m)	ID (mm)	df (µm)	Temp. Limits (°C)	Part No.
20	0.18	1.00	-20 to 260	7FD-G005-22
30	0.25	1.40	-20 to 260	7HG-G005-27
30	0.32	1.80	-20 to 260	7HM-G005-31
30	0.53	3.00	-20 to 260	7HK-G005-36
60	0.25	1.40	-20 to 260	7KG-G005-27
60	0.32	1.80	-20 to 260	7KM-G005-31
60	0.53	3.00	-20 to 260	7KK-G005-36
75	0.53	3.00	-20 to 260	7LK-G005-36
105	0.53	3.00	-20 to 260	7NK-G005-36

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.

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, send in your comparative data within 45 days and keep the column for FREE!

More GC columns, kits, and accessories available at

www.phenomenex.com/GC

Fast, Accurate Environmental Testing

Using Zebron GC Columns

www.phenomenex.com/environmental

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