



GC Method Development Special

Optimize GC Column Selection and Save!



Column selection tips and guidelines inside

phenomenex[®]
...breaking with traditionSM



Phase Selection Tips



Selectivity Has the Biggest Impact on Resolution

Resolution between two analytes is mainly determined by the selectivity of the stationary phase. By increasing the resolution between two compounds, the total analysis time can often be reduced significantly!

The Master Resolution Equation

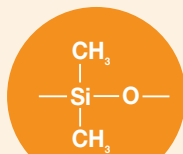
$$R_s = \left[\frac{\sqrt{N}}{4} \right] \times \left[\frac{a-1}{a} \right] \times \left[\frac{k}{k+1} \right]$$

Efficiency Term Selectivity Term Retention Term

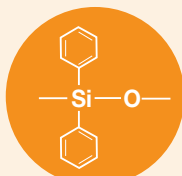
Selectivity vs. Polarity

Column polarity and selectivity are often confused – polarity gives a general guideline for sample capacity and separation, which can affect peak shape and resolution. However, two columns may have similar polarity but show very different separation profiles because of differences in phase chemistry.

ZB-35 (Polarity: 18)

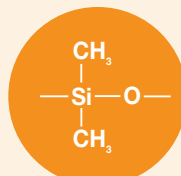


65 %
Dimethylpolysiloxane

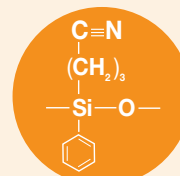


35 %
Phenyl

ZB-1701 (Polarity: 19)



86 %
Dimethylpolysiloxane



14 %
Cyanopropylphenyl

The columns have very similar polarity, but the cyanopropyl group makes ZB-1701 very different from ZB-35 in terms of selectivity.

The 3 Most Prevalent GC Interactions

Dispersive Forces (Van der Waals Interactions)

- Weakest of all intermolecular forces and occurs between non-polar compounds
- Separation is based on boiling point (classic example – hydrocarbon separation in SimDist analysis)

Dipole-Dipole Interactions

- Either permanently present or induced by analyte-stationary phase interactions
- Higher dipole-dipole interaction can help separate compounds with similar boiling points, but different chemical structures

Hydrogen Bonding (Acid-Base Interactions)

- Can cause poor peak shape or irreversible binding to the inlet liner or to the column itself

Zebron GC Column Phases



Learn even more about Zebron GC column phases and applications at www.phenomenex.com/GC.

Polarity	Phase	Composition	Temperature Limits (Isothermal/TPGC)	MS Certified	Recommended Applications
5	ZB-1	100 % Dimethylpolysiloxane	-60 to 360/370 °C*	✓	Amines, Drugs, Essential Oils, Ethanol, Gases (Refinery), Hydrocarbons, Mercaptans, MTBE, Natural Gas Odorants, Oxygenates and GROs, PCBs, Pesticides, Semi-volatiles, Simulated Distillation, Solvent Impurities, Sulfur Compounds (Light)
5	ZB-1ms	100 % Dimethylpolysiloxane	-60 to 360/370 °C	✓	Acids, Amines, Diesel Fuel, Drugs, Flavors & Fragrances, PCBs (EPA Method 1668), Pesticides
5	ZB-1HT Inferno™	100 % Dimethylpolysiloxane	-60 to 400/430 °C**	✓	Diesel Fuel, High Boiling Petroleum Products, High Molecular Weight Waxes, Long-chained Hydrocarbons, Motor Oils, Polymers/Plastics, Simulated Distillation
5	ZB-1XT SimDist	100 % Dimethylpolysiloxane	-60 to 450 °C*	✓	ASTM Methods (D2887, D2887X, D3710, D6352, D7169), Crude Oil, Gasoline Fractions, Petroleum Distillates, Petroleum Fractions, Simulated Distillation, Vacuum Distillates
8	ZB-5	95 % Dimethylpolysiloxane 5 % Phenyl	-60 to 360/370 °C*	✓	Alkaloids, Dioxins, Drugs, Essential Oils/Flavors, FAMES, Halo-hydrocarbons, PCBs/Aroclors, Pesticides/Herbicides, Phenols, Residual Solvents, Semi-volatiles
8	ZB-5ms	95 % Dimethylpolysiloxane 5 % Phenyl-Arylene	-60 to 325/350 °C	✓	Acids, Alkaloids, Amines, Dioxins, Drugs, EPA Methods (525, 610, 625, 8100), Essential Oils/Flavors, FAMES, Halo-hydrocarbons, PCBs/Aroclors, Pesticides/Herbicides, Phenols, Residual Solvents, Semi-volatiles, Solvent Impurities
8	ZB-5MSi	95 % Dimethylpolysiloxane 5 % Phenyl	-60 to 360/370 °C	✓	Drugs, EPA Methods, FAMES, Nitrosamines, Pesticides, Phenols
8	ZB-5HT Inferno	95 % Dimethylpolysiloxane 5 % Phenyl	-60 to 400/430 °C**	✓	Diesel Fuels, High Boiling Petroleum Products, High Molecular Weight Waxes, Long-chained Hydrocarbons, Motor Oils, Polymers/Plastics, Simulated Distillation, Surfactants, Triglycerides
8	ZB-SemiVolatiles	95 % Dimethylpolysiloxane 5 % Phenyl-Arylene	-60 to 325/350 °C	✓	Semi-volatiles (SVOCs), PAHs, EPA Methods (525, 610, 625, 8100, 8270D)
9	ZB-XLB	Proprietary	30 to 340/360 °C*	✓	PCBs, Pesticides/Herbicides
9	ZB-XLB-HT Inferno	Proprietary	30 to 400 °C	✓	EPA Methods, PCBs, Pesticides/Herbicides
11	ZB-MultiResidue™ - 1	Proprietary	-60 to 320/340 °C	✓	Aroclors/PCBs, Haloacetic Acids, Herbicides, Insecticides, Multi-Pesticide Screening, Nitrogen Containing Pesticides, Organochlorine Pesticides, Organophosphorous Pesticides
13	ZB-624	94 % Dimethylpolysiloxane 6 % Cyanopropylphenyl	-20 to 260 °C		EPA Methods (501.3, 502.2, 503.1, 524.2, 601, 602, 624, 8010, 8015, 8020, 8021, 8240, 8260), Pharmaceuticals, Residual Solvents, Volatile Organic Compounds (VOCs)
15	ZB-MultiResidue-2	Proprietary	-60 to 320/340 °C	✓	Aroclors/PCBs, Haloacetic Acids, Herbicides, Insecticides, Multi-Pesticide Residue/Screening, Nitrogen Containing Pesticides, Organochlorine Pesticides, Organophosphorous Pesticides
18	ZB-35	65 % Dimethylpolysiloxane 35 % Phenyl	40 to 340/360 °C	✓	Amines, Aroclors, Drugs, EPA Methods (508, 608, 8081, 8141, 8151), Pesticides, Pharmaceuticals, Semi-volatiles, Steroids
18	ZB-35-HT Inferno	65 % Dimethylpolysiloxane 35 % Phenyl	40 to 400 °C	✓	Amines, Aroclors, Chemicals, Drugs, EPA Methods (508, 608, 8081, 8141, 8151), Pesticides, Pharmaceuticals, Semi-volatiles, Steroids
19	ZB-1701	86 % Dimethylpolysiloxane 14 % Cyanopropylphenyl	-20 to 280/300 °C*		Alcohols, Amines, Aromatic Hydrocarbons, Drugs, Esters, PAHs, PCBs, Pharmaceutical Intermediates, Phenols, Solvents, Steroids, TMS Sugars, Tranquilizers
19	ZB-1701P	86 % Dimethylpolysiloxane 14 % Cyanopropylphenyl	-20 to 280/300 °C*		Aroclors, Nitrogen Containing Pesticides, Organochlorine Pesticides, Organophosphorous Pesticides
24	ZB-50	50 % Dimethylpolysiloxane 50 % Cyanopropylphenyl	40 to 320/340 °C	✓	Antidepressants, Aroclors, Cholesterols, Drugs of Abuse, EPA Methods (508, 608, 8081, 8141, 8151), Glycols, Pesticides/Herbicides, Steroids, Triglycerides
52	ZB-WAX ^{PLUS} ™	100 % Polyethylene Glycol	20 to 250/260 °C*		Alcohols, Aldehydes, Aromatics, Essential Oils, Flavors & Fragrances, Free Fatty Acids, Glycols, OVIs, Pharmaceuticals, Solvents / Residual Solvents, Styrene, Xylene Isomers
57	ZB-WAX	100 % Polyethylene Glycol	40 to 250/260 °C	✓	Alcohols, Aldehydes, Aromatics, Basic Compounds, Essential Oils, Flavors & Fragrances, Glycols, Pharmaceuticals, Solvents, Styrene, Xylene Isomers
58	ZB-FFAP	Nitroterephthalic Acid Modified Polyethylene Glycol	40 to 250/260 °C		Acrylates, Alcohols, Aldehydes, Free Fatty Acids, Ketones, Organic Acids, Phenols, Volatile Free Acids
	ZB-BAC1 & 2	Proprietary	40 to 320/340 °C	✓	Abused Inhalant Anesthetics, Blood Alcohol Analysis
	ZB-Drug-1	Proprietary	-20 to 260/280 °C	✓	Drug Screening (6-MAM, Amphetamines, Barbiturates, Benzodiazepines, Opiates, PCP, THC)
	ZB-Bioethanol	Proprietary	-60 to 340/360 °C	✓	Alcohol, Bioethanol, Fusel Alcohols

* Thicker films (≥ 1.0 µm df) are rated to lower Isothermal/TPGC limits for this phase.

** 0.53 mm ID dimensions are rated to lower max operational temperature for this phase.

For specific temperature limits for your phase, visit www.phenomenex.com/GC or contact your GC Specialist.

GC Column Cross Reference Chart

Upgrade to Zebron™! Our commitment to quality and innovation is what makes Zebron GC columns well suited for any application. Performance is GUARANTEED.

Phase	Restek	Agilent Technologies	Supelco	Alltech	SGE	OV
ZB-1	Rtx®-1, Rtx-1PONA, Rtx-1 F&F	DB-1, DB-2887, DB-1 EVDX, HP-1, HP-101, HP-PONA, Ultra 1, CP-Sil 5 CB	SPB-1, SPB-1 TG, SE-30, MET-1, SPB-1 Sulfur, SPB-HAP	AT-1, AT-Sulfur, EC-1	BP1, BP1-PONA, BPX1-SimD	OV-1
ZB-1ms	Rtx-1ms	DB-1ms, HP-1ms, CP-Sil 5 CB MS, VF-1ms	MDN-1, Equity-1	AT-1ms	SolGEL-1ms	
ZB-1HT Inferno™	Rxi®-1HT	DB-1ht, CP-SimDist	Petrocol 2887			
ZB-1XT SimDist	MXT®-1HT SimDist	CP-SimDist UltiMetal DB-HT SimDis				
ZB-5	Rtx-5	DB-5, HP-5, Ultra 2, HP-PAS-5, CP-Sil 8 CB	MDN-5, SPB-5, PTE-5, SE-54, PTA-5, Equity-5, Sac-5	AT-5, EC-5	BP5, BPX5	OV-5
ZB-5MSi	Rtx-5ms, Rtx-5Amine, Rxi-5ms	DB-5, HP-5ms, HP-5msi	MDN-5S			
ZB-5HT Inferno	Stx®-5HT, XTI®-5HT	DB-5ht, VF-5ht	HT-5			
ZB-5ms	Rtx-5Sil MS, Rxi-5Sil MS	DB-5ms, DB-5.625, DB-5ms EVDX, VF-5ms, CP-Sil 8 CB MS				
new ZB-SemiVolatiles	Rxi-5Sil MS Rxi-5ms	DB-5ms Ultra Inert HP-5ms Ultra Inert				
ZB-35	Rtx-35, Rtx-35ms	DB-35, DB-35ms, HP-35, HP-35ms	MDN-35, SPB-35, SPB-608	AT-35	BPX35, BPX608	OV-11
ZB-35HT Inferno			Phenomenex Exclusive			
ZB-50	Rtx-50	DB-17, DB-17HT, DB-17ms, DB-17 EVDX, HP-50+, CP-Sil 24 CB	SP-2250, SPB-17, SPB-50	AT-50	BPX50	
ZB-624	Rtx-1301, Rtx-624	DB-1301, DB-624, DB-VRX, HP-VOC, CP-1301, CP-Select 624 CB	SPB-1301, SPB-624	AT-624, AT-1301	BP624	OV-624
ZB-1701	Rtx-1701	DB-1701, CP-Sil 19 CB	SPB-1701, Equity-1701	AT-1701	BP10	OV-1701
ZB-1701P		DB-1701P				
ZB-WAX	Rtx-WAX, Farnewax, Stabilwax-DB	DB-WAXetr, HP-INNOWax, CP-Wax 57 CB	Met-Wax, Omegawax	EC-Wax	SolGEL-WAX™	
ZB-WAXPLUS™	Stabilwax®	DB-WAX, CAM, HP-20M, Carbowax 20M, CP-Wax 52 CB	SUPELCO WAX 10	AT-Wax, AT-AquaWax	BP20	Carbowax 20M
ZB-FFAP	Stabilwax-DA	DB-FFAP, HP-FFAP, CP-Wax 58 (FFAP) CB, CP-FFAP CB	Nukol, SPB-1000	AT-1000, EC-1000	BP21	OV-351
ZB-MultiResidue™ -1	Rtx-CLPesticides, Stx-CLPesticides					
ZB-MultiResidue-2	Rtx-CLPesticides2, Stx-CLPesticides2					
ZB-XLB	Rtx-XLB	DB-XLB, VF-XMS	MDN-12			
ZB-XLB-HT Inferno			Phenomenex Exclusive			
ZB-Drug-1			Phenomenex Exclusive			
ZB-BAC1	Rtx-BAC1	DB-ALC1				
ZB-BAC2	Rtx-BAC2	DB-ALC2				
ZB-Bioethanol			Phenomenex Exclusive			

This section is, neither in terms of manufacturers nor in terms of their products, a complete list, and the accuracy of the data is not guaranteed. Small differences in dimensions or performance might be possible and slight adjustments to your application may be necessary.



Looking For Another Phase?

We'll cross-reference your current column for you! Contact your local GC Specialist for additional information.

guarantee

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

Dimension Selection Tips

A good starting dimension is 30 meter x 0.25 mm x 0.25 μ m. From there, you can tweak individual parameters (column length, ID, and film thickness) depending on the needs of your analysis.

Shorter

(15 m or less)

Recommended For:

Sample screening or samples with very few analytes

Advantages:

Faster run times; higher efficiency separations; good for more chemically active samples and high molecular weight compounds

Disadvantages:

Resolution decreases as length decreases

LENGTH

30m



Longer

(60 m or more)

Recommended For:

Better separation or complex samples with closely eluting peaks

Advantages:

Higher resolution as length increases; good for low boilers, less active samples, or complex temperature ramps

Disadvantages:

Slow run times

Narrower

(0.10, 0.18, or 0.20 mm)

Recommended For:

Faster analysis and complex samples

Advantages:

Faster run times; better resolution

Disadvantages:

Easily overloaded; lower sample capacity

INTERNAL DIAMETER

0.25mm



Wider

(0.32 or 0.53 mm)

Recommended For:

Dirty or highly concentrated samples

Advantages:

Increased sample capacity; good for routine on-column injection

Disadvantages:

Decreased efficiency; resolution decreases as ID increases

Thinner

(0.10 or 0.18 μ m)

Recommended For:

Analysis of high boilers, GC-MS applications

Advantages:

Higher efficiency; lower bleed; faster run times; higher temperature limits

Disadvantages:

Less inert; limited retention

FILM THICKNESS

0.25 μ m



Thicker

(0.50 μ m or more)

Recommended For:

Analysis of low boilers, gases, solvents, purgeables, and volatile compounds

Advantages:

Better inertness; higher capacity

Disadvantages:

Slower run times; higher bleed; lower temperature limits

Ordering Information

STEP: 1 Select Your Phase

STEP: 2 Select Your Dimensions

STEP: 3 Stock Up and Save!

ZB-1

Low polarity phase for boiling point separations

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.53	2.65	-60 to 340/360	7CK-G001-35	
15-Meter				
0.25	0.10	-60 to 360/370	7EG-G001-02	
0.25	0.25	-60 to 360/370	7EG-G001-11	
0.25	1.00	-60 to 340/360	7EG-G001-22	
0.32	0.25	-60 to 360/370	7EM-G001-11	
0.32	1.00	-60 to 340/360	7EM-G001-22	
0.53	0.15	-60 to 360/370	7EK-G001-05	
0.53	0.50	-60 to 360/370	7EK-G001-17	
0.53	1.50	-60 to 340/360	7EK-G001-28	
0.53	3.00	-60 to 340/360	7EK-G001-36	
0.53	5.00	-60 to 340/360	7EK-G001-39	
30-Meter				
0.25	0.10	-60 to 360/370	7HG-G001-02	
0.25	0.25	-60 to 360/370	7HG-G001-11	
0.25	0.50	-60 to 360/370	7HG-G001-17	
0.25	1.00	-60 to 340/360	7HG-G001-22	
0.32	0.25	-60 to 360/370	7HM-G001-11	
0.32	0.50	-60 to 360/370	7HM-G001-17	
0.32	1.00	-60 to 340/360	7HM-G001-22	
0.32	5.00	-60 to 340/360	7HM-G001-39	
0.53	0.50	-60 to 360/370	7HK-G001-17	
0.53	1.50	-60 to 340/360	7HK-G001-28	
0.53	3.00	-60 to 340/360	7HK-G001-36	
0.53	5.00	-60 to 340/360	7HK-G001-39	
60-Meter				
0.25	0.10	-60 to 360/370	7KG-G001-02	
0.25	0.25	-60 to 360/370	7KG-G001-11	
0.25	1.00	-60 to 340/360	7KG-G001-22	
0.32	0.10	-60 to 360/370	7KM-G001-02	
0.32	0.25	-60 to 360/370	7KM-G001-11	
0.32	1.00	-60 to 340/360	7KM-G001-22	
0.32	3.00	-60 to 340/360	7KM-G001-36	
0.53	1.50	-60 to 340/360	7KK-G001-28	

ZB-1ms

Very low bleed for GC/MS applications

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.10	0.10	-60 to 360/370	7CB-G011-02	
0.18	0.18	-60 to 360/370	7CD-G011-08	
15-Meter				
0.25	0.25	-60 to 360/370	7EG-G011-11	
0.32	0.25	-60 to 360/370	7EM-G011-11	
20-Meter				
0.18	0.18	-60 to 360/370	7FD-G011-08	
25-Meter				
0.20	0.33	-60 to 360/370	7GE-G011-14	
30-Meter				
0.25	0.10	-60 to 360/370	7HG-G011-02	
0.25	0.25	-60 to 360/370	7HG-G011-11	
0.25	0.50	-60 to 360/370	7HG-G011-17	
0.25	1.00	-60 to 360/370	7HG-G011-22	
0.32	0.25	-60 to 360/370	7HM-G011-11	
0.32	1.00	-60 to 360/370	7HM-G011-22	
0.53	1.00	-60 to 360/370	7HK-G011-22	
60-Meter				
0.25	0.25	-60 to 360/370	7KG-G011-11	
0.25	1.00	-60 to 360/370	7KG-G011-22	
0.32	1.00	-60 to 360/370	7KM-G011-22	

ZB-1XT SimDist Metal

Rugged metal phase for simulated distillation

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
5-Meter				
0.53	0.09	-60 to 450	7AK-G026-55	
0.53	0.15	-60 to 450	7AK-G026-05	
10-Meter				
0.53	0.15	-60 to 450	7CK-G026-05	
0.53	2.65	-60 to 400	7CK-G026-35	

ZB-1HT Inferno™

Robust non-metal phase stable to 430 °C

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

ZB-5

Rugged, low bleed phase for a variety of applications

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	0.10	-60 to 360/370	7EG-G002-02	
0.25	0.25	-60 to 360/370	7EG-G002-11	
0.25	0.50	-60 to 360/370	7EG-G002-17	
0.25	1.00	-60 to 340/360	7EG-G002-22	
0.32	0.10	-60 to 360/370	7EM-G002-02	
0.32	0.25	-60 to 360/370	7EM-G002-11	
0.32	1.00	-60 to 340/360	7EM-G002-22	
0.53	0.50	-60 to 360/370	7EK-G002-17	
0.53	1.50	-60 to 340/360	7EK-G002-28	
0.53	3.00	-60 to 340/360	7EK-G002-36	
20-Meter				
0.18	0.18	-60 to 360/370	7FD-G002-08	
30-Meter				
0.25	0.10	-60 to 360/370	7HG-G002-02	
0.25	0.25	-60 to 360/370	7HG-G002-11	
0.25	0.50	-60 to 360/370	7HG-G002-17	
0.25	1.00	-60 to 340/360	7HG-G002-22	
0.32	0.10	-60 to 360/370	7HM-G002-02	
0.32	0.25	-60 to 360/370	7HM-G002-11	
0.32	0.50	-60 to 360/370	7HM-G002-17	
0.32	1.00	-60 to 340/360	7HM-G002-22	
0.53	0.50	-60 to 360/370	7HK-G002-17	
0.53	1.50	-60 to 340/360	7HK-G002-28	
0.53	3.00	-60 to 340/360	7HK-G002-36	
0.53	5.00	-60 to 340/360	7HK-G002-39	
60-Meter				
0.25	0.10	-60 to 360/370	7KG-G002-02	
0.25	0.25	-60 to 360/370	7KG-G002-11	
0.25	0.50	-60 to 360/370	7KG-G002-17	
0.25	1.00	-60 to 340/360	7KG-G002-22	
0.32	0.25	-60 to 360/370	7KM-G002-11	
0.32	1.00	-60 to 340/360	7KM-G002-22	
0.53	1.50	-60 to 340/360	7KK-G002-28	

ZB-5MSi

Highly inert low bleed phase for improved peak shape

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.18	0.18	-60 to 360/370	7CD-G018-08	
15-Meter				
0.25	0.25	-60 to 360/370	7EG-G018-11	
30-Meter				
0.25	0.25	-60 to 360/370	7HG-G018-11	
0.25	0.50	-60 to 360/370	7HG-G018-17	
0.25	1.00	-60 to 360/370	7HG-G018-22	
0.32	0.25	-60 to 360/370	7HM-G018-11	
0.32	0.50	-60 to 360/370	7HM-G018-17	
60-Meter				
0.25	0.25	-60 to 360/370	7KG-G018-11	

ZB-5ms

Stable, low bleed arylene phase for GC & GC/MS

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.10	0.10	-60 to 325/350	7CB-G010-02	
0.18	0.18	-60 to 325/350	7CD-G010-08	
15-Meter				
0.25	0.25	-60 to 325/350	7EG-G010-11	
20-Meter				
0.18	0.18	-60 to 325/350	7FD-G010-08	
0.18	0.32	-60 to 325/350	7FD-G010-51	
0.18	0.36	-60 to 325/350	7FD-G010-53	
30-Meter				
0.25	0.25	-60 to 325/350	7HG-G010-11	
0.25	0.50	-60 to 325/350	7HG-G010-17	
0.25	1.00	-60 to 325/350	7HG-G010-22	
0.32	0.25	-60 to 325/350	7HM-G010-11	
0.32	0.50	-60 to 325/350	7HM-G010-17	
0.32	1.00	-60 to 325/350	7HM-G010-22	
60-Meter				
0.25	0.25	-60 to 325/350	7KG-G010-11	
0.32	0.25	-60 to 325/350	7KM-G010-11	

ZB-5HT Inferno

Robust non-metal phase stable to 430 °C

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

ZB-35

Rugged, inert, intermediate polarity phase

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	0.25	40 to 340/360	7EG-G003-11	
0.25	0.50	40 to 340/360	7EG-G003-17	
0.53	1.00	40 to 340/360	7EK-G003-22	
30-Meter				
0.25	0.25	40 to 340/360	7HG-G003-11	
0.25	0.50	40 to 340/360	7HG-G003-17	
0.32	0.25	40 to 340/360	7HM-G003-11	
0.53	0.50	40 to 340/360	7HK-G003-17	
0.53	1.00	40 to 340/360	7HK-G003-22	
60-Meter				
0.25	0.25	40 to 340/360	7KG-G003-11	
0.32	0.25	40 to 340/360	7KM-G003-11	

ZB-35HT Inferno

Robust intermediate polarity phase stable to 400 °C

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	0.25	40 to 400	7EG-G025-11	
30-Meter				
0.25	0.25	40 to 400	7HG-G025-11	
0.32	0.25	40 to 400	7HM-G025-11	

Ordering Information

ZB-50

Low polarity phase for boiling point separations

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	0.15	40 to 320/340	7EG-G004-05	
0.25	0.25	40 to 320/340	7EG-G004-11	
0.32	0.25	40 to 320/340	7EM-G004-11	
0.32	0.50	40 to 320/340	7EM-G004-17	
0.53	1.00	40 to 320/340	7EK-G004-22	
30-Meter				
0.25	0.25	40 to 320/340	7HG-G004-11	
0.25	0.50	40 to 320/340	7HG-G004-17	
0.32	0.25	40 to 320/340	7HM-G004-11	
0.32	0.50	40 to 320/340	7HM-G004-17	
0.53	1.00	40 to 320/340	7HK-G004-22	
60-Meter				
0.25	0.25	40 to 320/340	7KG-G004-11	
0.25	0.50	40 to 320/340	7KG-G004-17	

ZB-624

Great for VOCs, flavor and fragrance additives, and residual solvents

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
20-Meter				
0.18	1.00	-20 to 260		
30-Meter				
0.25	1.40	-20 to 260	7HG-G005-27	
0.32	1.80	-20 to 260	7HM-G005-31	
0.53	3.00	-20 to 260	7HK-G005-36	
60-Meter				
0.25	1.40	-20 to 260	7KG-G005-27	
0.32	1.80	-20 to 260	7KM-G005-31	
0.53	3.00	-20 to 260	7KK-G005-36	

ZB-1701

Fast run and re-equilibration times

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	0.25	-20 to 280/300	7EG-G006-11	
0.32	0.25	-20 to 280/300	7EM-G006-11	
0.32	1.00	-20 to 260/280	7EM-G006-22	
30-Meter				
0.25	0.25	-20 to 280/300	7HG-G006-11	
0.25	1.00	-20 to 260/280	7HG-G006-22	
0.32	0.25	-20 to 280/300	7HM-G006-11	
0.32	1.00	-20 to 260/280	7HM-G006-22	
0.53	1.00	-20 to 260/280	7HK-G006-22	
60-Meter				
0.25	0.25	-20 to 280/300	7KG-G006-11	
0.32	0.25	-20 to 280/300	7KM-G006-11	

ZB-1701P

Tested to ensure response for DDT and Endrin

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
30-Meter				
0.25	0.25	-20 to 280/300	7HG-G012-11	
0.32	0.25	-20 to 280/300	7HM-G012-11	
0.53	1.00	-20 to 260/280	7HK-G012-22	

ZB-XLB

Alternative selectivity to 5-type phases. For confirmation of pesticides, PCBs, or other environmental samples

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.18	0.18	30 to 340/360	7CD-G019-08	
20-Meter				
0.18	0.18	30 to 340/360	7FD-G019-08	
30-Meter				
0.25	0.25	30 to 340/360	7HG-G019-11	
0.25	0.50	30 to 340/360	7HG-G019-17	
0.32	0.25	30 to 340/360	7HM-G019-11	
0.32	0.50	30 to 340/360	7HM-G019-17	
60-Meter				
0.25	0.25	30 to 340/360	7KG-G019-11	

ZB-XLB-HT Inferno™

Enhanced durability with 400 °C temperature stability

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	0.10	30 to 400	7EG-G024-02	
0.25	0.25	30 to 400	7EG-G024-11	
0.32	0.10	30 to 400	7EM-G024-02	
30-Meter				
0.25	0.10	30 to 400	7HG-G024-02	
0.25	0.25	30 to 400	7HG-G024-11	
0.32	0.25	30 to 400	7HM-G024-11	

ZB-FFAP

Better peak shape for underivatized acids

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	0.25	40 to 250/260	7EG-G009-11	
0.32	0.25	40 to 250/260	7EM-G009-11	
0.32	0.50	40 to 250/260	7EM-G009-17	
0.53	1.00	40 to 250/260	7EK-G009-22	
30-Meter				
0.25	0.25	40 to 250/260	7HG-G009-11	
0.32	0.25	40 to 250/260	7HM-G009-11	
0.32	0.50	40 to 250/260	7HM-G009-17	
0.53	1.00	40 to 250/260	7HK-G009-22	
60-Meter				
0.25	0.25	40 to 250/260	7KG-G009-11	

ZB-WAXPLUS™

100 % aqueous stable with high retention of alcohols and chlorinated solvents

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.10	0.10	20 to 250/260	7CB-G013-02	
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	
0.32	0.25	20 to 250/260	7HM-G013-11	
0.32	0.50	20 to 250/260	7HM-G013-17	
0.53	1.00	20 to 230/240	7HK-G013-22	
60-Meter				
0.25	0.25	20 to 250/260	7KG-G013-11	
0.32	0.50	20 to 250/260	7KM-G013-17	
0.53	1.00	20 to 230/240	7KK-G013-22	

ZB-WAX

Bonded, solvent rinsable phase excellent for separating polar complex mixtures

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.10	0.10	40 to 250/260	7CB-G007-02	
15-Meter				
0.25	0.25	40 to 250/260	7EG-G007-11	
0.32	0.25	40 to 250/260	7EM-G007-11	
0.32	0.50	40 to 250/260	7EM-G007-17	
0.53	1.00	40 to 250/260	7EK-G007-22	
30-Meter				
0.25	0.15	40 to 250/260	7HG-G007-05	
0.25	0.25	40 to 250/260	7HG-G007-11	
0.25	0.50	40 to 250/260	7HG-G007-17	
0.25	1.00	40 to 250/260	7HG-G007-22	
0.32	0.15	40 to 250/260	7HM-G007-05	
0.32	0.25	40 to 250/260	7HM-G007-11	
0.32	0.50	40 to 250/260	7HM-G007-17	
0.53	0.50	40 to 250/260	7HK-G007-17	
0.53	1.00	40 to 250/260	7HK-G007-22	
60-Meter				
0.25	0.15	40 to 250/260	7KG-G007-05	
0.25	0.25	40 to 250/260	7KG-G007-11	
0.32	0.50	40 to 250/260	7KM-G007-17	
0.53	1.00	40 to 250/260	7KK-G007-22	

NEW! ZB-SemiVolatiles

New phase specially deactivated for EPA 8270D

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

ZB-MultiResidue™ 1 and 2

Specially designed for the separation of pesticides, herbicides and insecticides

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
30-Meter				
0.25	0.25	-60 to 320/340	7HG-G016-11	
0.32	0.50	-60 to 320/340	7HM-G016-17	
0.53	0.50	-60 to 320/340	7HK-G016-17	

ZB-MultiResidue - 2

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
30-Meter				
0.25	0.20	-60 to 320/340	7HG-G017-10	
0.32	0.25	-60 to 320/340	7HM-G017-11	
0.53	0.50	-60 to 320/340	7HK-G017-17	

ZB-Drug-1

Optimized phase for drugs of abuse analysis

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
10-Meter				
0.18	0.18	40 to 320/340	7CD-G023-08	
15-Meter				
0.25	0.25	40 to 320/340	7EG-G023-11	
30-Meter				
0.25	0.25	40 to 320/340	7HG-G023-11	

ZB-Bioethanol

Designed for fast, accurate bioethanol analysis

ID (mm)	df (μm)	Temp. Limits °C	Part No.	Price
15-Meter				
0.25	1.00	-60 to 340/360	7EG-G020-22	
30-Meter				
0.25	1.00	-60 to 340/360	7HG-G020-22	

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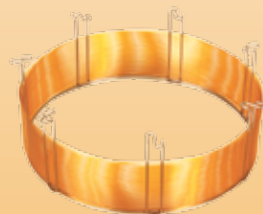
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