

# GC COLUMNS GEARED TOWARDS THE FUTURE

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Gas Chromatography Columns

  
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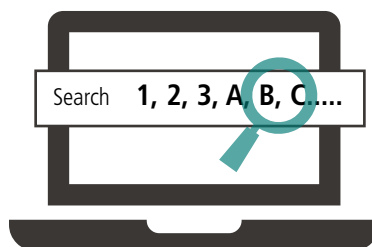
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# Chromatography

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# GC Columns

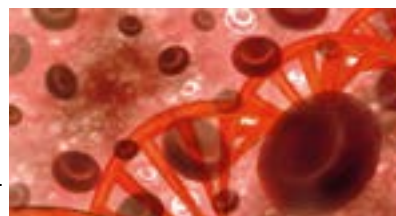
PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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## Blood Alcohol Columns

The Elite-BAC Advantage columns are optimized for selectivities guaranteed to resolve ethanol, internal standards, and frequently encountered interferences.



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## Elite MS Columns

The Elite range of MS columns are engineered for extremely low bleed for MS detectors, providing optimum sensitivity. They cover a wide range of polarities and applications.



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## GC Column Cutter

PerkinElmer's capillary column cutting tool ensures you make a perfect cut of your GC column, first time, every time. The rotating diamond blade with a built in magnifier to verify a square cut, affords a precise clean cut of fused silica columns.



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## Elite Guard Columns

Using the Elite-Guard or the Elite-Siltek Guard Column lengthens the life of the capillary column and improves the analyte focusing.

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### Clarus® 590/690 GC

Sensitive, high-capacity, high-throughput GC systems delivering the power and functionality needed to meet your analytical goals. A robust autosampler delivers easy access to two injector ports, while the Clarus 690's patented high-performance oven delivers the fastest heat-up and cool-down of any oven in the business.



### TurboMatrix™ Headspace and Headspace Trap

TurboMatrix Headspace and high-sensitivity Headspace Trap samplers provide unparalleled precision and ease of use for numerous GC or GC/MS volatile-analysis applications. Different models offering a range of capacities are available to satisfy the requirements of virtually any laboratory.



### Torion® T-9 Portable GC/MS

The world's smallest portable GC/MS, Torion T-9 allows you to test samples where hazardous events occur: No sample processing, packaging, and prep time. You simply respond, collect, analyze, and identify in the field. And that means remedial action 70 times faster than with conventional labs.



### Clarus® SQ 8 GC/MS

With the flexibility to choose your level of sensitivity and dynamic range, the Clarus SQ 8 GC/MS eliminates background noise, maximizes analyte signals, and enables you to reconfigure between EI and CI, simply and quickly.



### TurboMatrix Thermal Desorbers

The five different TurboMatrix Thermal Desorbers allow you to match throughput and technology to your laboratory and applications needs. Use this clean technique to simplify and speed up a wide range of GC applications.

# Finest Quality High-Strength Fused Silica

## Why Choose Fused Silica?

Many factors influence the quality of a column. Fused silica is considered to be the purest form of glass, with fewer metal oxides (Lewis acid sites) and hydrogen bonding (surface silanol) groups. The stationary phase is cross linked (polymerized) and also bonded to the surface of the column to provide a high degree of stability, resulting in lower bleeding of the stationary phase at elevated temperatures. The superior inertness of the column means that acidic and basic compounds can be analyzed on the same column.

## Selecting the Right Stationary Phase

The inherent efficiency (large number of theoretical plates) of capillary columns allows you to choose from relatively few types of phases, compared to the many varieties of packed columns previously required. Perhaps more importantly, because capillary columns are more efficient, you will see superior resolution resulting in narrower, taller peaks that allow easier integration from your data system. Identification of small peaks are facilitated by a reduced baseline bleed and lower baseline noise. Non-polar Elite-1 columns from PerkinElmer will preferentially retain non-polar compounds, whereas the PerkinElmer Elite-200 column phase provides high selectivity for analytes containing lone pair electrons, such as nitro and carbonyl groups. Elite-WAX polyethylene glycol columns are highly selective toward polar compounds such as alcohols.

## GC Capillary Column Cutter

Use PerkinElmer's capillary column cutting tool to ensure a perfect cut of your GC column, first time, every time. The rotating diamond blade with a built in magnifier to verify a square cut, affords a precise clean cut of fused silica columns. Suitable for use with 0.25 mm ID to 0.53 mm ID tubing, (0.78 mm OD maximum).



Description	Part No.
GC capillary cutting tool	<b>N6107245</b>
Maintenance kit Contains replacement cutting wheel, O-rings and tool to open the cutter	<b>N6107246</b>



## What Length Do I Need?

Typically capillary columns are available in lengths from 15 to 105 meters. The longer the column the more resolving power, but this also increases the analysis time. Doubling a column length only increases resolution by approximately 40%. Under isothermal conditions, the analysis time will double if using temperature programmed analysis retention times are more dependent on the temperature than on the column length. We provide columns in the most popular lengths of 5, 10, 12, 15, 25, 30, 50, 60, 75, 100 and 105 meters depending upon the column ID.

## Elite Guard Columns

Using the Elite-Guard or the Elite-Siltek Guard Column lengthens the life of the capillary column and improves the analyte focusing. The 5 m length of deactivated uncoated fused silica is connected to the inlet end of the capillary column and traps nonvolatile residues, preventing them from collecting at the head of the analytical column. This length of fused silica contains no stationary phase adding only a minimal amount of time to the analysis.

Description	Tubing ID (mm)	Length (m)	Part No.
Elite Siltek Guard	0.25	5	<b>N9316607</b>
Elite Siltek Guard	0.32	5	<b>N9316608</b>
Elite Siltek Guard	0.53	5	<b>N9316609</b>
Elite Guard	0.25	5	<b>N9316603</b>
Elite Guard	0.32	5	<b>N9316604</b>
Elite Guard	0.53	5	<b>N9316606</b>

## Cross Reference Chart by Phase

PerkinElmer	Phase Composition	USP	Agilent®	Alltech®	Machery-Nagel®	Ohio Valley®	Phenomenex®	Quadrex®	Restek®	SGE®	Supelco®
Elite-1	Dimethyl polysiloxane	G1, G2, G38	HP-1, DB-1, CP-Sil 5 CB	007-1AT-1, EC-1	OPTIMA 1	OV-1	ZB-1	007-1	Rtx-1, Mtx-1	BP1	SPB-1
Elite-1ht	Dimethyl polysiloxane	G1, G2, G38	DB-1ht	AT-1ht			ZB-1HTinferno		Rxi-1HT		
Elite-1ms	Dimethyl polysiloxane (low bleed)	G1, G2, G38	HP-1, HP-1ms, HP-1msUI, DB-1, DB-1MS, DB-1msUI, Ultra-1, VF-1ms, CP-Sil 5 CB	AT-1ms	OPTIMA 1 MS, OPTIMA 1 MS Accent		ZB-1, ZB-1ms	007-1	Rxi-1ms	BP-1	SPB-1, Equity-1
Elite-5	Diphenyl dimethyl polysiloxane	G27, G36	HP-5, DB-5, CP-Sil 8 CB	EC-5, AT-5	OPTIMA 5	OV-5	ZB-5	007-5	Rtx-5	BP5	SPB-5
Elite-5ht	Diphenyl dimethyl polysiloxane	G27, G36	DB-5ht, VF-5ht		OPTIMA 5HT		ZB-5HTinferno		Rxi-5HT	HT5	
Elite-5ms	1,4-bis(dimethylsiloxy)phenylene dimethyl polysiloxane	G27, G36	DB-5ms, DB-5msUI, VF-5ms, CP Sil 8 CB MS		OPTIMA 5 MS Accent	OV-5MS	ZB-5msi	007-5MS	Rxi-5Sil MS	BPX5	SLB-5ms
Elite-17	Phenyl methyl polysiloxane	G3	DB-17, CP Sil 24 CB	AT-50		OV-17		007-17	Rtx-50		SPB-50
Elite-17ht	Phenyl methyl polysiloxane	G3	DB-17ht								
Elite-17ms	Phenyl methyl polysiloxane	G3	HP-50+, DB-17, DB-17ht, DB-608, CP Sil 24 CB		OPTIMA 17		ZB-50		Rxi-17		SPB-17
Elite-35	Diphenyl dimethyl polysiloxane	G42	HP-35, DB-35, VF-35	AT-35, AT-35ms		OV-35	ZB-35	007-35	Rtx-35	BPX35, BPX608	SPB-35, SPB-608
Elite-35ms	Diphenyl dimethyl polysiloxane	G42	DB-35ms, DB35msUI		OPTIMA 35 MS		MR2		Rxi-35Sil MS	BPX35	
Elite-200	Trifluoropropylmethyl polysiloxane	G6	DB-210, DB-200, VF-200ms	AT-210	OPTIMA 210				Rtx-200		
Elite-225	Cyanopropylmethyl phenylmethyl polysiloxane	G7, G19	DB-225ms, CP Sil 43 CB	AT-225	OPTIMA 225	OV-225		007-225	Rtx-225	BP225	SPB-225
Elite-624	Cyanopropylphenyl dimethyl polysiloxane	G43	DB-1301, DB-624, VF-624ms, CP-1301	AT-624, AT-1301	OPTIMA 1301, OPTIMA 624	OV-624	ZB-624	007-1301, 007-624	Rtx-624	BP624	SPB-624
Elite-624ms	Unique phase	G43	DB-624, VF-624ms, CP-Select 624 CB		OPTIMA 624 LB		ZB-624		Rxi-624Sil MS	BP624	
Elite-1301	Cyanopropylphenyl dimethyl polysiloxane	G43	DB-1301, DB-624, VF-1301ms, VF-624ms, CP-1301	AT-624, AT-1301	OPTIMA 1301, OPTIMA 624	OV-1301	ZB-624	007-1301, 007-624	Rtx-624	BP624	SPB-624
Elite-1701	Cyanopropylphenyl dimethyl polysiloxane	G46	DB-1701R, DB-1701, CP Sil 19 CB, VF-1701ms, VF-1701 Pesticides	AT-1701	OPTIMA 1701	OV-1701	ZB-1701, ZB-1701P	007-1701	Rtx-1701	BP10	Equity-1701
Elite-WAX	Polyethylene glycol	G14, G15, G16, G20, G39	DB-Wax, CP Wax 52 CB, VF WAX	AT-WAXms, EC-WAX	OPTIMA WAX	Carbowax 20M	ZB-Wax	007-CW	Rtx-Wax	BP20	
Elite-WAX ETR	Polyethylene glycol	G14, G15, G16, G20, G39	HP-INNOWax, CP Wax 52 CB, VF-WAX MS	AT-WAX	OPTIMA WAX plus		ZB-WaxPLUS		Stabilwax		Supelcowax-10

## Cross Reference Chart by Application

PerkinElmer	Applications	Agilent®	Alltech®	Machery-Nagel®	Ohio Valley®	Phenomenex®	Quadrex®	Restek®	SGE®	Supelco®
Elite-23	cis/trans FAMES and Dioxins	VF-23ms	AT-Silar90				007-23		BPX70	SP-2330, SP-2331, SP-2380
Elite-502	Volatile analytes by EPA Method 502.2	DB-502.2						Rtx-502.2		VOCOL
Elite-608	Semivolatile pesticides by EPA Method 608	DB-608, HP-608					007-608			SPB-608
Elite-2560	cis/transFAMES	HP-88, CP Sil 88						Rt-2560		SPB-2560
Elite-Alumina PLOT	Light hydrocarbons	Alumina PLOT								
Elite-BAC 1 Advantage	Blood alcohol testing	DB-ALC1				ZB-BAC1		Rtx-BAC Plus 1		
Elite-BAC 2 Advantage	Blood alcohol testing	DB-ALC2				ZB-BAC2		Rtx-BAC Plus 2		
Elite-CLPesticides	Organochlorine pesticides by EPA Methods 504, 608, 8081, 8082, and CLP	DB-CLP1						Rtx-CLPesticides		
Elite-CLPesticides2	Organochlorine pesticides by EPA Methods 504, 608, 8081, 8082, and CLP	DB-CLP2						Rtx-CLPesticides 2	Rtx-200	
Elite-Cyclosil B	Chiral separations									
Elite-FFAP	Free fatty acids	HP-FFAP, DB-FFAP, CP WAX58 CB, CP-FFAP CB	AT-AquaWax DA, AT-1000	PERMABOND FFAP, OPTIMA FFAP, OPTIMA FFAP Plus	OV-351	ZB-FFAP		Stabilwax-DA	BP-21	Nukol
Elite-Molesieve PLOT	Permanent gases									
Elite-PONA	Detailed analysis of petroleum naphtha	HP-PONA, DB-Petro, CP Sil PONA CB						Rtx-DHA	BP1PONA	Petrocol DH
Elite-Carbon	Permanent gases and light hydrocarbons									
Elite-SimDist	Simulated Distillation and Hydrocarbons – ASTM 2887	DB-2887, CP SimDist	AT-2887					Rtx-2887		Petrocol 2887, Petrocol EX2887
Elite-THP	Total petroleum hydrocarbons									
Elite-VMS	Volatiles Organic Pollutants by GC-MS for EPA Methods 8260,624,524	Unique Phase								
Elite-VRX	Volatile analytes by EPA Methods 502.2, 601, 602, 8010, 8020	DB-VRX								
Elite-XLB	Polychlorinated biphenyl analytes by EPA Methods 8082, 6008, PCB congeners	DB-XLB, VF-XMS				MR1, ZB-XLB		Rxi-XLB		

# Elite-1

The Elite-1 100% dimethyl polysiloxane columns is a highly versatile, non-polar, cross-linked general purpose phase that is rugged, exhibiting long column lifetime, low bleed, and high maximum operating temperatures.

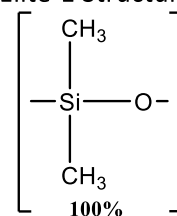
## Features

- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G1, G2, and G38 phases

## Applications

- Ideal for analysis of non-polar petrochemical samples
- Also excellent for solvents, chemicals, flavors & fragrances, air toxins and pesticides

Elite-1 Structure



ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	60 m Part No.	105 m Part No.
0.25	0.10	-60 to 330/350		<b>N9316006</b>	<b>N9316009</b>	<b>N9316012</b>	
	0.25	-60 to 330/350		<b>N9316007</b>	<b>N9316010</b>	<b>N9316013</b>	
	0.50	-60 to 330/350		<b>N9316686</b>	<b>N9316685</b>		
	1.00	-60 to 320/340		<b>N9316008</b>	<b>N9316011</b>	<b>N9316014</b>	
0.32	0.10	-60 to 330/350		<b>N9316016</b>	<b>N9316022</b>	<b>N9316027</b>	
	0.25	-60 to 330/350	<b>N9316596</b>	<b>N9316017</b>	<b>N9316023</b>	<b>N9316028</b>	
	0.50	-60 to 330/350			<b>N9316021<sup>1</sup></b>	<b>N9316691</b>	
	1.00	-60 to 320/340		<b>N9316018</b>	<b>N9316024</b>	<b>N9316029</b>	
	1.50	-60 to 310/330			<b>N9316050</b>	<b>N9316580</b>	
	3.00	-60 to 280/300		<b>N9316019</b>	<b>N9316025</b>	<b>N9316030</b>	
	5.00	-60 to 260/280		<b>N9316020</b>	<b>N9316026</b>	<b>N9316031</b>	
0.45	0.13	-60 to 330/350		<b>N9316032</b>			
	0.42	-60 to 310/330		<b>N9316037</b>	<b>N9316041</b>		
	1.27	-60 to 310/330		<b>N9316034</b>	<b>N9316038</b>	<b>N9316042</b>	
	2.55	-60 to 270/290		<b>N9316035</b>	<b>N9316039</b>		<b>N9316043</b>
	4.25	-60 to 260/280	<b>N9316032</b>	<b>N9316036</b>	<b>N9316040</b>		
0.53	0.15	-60 to 320/340		<b>N9316045</b>			
	0.50	-60 to 310/330		<b>N9316049</b>	<b>N9316053</b>		
	1.50	-60 to 310/330		<b>N9316046</b>	<b>N9316050</b>	<b>N9316054</b>	
	3.00	-60 to 270/290		<b>N9316047</b>	<b>N9316051</b>	<b>N9315499</b>	<b>N9316692</b>
	5.00	-60 to 270/290	<b>N9316044</b>	<b>N9316048</b>	<b>N9316052</b>		

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	12 m Part No.	20 m Part No.	25 m Part No.	50 m Part No.
0.05	0.05	-60 to 330/350	<b>N9316056</b>				
	0.20	-60 to 330/350	<b>N9316057</b>				
0.10	0.10	-60 to 330/350	<b>N9316058</b>				
	0.40	-60 to 320/340			<b>N9316061</b>		
0.18	0.18	-60 to 330/350	<b>N9316001</b>		<b>N9316003</b>		
	0.40	-60 to 320/340	<b>N9316002</b>		<b>N9316004</b>		<b>N9316005<sup>2</sup></b>
0.20	0.33	-60 to 330/350		<b>N9316062</b>		<b>N9316063</b>	<b>N9316064</b>

<sup>1</sup> **N9316021**: Elite-1, 25M x 0.32 mm x 0.52 µm. <sup>2</sup> The length of **N9316005** is 40 m.



## Elite-5

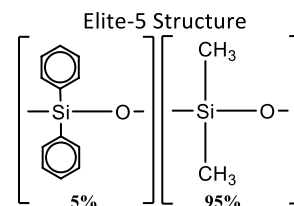
The Elite-5 is a 5% diphenyl/95% dimethyl polysiloxane stationary phase. It is regarded as a general purpose, low polarity phase that is the most popular GC stationary phase used for a wide variety of applications. A crosslinked phase in which all residual catalysts and low molecular weight fragments have been removed providing a tight mono-modal distribution and extremely low bleed.

### Features

- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G27 and G36 phases

### Applications

- Drugs, pesticides and solvent impurities
- Hydrocarbons and PCBs
- Essential oils and semivolatiles

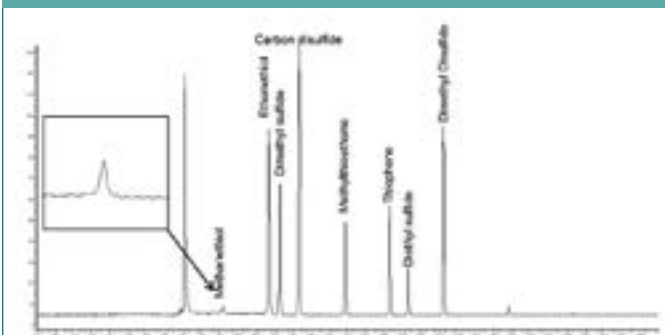


ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.05	0.05	-60 to 325/350	<b>N9316104</b>					
	0.20	-60 to 325/350	<b>N9316105</b>					
0.10	0.10	-60 to 330/350			<b>N9316108</b>			
	0.40	-60 to 320/340			<b>N9316109</b>			
0.18	0.18	-60 to 330/350	<b>N9316066</b>		<b>N9316068</b>			
	0.4	-60 to 320/340	<b>N9316067</b>		<b>N9316069</b>		<b>N9316071<sup>2</sup></b>	
0.20	0.33	-60 to 330/350	<b>N9316110<sup>1</sup></b>		<b>N9316111<sup>1</sup></b>		<b>N9316112</b>	
0.25	0.10	-60 to 330/350		<b>N9316072</b>		<b>N9316075</b>		<b>N9316078</b>
	0.25	-60 to 330/350		<b>N9316073</b>		<b>N9316076</b>		<b>N9316079</b>
	0.50	-60 to 330/350				<b>N9316107</b>	<b>N6107815</b>	
	1.00	-60 to 320/340		<b>N9316074</b>		<b>N9316077</b>		<b>N9316080</b>
0.32	<b>NEW</b> 0.10	-60 to 330/350		<b>N9316081</b>		<b>N9316085</b>		<b>N9316089</b>
	0.25	-60 to 330/350		<b>N9316082</b>		<b>N9316086</b>		<b>N9316090</b>
	1.00	-60 to 320/340		<b>N9316083</b>		<b>N9316087</b>		<b>N9316091</b>
0.45	0.13	-60 to 340/350						<b>N9316097</b>
	0.42	-60 to 310/330		<b>N9316093</b>		<b>N9316096</b>		
	1.27	-60 to 310/330		<b>N9316092</b>		<b>N9316094</b>		
	4.25	-60 to 260/280				<b>N9316095</b>		
0.53	0.50	-60 to 310/330		<b>N9316099</b>		<b>N9316102</b>		
	1.50	-60 to 310/330		<b>N9316098</b>		<b>N9316100</b>		<b>N9316103</b>
	5.00	-60 to 270/290				<b>N9316101</b>		

<sup>1</sup> The lengths of **N9316110** and **N9316111** are 12 m and 25 m respectively. <sup>2</sup> **N9316071** use 40 m length column.

### Industrial

#### Determination of sulfur compounds in air by online TD-GC/FPD.



Recommended Column: Elite-5, 60 m x 0.32 mm x 0.25 mm, Part No. **N9316090**

# Elite-17

The Elite-17 columns are general purpose, mid-polarity, (50%-phenyl)-methylpolysiloxane phases and incorporates a crosslinking technology for very low bleed and long column lifetimes.

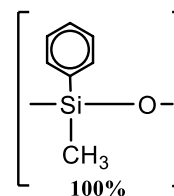
## Features

- Temperature Range: 40 °C to 330 °C
- Equivalent to USP G3 phase

## Applications

- Herbicides and pesticides
- Phthalate esters, sterols and rosin acids

Elite-17 Structure



ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.05	0.05	40 to 280/300		<b>N9316138</b>				
	0.10	40 to 280/300		<b>N9316139</b>				
0.10	0.02	40 to 280/300		<b>N9316141</b>				
	0.10	40 to 280/300		<b>N9316140</b>		<b>N9316142</b>		
	0.20	40 to 280/300				<b>N9316143</b>		
0.18	0.18	40 to 310/330		<b>N9316113</b>			<b>N9316115</b>	
	0.3	40 to 300/320		<b>N9316114</b>			<b>N9316116</b>	
0.25	0.15	40 to 300/320			<b>N9316117</b>		<b>N9316120</b>	
	0.25	40 to 300/320			<b>N9316118</b>		<b>N9316121</b>	<b>N9316123</b>
	0.50	40 to 290/310			<b>N9316119</b>		<b>N9316122</b>	
0.32	0.15	40 to 300/320			<b>N9316124</b>		<b>N9316127</b>	
	0.25	40 to 300/320			<b>N9316125</b>		<b>N9316128</b>	
	0.50	40 to 290/310			<b>N9316126</b>		<b>N9316129</b>	
0.45	0.85	40 to 270/290			<b>N9316131</b>		<b>N9316132</b>	<b>N9316133</b>
0.53	1.00	40 to 260/280			<b>N9316135</b>		<b>N9316136</b>	<b>N9316137</b>
	2.00	40 to 250/270	<b>N9316134</b>					

## Elite-35

The Elite-35 columns are general purpose, mid-polarity columns that are coated with a crosslinked, (35%-diphenyl)-dimethylpolysiloxane commonly used for organochlorine pesticides, PDB congeners. It is a popular confirmation column for pesticides and herbicides, in conjunction with an Elite-5 or Elite-1701. The higher phenyl content results in useful elution order and retention time changes.

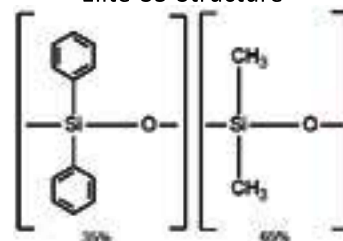
### Features

- Temperature Range: 40 °C to 300/320 °C
- Equivalent to USP G42 phase

### Applications

- Pesticides and herbicides
- Pharmaceuticals, sterols, rosin acids and phthalate esters

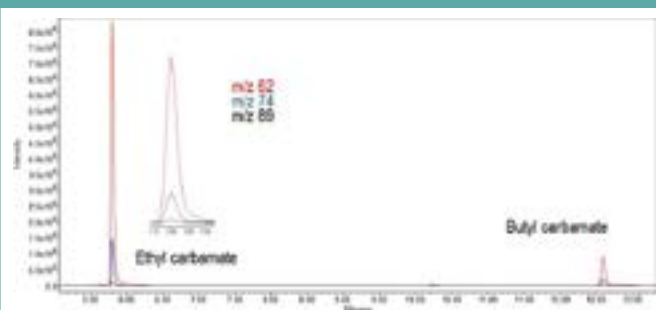
Elite-35 Structure



ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.15	40 to 300/320		<b>N9316144</b>
	0.25	40 to 300/320		<b>N9316145</b>
0.32	0.25	40 to 300/320		<b>N9316146</b>
	0.50	40 to 290/310		<b>N9316147</b>
0.45	0.42	40 to 290/310		<b>N9316150</b>
	0.85	40 to 280/300	<b>N9316148</b>	<b>N9316149</b>
0.53	0.50	40 to 260/280	<b>N9303929</b>	<b>N9316153</b>
	1.00	40 to 260/280	<b>N9316151</b>	<b>N9316152</b>

### Food and Flavor

#### Analysis of ethyl carbamate using GC/MS.



Recommended Column: Elite-35, 30 m x 0.25 mm x 0.25 µm  
(Part No. **N9316145**)

Liner: 2 mm ID glass (no glass wool)

## Elite-200

Elite-200 columns are comprised of a (trifluoropropyl)-methylpolysiloxane stationary phase that has a unique selectivity which changes elution orders and resolves compounds that phenyl, cyano, or Carbowax® phase cannot. These columns have accomplished many difficult separations not possible on any other bonded stationary phase. It offers exceptional thermal stability, low bleed, and superior inertness – even for active compounds such as phenols, and with sensitive detectors such as ECDs, NPDs, and MSDs. It is often used for the confirmation of phenols, nitrosamines, organochlorine pesticides, chlorinated hydrocarbons, and chlorophenoxy herbicides when paired with an Elite-5 column.

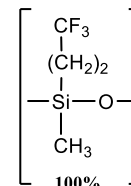
### Features

- Temperature Range: 40 °C to 320/340 °C
- Equivalent to USP G6 phase

### Applications

- Solvents, fluorocarbons, ketones and phenols
- Alcohols and drugs of abuse
- Chlorinated herbicides and pesticides

Elite-200 Structure



ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.10	-20 to 320/340	<b>N9316616</b>	<b>N9316617</b>	
	0.25	-20 to 320/340	<b>N9316618</b>	<b>N9316619</b>	
	0.50	-20 to 310/330	<b>N9316620</b>	<b>N9316621</b>	
	1.00	-20 to 290/310	<b>N9316622</b>	<b>N9316623</b>	<b>N9316624</b>
0.32	0.25	-20 to 320/340	<b>N9316625</b>	<b>N9316626</b>	
	0.50	-20 to 310/330	<b>N9316627</b>	<b>N9316628</b>	
	1.00	-20 to 290/310	<b>N9316629</b>	<b>N9316630</b>	<b>N9316631</b>
	1.50	-20 to 280/300	<b>N9316632</b>	<b>N9316633</b>	<b>N9316634</b>
0.53	0.25	-20 to 310/330	<b>N9316635</b>	<b>N9316636</b>	<b>N9316637</b>
	0.50	-20 to 300/320	<b>N9316638</b>	<b>N9316639</b>	<b>N9316640</b>
	1.00	-20 to 290/310	<b>N9316641</b>	<b>N9316642</b>	<b>N9316643</b>
	1.50	-20 to 280/300	<b>N9316644</b>	<b>N9316645</b>	<b>N9316646</b>
	3.00	-20 to 260/280	<b>N9316647</b>	<b>N9316648</b>	<b>N9316649</b>

## Elite-225

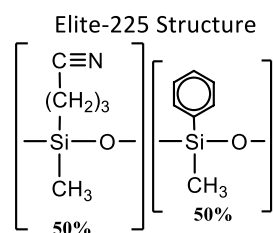
The Elite-225 is a general purpose column for the analysis of FAMES, carbohydrates, sterols and flavor compounds. The cyanopropyl-containing Elite-225 phase is slightly less polar than bonded polyethylene glycol (PEG) phases, but it can be used for many of the same applications. Improvements to the Elite-225 polymer have increased thermal stability, reduced bleed, and improved inertness. In other similar columns, the Carbowax® deactivation layer is not fully compatible with the cyanopropyl siloxane polymer, which can cause tailing of active compounds, and lower efficiency.

### Features

- Temperature Range: 40 °C to 220/240 °C
- Equivalent to USP G7, G19 phases

### Applications

- FAMES and carbohydrates
- Sterols and flavor compounds



ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.05	0.05	45 to 220/240	<b>N9316186</b>				
0.10	0.10	45 to 220/240			<b>N9316187</b>		
0.18	0.2	45 to 220/240	<b>N9316172</b>		<b>N9316173</b>		
0.25	0.15	45 to 220/240		<b>N9316174</b>		<b>N9316176</b>	<b>N9305631</b>
	0.25	45 to 220/240		<b>N9316175</b>		<b>N9316177</b>	
0.32	0.15	45 to 220/240		<b>N9316178</b>		<b>N9316180</b>	
	0.25	45 to 220/240		<b>N9316179</b>		<b>N9316181</b>	
0.45	0.85	40 to 200/220		<b>N9316182</b>		<b>N9316183</b>	
0.53	1.00	40 to 200/220		<b>N9316184</b>		<b>N9316185</b>	

## Elite-624

The Elite-624 column is a specially engineered, low to mid-polarity (6%-cyanopropylphenyl)-dimethylpolysiloxane phase. The unique polarity of this phase makes it ideal for analyzing volatile organic pollutants and it is recommended in U.S. EPA methods. The Elite-624 phase produces greater than 90% resolution of the first six gases in EPA Methods 8260 and 524.2. This stationary phase is especially well-suited for EPA Method 524.2 since it resolves 2-nitropropane from 1,1-dichloropropanone, which share quantification ion  $m/z$  43 and must be separated chromatographically.

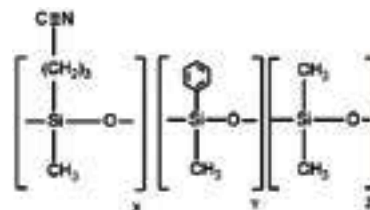
### Features

- Temperature Range: -20 °C to 240 °C
- Equivalent to USP G43 phase

### Applications

- Volatile organic pollutants
- EPA methods 524.2 and 8260

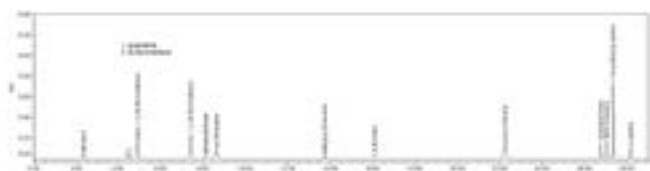
Elite-624 Structure



ID (mm)	df (μm)	Temp Limits (°C)	20 m Part No.	25 m Part No.	30 m Part No.	60 m Part No.	75 m Part No.
0.18	1.00	-20 to 240	<b>N9316200</b>				
0.20	1.12	-20 to 240		<b>N9316209</b>			
0.25	1.40	-20 to 240			<b>N9316201</b>	<b>N9316202</b>	
0.32	1.80	-20 to 240			<b>N9316203</b>	<b>N9316204</b>	
0.45	2.55	-20 to 240			<b>N9316205</b>		<b>N9316206</b>
0.53	3.00	-20 to 240			<b>N9316207</b>	<b>N9305699</b>	<b>N9316208</b>

### Pharma

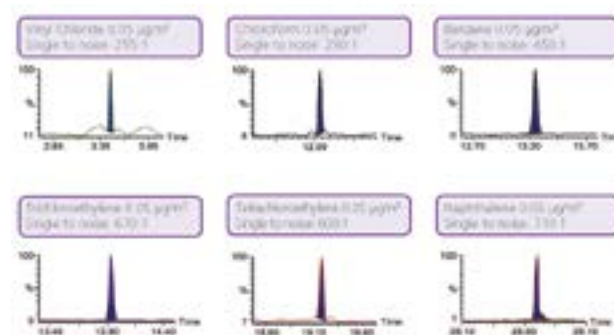
#### Residual solvents in pharmaceuticals by USP 467.



Elite-624, 30 m x 0.32 mm x 1.8 μm, Part No. **N9316203**

### Environmental

#### Analysis of Volatile Organic Compounds (VOCs) in air using US EPA Method TO-17.



Recommended Column: Elite-624, 60 m x 0.25 mm x 1.4 μm, Part No. **N9316006**

## Elite-1301

The Elite-1301 column is a general purpose low to mid-polarity phase commonly used for the analysis of residual solvents, alcohols, oxygenates and volatile organic compounds. Our polymer is fully characterized to ensure long-term reproducibility, column-to-column consistency, and low bleed – even with sensitive detectors such as ECD and MS.

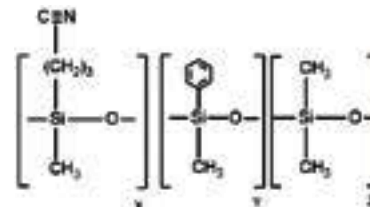
### Features

- Temperature Range: -20 °C to 280 °C
- Equivalent to USP G43 phase

### Applications

- Residual solvents, alcohols
- Oxygenates, VOCs

Elite-1301 Structure



ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18	0.40	-20 to 280	<b>N9316210</b>		<b>N9316211</b>		
0.25	0.25	-20 to 280		<b>N9316212</b>		<b>N9316214</b>	<b>N9316216</b>
	1.00	-20 to 260/280				<b>N9316215</b>	<b>N9316217</b>
0.32	0.25	-20 to 280		<b>N9316218</b>		<b>N9316220</b>	<b>N9316222</b>
	1.00	-20 to 260/280		<b>N9316219</b>		<b>N9316221</b>	<b>N9316223</b>
0.45	0.85	-20 to 260/280		<b>N9316224</b>		<b>N9316225</b>	
0.53	1.00	-20 to 260/280		<b>N9316226</b>		<b>N9316227</b>	



## Elite-1701

The Elite-1701 has a stationary phase of (14%-cyanopropylphenyl)-methylpolysiloxane. It is regarded as a good general purpose column for the analysis of alcohols, oxygenates, and pesticides. The mix of cyano and phenyl functional groups increases the polarity and offers a different elution order relative to less polar Elite-1 or Elite-5 columns. An Elite-1701 column is ideal for confirmation analysis in combination with an Elite-35 or Elite-5 column. The polymer is fully characterized to ensure long-term reproducibility, column-to-column consistency, and low bleed – even with sensitive detectors such as ECD and MS.

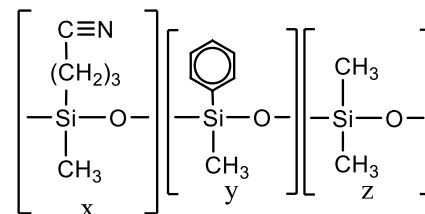
### Features

- Temperature Range: -20 °C to 280 °C
- Equivalent to USP G46 phase

### Applications

- Alcohols, oxygenates
- PCB congeners, pesticides

Elite-1701 Structure



ID (mm)	df (μm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.05	0.05	-20 to 280	<b>N9316257</b>					
	0.20	-20 to 280	<b>N9316258</b>					
0.10	0.10	-20 to 280				<b>N9316259</b>		
0.18	0.4	-20 to 270/280	<b>N9316228</b>		<b>N9316229</b>			
0.25	0.15	-20 to 280		<b>N9316230</b>				<b>N9316236</b>
	0.25	-20 to 280		<b>N9316231</b>		<b>N9316234</b>		<b>N9316237</b>
	1.00	-20 to 260/280		<b>N9316232</b>		<b>N9316235</b>		<b>N9316238</b>
0.32	0.15	-20 to 280		<b>N9316239</b>		<b>N9316242</b>		<b>N9316246</b>
	0.25	-20 to 280		<b>N9316240</b>		<b>N9316243</b>		<b>N9316247</b>
	1.00	-20 to 260/280		<b>N9326141</b>		<b>N9316244</b>	<b>N9316245</b>	<b>N9316248</b>
0.45	0.42	-20 to 260/270		<b>N9316250</b>		<b>N9316252</b>		
	0.85	-20 to 250/270		<b>N9316249</b>		<b>N9316251</b>		
0.53	0.50	-20 to 260/270		<b>N9316254</b>		<b>N9316256</b>		
	1.00	-20 to 250/270		<b>N9316253</b>		<b>N9316255</b>		



## Elite-WAX

The Elite-WAX column, a Polar Polyethylene Glycol (PEG) stationary phase column, is a general purpose polar PEG phase commonly used for the analysis of polar compounds like alkenols, glycols and aldehydes. The operating temperature range up to 250 °C facilitates the analysis of compounds that have a wide volatility range. Selectivity of the Elite-WAX is comparable to other Carbowax® columns for compounds of intermediate to high polarity.

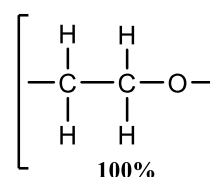
### Features

- Temperature Range: 20 °C to 250 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases

### Applications

- FAMES, Glycols
- Alkenols, aldehydes, solvents

### Elite-WAX Structure



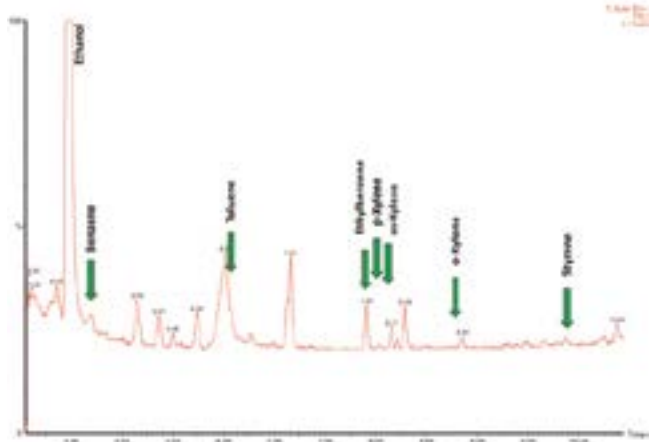
ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.15	20 to 250	N9316399		N9316405
	0.25	20 to 250	N9316400	N9316403	N9316406
	0.50	20 to 250	N9316401	N9316404	N9316407
0.32	0.15	20 to 250	N9316408	N9316411	
	0.25	20 to 250	N9316409	N9316412	N9316416
	0.50	20 to 250	N9316410	N9316413	N9316417
0.45	0.42	20 to 250	N9316420	N9316422	
	0.85	20 to 240/250	N9316419	N9316421	N9316423
	1.70	50 to 230	N9316418		
0.53	0.50	20 to 250	N9316426	N9316428	
	1.00	20 to 240/250	N9316425	N9316427	N9316429

### Elite-MWAX: Metal Column

ID (mm)	df (μm)	Temp Limits (°C)	30 m Part No.
0.53	1.00	20 to 240/250	N9316478

### Food and Flavor

The determination of low levels of benzene, toluene, ethylbenzene, xylenes and styrene in olive oil.



Recommended Column: Elite-WAX, 30 m x 0.25 mm x 1.0 μm (Part No. N9316485)

## Elite-WAX ETR

The Elite-WAX ETR (Extended Temperature Range) columns are manufactured with a special bonding process that binds the Carbowax® polymer to the polar deactivated silica. This results in a low bleed WAX column that exhibits extended lifetimes even when repeatedly heated to 250 °C. The bonding mechanism makes this column rugged enough to stand up to repeated water injections and allows solvent washing to rejuvenate the column. The Elite-WAX ETR has a wide applicability including FAMES, flavor compounds, acrolein/acrylonitrile (EPA 603), oxygenated compounds, and impurities in water matrices.

### Features

- Temperature Range: 40 °C to 250 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases

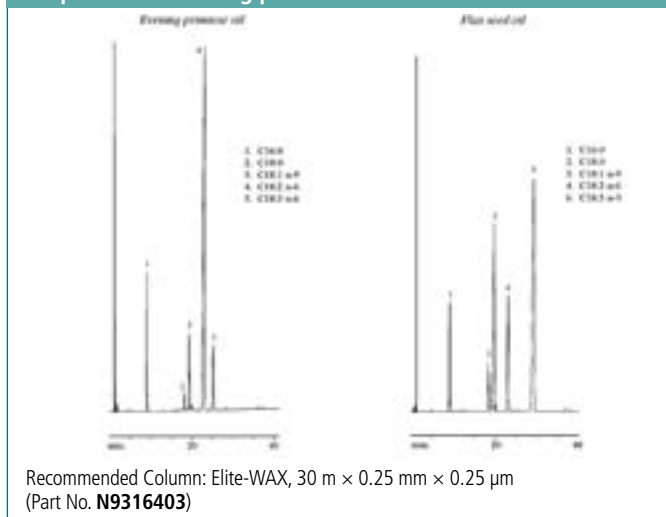
### Applications

- FAMES, flavor compounds, essential oils
- Solvents, aromatics, alcoholic beverages
- EPA method 603

ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.25	0.25	40 to 250		N9316547	N9316549		N9316551
	0.50	40 to 250		N9316548	N9316550		
0.32	0.25	40 to 250		N9316552	N9316555		N9316559
	0.50	40 to 250		N9316553	N9316556		N9316560
	1.00	40 to 240/250		N9316554	N9316557	N9316558	N9316561
0.45	0.85	40 to 250		N9316563	N9316564		N9316565
	1.70	40 to 230/250	N9316562				
0.53	1.00	40 to 240/250		N9316567	N9316569		N9316571
	2.00	40 to 220/250	N9316566	N9316568	N9316570		

### Food and Flavor

Determination of omega-3 (n-3) and omega-6 (n-6) fatty acid composition in evening primrose oil and flax seed oil.



## GC Columns for GC/MS

The Elite range of MS columns are engineered for extremely low bleed for MS detectors, providing optimum sensitivity. They cover a wide range of polarities and applications.

### Elite-1ms

The Elite-1ms phase is a non-polar phase, (crosslinked dimethyl polysiloxane) designed to be robust for MS applications. With improved thermal stability and ultra low bleed provides increased sensitivity. It is regarded as a good general-purpose columns for arson accelerants, essential oils, hydrocarbons, pesticides, PCB congeners (e.g., Aroclor mixes), sulfur compounds, amines and solvent impurities.

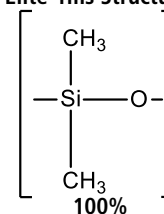
#### Features

- Temperature range: -60 °C to 330/350 °C.
- Equivalent to USP G1, G2, and G38 phases

#### Applications

- Ideal for analysis of non polar petrochemical samples
- Also excellent for solvents, chemicals, flavors & fragrances, air toxins and pesticides

Elite-1ms Structure



ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	-60 to 330/350		<b>N9305635</b>		
	2.00	-60 to 330/350		<b>N9305636</b>		
0.25	0.25	-60 to 330/350	<b>N9305637</b>		<b>N9305638</b>	<b>N9305639</b>
	0.50	-60 to 330/350	<b>N9305640</b>		<b>N9305641</b>	<b>N9305642</b>
	1.00	-60 to 330/350	<b>N9305643</b>		<b>N9305644</b>	<b>N9305645</b>
0.32	0.25	-60 to 330/350	<b>N9305646</b>		<b>N9305647</b>	<b>N9305648</b>
	0.50	-60 to 330/350	<b>N9305649</b>		<b>N9305650</b>	<b>N9305651</b>
	1.00	-60 to 330/350			<b>N9305652</b>	<b>N9305653</b>
	4.00	-60 to 330/350			<b>N9305654</b>	



## Elite-17ms

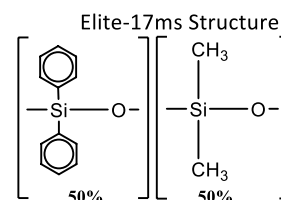
The Elite-17ms columns are general purpose, mid-polarity columns that are coated with a crosslinked, (50%-diphenyl)-dimethylpolysiloxane engineered for very low bleed to meet the requirements of sensitive MS detectors.

### Features

- Temperature Range: 40 °C to 300/340 °C
- Equivalent to USP G3 phase

### Applications

- Herbicides and pesticides
- Phthalate esters, sterols and rosin acids



ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	40 to 300/340	<b>N9316534</b>		
0.25	0.15	40 to 300/320	<b>N9316535</b>	<b>N9316537</b>	
	0.25	40 to 300/320	<b>N9316536</b>	<b>N9316538</b>	<b>N9316539</b>
0.32	0.15	40 to 300/320	<b>N9316540</b>	<b>N9316542</b>	
	0.25	40 to 300/320	<b>N9316541</b>		

## Elite-35ms

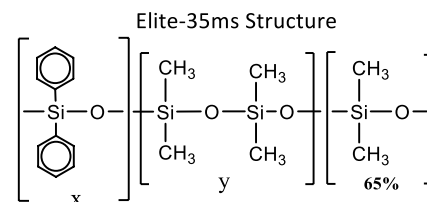
The Elite-35ms columns are general purpose, mid-polarity columns offering extremely low bleed at higher temperatures. They are coated with a unique blend of linked dimethyl polysiloxanes and diphenyl polysiloxanes that are inert and selective for substituted polar compounds, such as drugs, pesticides, herbicides, PCBs and phenyls, while maintaining a similar selectivity and polarity as traditional Elite-35 phases.

### Features

- Temperature Range: 50 °C to 340/ 360 °C
- Equivalent to USP G42 phase

### Applications

- Pesticides and herbicides
- PCBs



ID (mm)	df (μm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.25	50 to 340/360	<b>N9305686</b>	<b>N9305687</b>
	0.50	50 to 340/360	<b>N9305688</b>	<b>N9305689</b>
	1.00	50 to 320/340	<b>N9305690</b>	<b>N9305691</b>
0.32	0.25	40 to 340/360	<b>N9305692</b>	<b>N9305693</b>
	0.50	40 to 340/360	<b>N9305694</b>	<b>N9305695</b>
	1.00	40 to 320/340	<b>N9305696</b>	<b>N9305697</b>

## Elite-624ms

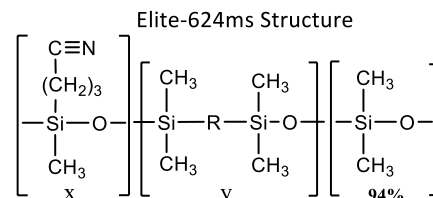
The Elite-624ms incorporates a unique proprietary blend of cyanopropyl and methyl siloxanes that results in a very inert, extremely low bleed and high thermal stability column. This column provides excellent peak shape for a wide range of compounds and is highly selective for residual solvents making it a great choice for USP<467>. These columns are manufactured for column-to-column reproducibility, so they are well suited for validated methods.

### Features

- Temperature Range: -20 °C to 300/320 °C
- Similar to USP G43 phase
- Ideal choice for USP method 467

### Applications

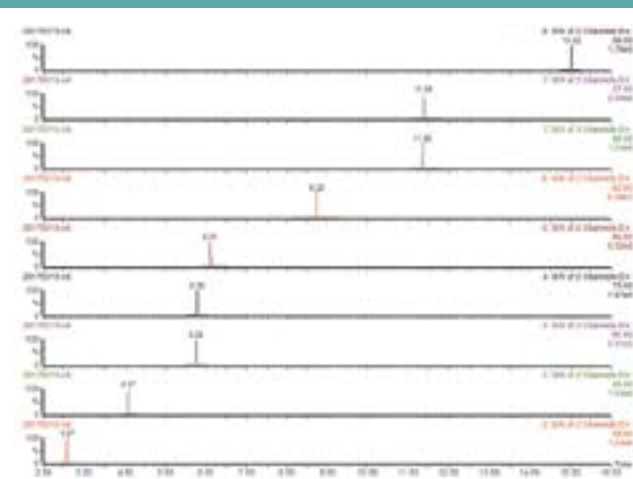
- Residual solvents
- Suitable for USP 467



ID (mm)	df (μm)	Temp Limits (°C)	20 m Part No.	30 m Part No.	60 m Part No.
0.18	1.00	-20 to 300/320	<b>N9315067</b>		
0.25	1.40	-20 to 300/320		<b>N9315068</b>	<b>N9315066</b>
0.32	1.80	-20 to 300/320		<b>N9315069</b>	<b>N9315070</b>

### Industrial

Determination of nine carbonates in lithium ion battery electrolyte by GC/MS.



Recommended Column: Elite-35ms, 30 m x 0.25 mm x 0.25 μm (Part No. **N9316438**)

Liner: Capillary splitless deactivated glass liners with deactivated wool (**N9306235**)

## High Temperature Columns

Available in a range of phases with varying polarity, the high temperature (ht) columns are specifically designed for reduced bleed when operating at higher temperatures, up to 400 °C. The optimum higher operating temperatures varies by phase.

### Elite-1ht

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 380/400	<b>N9316268</b>	<b>N9316269</b>
0.32	0.10	-60 to 380/400	<b>N9316270</b>	<b>N9316271</b>

### Elite-17ht

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.25	0.15	40 to 300/320	<b>N9316264</b>
0.32	0.15	40 to 300/320	<b>N9316266</b>

### Elite-5ht

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 400	<b>N9316272</b>	<b>N9316273</b>
0.32	0.10	-60 to 400	<b>N9316274</b>	<b>N9316275</b>

### Elite-SimDist ht

Application: High-temperature simulated distillation

Phase: Metal Column, 100% dimethylpolysiloxane, non-polar

ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	6 m Part No.
0.53	0.15	-60 to 400		<b>N6107191</b>
0.53	0.10	-60 to 450	<b>NR213314</b>	

## Metal High Temperature Columns

Using our new metal capillary columns eliminates the risk of column breakage at higher operating temperatures. A range of phases are offered, covering common applications. Rugged up to 450 °C although the exact upper temperature limits varies depending on phase and column configurations.

	Temp Limits (°C)	Inner Diameter (mm)	df (µm)	15 m Part No.	30 m Part No.	60 m Part No.
<b>Elite-1mht</b>	-60 to 340/430	0.25	0.1		<b>N9303453</b>	
<b>Elite-1mht</b>	-60 to 340/430	0.25	0.25	<b>N9303454</b>	<b>N9303455</b>	<b>N9303456</b>
<b>Elite-5mht</b>	-60 to 330/430	0.25	0.1	<b>N9303457</b>	<b>N9303458</b>	
<b>Elite-5mht</b>	-60 to 330/430	0.25	0.25	<b>N9303459</b>	<b>N9303460</b>	<b>N9303461</b>
<b>Elite-1301mht</b>	-20 to 280	0.53	3.0	<b>N9303462</b>	<b>N9303463</b>	
<b>Elite-1701mht</b>	-20 to 260	0.53	1.0	<b>N9303464</b>	<b>N9303465</b>	
<b>Elite-1701mht</b>	-20 to 250	0.53	1.5		<b>N9303466</b>	

# Elite-BAC Advantage: Blood Alcohol Content

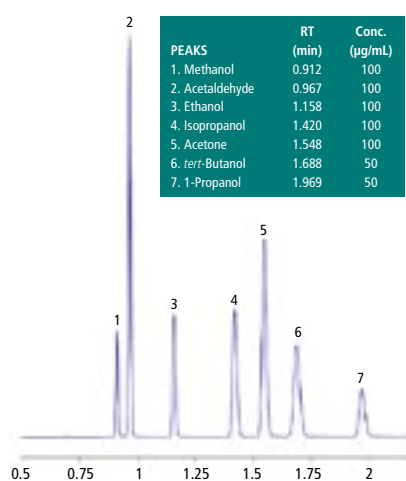
The Elite-BAC Advantage columns are optimized for selectivities guaranteed to resolve ethanol, internal standards, and frequently encountered interferences. These application-specific columns for blood alcohol analysis baseline separate all critical compounds, including ethanol, methanol, acetone, *tert*-butanol, acetaldehyde, isopropanol, and *n*-propanol, in less than 2 minutes. Every Elite-BAC 1 Advantage and Elite-BAC 2 Advantage column is qualified with a test mix containing these important BAC target compounds to ensure reproducibility. These columns, baseline separate all blood alcohol compounds in blood, breath, or urine, in less than 2 minutes, under isothermal conditions. Isothermal analysis increases productivity by eliminating the need for oven cycling. Confirmation is easily achieved with this tandem set because there are two elution order changes between the columns.

## Features and Benefits

- Robust and reproducible
- Baseline separation of all components in less than 2 minutes
- Stable to 260 °C

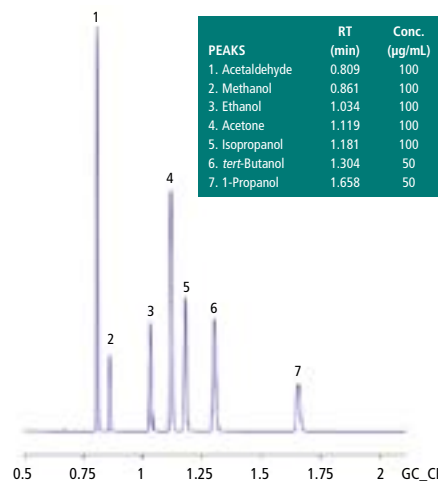
## Clinical

### Elite-BAC 1 advantage.



## Clinical

### Elite-BAC 2 advantage.



- Baseline resolution
- Symmetrical peaks
- Run time under 2 min

Column Type	ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	30 m Part No.
Elite-BAC 1 Advantage	0.18	1.00	-20 to 240/260	<b>N9315075</b>	
	0.32	1.80	-20 to 240/260		<b>N9315071</b>
	0.53	3.00	-20 to 240/260		<b>N9315072</b>
Elite-BAC 2 Advantage	0.18	0.34	-20 to 240/260	<b>N9315076</b>	
	0.32	0.60	-20 to 240/260		<b>N9315073</b>
	0.53	1.00	-20 to 240/260		<b>N9315074</b>



## Elite-VMS

Elite-VMS columns offer lower bleed, better selectivity, and overall faster analysis for separating volatile organic compounds. The stationary phase is a highly stable polymer that provides outstanding analysis of volatile compounds on MS detectors. The 0.18 and 0.25 mm ID columns allow sample splitting at the injection port, eliminating the added expense and maintenance of a jet separator. A 0.45 mm or 0.53 mm ID column can be directly connected to the purge-and-trap transfer line in a system equipped with a jet separator.

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.	60 m Part No.
0.18	1.00	-40 to 240/260	<b>N9316650<sup>1</sup></b>	<b>N9316651<sup>1</sup></b>
0.25	1.40	-40 to 240/260	<b>N9316652</b>	<b>N9316653</b>
0.32	1.80	-40 to 240/260	<b>N9316654</b>	<b>N9316655</b>
0.45	2.55	-40 to 240/260	<b>N9316656</b>	<b>N9316657</b>
0.53	3.00	-40 to 240/260	<b>N9316658</b>	<b>N9316659</b>

<sup>1</sup> The lengths of N9316650 and N9316651 are 20 m and 40 m, respectively

### Features and Benefits

- Temperature Range: -40 °C to 240/260 °C
- No known equivalent phases

### Applications

- Ideal for analysis of volatile organic pollutants by GC/MS
- Suitable for EPA Method 8260B

## Elite-XLB

The Elite-XLB phase is a proprietary low-polarity, very inert and exceptionally low bleed column for GC/MS analysis of pesticides, PCB congeners (e.g., Aroclor mixes) and PAHs. Improvements in polymer synthesis and tubing deactivation enable us to make inert, stable Elite-XLB columns especially well-suited for analyzing active, high molecular weight compounds with sensitive GC-MS systems, including ion trap detectors.

### Features and Benefits

- Temperature Range: 30 °C to 340/360 °C
- No known equivalent phases
- Exceptionally low bleed for GC/MS

### Applications

- Pesticides, PCB congeners
- Semi volatiles in drinking water
- Suitable for EPA Method 525

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	40 to 340/360		<b>N9316480<sup>1</sup></b>	
0.20	0.33	40 to 340/360	<b>N9316496<sup>2</sup></b>	<b>N9316497<sup>2</sup></b>	
0.25	0.10	40 to 340/360		<b>N9316483</b>	
	0.25	40 to 340/360	<b>N9316481</b>	<b>N9316484</b>	<b>N9316487</b>
	1.00	40 to 340/360	<b>N9318482</b>	<b>N9316485</b>	
0.32	0.10	40 to 340/360		<b>N9316489</b>	
	0.25	40 to 340/360	<b>N9316488</b>	<b>N9316490</b>	<b>N9316493</b>
	0.50	40 to 340/360		<b>N9316492</b>	
	1.00	40 to 340/360		<b>N9316491</b>	
0.53	1.50	40 to 320/340	<b>N9316494</b>	<b>N9316495</b>	

<sup>1</sup> The length of N9316480 is 20 m.

<sup>2</sup> The lengths of N9316496 and N9316497 are 12 m and 25 m, respectively.

## Elite-Volatiles

The Elite-Volatiles stationary phase and optimized column dimensions provide low bleed, excellent resolution, and fast analysis times for volatile organic pollutants.

### Features

- Temperature Range: -20 °C to 240 °C
- Proprietary phase
- Ideal for EPA Method 8021

### Applications

- Volatile organic pollutants
- Suitable for EPA Method 8021

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.	60 m Part No.	75 m Part No.
0.25	1.40	-20 to 240	<b>N9316388</b>	<b>N9316389</b>	
0.32	1.80	-20 to 240	<b>N9316390</b>	<b>N9316391</b>	
0.45	2.55	-20 to 240	<b>N9316392</b>		<b>N9316393</b>

## Elite-CLPesticides: Chlorinated Pesticides

Elite-CLPesticides is specially designed to overcome the coelutions and analyte breakdown typically encountered in chlorinated pesticide analytes for U.S. EPA methods 8081, 608, and CLP. Column bleed measured by ECD is extremely low at temperatures greater than 300 °C, which is critical for baking out the column to remove high-boiling compounds commonly found in pesticide/PCB extracts.

### Features and Benefits

- Thermally stable to 340 °C
- Low column bleed – ideal for ECD or GC/MS analysis
- Exceeds performance criteria for U.S. EPA Methods 8081, 608 and CLP
- Baseline separation in less than 15 minutes

### Applications

- Chlorinated pesticides and herbicides
- Exceeds performance criteria for U.S. EPA Methods 8081, 608 and CLP

Column Type	ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
Elite-CLPesticides	0.25	0.25	-60 to 320/340	<b>N9316661</b>	<b>N9316662</b>
	0.32	0.50	-60 to 320/340	<b>N9316663</b>	<b>N9316664</b>
	0.53	0.50	-60 to 300/320	<b>N9316665</b>	<b>N9316666</b>
Elite-CLPesticides 2	0.25	0.20	-20 to 240/260	<b>N9316667</b>	<b>N9316668</b>
	0.32	0.25	-20 to 240/260	<b>N9316669</b>	<b>N9316670</b>
	0.53	0.42	-20 to 240/260	<b>N9316671</b>	<b>N9316672</b>

## Elite-502.2: U.S. EPA Method 502.2

**Application:** Analysis of volatiles by U.S. EPA method 502.2

**Phase:** Proprietary Dimethyl-diphenyl polysiloxane, low-polarity

ID (mm)	df (µm)	Temp Limits (°C)	60 m Part No.	75 m Part No.	105 m Part No.
0.25	1.40	0 to 250/270	<b>N9316498</b>		
0.45	2.55	0 to 250/270		<b>N9316188</b>	<b>N9316189</b>
0.53	3.00	0 to 250/270			<b>N9316190</b>

## Elite-RX: Drugs of Abuse

**Application:** Analysis of drugs of abuse

Phase	ID (mm)	df (µm)	Temp Limits (°C)	12 m Part No.	25 m Part No.
Elite-1 RX	0.20	0.33	-60 to 330/350	<b>N9316345</b>	<b>N9316346</b>
Elite-5ms RX	0.20	0.33	-60 to 330/350	<b>N9316349</b>	<b>N9316350</b>
Elite-17 RX	0.20	0.33	40 to 300/320	<b>N9316347</b>	<b>N9316348</b>

## Elite-Betacylodextrin: Chiral Separations

**Application:** General-purpose chiral, Chiral compounds in essential oils

Column Type	ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
Elite-Betacydex	0.25	0.25	40 to 230	<b>N9316319</b>
Elite-Cyclosil B	0.25	0.25	40 to 230	<b>N9316545</b>

## Elite-SimDist

**Application:** Simulated distillation

**Phase:** Specially processed dimethylpolysiloxane, non-polar

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.
0.45	2.55	-60 to 360	<b>N9316261</b>
0.53	3.00	-60 to 360	<b>N9316262</b>

## Elite-608

**Application:** Analysis of semivolatile pesticides by U.S. EPA method 608

**Phase:** Phenyl methyl polysiloxane, mid-polarity

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.32	0.50	40 to 290/310		<b>N9316191</b>
0.45	0.42	40 to 270/290	<b>N9316194</b>	<b>N9316195</b>
	0.70	40 to 260/280	<b>N9316192</b>	<b>N9316193</b>
0.53	0.50	40 to 270/290	<b>N9316198</b>	<b>N9316199</b>
	0.83	40 to 260/280	<b>N9316196</b>	<b>N9316197</b>

## Elite-TPH

**Application:** Analysis of total petroleum hydrocarbons

**Phase:** (5%-diphenyl)-dimethylpolysiloxane, low polarity

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.32	0.25	-10 to 320	<b>N9316386</b>
0.45	1.00	-10 to 290	<b>N9316387</b>

## Elite-PONA

**Application:** Detailed analysis of petroleum naphtha

**Phase:** Specially processed dimethylpolysiloxane, non-polar

ID (mm)	df (µm)	Temp Limits (°C)	50 m Part No.	100 m Part No.
0.20	0.50	-60 to 300/320	<b>N9316065</b>	
0.25	0.50	-60 to 300/320		<b>N9316015</b>

## Elite-FFAP

**Application:** Free fatty acids

**Phase:** Nitroterephthalic acid modified PEG (bonded), polar

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.25	40 to 250	<b>N9316351</b>	<b>N9316352</b>
0.32	0.25	40 to 250	<b>N9316353</b>	<b>N9316354</b>
0.45	0.85	40 to 240/250	<b>N9316355</b>	<b>N9316356</b>
0.53	1.00	40 to 240/250	<b>N9316357</b>	<b>N9316358</b>

## Elite-5 Amine

**Application:** Amines and other basic compounds including alkylamines and di/triamines

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.50	-60 to 300/315	<b>N9316684</b>	<b>N9316673</b>
	1.00	-60 to 300/315	<b>N9316674</b>	<b>N9316675</b>
0.32	1.00	-60 to 300/315	<b>N9316676</b>	<b>N9316677</b>
	1.50	-60 to 290/305	<b>N9316678</b>	<b>N9316679</b>
0.53	1.00	-60 to 290/305		<b>N9316680</b>
	3.00	-60 to 280/295	<b>N9316681</b>	<b>N9316682</b>

## Elite-2330/Elite-23

**Application:** Analysis of cis/trans isomers in FAMES and dioxin isomers. Equivalent to USP G8 and G48

**Phase:** Biscyanopropyl cyanopropylphenyl polysiloxane, highly polar

ID (mm)	df (µm)	Temp Limits (°C)	60 m Part No.	Column Type
0.25	0.10	0 to 275	<b>N6107813</b>	Elite-2330
0.25	0.20	0 to 275	<b>N6107814</b>	Elite-2330
0.25	0.25	40 to 250/260	<b>N9316508</b>	Elite-23

## Elite-MTBE

**Application:** Analysis of methyl t-butylether and other oxygenates

**Phase:** Proprietary low polarity phase

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.45	2.55	10 to 250	<b>N9316520</b>
0.53	3.00	10 to 250	<b>N9316521</b>

## Elite-2560

**Application:** Application-specific column for cis/trans FAMES

**Phase:** Biscyanopropylpolysiloxane, highly polar

ID (mm)	df (µm)	Temp Limits (°C)	100 m Part No.
0.25	0.20	20 to 250	<b>N9311570</b>

## Elite-Carbon Columns

### For Volatiles in Hydrocarbon Streams

The Elite-Carbon columns offer rapid separation of permanent gas/light hydrocarbon mixtures; including carbon monoxide and carbon dioxide without cryogenic cooling. They are preconditioned and thus take less than 30 minutes to stabilize. They are used in conjunction with a molecular sieve column (Molecular sieve 5 Å, 50 m, 0.53 mm, 50 µm Part No. **NR201108**).

ID (mm)	Length (m)	Mesh Size	Temp Limits (°C)	Part No.
1.0	1	100/120	Up to 300	<b>N9303927</b>
1.0	2	100/120	Up to 300	<b>N9303926</b>

Fittings for the micropacked Elite-Carbon columns need to be ordered separately.

Description	Part No.
Installation kit for 1 mm ID columns; for valve applications	<b>N9303450</b>
Installation kit for 1 mm ID columns; for direct injections	<b>N9303451</b>

## Elite-Alumina/KCl\* PLOT

ID (mm)	Length (m)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	50	10	up to 200	<b>N9316544</b>

\* Lower Polarity than Elite-Alumina.

Elite-Alumina/Na<sub>2</sub>SO<sub>4</sub> PLOT

ID (mm)	Length (m)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.32	50	5	up to 200	<b>N6107777</b>

## Elite-Alumina PLOT

## Phase for Analysis of Light Hydrocarbons

ID (mm)	Length (m)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	30	6	-60 to 200	<b>N9316304</b>
0.53	50	10	-60 to 200	<b>N9316305</b>

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample.

## Elite-Cyclosil B PLOT

## For Chiral Separations

ID (mm)	Length (m)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.25	30	0.25	35 to 230	<b>N9316545</b>
0.32	30	0.25	35 to 230	<b>N9316546</b>

## Elite-Molesieve PLOT

## Phase for Analysis of Permanent Gases

ID (mm)	Length (m)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	30	–	-60 to 300	<b>N9316361</b>

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample.

## Elite-Q PLOT

## Phase for Analysis of Light Gases and Hydrocarbons

ID (mm)	Length (m)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.32	30	10	-60 to 250	<b>N9316359</b>
0.53	30	20	-60 to 250	<b>N9316360</b>

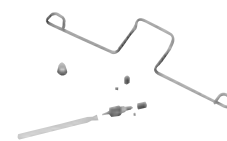
Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample.

## Miscellaneous Accessories

Description	Part No.
2 oz. Replacement Charcoal (30/60 mesh)	<b>03300904</b>
Liner Removal Tool	<b>N6100102</b>
Injector/Detector Adapter 1/4 in. Adapter fits on injector and detector outlet (inside oven) for use with 1/4 in. columns	<b>00080100</b>
Silanized Glass Wool (2 oz.)	<b>03300905</b>

## Wide-Bore Adapter Kit

Contains all the parts necessary to adapt to packed column injectors quickly and easily for use with wide-bore capillary columns. Includes 0–20 mL/min flow controller element, wide-bore adapter with 1/16 in. fitting, wide-bore glass liner and column support hanger.



Description	Part No.
0.53 Capillary Column Adapter Kit	<b>N6120001</b>

## Wafer Scribes

The PerkinElmer ceramic wafer scribe is inexpensive and ideal for cutting polyimide fused silica capillary columns and guard columns. The scribe is easy to hold and simple to use. All four sides can be used as a cutting tool.



Description	Part No.
Wafer Scribes (pkg. 10)	<b>N9301376</b>

## Connectors

## Universal Connectors



Description	Part No.
Deactivated Presstight Column Connectors (pkg. 5)	<b>N9302149</b>
Metal Universal Connectors: 0.25 mm ID (pkg. 10)	<b>N9301167</b>
Deactivated Y Splitter Presstight Column Connectors (pkg. 3)	<b>N9306380</b>
Polyimide Sealing Resin (5 g)	<b>N9301343</b>

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