capillary columns

SGE insist on the BEST

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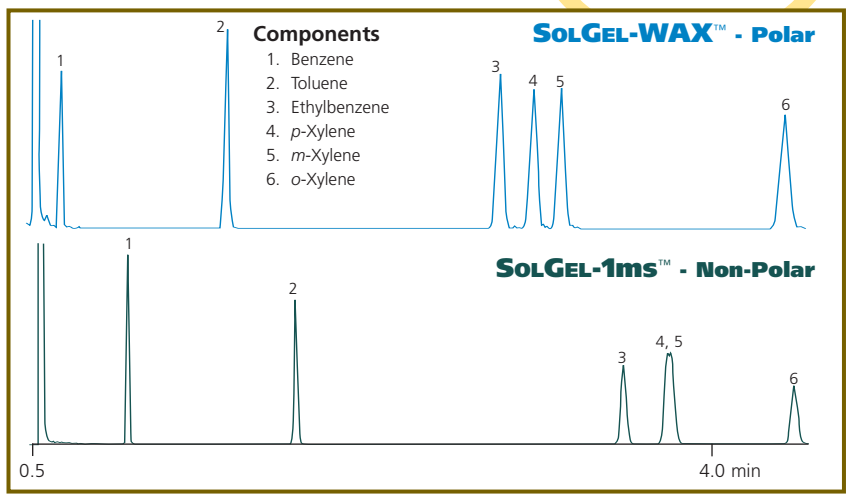
Column Selection

Gerard Sharp PhD, capillary column product manager

1 stationary phase

- Choose the least polar phase that will perform the separation you require
- Choose SolGel-WAX™ to separate compounds such as alcohols, ketones, aldehydes and esters
- The 5% phenyl column (BPX5) can be used in 90% of all separations

Figure 1. Effect of Stationary Phase. BTEX analysis on 100% dimethyl polysiloxane (SolGel-1ms) and a polar (SolGel-WAX) column. 30m x 0.25mm ID x 0.25µm film.



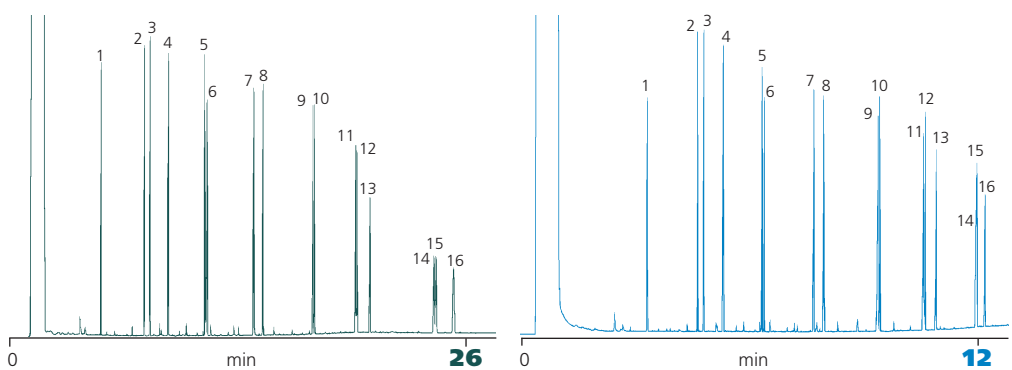
2 internal diameter

- The smaller the diameter, the faster the analysis
- 0.25mm ID columns are suitable for most applications, especially GC-MS

Figure 2. Effect of Internal Diameter. Polynuclear Aromatic Hydrocarbon (PAH) analysis.

NORMAL - 0.25mm ID
Chromatogram using a conventional (30m x 0.25mm ID) BPX5 column with a 0.25µm film.

FAST - 0.10mm ID
Chromatogram using a FAST (10m x 0.1mm ID) BPX5 column with a 0.10µm film.



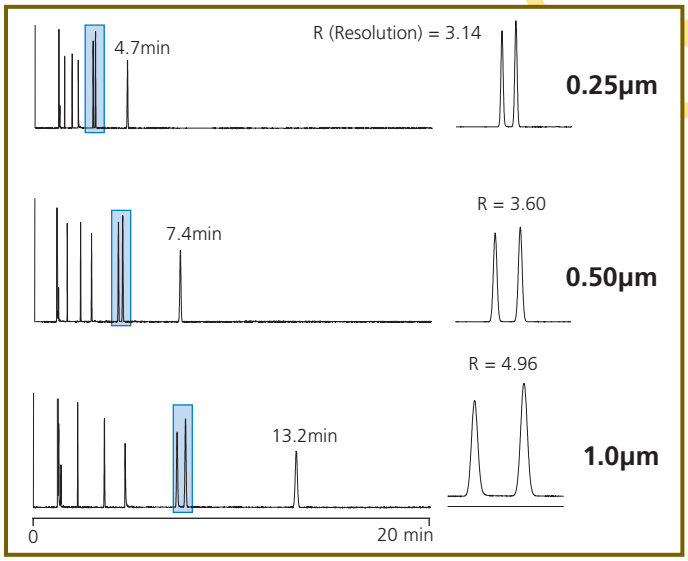
Components

1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Fluoranthene
8. Pyrene
9. Benzo(a)anthracene
10. Chrysene
11. Benzo(b)fluoranthene
12. Benzo(k)fluoranthene
13. Benzo(a)pyrene
14. Indeno(1,2,3,-c,d)pyrene
15. Dibenzo(a,h)anthracene
16. Benzo(g,h,i)perylene

film thickness

- 0.25µm films are standard
- Use ≥ 0.5µm films for volatile compounds
- Thicker film columns will result in longer run times but better resolution

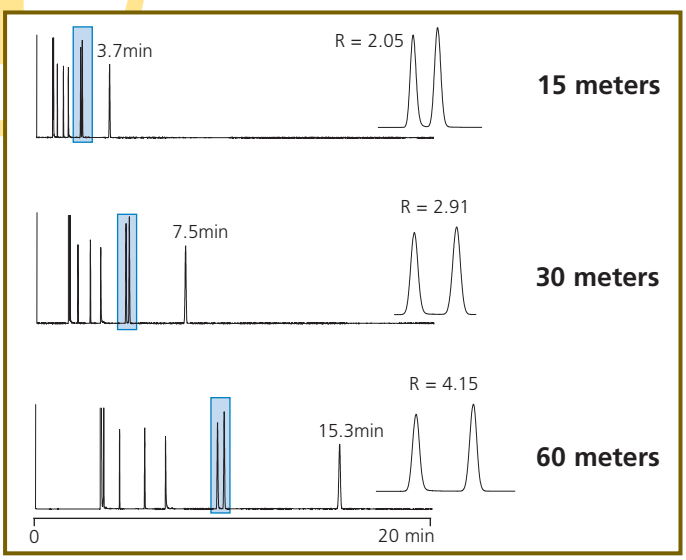
Figure 3. Effect of Film Thickness.

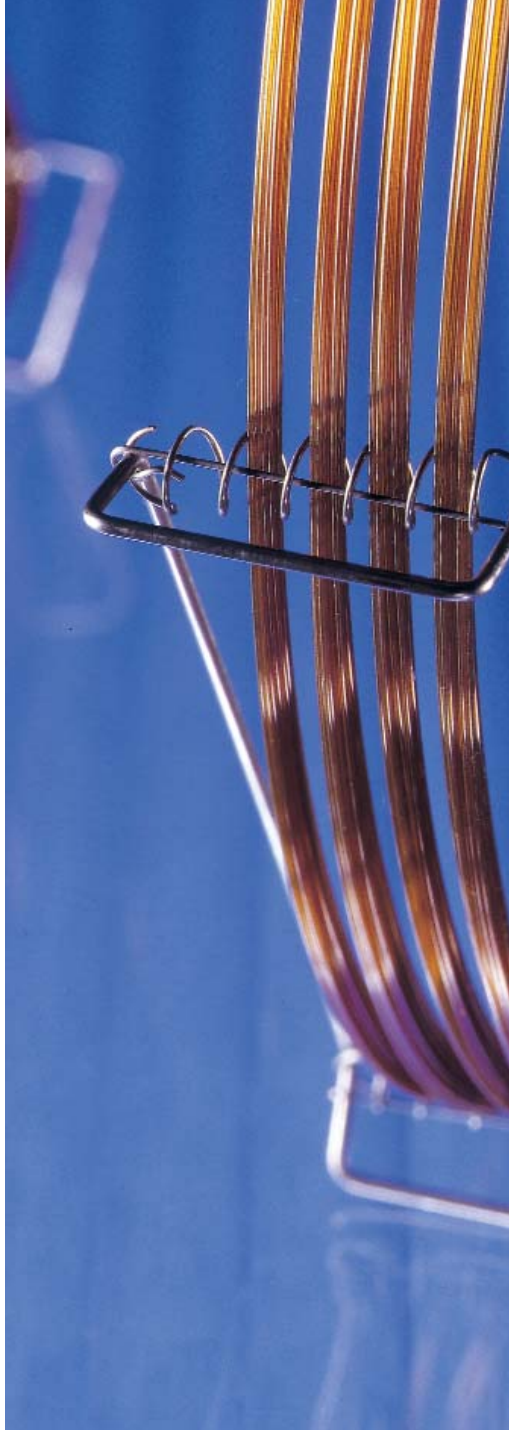


length

- Doubling the column length improves resolution by 40%
- 30 meter columns are standard
- Choose short columns for active compounds

Figure 4. Effect of Length





visit
www.sge.com
for more tech info

SGE insist on the BEST

BP1

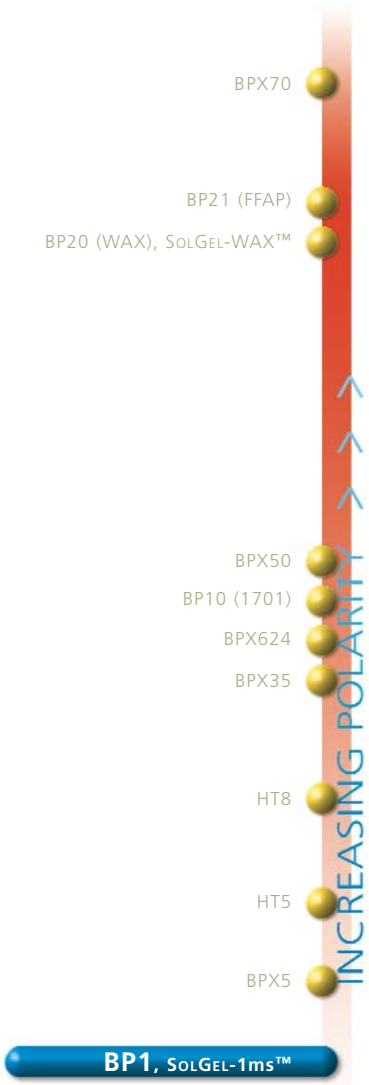
100% methyl

Angus Hibberd PhD,
applications chemist

An industry standard non-polar phase suitable for all routine analyses.
An extremely low bleed phase with a high temperature limit of 360°C.

ordering information

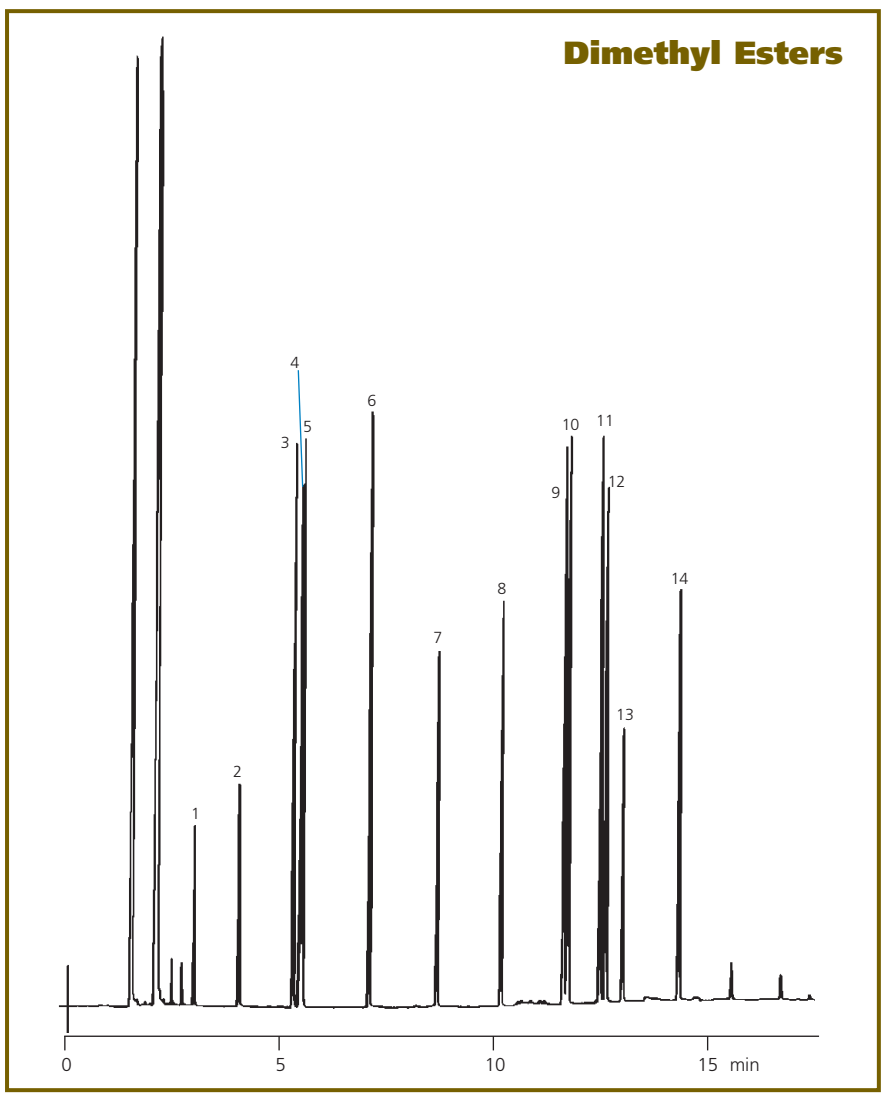
ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.10	10	0.10	-60 to 340/360	**054022**
0.22	12	0.25	-60 to 340/360	**054046**
	25	0.25	-60 to 340/360	**054047**
	50	0.25	-60 to 340/360	**054048**
	50	1.00	-60 to 340/360	**054054**
0.25	15	0.25	-60 to 340/360	**054043**
	30	0.25	-60 to 340/360	**054044**
	30	0.50	-60 to 340/360	**054820**
	30	1.00	-60 to 340/360	**054056**
	60	0.25	-60 to 340/360	**054045**
	60	0.50	-60 to 340/360	**054812**
	60	1.00	-60 to 340/360	**054815**
0.32	15	0.25	-60 to 340/360	**054061**
	25	0.25	-60 to 340/360	**054059**
	25	0.50	-60 to 340/360	**054065**
	30	0.25	-60 to 340/360	**054062**
	30	0.50	-60 to 340/360	**054068**
	30	1.00	-60 to 340/360	**054813**
	30	3.00	-60 to 280/300	**054073**
	60	0.25	-60 to 340/360	**054067**
	60	0.50	-60 to 340/360	**054069**
	60	1.00	-60 to 340/360	**054810**
0.53	12	1.00	-60 to 340/360	**054086**
	15	0.50	-60 to 340/360	**054870**
	15	1.00	-60 to 340/360	**054089**
	25	1.00	-60 to 340/360	**054087**
	25	5.00	-60 to 340/360	**054095**
	30	0.50	-60 to 340/360	**054092**
	30	1.00	-60 to 340/360	**054090**
	60	0.50	-60 to 340/360	**054871**
	60	3.00	-60 to 280/300	**054809**
	60	5.00	-60 to 280/300	**054807**



example application

Components

1. Dimethyl Oxalate
2. Dimethyl Malonate
3. Dimethyl Fumarate
4. Dimethyl Succinate
5. Dimethyl Maleate
6. Dimethyl Glutarate
7. Dimethyl Adipate
8. Dimethyl Pimelate
9. Dimethyl Suberate
10. Dimethyl Phthalate
11. Dimethyl Terephthalate
12. Dimethyl iso-Phthalate
13. Dimethyl Azelate
14. Dimethyl Sebacate



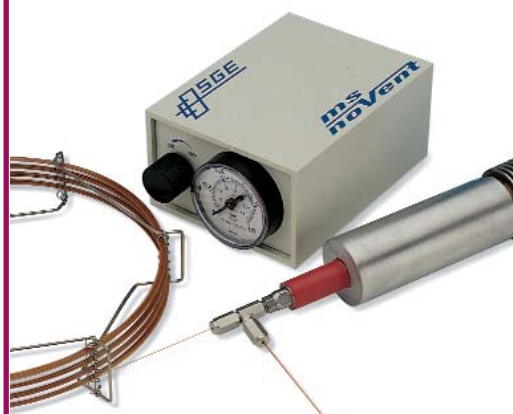
For experimental conditions, visit www.sge.com

Suitable replacement for:

DB-1, HP-1, HP-101, Ultra-1, SPB-1, CP-Sil 5CB, RSL-150, RSL-160, Rtx®-1, ZB-1, CB-1, OV®-1, PE-1, 007-1(MS), SP-2100, SE-30, RH-1, CC-1, CP-Sil 5CB MS, Petrocol DH

BP1

SGE insist on the BEST



ms-NoVent™ complete capillary column changeover for your GC-MS in less than 5 minutes

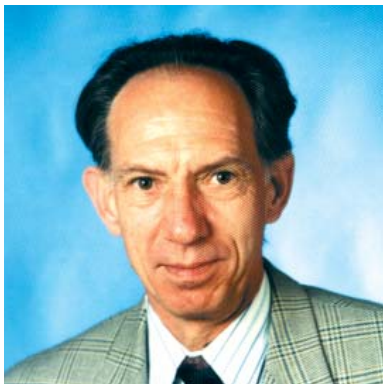
visit www.sge.com for further information

visit
www.sge.com
for problem solving and helpful hints

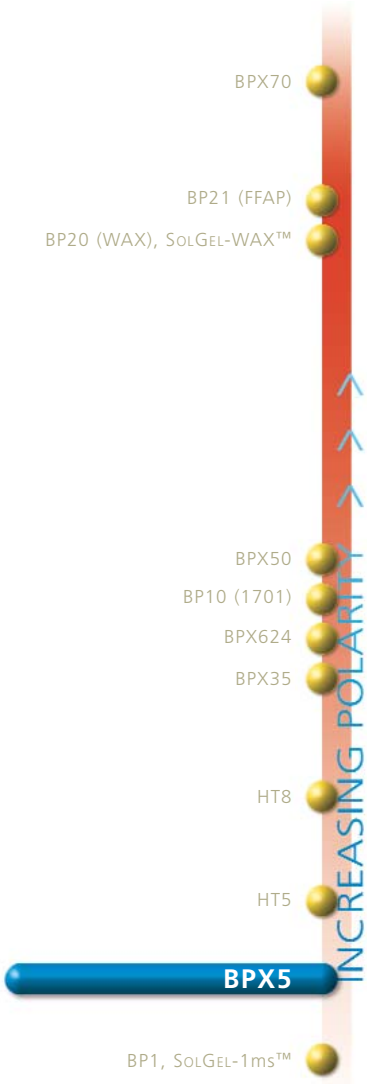
insist on the BEST

BPX5

5% phenyl



Bernd Pfeffer,
technical support
specialist – Europe



A premium, low bleed column with a maximum temperature of 370°C. Suitable for environmental BNA methods (EPA 8270, EPA 625), trace analysis of pesticides, drugs, hydrocarbons and phenols.

ordering information

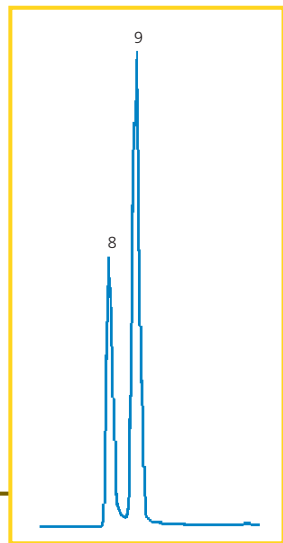
ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.10	10	0.10	-40 to 360/370	**054099**
0.22	12	0.25	-40 to 360/370	**054112**
	25	0.25	-40 to 360/370	**054113**
	30	0.25	-40 to 360/370	**054142**
	50	0.25	-40 to 360/370	**054114**
0.25	15	0.25	-40 to 360/370	**054100**
	15	1.00	-40 to 360/370	**054121**
	30	0.25	-40 to 360/370	**054101**
	30	0.50	-40 to 360/370	**0541025**
	30	1.00	-40 to 360/370	**054122**
	60	0.25	-40 to 360/370	**054102**
	60	1.00	-40 to 360/370	**054123**
0.32	15	0.25	-40 to 360/370	**054144**
	15	1.00	-40 to 360/370	**054152**
	25	0.25	-40 to 360/370	**054119**
	25	0.50	-40 to 360/370	**054125**
	30	0.25	-40 to 360/370	**054145**
	30	0.50	-40 to 360/370	**0541205**
	30	1.00	-40 to 360/370	**054153**
	60	0.25	-40 to 360/370	**054146**
	60	1.00	-40 to 360/370	**054154**
0.53	12	1.00	-40 to 360/370	**054130**
	15	1.00	-40 to 360/370	**054147**
	15	1.50	-40 to 350/360	**0541347**
	15	3.00	-40 to 350/360	**054159**
	25	1.00	-40 to 360/370	**054131**
	30	0.50	-40 to 360/370	**0541345**
	30	1.00	-40 to 360/370	**054148**
	30	1.50	-40 to 350/360	**0541348**
	30	3.00	-40 to 350/360	**054160**
	60	1.00	-40 to 360/370	**054158**
	60	3.00	-40 to 350/360	**054164**

example application

Analysis of USEPA 625 phenols mix

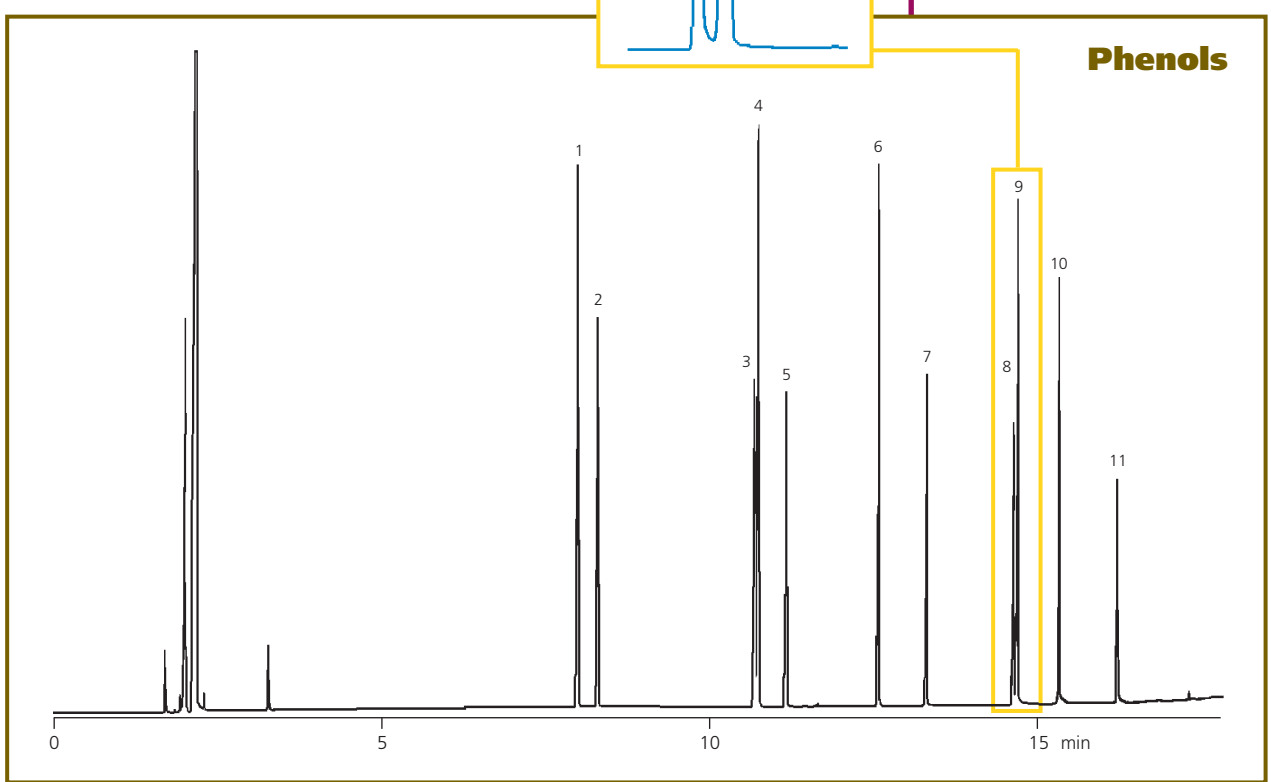
Components

1. Phenol
2. 2-Chlorophenol
3. 2-Nitrophenol
4. 2,4-Dimethylphenol
5. 2,4-Dichlorophenol
6. 4-Chloro-3-methylphenol
7. 2,4,6-Trichlorophenol
8. 2,4-Dinitrophenol
9. 4-Nitrophenol
10. 2-Methyl-4,6-dinitrophenol
11. Pentachlorophenol



Jana Habsuda PhD,
R & D chemist

The BPX5 phase has been designed for robustness and is suitable for over 90% of all routine analyses performed by chromatographers.



For experimental conditions, visit www.sge.com

Suitable replacement for:

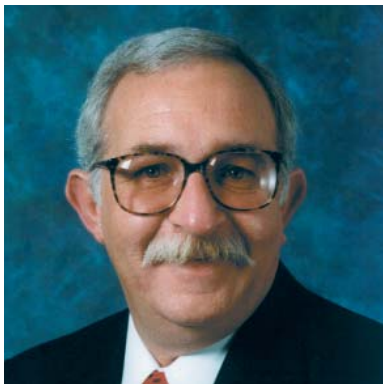
DB-5, DB-5ms, HP-5, Ultra-2, Rtx®-5, Rtx-5Sil MS, Rtx-5MS, HP-5MS, AT-5, AT-5MS, 007-5MS, SPB-5, CP-Sil 8CB, RSL-200, CB-5, OV®-5, PE-5, 007-2(MPS-5), SE-52, SE-54, XTI-5, PTE-5, CC-5, RH-5ms, ZB-5

BPX5

insist on the BEST

BPX35

35% phenyl

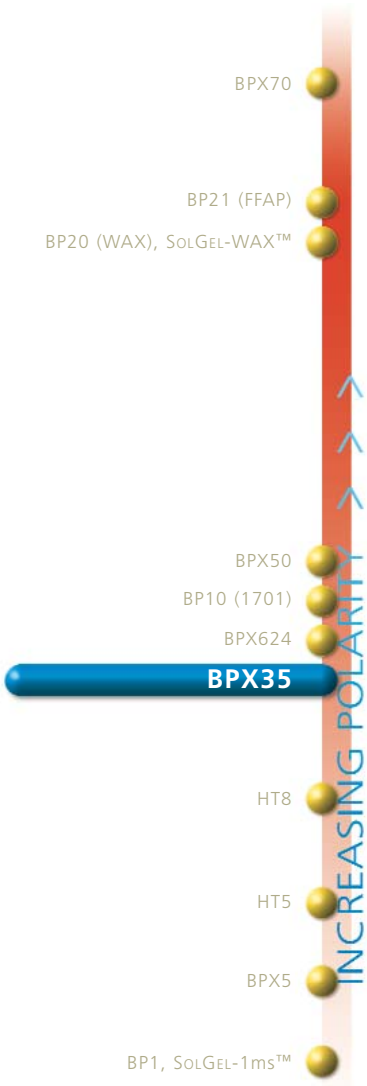


Dan DiFeo PhD,
technical support
specialist – USA

A premium, low bleed column with a maximum temperature of 370°C. Especially suited for trace analysis of herbicides and aromatic compounds.

ordering information

ID (mm)	Length (m)	Film Thickness Nm)	Temperature Limits (°C)	Part No.
0.10	10	0.10	0 to 360/370	**054699**
0.22	15	0.25	0 to 360/370	**054713**
	30	0.25	0 to 360/370	**054714**
0.25	15	0.25	0 to 360/370	**054700**
	15	1.00	0 to 360/370	**054703**
	30	0.25	0 to 360/370	**054701**
	30	0.50	0 to 360/370	**0547025**
	30	1.00	0 to 360/370	**054704**
	60	0.25	0 to 360/370	**054702**
	60	1.00	0 to 360/370	**054705**
0.32	15	0.25	0 to 360/370	**054723**
	15	0.50	0 to 360/370	**054718**
	15	1.00	0 to 360/370	**054716**
	30	0.25	0 to 360/370	**054724**
	30	0.50	0 to 360/370	**0547158**
	30	1.00	0 to 360/370	**054717**
	60	0.25	0 to 360/370	**054725**
0.53	15	0.50	0 to 360/370	**054734**
	15	1.00	0 to 360/370	**054736**
	30	0.50	0 to 360/370	**054735**
	30	1.00	0 to 360/370	**054737**



Suitable replacement for:

DB-35, DB-35ms, MDN-35, ZB-35, Rtx®-35, SPB-35, AT-35, Sup-Herb, PE-35, HP-35

Opposite page:
SGE capillary column application
& production area

BPX50

SGE insist on the BEST

50% phenyl

A premium, low bleed column with a maximum temperature of 370°C. Suited for a range of EPA methods and pharmaceutical applications.

ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.10	10	0.10	20 to 360/370	**054740**
0.25	15	0.25	20 to 360/370	**054750**
	30	0.25	20 to 360/370	**054751**
	60	0.25	20 to 360/370	**054752**
0.32	15	0.25	20 to 360/370	**054760**
	30	0.25	20 to 360/370	**054761**
0.53	15	0.50	20 to 360/370	**054770**
	30	0.50	20 to 360/370	**054771**
	30	1.00	20 to 360/370	**054772**

Suitable replacement for:

DB-17, DB-17ms, AT-50, HP-17, RSL-300, Rtx®-50, PE-17, CC-17, 007-17(MPS-50), SP-2250, HP-50+, SPB-50, SPB-17, ZB-50

visit **www.sge.com** for hundreds of GC application chromatograms

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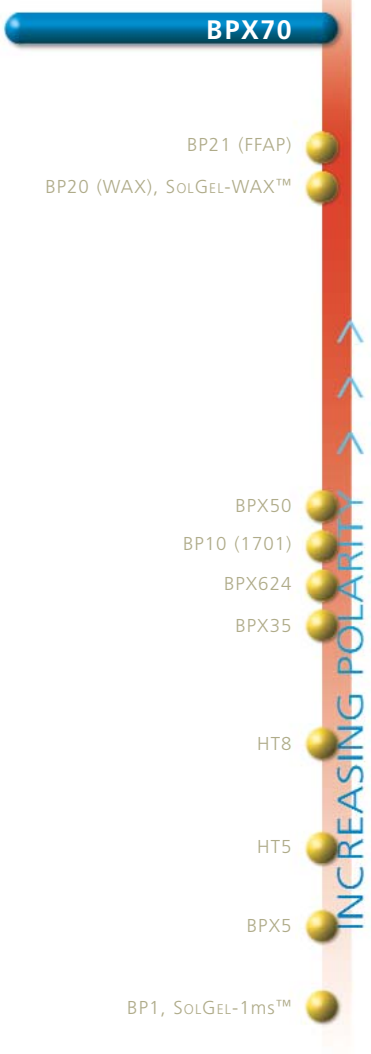
- BPX70
- BP21 (FFAP)
- BP20 (WAX), SolGel-WAX™
- **BPX50**
- BP10 (1701)
- BPX624
- BPX35
- HT8
- HT5
- BPX5
- BP1, SolGel-1ms™

BPX70

70% cyanopropyl

gc-BackFlush
decrease your GC analysis time and increase sample throughput

visit **www.sge.com** for further details



A premium, low bleed column with a maximum temperature of 260°C. Polarity has been designed for Fatty Acid Methyl Ester (FAME) analysis.

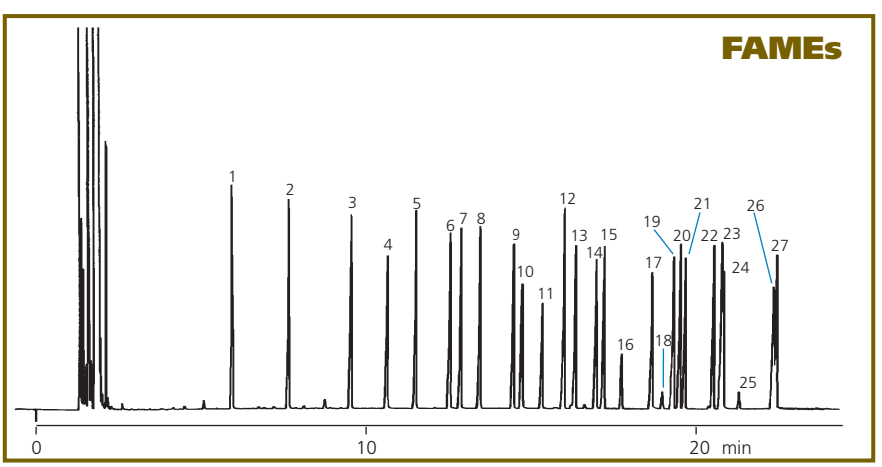
ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.10	10	0.20	50 to 250/260	**054600**
0.22	25	0.25	50 to 250/260	**054602**
	50	0.25	50 to 250/260	**054603**
0.25	15	0.25	50 to 250/260	**054621**
	30	0.25	50 to 250/260	**054622**
	60	0.25	50 to 250/260	**054623**
0.32	30	0.25	50 to 250/260	**054616**
	60	0.25	50 to 250/260	**054617**
0.53	15	0.50	50 to 250/260	**054619**
	30	0.50	50 to 250/260	**054620**

example application

Components

1. C11:0
2. C12:0
3. C13:0
4. C10:0 2-OH
5. C14:0
6. C15:0-i
7. C15:0-a
8. C15:0
9. C12:0 2-OH
10. C16:0i
11. C16:0
12. C15.1n7cis
13. C12:0 3-OH
14. C17:0-a
15. C17:0
16. C9, 10-methylene 16:0
17. C14:0-2-OH
18. C18:0
19. C18.1n9-trans
20. C18.1n9-cis
21. C18.1n7-cis
22. C218.2n6-cis
23. C19:0
24. C16:0 2-OH
25. C9, 10-methylene 18:0
26. C20:0
27. C18:0 2-OH



For experimental conditions, visit www.sge.com

Suitable replacement for:

DB-23, CP-Sil 88, SP-2330, SP-2380, Rtx®-2330, 007-23, AT-Silar, PE-23

BPX624

FIRST AGAIN

cyanopropylphenyl

An excellent low-bleed volatiles column.

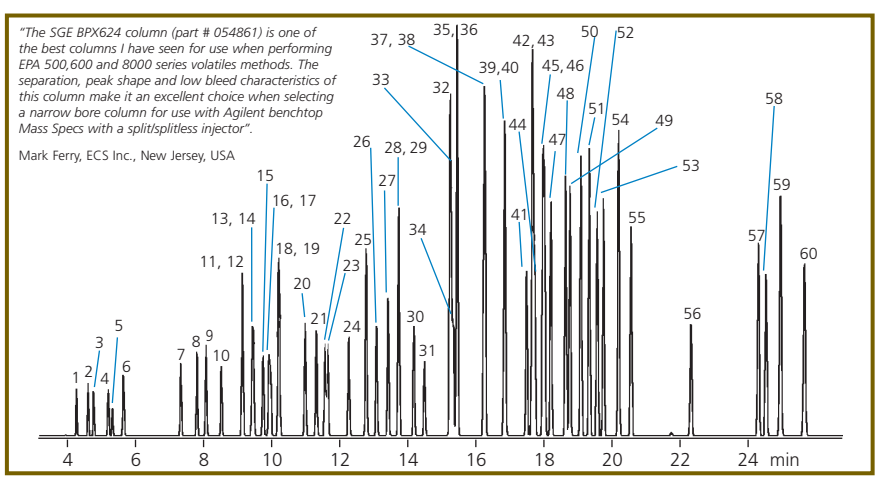
ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.25	30	1.4	-20 to 300/310	**054860**
	60	1.4	-20 to 300/310	**054861**
0.32	30	1.8	-20 to 290/300	**054850**
	60	1.8	-20 to 290/300	**054851**
0.53	30	3.0	-20 to 280/290	**054855**
	60	3.0	-20 to 280/290	**054856**

example application

Components

1. Dichlorodifluoromethane
2. Chloromethane
3. Vinyl chloride
4. Bromomethane
5. Chloroethane
6. Trichlorofluoromethane
7. 1,1-Dichloroethane
8. Methylene chloride
9. *trans*-1,2-dichloroethene
10. 1,1-Dichloroethane
11. *cis*-1.2-Dichloroethene
12. 2.2-Dichloropropane
13. Chloroform
14. Bromochloromethane
15. 1,1,1-Trichloroethane
16. 1,1-Dichloro-1-propene
17. Carbon tetrachloride
18. Benzene
19. 1,2-Dichloroethane
20. Trichloroethene
21. 1,2-Dichloropropane
22. Dibromomethane
23. Bromodichloromethane
24. *cis*-1.3-Dichoro-1-propene
25. Toluene
26. *trans*-1,3-Dichloro-1-propene
27. 1,1,2-Trichloroethane
28. Tetrachloroethene
29. 1,3-Dichloropropane
30. Dibromochloromethane
31. 1,2-Dibromoethane
32. Chlorobenzene
33. Ethylbenzene
34. 1,1,1,2-Tetrachloroethane
35. *p*-Xylene
36. *m*-Xylene
37. *o*-Xylene
38. Styrene
39. Bromoform
40. Isopropylbenzene
41. 1,1,2,2-Tetrachloroethane
42. *n*-Propylbenzene
43. 1,2,3-Trichloropropane
44. Bromobenzene
45. 1,3,5-Trimethylbenzene
46. 2-Chlorotoluene
47. 4-Chlorotoluene
48. *t*-Butylbenzene
49. 1,2,4-Trimethylbenzene
50. *sec*-Butylbenzene
51. Isopropyl toluene
52. 1,4-Dichlorobenzene
53. 1,3-Dichlorobenzene
54. Butylbenzene
55. 1,2-Dichlorobenzene
56. 1,2-Dibromo-3-chloropropane
57. 1,2,4-Trichlorobenzene
58. Hexachlorobutadiene
59. Naphthalene
60. 1,2,3-Trichlorobenzene

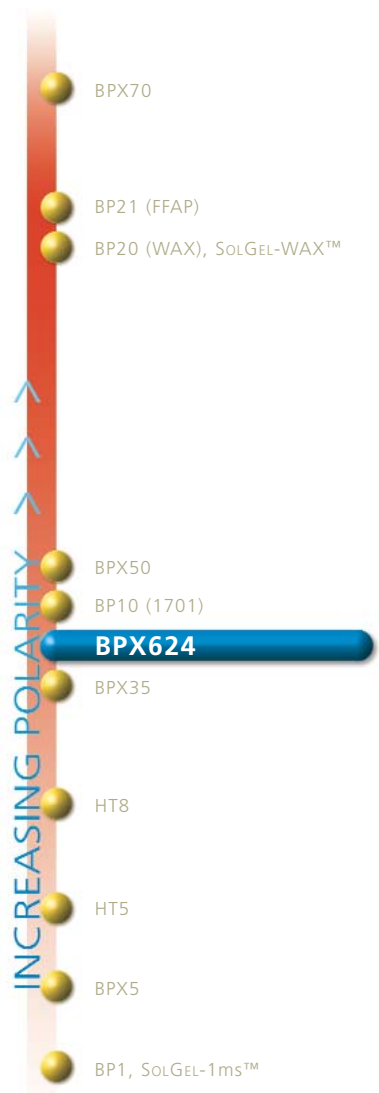


For experimental conditions, visit www.sge.com

Suitable replacement for:

DB-624, VOCOL, NON-PAKD, AT-624, Rtx®-Volatiles, Rtx-502.2, PE-624, PE-502, 007-624, 007-502, HP-624, CP-624, ZB-624

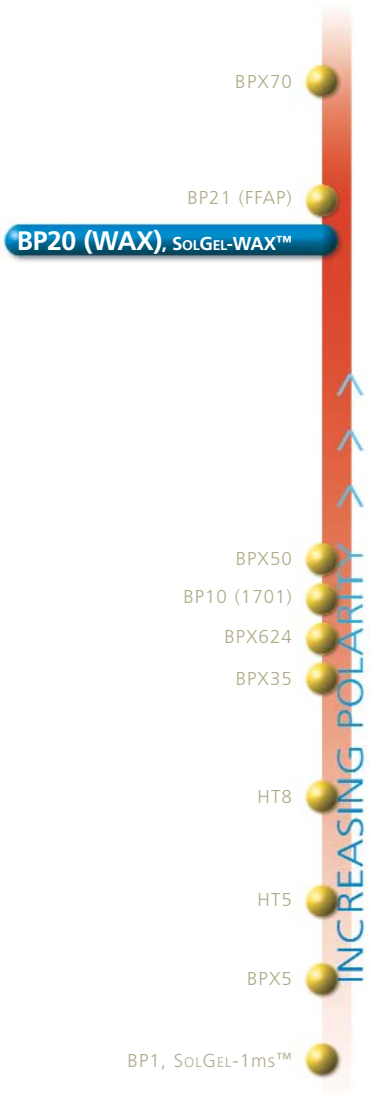
Stuart Allan,
chromatography specialist



BP20

(WAX) polyethylene glycol

Capillary column packaging



A very polar phase suited to the analysis of alcohols, ketones and aldehydes. Also offers excellent separation of aromatic isomers such as the xylene isomers.

ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.10	10	0.10	20 to 260/280	**054405**
0.22	25	0.25	20 to 260/280	**054421**
	50	0.25	20 to 260/280	**054422**
0.25	15	0.25	20 to 260/280	**054426**
	30	0.25	20 to 260/280	**054427**
	30	0.50	20 to 260/280	**054415**
	30	1.00	20 to 240/260	**054439**
	60	0.25	20 to 260/280	**054428**
	60	0.50	20 to 260/280	**054458**
0.32	15	0.25	20 to 260/280	**054432**
	25	0.50	20 to 260/280	**054436**
	25	1.00	20 to 240/260	**054442**
	30	0.25	20 to 260/280	**054433**
	30	0.50	20 to 260/280	**054438**
	30	1.00	20 to 240/260	**054444**
	60	0.25	20 to 260/280	**054434**
	60	0.50	20 to 260/280	**054457**
	60	1.00	20 to 240/260	**054445**
0.53	15	0.50	20 to 260/280	**054961**
	15	1.00	20 to 240/260	**054450**
	25	1.00	20 to 240/260	**054448**
	30	0.50	20 to 260/280	**054440**
	30	1.00	20 to 240/260	**054451**
	60	0.50	20 to 260/280	**054963**
	60	1.00	20 to 240/260	**0544515**

Suitable replacement for:

DB-WAX, HP-20M, SUPELCOWAX 10, CP-WAX 52CB, SUPEROX II, CB-WAX, Stabilwax, PE-CW, CC-WAX, 007-CW, Carbowax, HP-Innowax, Rtx®-WAX, PE-WAX, RH-WAX, ZB-WAX

visit
www.sge.com
for easy download of capillary column product data sheets

BP21

(FFAP) polyethylene glycol (TPA treated)

A very polar phase suited for the analysis of free fatty acids.

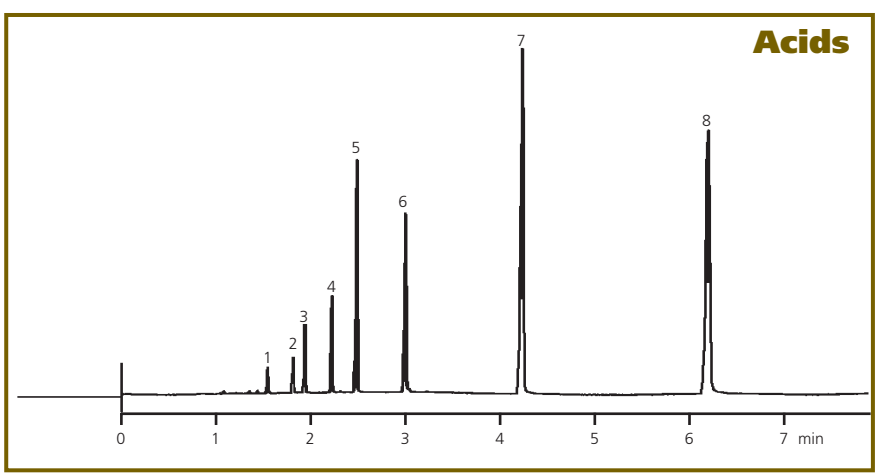
ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.22	25	0.25	35 to 240/250	**054462**
0.25	30	0.25	35 to 240/250	**054465**
	60	0.25	35 to 240/250	**054466**
0.32	25	0.25	35 to 240/250	**054468**
	30	0.25	35 to 240/250	**054471**
	60	0.25	35 to 240/250	**054472**
0.53	12	0.50	35 to 240/250	**054473**
	25	0.50	35 to 240/250	**054474**
	30	0.50	35 to 240/250	**054477**
	30	1.00	35 to 240/250	**054478**

example application

Components

1. Acetic Acid
2. Propionic Acid
3. *iso*-Butyric Acid
4. *n*-Butyric Acid
5. *iso*-Valeric Acid
6. *n*-Valeric Acid
7. *n*-Caproic Acid
8. *n*-Heptanoic Acid

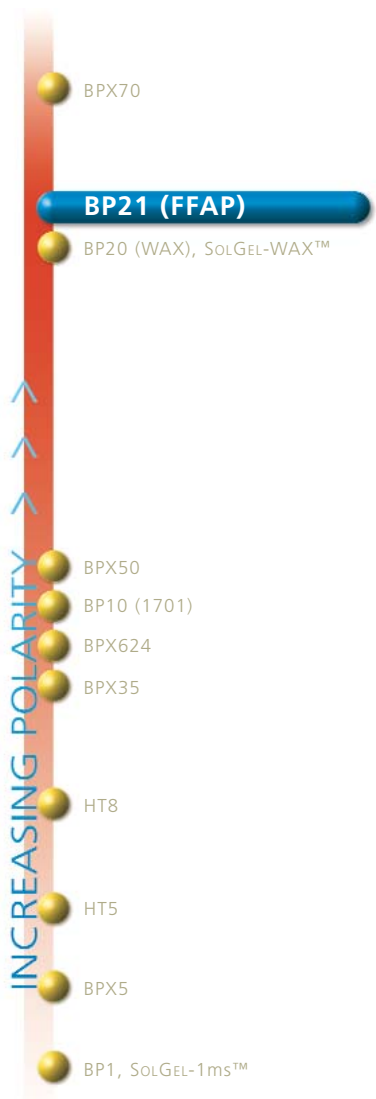


For experimental conditions, visit www.sge.com

Suitable replacement for:

DB-FFAP, 007-FFAP, CP-Wax (FFAP) CB, FAMEWAX™, AT™-1000, Stabilwax-DA, HP-FFAP, PE-FFAP, HP-FFAP

Pam Abley, production supervisor



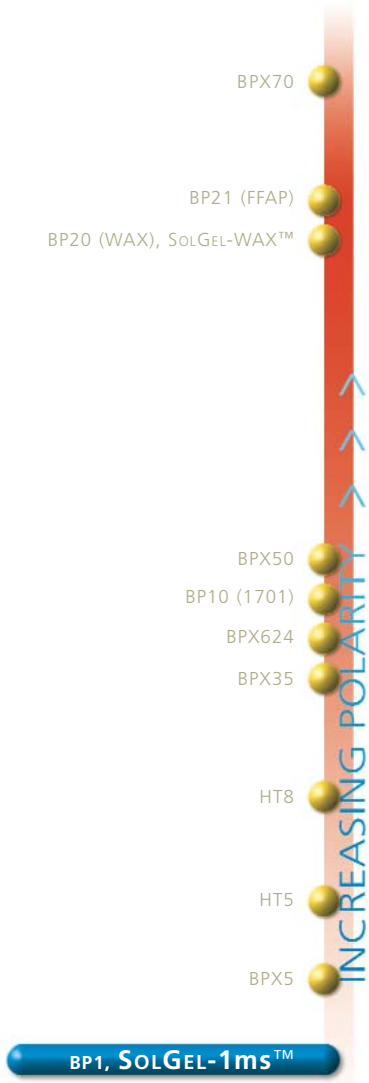
SGE insist on the BEST

SolGel-1ms™

100% methyl

FIRST AGAIN

Visit **www.sge.com** to download the SolGel-1ms & SolGel-WAX brochures



A new robust, high temperature column for mass spectrometers.

- Better MS library identification
- Less bleed - low ion source maintenance
- Better sensitivity
- Can also be used for all non-MS detectors

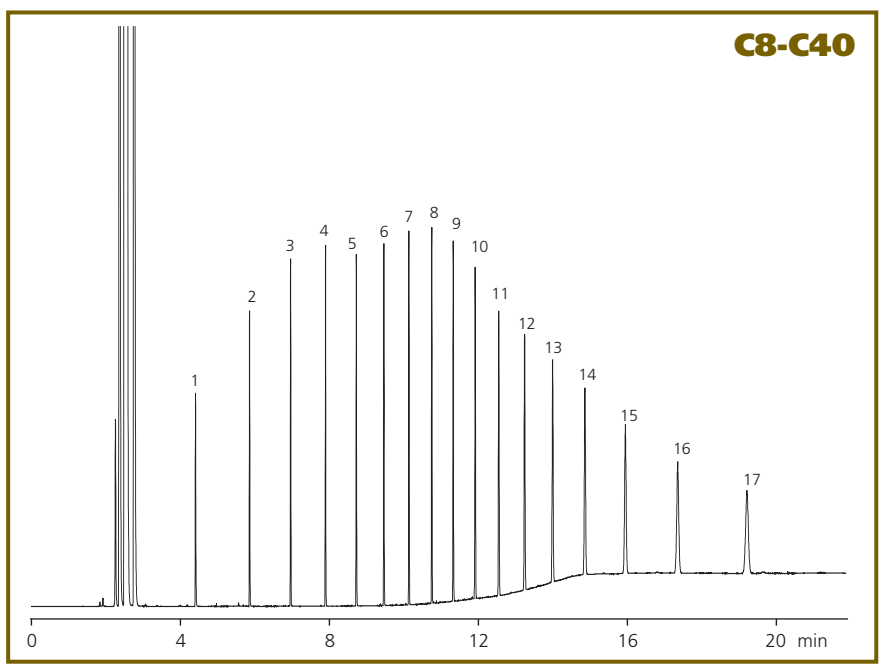
ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.25	30	0.25	0 to 370/380	**054795**
	60	0.25	0 to 370/380	**054793**
0.32	30	0.25	0 to 370/380	**054798**
	60	0.25	0 to 370/380	**054794**

example application

Components

1. C8
2. C10
3. C12
4. C14
5. C16
6. C18
7. C20
8. C22
9. C24
10. C26
11. C28
12. C30
13. C32
14. C34
15. C36
16. C38
17. C40



For experimental conditions, visit www.sge.com

Suitable upgrade from:

DB-1, HP-1, HP-101, Ultra-1, SPB-1, CP-Sil 5CB, RSL-150, RSL-160, Rtx®-1, CB-1, OV®-1, PE-1, 007-1(MS), SP-2100, SE-30, RH-1, CC-1, CP-Sil 5CB MS, ZB-1, Petrocol DH

SolGel-WAX™

FIRST AGAIN

polyethylene glycol

SGE insist on the BEST

The world's highest temperature wax capillary column at 300°C.

- Low Bleed
- Robust
- Unique high temperature, inert phase

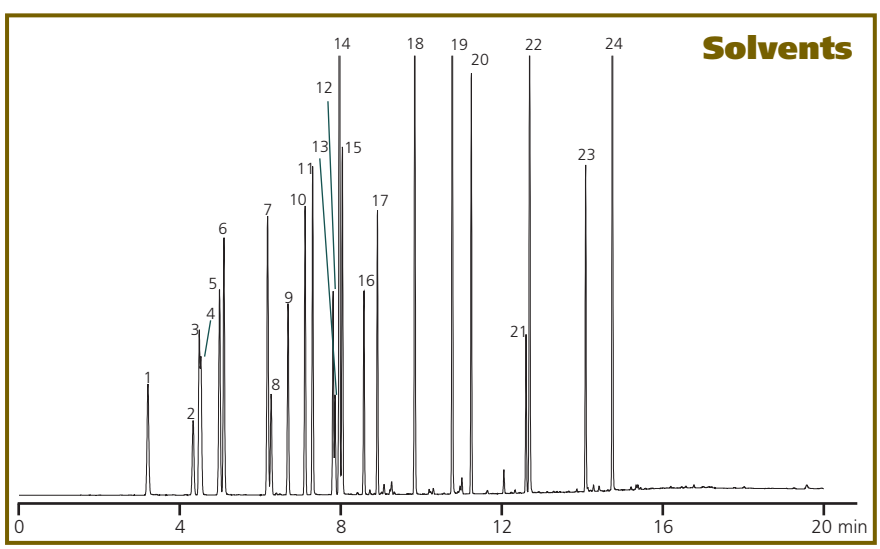
ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.25	30	0.25	30 to 280/300	**054796**
	60	0.25	30 to 280/300	**054791**
0.32	30	0.50	30 to 280/300	**054797**
	60	0.50	30 to 280/300	**054792**

example application

Components

1. Acetone
2. Ethyl acetate
3. Methyl ethyl ketone
4. Contaminant
5. *iso*-Propanol
6. Ethanol
7. Methyl isobutyl ketone
8. Toluene
9. Butyl acetate
10. *iso*-Butanol
11. Propylene glycol monomethyl ether
12. *n*-Butanol
13. Ethyl benzene
14. *p*-Xylene
15. *m*-Xylene
16. *o*-Xylene
17. Butyl Cellosolve acetate
18. Cyclohexanone
19. Butyl Cellosolve
20. Butyl glycol acetate
21. Hexyl Cellosolve
22. Isophorone
23. Butyl Carbitol
24. Benzyl alcohol

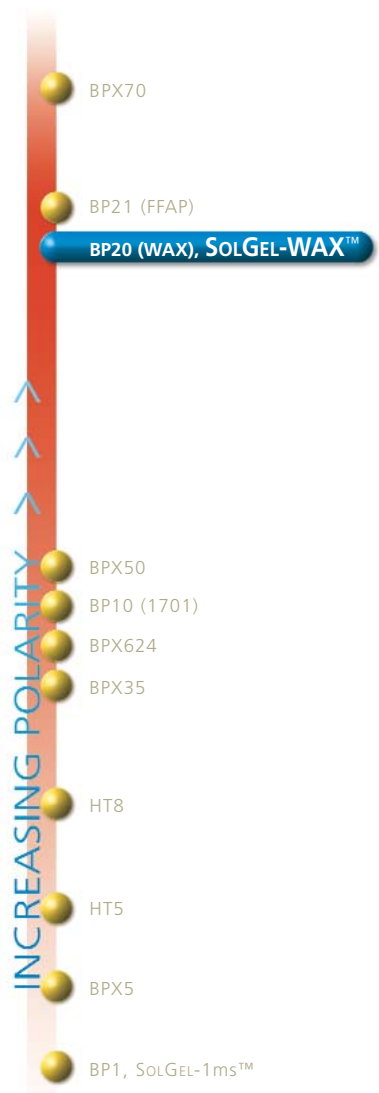


For experimental conditions, visit www.sge.com

Suitable upgrade from:

DB-WAX, HP-20M, SUPELCOWAX 10, CP-WAX 52CB, SUPEROX II, CB-WAX, Stabilwax, PE-CW, CC-WAX, 007-CW, Carbowax, HP-Innowax, Rtx®-WAX, PE-WAX, RH-WAX, ZB-WAX

SGE is FIRST AGAIN with sol-gel technology



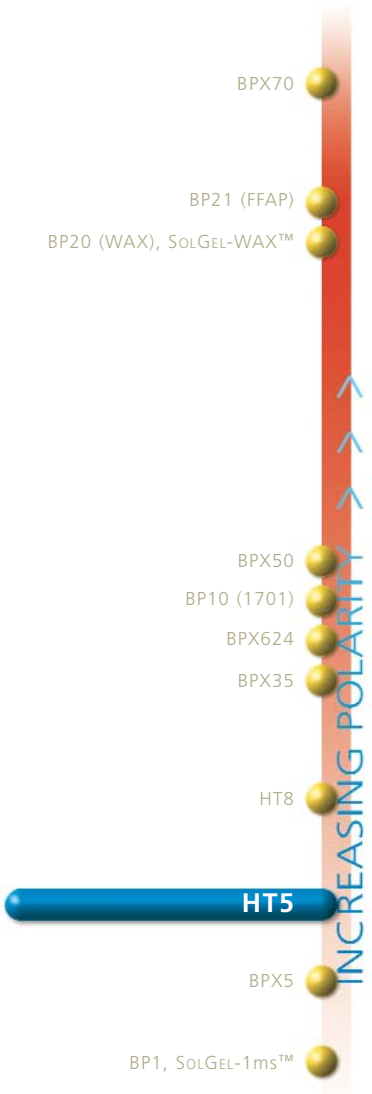
SGE insist on the BEST

HT5

UNIQUE TO SGE

5% phenyl polycarborane-siloxane

Corina Sasarman, capillary column manufacturing specialist



Unique high temperature phase suited for simulated distillation and other petroleum applications. This column is the highest temperature column available in the world with a maximum temperature of **480°C**.

ordering information

Polymide Clad Columns

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.22	12	0.10	10 to 380/400	**054631**
	25	0.10	10 to 380/400	**054632**
0.25	15	0.10	10 to 380/400	**054633**
	30	0.10	10 to 380/400	**054634**
0.32	30	0.50	10 to 380/400	**054668**
0.53	6	0.10	10 to 380/400	**054655**
	12	0.15	10 to 380/400	**054657**
	10	0.50	10 to 380/400	**054670**
	15	0.50	10 to 380/400	**054671**
	25	0.15	10 to 380/400	**054658**
	30	0.50	10 to 380/400	**054672**

Aluminum Clad Columns

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.22	12	0.10	10 to 460/480	**054635**
	25	0.10	10 to 460/480	**054636**
0.32	12	0.10	10 to 460/480	**054651**
	25	0.10	10 to 460/480	**054652**
	50	0.10	10 to 460/480	**054653**
0.53	5	0.075	10 to 460/480	**054673**
	6	0.10	10 to 460/480	**054661**
	12	0.15	10 to 460/480	**054662**
	25	0.15	10 to 460/480	**054665**

This is a unique, ultra high temperature column

UNIQUE TO SGE

HT8

insist on the BEST

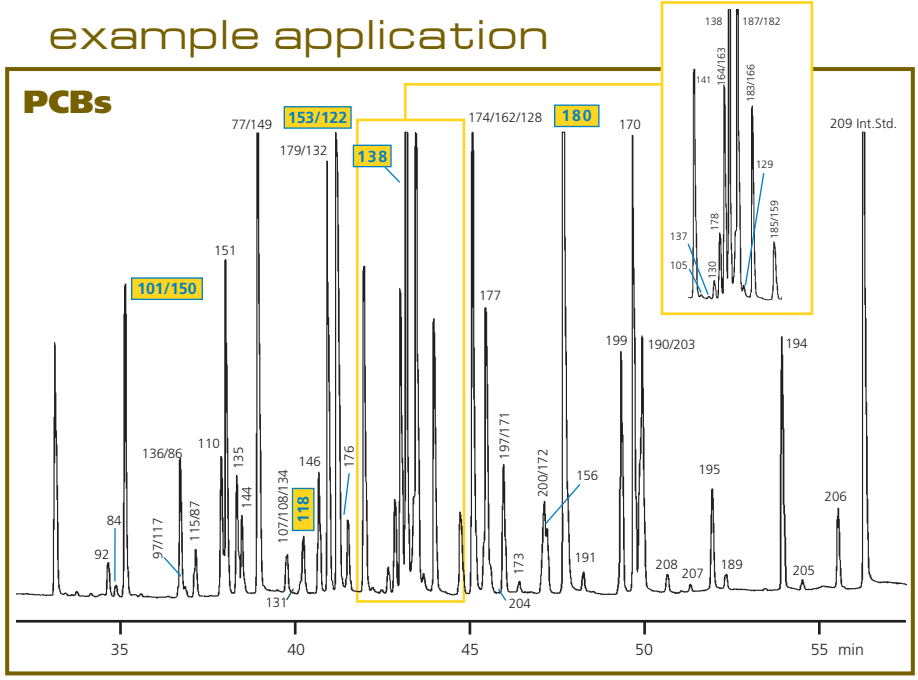
8% phenyl polycarborane-siloxane

Unique high temperature phase suited for the analysis of PolyChlorinated Biphenyl (PCB) congeners. The unique polarity of this phase gives excellent separation of PCB congeners.

ordering information

ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.10	10	0.10	-20 to 360/370	**054690**
0.22	12	0.25	-20 to 360/370	**054674**
	25	0.25	-20 to 360/370	**054675**
	50	0.25	-20 to 360/370	**054676**
0.32	12	0.25	-20 to 360/370	**054679**
	25	0.25	-20 to 360/370	**054680**
0.53	12	0.50	-20 to 360/370	**054684**
	25	0.50	-20 to 360/370	**054685**

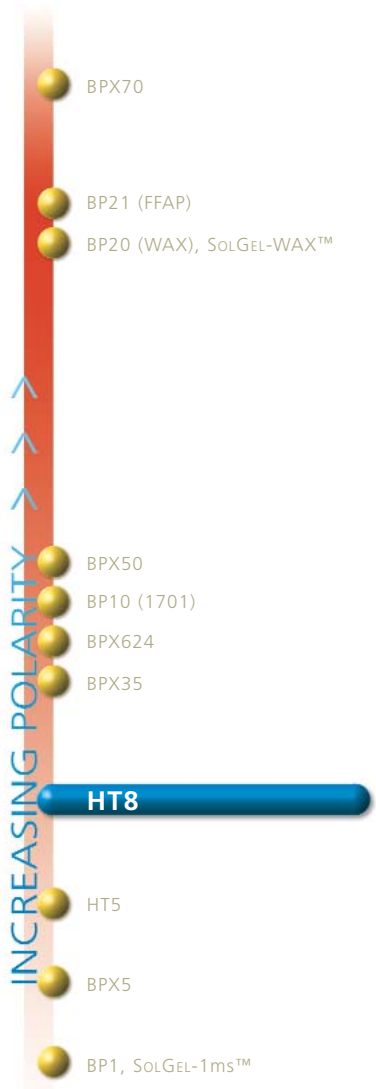
example application



For experimental conditions, visit www.sge.com

This is a unique phase for PCB analysis

Michael Pryor, production manager



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