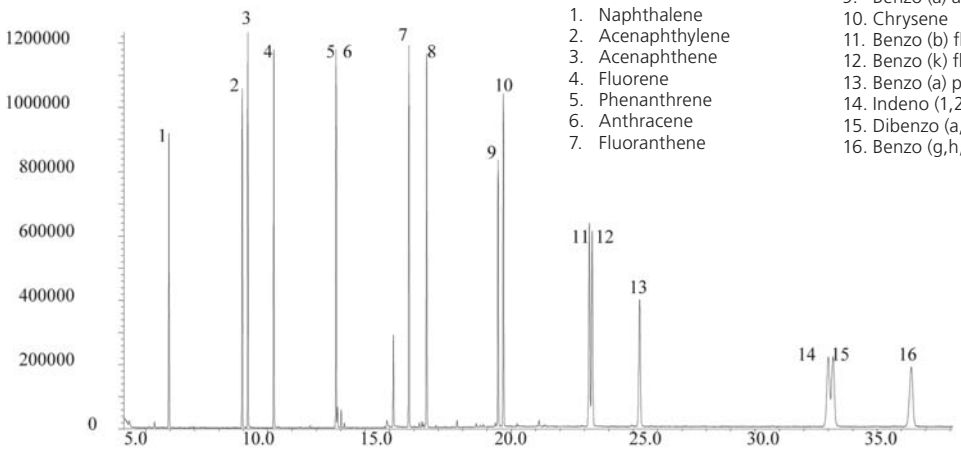
ENV 62 | Polynuclear Aromatic Hydrocarbons (PAH) Analysis on BPX50

Column Part No.:	054751
Phase:	BPX50, 0.25 µm film
Column:	30 m x 0.25 mm ID
(PAH) standard:	10 ng/ µL in dichloromethane
Initial Temp.:	65 °C, 0.5 min
Rate 1.:	25 °C/min to 140 °C
Rate 2.:	10 °C/min to 325 °C
Final Temp.:	325 °C, 15 min
Detector Type:	MSD
Carrier Gas:	Helium, 9.7 psi
Carrier Gas Flow:	1.1 mL/min constant

Flow:	On
Average Linear Velocity:	39 cm/sec at 65 °C
Mode of Injection:	splitless
Purge on Time:	0.5 min.
Purge on (split) Vent Flow:	60 mL/min
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Double Taper
Liner Part Number:	092018



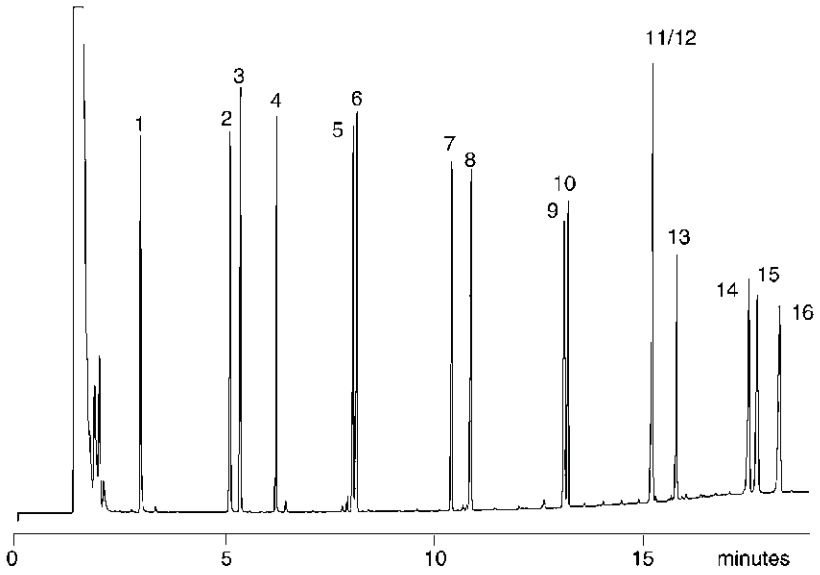
Components

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

ARO 08 | Analysis of Polynuclear Aromatic Hydrocarbons on HT8

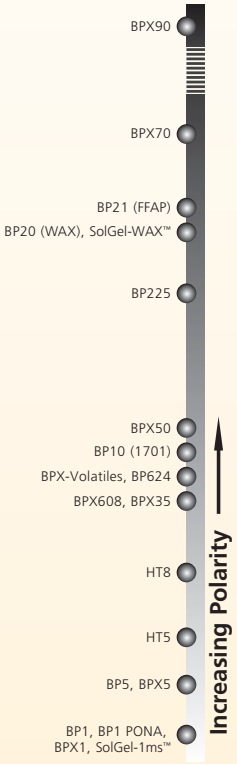
Column Part No.:	054462
Phase:	HT8, 0.25 µm film
Column:	25 m x 0.22 mm ID
Initial Temp:	150 °C, 1 min

Rate:	4 °C/min
Final Temp:	380 °C, 5 min
Carrier Gas:	He, 20 psi
Detector:	FID



Components

1. Naphthalene
2. Acenaphthylene
3. Acenaphthene
4. Fluorene
5. Phenanthrene
6. Anthracene
7. Pyrene
8. Fluoranthene
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



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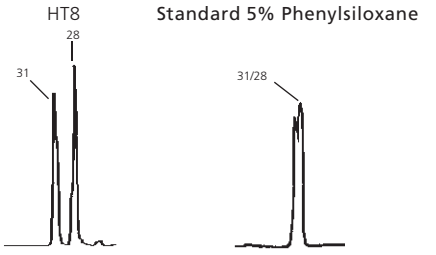
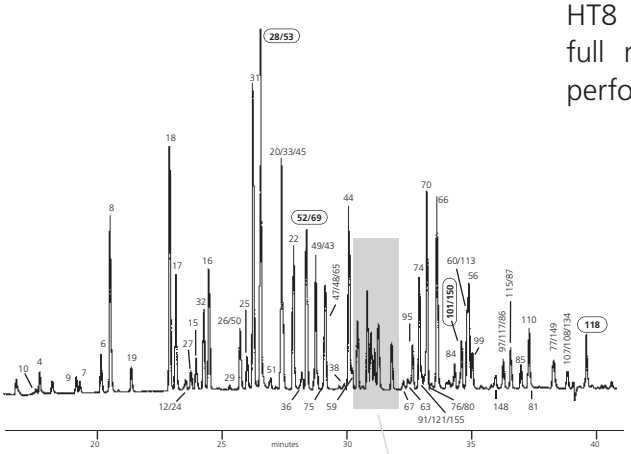
AP 0040C | HT8: The Perfect PCB Column

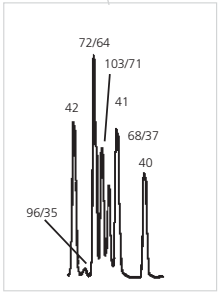
Separation of CB31 & CB28

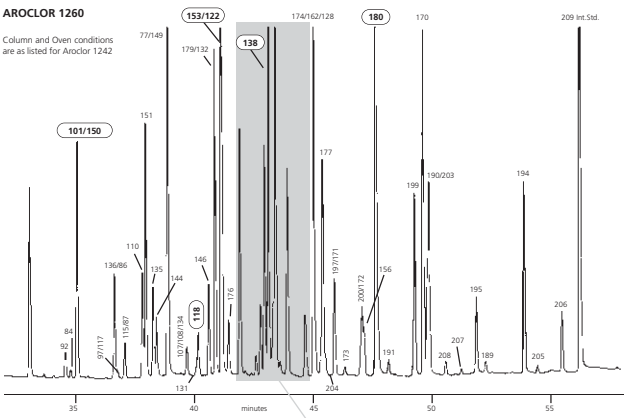


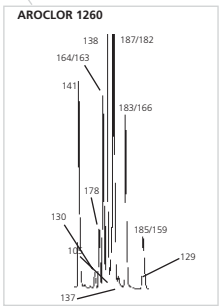
Chromatogram on the left clearly demonstrates the significant difference in selectivity of the HT8 column. By GC/MS, quantitation of CB28 using a standard 5% phenylpolysiloxane column is impossible as coelution with CB31 (with the same number of chlorines) occurs.

HT8 separates the two congeners by a full minute allowing quantitation to be performed with ease.





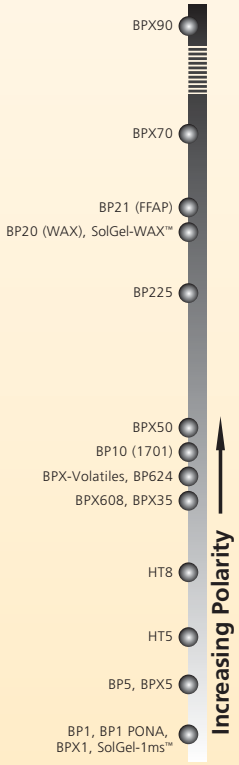




AROCLOR 1242	
Column Part No.:	**054676**
Phase:	HT8, 0.25 µm film
Column:	50 m x 0.22 mm ID
Initial Temp:	80 °C, 2 min
Rate 1:	30 °C/min
Temp 2:	170 °C
Rate 2:	3 °C/min
Final Temp:	Split, 300 °C
Carrier Gas:	**He, 40 psi**
Detector:	ECD, 330 °C

Congener #	Cl Position	Cl #	Identification by GC/MS
42	23-24	4	✓
96	236-26	5	✓
35	34-3	3	
64	235-4	4	×
72	25-35	4	
103	246-25	5	✓
71	26-34	4	
41	234-2	4	✓
68	24-35	4	
37	34-4	3	✓
100	246-24	5	✓

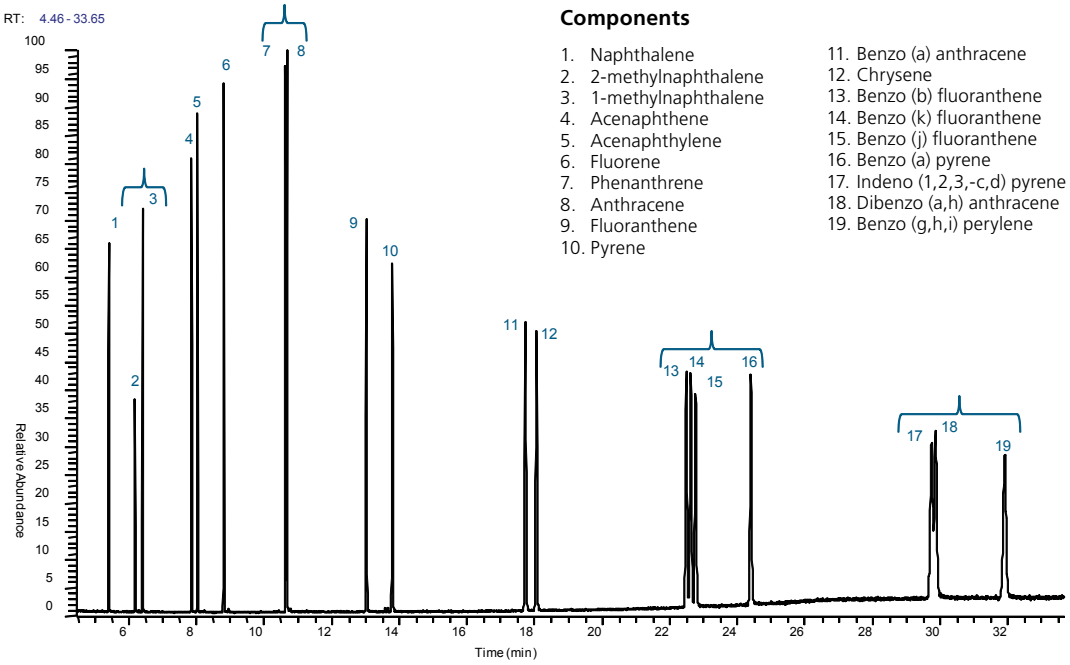
Congener #	Cl Position	Cl #	Identification by GC/MS
42	23-24	4	✓
96	236-26	5	✓
35	34-3	3	
64	235-4	4	×
72	25-35	4	
103	246-25	5	✓
71	26-34	4	
41	234-2	4	✓
68	24-35	4	
37	34-4	3	✓
100	246-24	5	✓



TP-0187-C | Analysis of Polynuclear Aromatic Hydrocarbons on BPX50

Column Part No.:	**054701**
Phase:	BPX50, 0.25 µm film
Column:	30 m x 25 µm ID
Gas Flow:	1.5 ml/min Helium
Injection:	Split 1 µl (1 ng on column)
Injection Temperature:	250°C

Temperature Profile:	Hold 70 °C for 1 min
	70 °C to 140 °C at 25 °C/min
	140 °C to 250 °C at 15 °C/min
	250 °C to 310 °C at 4 °C/min
	Hold 310 °C for 8 min



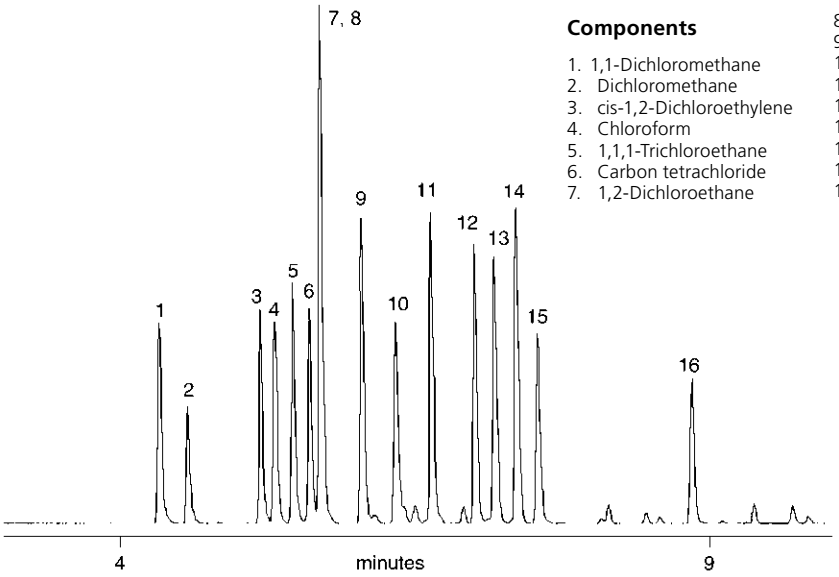
Components

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

ENV 17 | Analysis of 16 Volatile Compounds in Drinking Water on BP624

Column Part No.:	**054826**
Phase:	BP624, 1.2 µm
Column:	25 m x 0.22 mm ID
Initial Temp.:	50 °C, 2 min
Rate:	15 °C/min

Final Temp.:	170 °C
Detector:	HP5870 MSD
Injection Mode:	Splitless
Carrier Gas:	He, 15 psi



Components

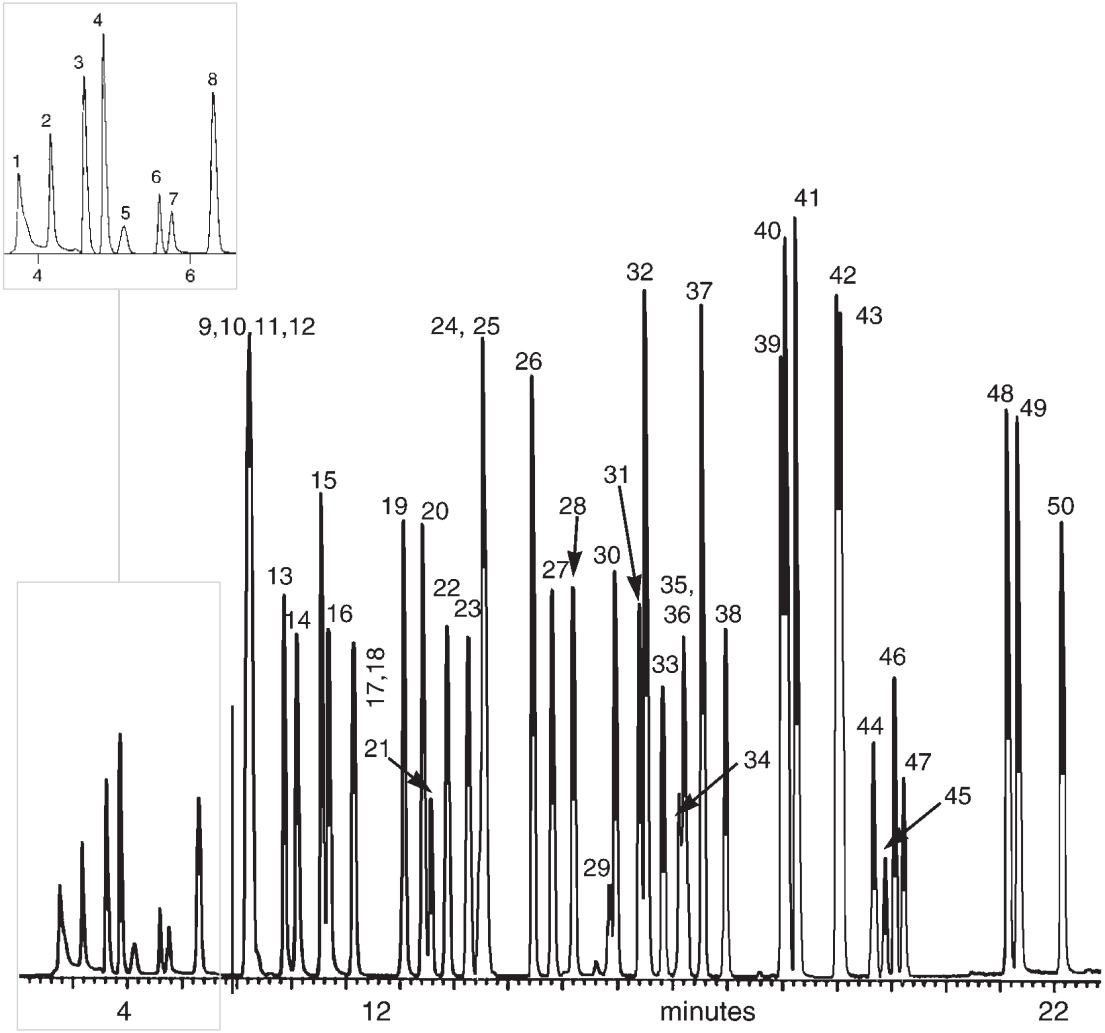
1. 1,1-Dichloromethane
2. Dichloromethane
3. cis-1,2-Dichloroethylene
4. Chloroform
5. 1,1,1-Trichloroethane
6. Carbon tetrachloride
7. 1,2-Dichloroethane
8. Benzene
9. Trichloroethylene
10. Bromodichloromethane
11. cis-1,3-Dichloropropene
12. trans-1,3-Dichloropropene
13. 1,1,2-Trichloroethane
14. Tetrachloroethylene
15. Dibromochloromethane
16. Bromoform

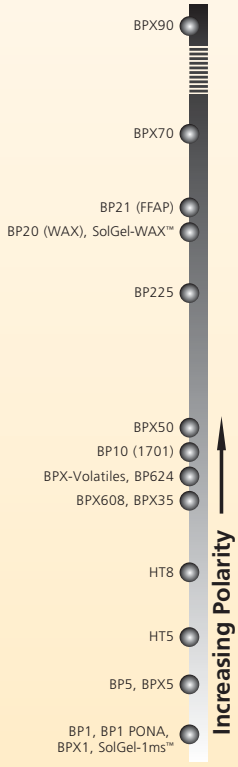
GC Columns and Applications

ENV 13 | Analysis of Volatiles from Drinking Water on BP624

Column Part No.:	054835		
Phase:	BP624, 3.0 µm	Rate 2:	15 °C/min
Column:	50 m x 0.53 mm ID	Final Temp.:	210 °C, 1 min
Initial Temp.:	35 °C, 2 min	Detector:	MSD, MJSC Jet Separator
Rate 1:	8 °C/min	Injection Mode:	Purge & Trap
Temp 2:	180 °C, 5 min	Carrier Gas:	He, 10 ml/min

Note: Column which provides fast analysis of all EPA compounds. BP624 is also ideal for the analysis of many commonly used solvents.





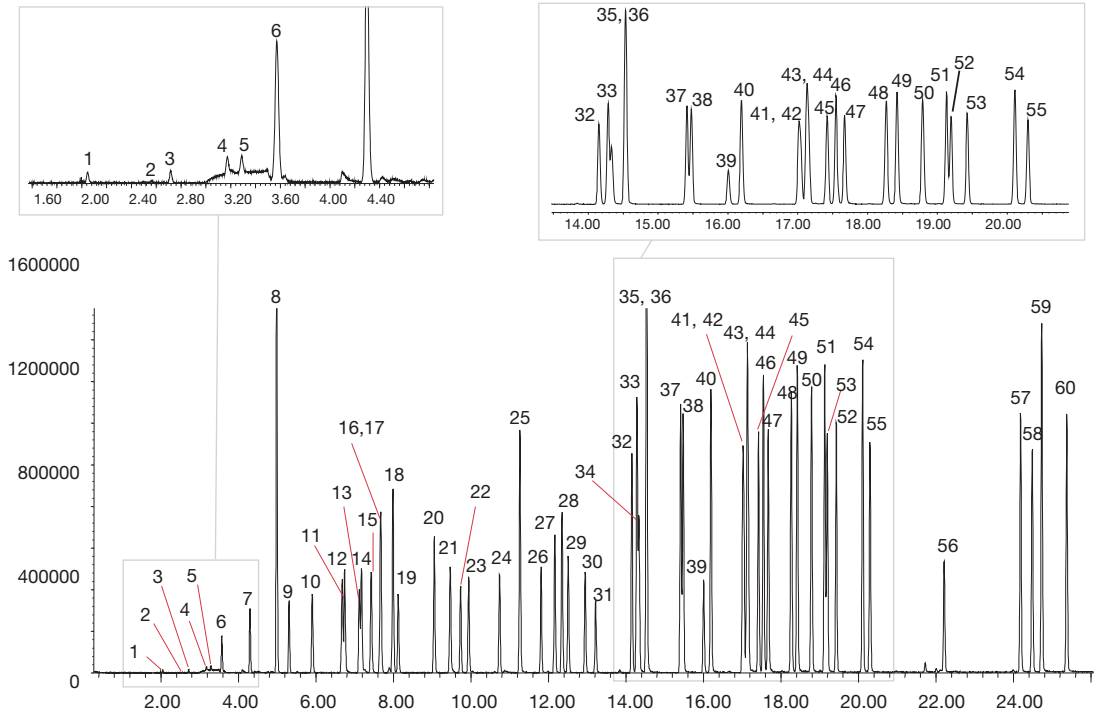
Components

1. Carbon dioxide
2. Dichlorodifluoromethane
3. Chloromethane
4. Vinyl chloride
5. Acetaldehyde
6. Bromomethane
7. Chloroethane
8. Trichlorofluoromethane
9. Trichlorofluoroethane
10. Acrolein
11. Acetone
12. 1,1-Dichloroethene
13. Carbon disulfide
14. Methylene chloride
15. trans-1,2-Dichlorethene
16. Acrylonitrile
17. 1,1-Dichloroethane
18. Vinyl acetate
19. 2-Butanone (MEK)
20. cis-1,2-Dichloroethene
21. Bromochloromethane (Int. Std.)
22. 1,1,1-Trichloroethane
23. Carbon tetrachloride
24. 1,2-Dichloroethane-d4 (Surrogate)
25. 1,2-Dichloroethane
26. Trichloroethene
27. 1,2-Dichloroethene
28. Bromodichloromethane
29. 4-Methyl-2-pentanone
30. cis-1,3-Dichloropropene
31. Toluene-(d8) (Surrogate)
32. Toluene
33. trans-1,3-Dichloropropene
34. 2-Bromo-1-chloropropane (Int.Std)
35. 1,1,2-Trichlorethane
36. 2-Hexanone
37. Tetrachloroethene
38. Dibromochloromethane
39. Chlorobenzene
40. Ethylbenzene
41. m,p-Xylene
42. o-Xylene
43. Styrene
44. Bromoform
45. 1,4-Dichlorobutane (Int. Std)
46. Bromofluorobenzene
47. 1,1,2,2- Tetrachloroethene
48. 1,3-Dichlorobenzene
49. 1,4-Dichlorobenzene
50. 1,2-Dichlorobenzene

TP-0102-C | Analysis of Volatile Organic Pollutants on a Volatiles GC Column

Column Part No.:	**054979**
Phase:	**BPX-Volatiles 1µm film**
USEPA 502.2 mix:	**200 ppm in Methanol**
Column:	**40m x 0.18mm ID**
Initial Temp:	40 °C, 0 min.
Rate 1:	6 °C to 210 °C
Rate 2:	15 °C to 250 °C
Final Temp:	250 °C, 5 min
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 40.3 psi
Carrier Gas Flow:	1.2 µL/min.
Constant Flow:	On

Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	50:1
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Single Taper
Liner Part Number:	092017
Column Part Number:	054979
ms-NoVent™ Part no.:	113400
HP5973 restrictor:	113409
Full scan	45-450



Notes. Chromatogram showing analysis of commonly screened volatile organic pollutants

Components

1. Dichlorodifluoromethane
2. Chloromethane
3. Vinyl chloride
4. Bromomethane
5. Chloroethane
6. Trichlorofluoromethane
7. 1,1-Dichloroethene
8. Dichloromethane
9. trans-1,2-Dichloroethene
10. 1,1-Dichloroethane
11. 2,2-Dichloropropane
12. cis-1,2-Dichloroethene
13. Bromochloromethane
14. Chloroform
15. 1,1,1-Trichloroethane
16. 1,1-Dichloropropene
17. Carbon tetrachloride
18. Benzene
19. 1,2-Dichloroethane
20. Trichloroethene
21. 1,2-Dichloropropane
22. Dibromomethane
23. Bromodichloromethane
24. cis-1,3-Dichloropropene
25. Toluene
26. trans-1,3-Dichloropropene
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. Bromobenzene
42. 1,1,2,2-Tetrachloroethane
43. 1,2,3-Trichloropropane
44. n-Propyl benzene
45. 2-Chlorotoluene
46. 1,3,5-Trimethylbenzene
47. 4-Chlorotoluene
48. tert-Butylbenzene
49. 1,2,4-Trimethylbenzene
50. sec-Butylbenzene
51. 1,3-Dichlorobenzene
52. p-Isopropyltoluene
53. 1,2-Dichlorobenzene
54. n-Butylbenzene
55. 1,4-Dichlorobenzene
56. 1,2-Dibromo-3-chloropropane
57. 1,2,4-Trichlorobenzene
58. Hexachlorobutadiene
59. Naphthalene
60. 1,2,3-Trichlorobenzene

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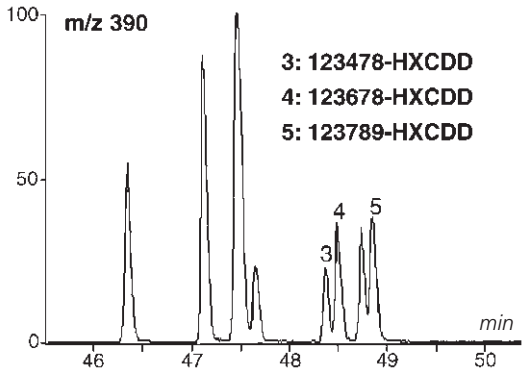
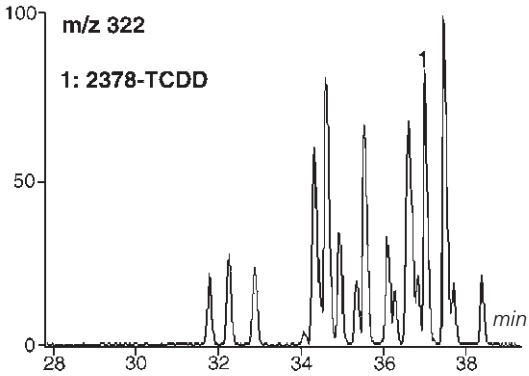
ENV 20 | Analysis of Polychlorinated p-Dibenzodioxins on BPX5

Column Part No.:	054114
Phase:	BPX5, 0.25 µm
Column:	50 m x 0.22 mm ID
Initial Temp.:	80 °C, 2 min
Rate 1:	4 °C/min
Temp 2:	220 °C
Rate 2:	5 °C/min
Temp. 3:	235 °C, 7 min
Rate 3:	5 °C/min
Final Temp.:	330 °C, 6 min
Detector:	High Resolution
Mass Spectrometer	He, 15 psi
Carrier Gas:	He, 300 psi
Injection Mode	Splitless, 270 °C

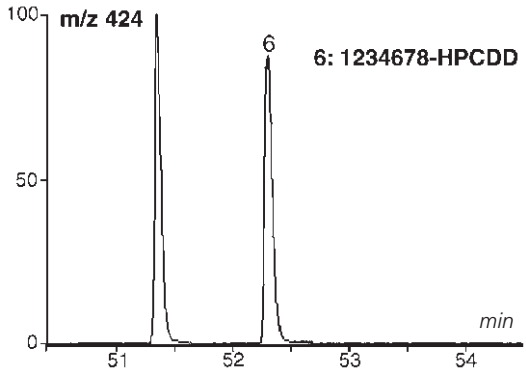
Hexachlorodibenzodioxins



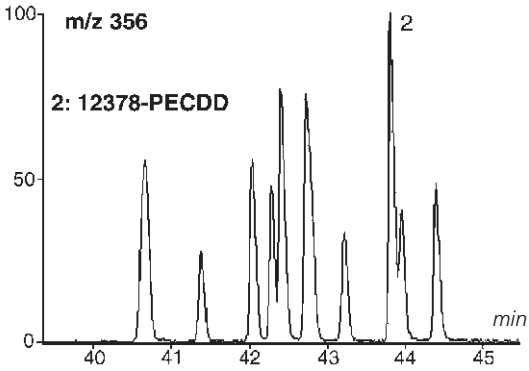
Tetrachlorodibenzodioxins



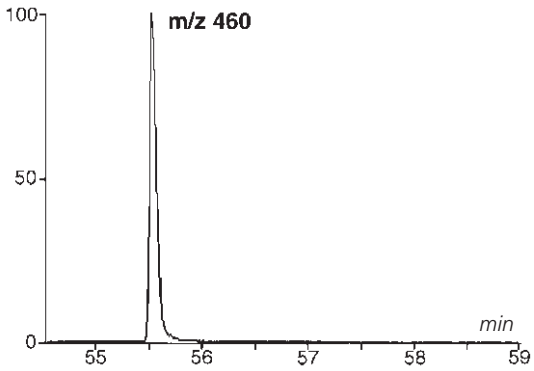
Heptachlorodibenzodioxins



Pentachlorodibenzodioxins



Octachlorodibenzodioxin



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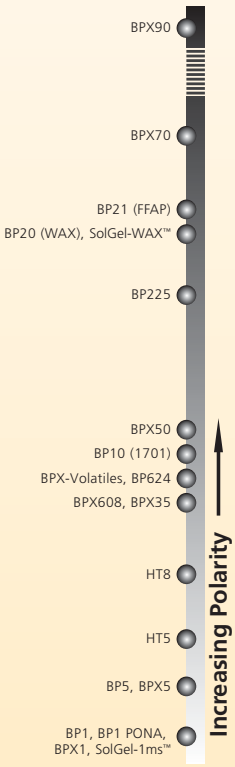
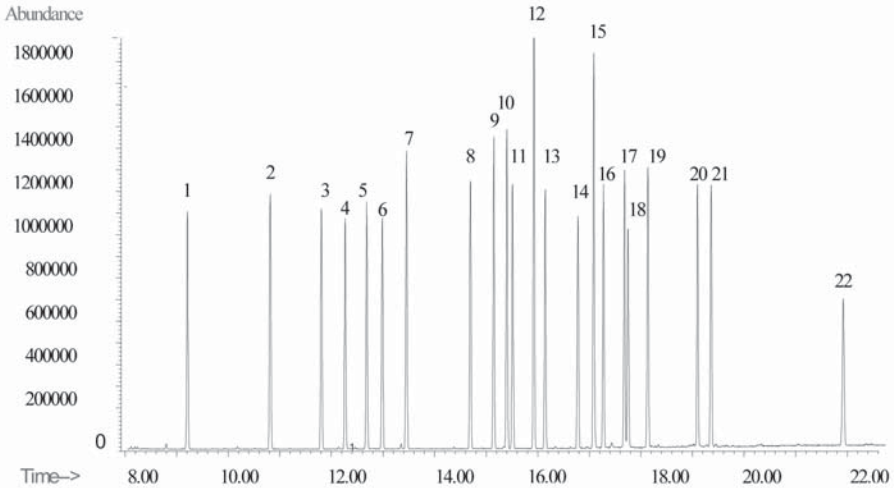


ENV 57 | 8081 Organochlorine Pesticide Mix on BPX35

Column Part No.:	054701
Phase:	BPX35 0.25 µm film
Column:	30 m x 0.25 mm ID
8081 Standard:	10 ng/ µL in dichloromethane
Initial Temp.:	40 °C, 1 min.
Rate 1:	30 °C to 190 °C, 3 min
Rate 2:	10 °C to 300 °C
Final Temp.:	300 °C, 5 min.
Detector Type:	MSD
Carrier Gas:	He, 10.0 psi
Carrier Gas Flow:	1.3 mL/min

Constant Flow:	On
Average Linear Velocity:	36 cm/sec at 40 °C
Injection Mode:	Splitless
Purge on Time:	1 min.
Purge on (Split) Vent Flow:	60 mL/min.
Injection Volume:	1 µL
Injection Temp.:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018



Components

1. 2,4,5,6-tetrachloro-meta-xylene
2. α-BHC
3. γ-BHC
4. β-BHC
5. Heptachlor
6. δ-BHC
7. Aldrin
8. Heptachlorepoxy
9. trans-Chlordane
10. cis-Chlordane
11. Endosulfan A
12. DDE
13. Dieldrin
14. Endrin
15. DDD
16. Endosulfan B
17. DDT
18. Endrin Aldehyde
19. Endosulfan Sulfate
20. Methoxychlor
21. Endrin Ketone
22. Decachlorobiphenyl

ENV 03 | Analysis of 18 Chlorinated Pesticides on BPX5

Part No.:	054125
Phase:	BPX5, 0.5 µm film
Column:	25 m x 0.32 mm ID
Initial Temp.:	170 °C
Rate:	7 °C

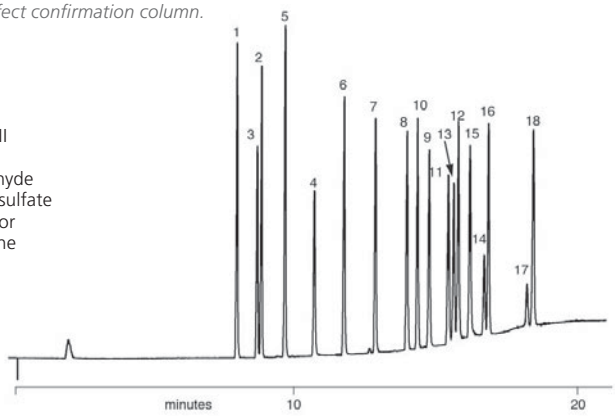
Final Temp.:	290 °C, 5 min
Detector:	ECD at 310 °C
Injection Mode:	Split
Carrier Gas:	He, 7 psi

Notes: Combined with the BPX608 column,BPX5 is the perfect confirmation column.

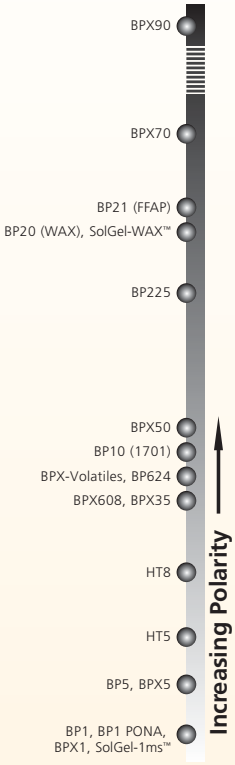
Components

20ng/ µL each component

1. α-BHC
2. γ-BHC
3. β-BHC
4. Heptachlor
5. δ-BHC
6. Aldrin
7. Heptachlorepoxide (isomer B)
8. Endosulfan I
9. 4,4'-DDE
10. Dieldrin
11. Endrin
12. 4,4'-DDD
13. Endosulfan II
14. 4,4'-DDT
15. Endrin aldehyde
16. Endosulfan sulfate
17. Methoxychlor
18. Endrin ketone



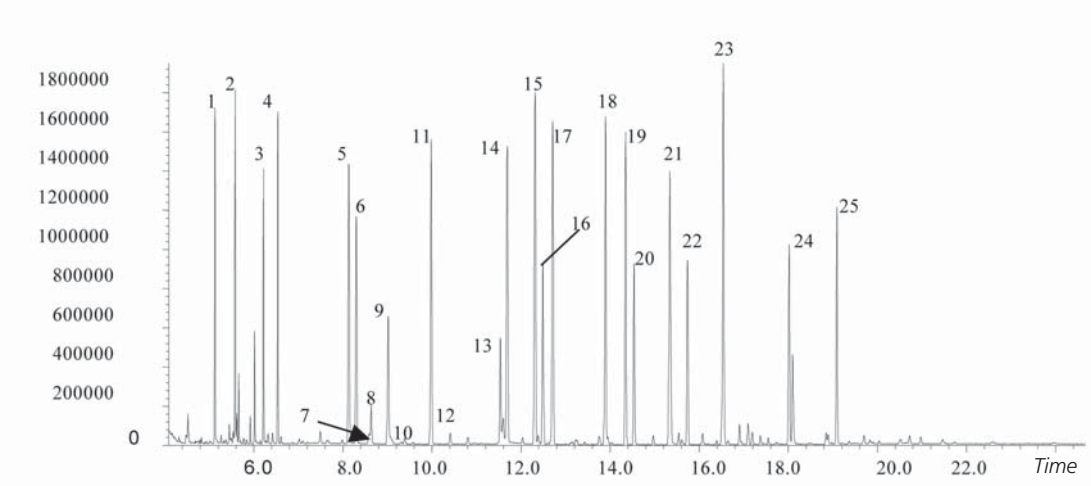
GC Columns and Applications



ENV 59 | 8141 Organophosphorous Pesticide Mix on BPX5

Column Part No.:	**054101**
Phase:	BPX5 0.25 µm film
Column:	30 m x 0.25 mm ID
8141 Standard:	10 ng/ µL in dichloromethane
Initial Temp.:	50 °C, 1 min
Rate 1:	30 °C/min to 190 °C, 3 min
Rate 2:	10 °C/min to 300 °C
Final Temp.:	300 °C, 5 min.
Detector Type:	MSD
Carrier Gas:	He, 11.1 psi
Carrier Gas Flow:	1.3 mL/min

Constant Flow:	On
Average Linear Velocity:	42 cm/sec at 50 °C
Injection Mode:	Splitless
Purge on Time:	0.5 min
Purge on (Split) Vent Flow:	60 mL/min
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018



Components

1. 4-Chloro-3-nitrobenzotrifluoride
2. Dichlorvos
3. 1-Bromo-2-nitrobenzene
4. α-Mevinphos
5. Tri-butylphosphate
6. Ethoprop
7. Sulfotepp
8. Naled
9. Phorate
10. Demeton
11. Diazinon
12. Disulfoton
13. Methyl parathion
14. Ronnel
15. Chlorpyrifos
16. Fenthion
17. Trichlorinate
18. Tetrachlorvinphos
19. Tokuthion
20. Impurity
21. Fensulfothion
22. Impurity
23. Triphenylphosphate
24. Guthion
25. Coumaphos

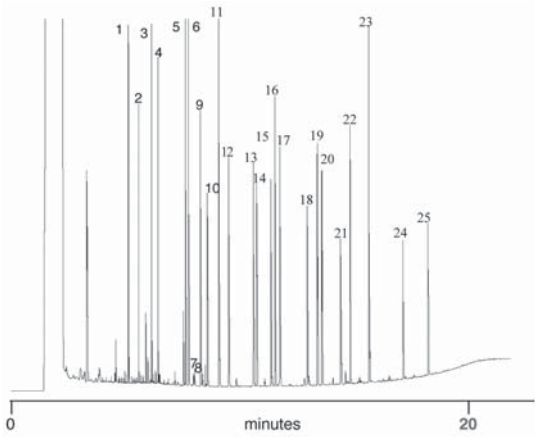
ENV 45 | Organophosphorous Pesticides on BPX50

Column Part No.:	054751
Phase:	BPX50, 0.25 µm film
Mixture of:	10 ng/ µL
Organophosphorous Pesticides:	10 ng/ µL in
Column:	30 m x 0.25 mm ID
Initial Temp:	50 °C , 1 min
Rate 1:	30 °C/min to 200 °C, 3 min
Rate 2:	10 °C/min to 310 °C
Final Temp:	310 °C, 2 min
Detector Type:	FID, 320 °C
Carrier Gas:	He, 14.4 psi
Carrier Gas Flow:	1.30 mL/min
Constant Flow:	On
Average Linear Velocity:	30 cm/sec at 50 °C
Injection Mode:	Splitless
Purge On Time:	0.5 min
Purge On (Split) Vent Flow:	60 mL/min
Injection Volume:	1.0 µL
Injection Temperature:	240 °C
Autosampler:	Yes
Liner Type:	4 mm ID FocusLiner™ with single taper
Liner Part Number:	092003

Column Part Number:	054740
Phase:	BPX50, 0.10 µm film
Mixture of 10 ng/ µL	42 cm/sec at 50 °C
Organophosphorous Pesticides	Splitless
Column:	10 m x 0.10 mm ID
Initial Temp.:	70 °C , 1 min
Rate 1:	25 °C/min to 320 °C
Rate 2:	N/A
Final Temp:	320 °C, 0 min
Detector Type:	FID, 320 °C
Carrier Gas:	He, 39.0 psi
Carrier Gas Flow :	0.370 mL/min
Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 70 °C
Injection Mode:	Split
Purge On Time:	1.0
Purge On (Split) Vent Flow:	10 mL/min
Injection Volume:	0.5 µL
Injection Temperature:	240 °C
Autosampler:	Yes
Liner Type :	2.3 mm ID FocusLiner™
Liner Part Number:	092005

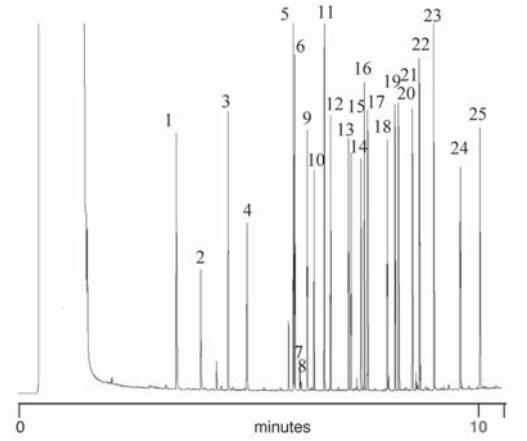
NORMAL

Chromatogram showing separation of Organophosphous Pesticides using a conventional 30 meter x 0.25 mm ID BPX50 column with a 0.25 micron film.



FAST

Chromatogram showing separation of Organophosphous Pesticides using a **FAST BPX50** column.



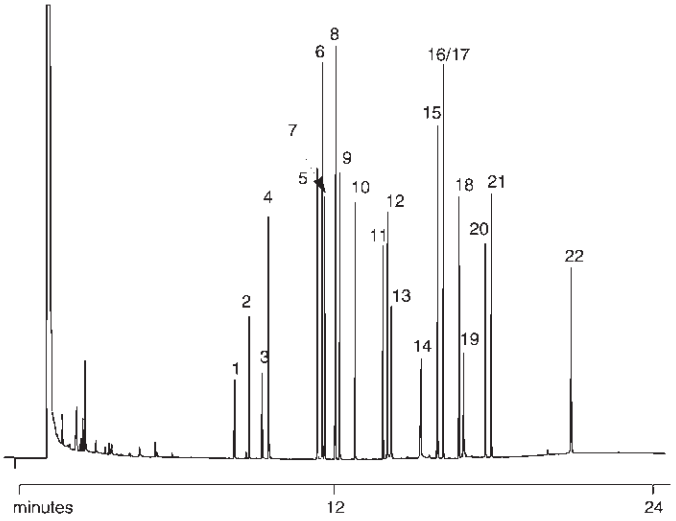
Components

1. 4-Chloro-3-nitrobenzo-trifluoride
2. Dichlorvos
3. 1-Bromo-2-nitrobenzene
4. α-Mervinphos
5. Tributylphosphate (IS)
6. Ethoprop
7. Sulfotepp
8. Naled
9. Phorate
10. Demeton
11. Diazinon
12. Disulfoton
13. Methyl Parathion
14. Ronnel
15. Chlorpyrifos
16. Fenthion
17. Trichlorinate
18. Tetrachlorvinphos
19. Tokuthion
20. Impurity
21. Fensulfothion
22. Impurity
23. Triphenylphosphate (IS)
24. Guthion
25. Coumaphos

ENV 04 | Analysis of Herbicides on BPX35

Column Part No.:	054711		
Phase:	BPX35, 0.25 µm film	Final Temp.:	300 °C 5 min
Column:	25 m x 0.22 mm ID	Detector:	FID, 380 °C
Initial Temp.:	80 °C	Injection Mode:	Split (20:1)
Rate:	10 °C/ min	Carrier Gas:	He, 100 kpa

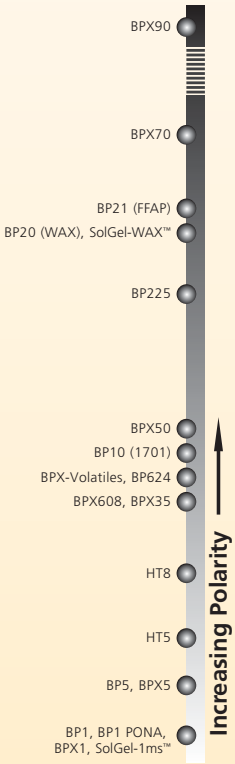
Note: BPX35 provides quick analysis of all 3 Triazine compounds



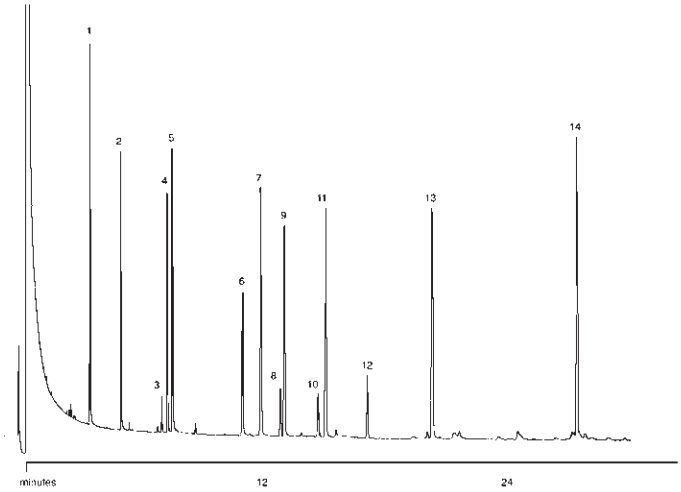
Components

1. Eptam®
2. Sutan®
3. Vernam®
4. Tillam®
5. Ordram®
6. Treflan®
7. Balan®
8. Ro-Neet®
9. Propachlor
10. Tolban®
11. Propazine
12. Atrazine
13. Simazine
14. Terbacil
15. Sencor®
16. Dual®
17. Paarlan®
18. Prowl®
19. Bromacil
20. Oxadiazon
21. GOAL®
22. Hexazinone

ENV 48 | Analysis of Herbicides on BPX5



Column Part No.:	054101		
Phase:	BPX5, 0.25 µm	Rate 2:	5 °C/min
Column:	30 m x 0.25 mm ID	Final Temp.:	260 °C, 10 min
Initial Temp.:	90 °C, 1 min	Detector:	NPD
Rate 1:	30 °C/min	Injection Mode:	Varian SPI
Temp.:	180 °C	Carrier Gas:	He, 10 psi



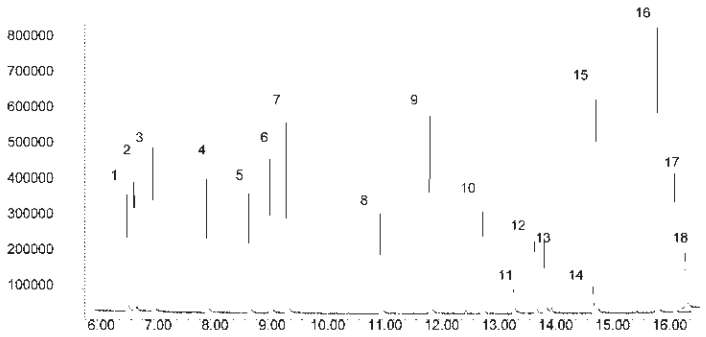
Components

1. Metamidofos
2. Acephate
3. Diphenylamine
4. Monocrophos
5. Sulfotep
6. Tolclofos-methyl
7. Fenitrothion
8. Triadimefon
9. Trichloronate
10. Triadimenol
11. Bromophos-ethyl
12. Bupirimate
13. Carbophenothion
14. Dialifos

ARO 14 | Analysis of chlorinated and nitroaromatic compounds on SolGel-1ms™

Column Part No.:	054462
Phase:	SolGel-1ms™ 0.25 µm film
Sample:	200 ppm in dichloromethane
Column:	30 m x 0.25 mm ID
Initial Temp:	40 °C, 1 min.
Rate 1:	10 °C/min to 300 °C
Final Temp:	300 °C, 2 min.
Detector Type:	MSD
Carrier Gas:	He, 25.7 psi
Carrier Gas Flow:	1.8 mL/min.

Constant Flow:	On
Average Linear Velocity:	35 cm/sec, 40 °C
Injection Mode:	Split
Split Ratio:	100 : 1
Injection Volume:	0.5 µL
Injection Tem:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part No.:	092017
Full Scan / SIM:	Full scan 45-450



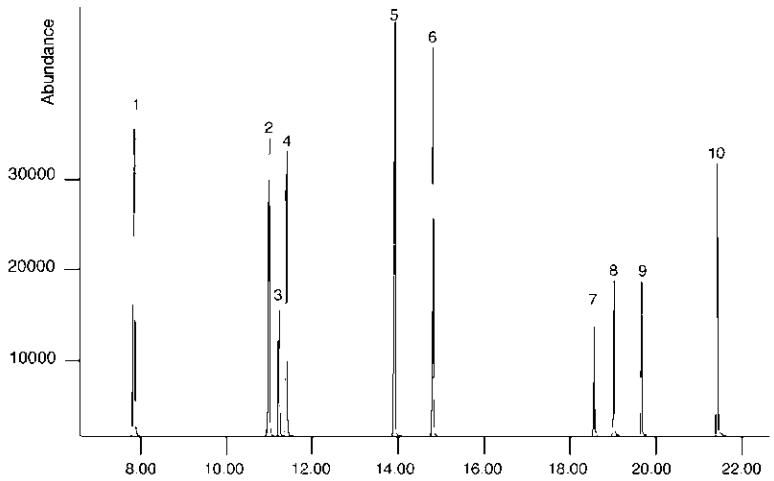
Components

1. Phenol
2. o-Chlorophenol
3. p-Dichlorobenzene
4. Nitrobenzene
5. o-Nitrophenol
6. 2,4-Xylenol
7. 2,4-Dichlorophenol
8. 4-Chloro-3-methylphenol
9. 2,4,6-Trichlorophenol
10. 2,6-Dinitrotoluene
11. 2,4-Dinitrophenol
12. 2,4-Dinitrotoluene
13. 4-Nitrophenol
14. 4,6-Dinitro-o-cresol
15. 4-Chlorophenyl phenyl ether
16. 4-Bromophenyl phenyl ether
17. Hexachlorobenzene
18. Pentachlorophenol

ALC 06 | US EPA 625 Phenols Mix on BPX50

Column Part No.:	054751
Phase:	BPX50, 0.25 µm
Column:	30 m x 0.25 mm ID
Injector Mode:	Split, 40:1

Initial Oven Temp:	50 °C, 1 min
Rate 1:	8 °C/min
Final Temp:	300 °C, 10 min
Detector:	HP 5973 MSD



Components

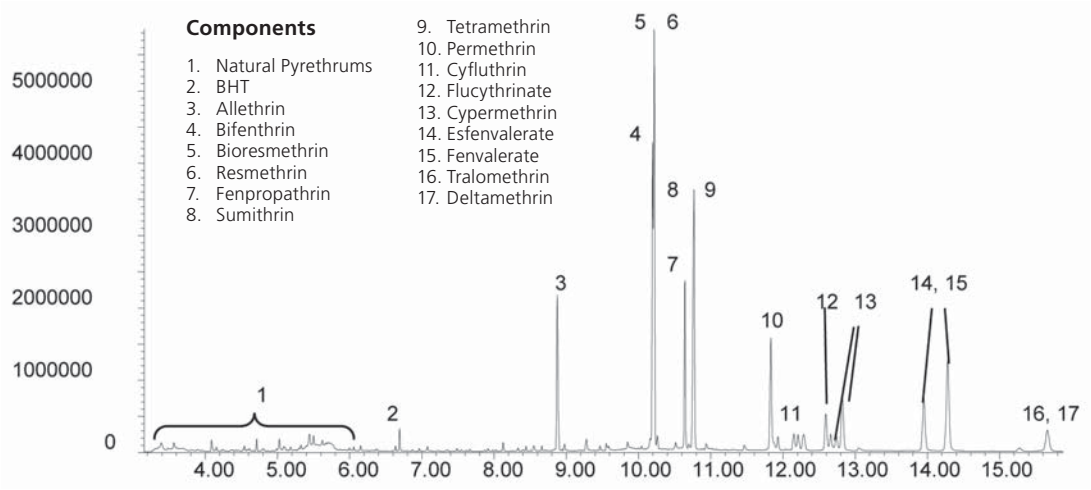
1. 2-Chlorophenol
2. 2-Nitrophenol
3. 2, 4-Dimethylphenol
4. 2, 4-Dichlorophenol
5. 4-Chloro-3-methylphenol
6. 2, 4, 6-Trichlorophenol
7. 2, 4- Dinitrophenol
8. 4-Nitrophenol
9. 2-Methyl-4, 6-dinitrophenol
10. Pentachlorophenol

W: www.velocityscientific.com.au
E: info@velocityscientific.com.au
P: 1300 855 315

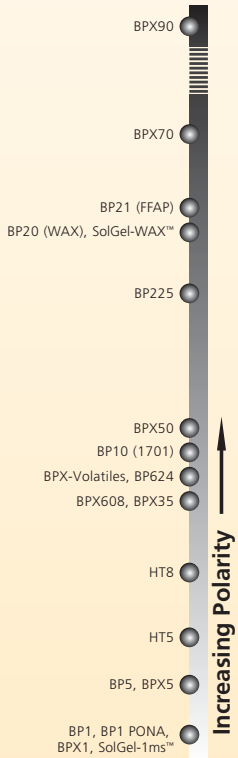
ENV 65 | Analysis of Synthetic Pyrethroids on BPX50

Column Part No.:	054751
Phase:	BPX50, 0.25 µm film
Column:	30 m x 0.25 mm ID 16
Pyrethroids:	10 ppm in methanol
Initial Temp.:	50 °C, 1 min.
Rate 1:	30 °C/min to 200 °C
Rate 2:	4 °C/min to 300 °C
Final Temp.:	300 °C, 5 min
Detector Type:	MSD
Carrier Gas:	He, 6.8 psi
Carrier Gas Flow:	1.0 mL/min

Constant Flow:	On
Average Linear Velocity:	36 cm/sec at 50 °C
Injection Mode:	Splitless
Purge on Time:	0.5 min
Purge on (Split) Vent Flow:	60 mL/min
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018

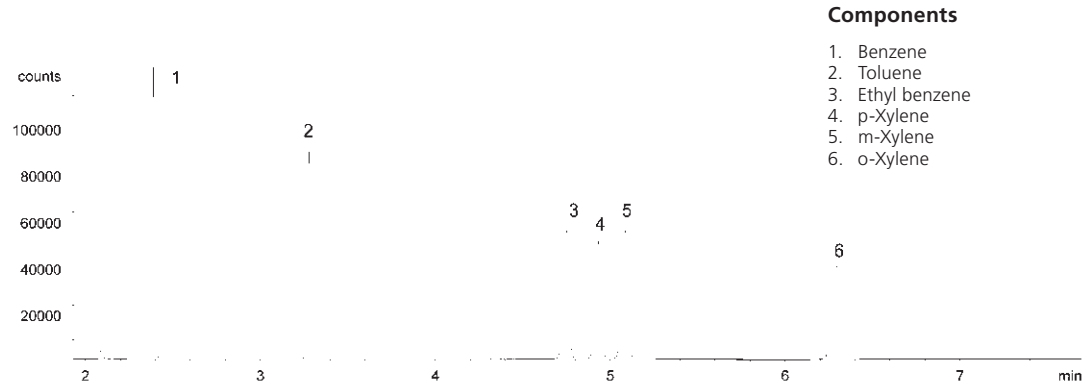


ARO 13 | Analysis of BTEX on SolGel-WAX™



Column Part No.:	054796
Phase:	SolGel-WAX™ 0.25 µm film
BTEX:	300 ppm in methanol
Column:	30 m x 0.25 mm ID
Initial Temp:	60 °C, 10 min
Detector Type:	FID
Carrier Gas:	He, 17.3 psi
Carrier Gas Flow:	1.5 mL/min

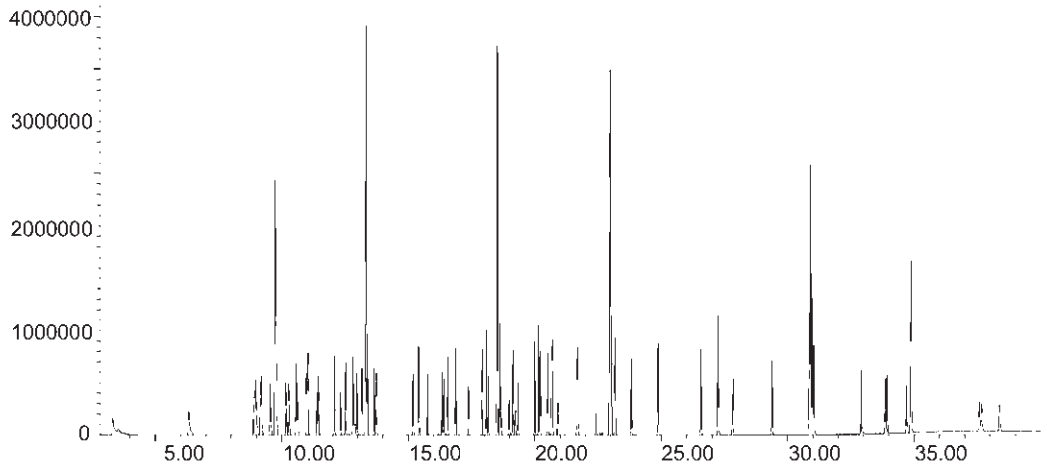
Constant Flow:	On
Average Linear Velocity:	35 cm/sec, 60 °C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	0.2 µL
Injection Temp:	250 °C
Liner Type:	4 mm ID Double Taper Line
Liner Part Number:	092018



ENV 84 | Analysis of US EPA 8270 Mix on BPX5

Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm
ID Sample:	5 ppm solution
Initial Temp.:	40 °C, 3 min
Rate 1:	8 °C/min to 300 °C
Final Temp.:	300 °C, 9 min.
Detector Type:	Mass Spectrometer
Carrier Gas:	He
Inlet Pressure:	16 psi for 30 sec then drops to 10 psi
Pressure rate1:	10 psi to 28 psi at 0.5 psi/min
Final Pressure:	28 psi until end of run

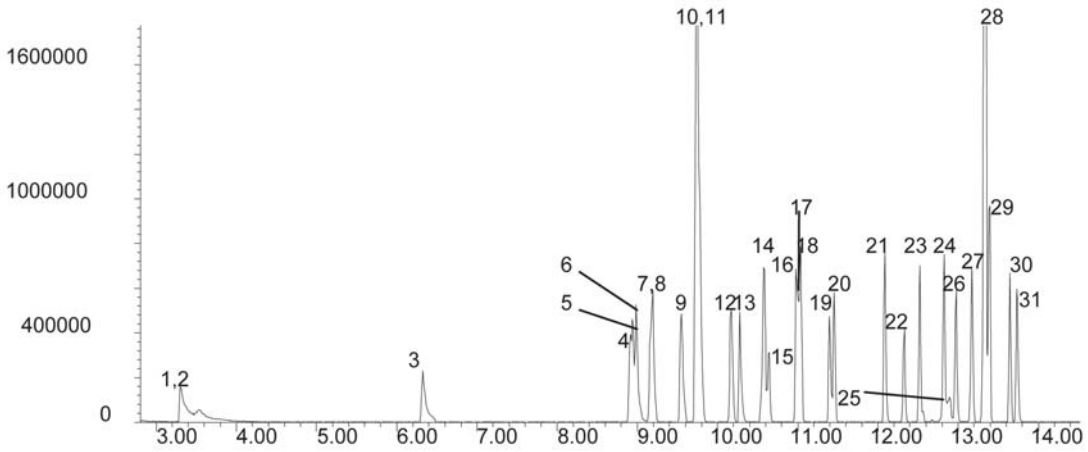
Carrier Gas Flow:	1.1 mL/min.
Constant Flow:	On
Injection Mode:	Splitless
Purge on Time:	0.5 min
Purge on (Split) Vent Flow:	40 mL/min
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Single Gooseneck
Liner Part Number:	092017
Full Scan / SIM:	Full scan 41-450

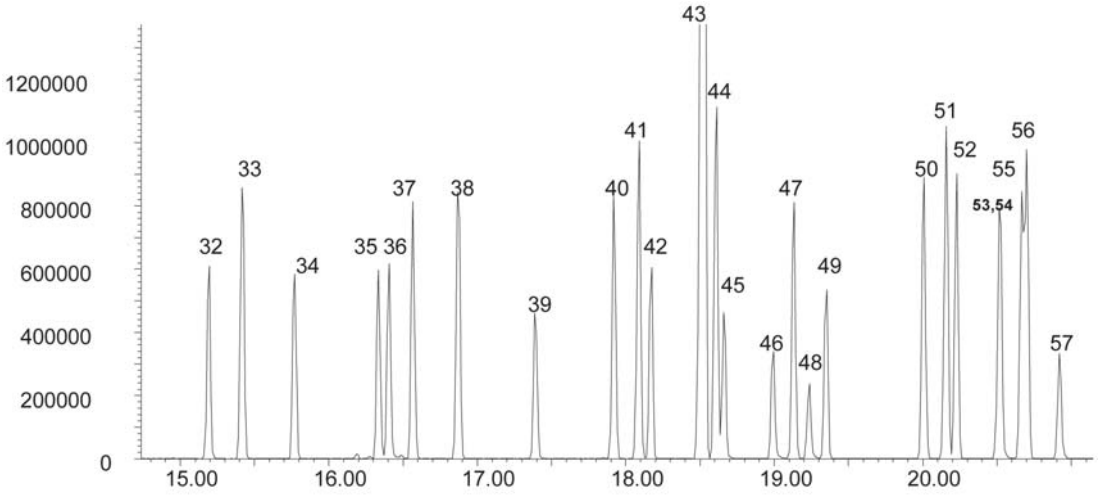


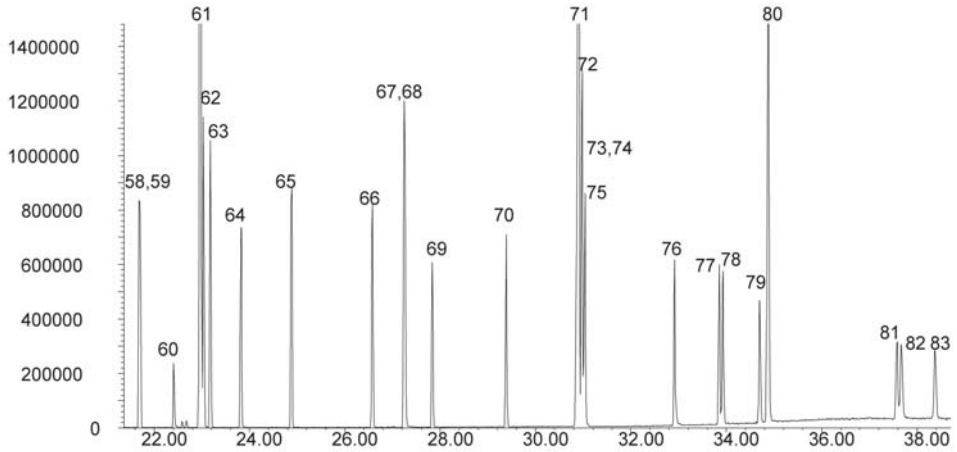
Components

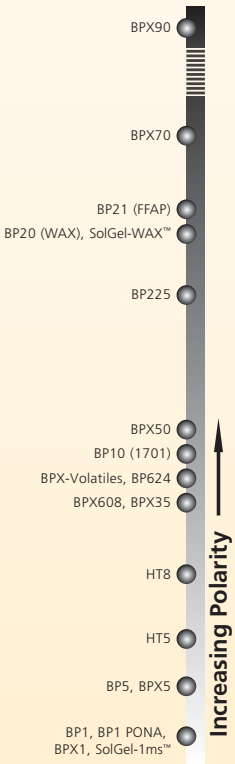
1. Pyridine
2. n-Nitrosodimethylamine
3. 2-Fluorophenol
4. Phenol-d5
5. Phenol
6. Aniline
7. 2-Chlorophenol
8. bis- (2-chloroethyl) ether
9. 1,3-Dichlorobenzene
10. 1,4-Dichlorobenzene-d4
11. 1,4-Dichlorobenzene
12. 1,2-Dichlorobenzene
13. Benzyl alcohol
14. 2-Methyl phenol
15. bis-(2-chloroisopropyl)ether
16. n-Nitroso-di-n-propylamine
17. Hexachloroethane
18. 4-Methylphenol
19. Nitrobenzene-d5
20. Nitrobenzene
21. Isophorone
22. 2-Nitrophenol
23. 2,4-Xylenol
24. bis- (2-Chloroethoxy) methane
25. Benzoic acid
26. 2,4-Dichlorophenol
27. 1,2,4-Trichlorobenzene
28. Naphthalene-d8
29. Naphthalene
30. Hexachlorobutadiene
31. 4-Chloroaniline
32. 4-Chloro-3-methylphenol
33. 2-Methylnaphthalene
34. Hexachlorocyclopentadiene
35. 2,4,6-Trichlorophenol
36. 2,4,5-Trichlorophenol
37. 2-Fluorobiphenyl
38. 2-Chloronaphthalene
39. 2-Nitroaniline
40. Dimethyl phthalate
41. Acenaphthylene
42. 2,6-Dinitrotoluene
43. Acenaphthene-d10
44. Acenaphthene
45. 3-Nitroaniline
46. 2,4-Dinitrophenol
47. Dibenzofuran
48. 4-Nitrophenol
49. 2,4-Dinitrotoluene
50. Diethylphthalate
51. Fluorene
52. 4-Chlorophenyl phenyl ether
53. 2-Methyl-4,6-dinitrophenol
54. 4-Nitroaniline
55. n-Nitrosodiphenylamine
56. Azobenzene
57. 2,4,6-Tribromophenol
58. 4-Bromophenyl phenyl ether
59. Hexachlorobenzene
60. Pentachlorophenol
61. Phenanthrene-d10
62. Phenanthrene
63. Anthracene
64. Carbazole
65. Di-n-butyl phthalate
66. Fluoranthene
67. Benzidine
68. Pyrene
69. p-Terphenyl-d14
70. Butyl benzyl phthalate
71. Benz[a]anthracene
72. Chrysene-d12
73. Chrysene
74. 3,3-Dichlorobenzidine
75. bis (2-Ethylhexyl) phthalate
76. Di-n-octyl phthalate
77. Benzo (b) fluoranthene
78. Benzo (k) fluoranthene
79. Benzo (a) pyrene
80. Perylene-d12
81. Indeno (1,2,3-cd) perylene
82. Dibenz (a,h) anthracene
83. Benzo[g,h,i]perylene

ENV 84 continued





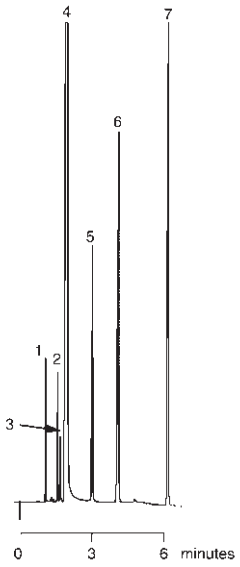




SGE would like to thank Mark Ferry from ECS/MDL USA for supplying all of the chromatograms for this application note.

FOO 03 | Analysis of Scotch Whisky on BP20

Column Part No.:	054447
Phase:	BP20, 1.0 µm film
Column:	12 m x 0.53 mm ID
Initial Temp:	55 °C, 3 min
Rate:	10 °C/min
Final Temp:	120 °C, 0 min
Detector:	FID
Sensitivity:	128 x 10-12 AFS
Injection Mode:	Split



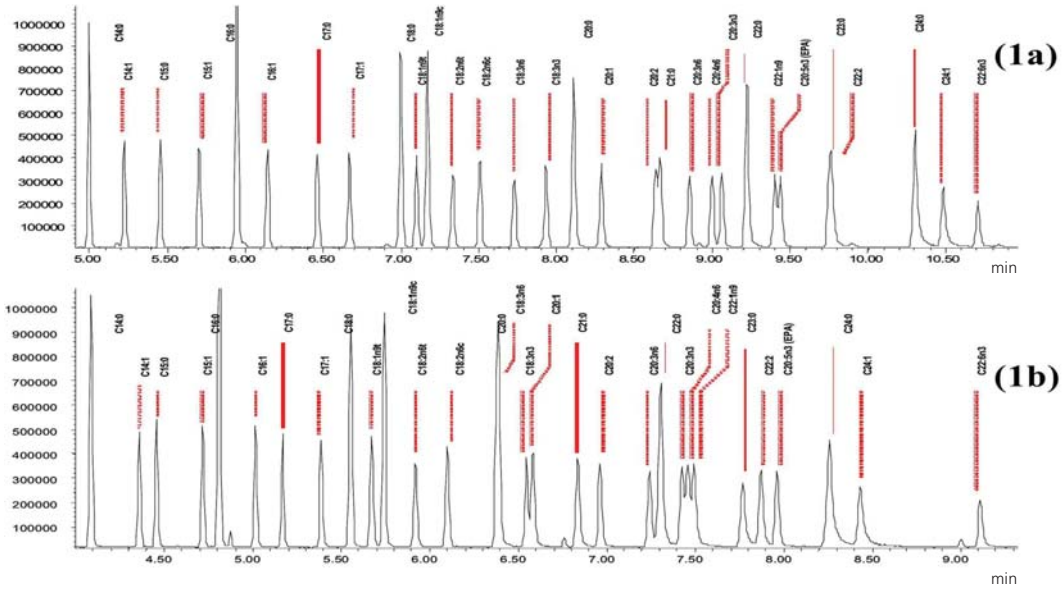
Components

1. Acetaldehyde
2. Ethyl Acetate
3. Methanol
4. Ethanol
5. Propan-1-ol
6. 2-Methylpropan-1-ol
7. 2-Methylbutan-1-ol + 3-Methylbutan-1-ol

AN-0022-C | FAME Analysis with BPX90 – A Highly Polar Column

Column Part No.:	054570
Phase:	90% Cyanopropyl Polysilphenylsiloxane
Column Dimensions:	15 m x 0.25 mm x 0.25 µm
Injector Temperature:	250 °C
Injection Volume:	1.0 µL
Injector Type:	Split
Split Ratio:	100:1
Liner Type:	FocusLiner™
Carrier Gas:	Helium

Constant Flow:	ON
Pressure:	4.02 psi
Column Flow Rate:	1.3 ml/min
Linear Velocity:	59 cm/sec
Initial Temp.:	70 °C hold for 1 minute
Rate:	20 °C/min to 150 °C
Rate:	10 °C/min
Final Temp.:	250 °C hold for 5 minutes
Detector Type:	MSD



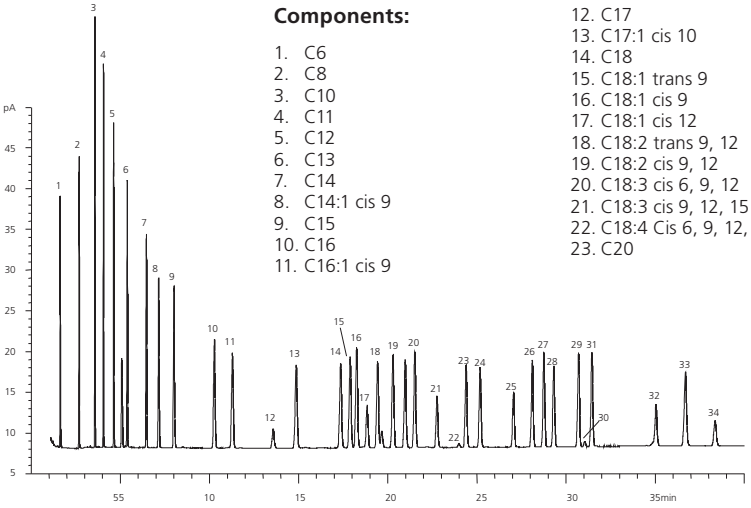
Supelco 37 FAME standard analyzed with (a) BPX70 and (b) BPX90

SGE would like to thank J. Harynuk, P.J. Marriott and P. Wynne, Chromatographia, 2006; 63 (Supplement 13): S61-S66.

AN-0011-C | Analysis of Omega-3 Fatty Acids using a Highly Selective GC Capillary Column

Column Part No:	054606
Phase:	BPX70, 0.25 µm film
Sample:	10 ppm in methanol
Column:	25 m x 0.32 mm ID
Initial Temp:	80 °C, 2 min
Rate 1:	50 °C/min to 130 °C, 10 min
Rate 2:	2 °C/min to 172 °C
Final Temp:	172 °C, 6 min
Detector Type:	FID
Detector Temp:	300 °C
Carrier Gas:	He, 10 psi

Carrier Gas Flow:	2.2 mL/min
Constant Flow:	On
Average Linear Velocity:	39 cm/sec at 80 °C
Injection Mode:	Split
Split Ratio:	58:1
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	No
Liner Type:	4 mm ID FocusLiner™
Liner Part No:	092002

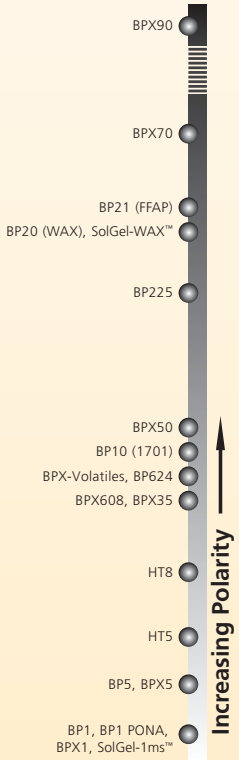


Components:

1. C6
2. C8
3. C10
4. C11
5. C12
6. C13
7. C14
8. C14:1 cis 9
9. C15
10. C16
11. C16:1 cis 9
12. C17
13. C17:1 cis 10
14. C18
15. C18:1 trans 9
16. C18:1 cis 9
17. C18:1 cis 12
18. C18:2 trans 9, 12
19. C18:2 cis 9, 12
20. C18:3 cis 6, 9, 12
21. C18:3 cis 9, 12, 15
22. C18:4 Cis 6, 9, 12, 15
23. C20
24. C21:1 cis 11
25. C20:2 cis 11,14
26. C20:3 cis 8, 11,14
27. C20:4 cis 5, 8, 11, 14
28. C20:3 cis 11, 14, 17
29. C22
30. C20:5 cis 5, 8, 11, 14, 17
31. C22:1 cis 13
32. C22:4 cis 7, 10, 13, 16
33. C24
34. C22:6 cis 4,7,10,13,16,19

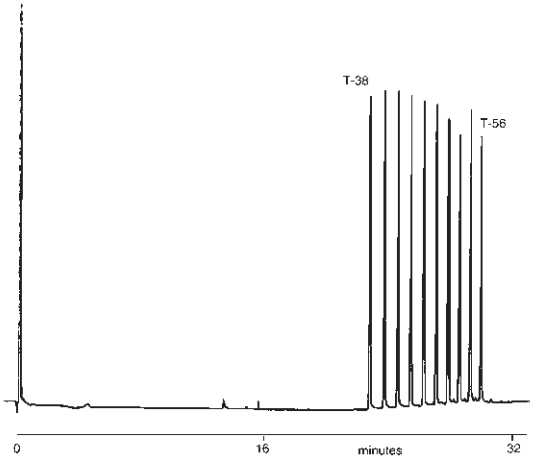
Notes: The chromatogram shows the excellent separation of a complex mixture of FAME compounds. Note the excellent peak shape and separation of the Omega-1,2 and 3 fatty acid isomers both structural and cis and trans.

SGE would like to thank Masterfoods UK for supplying the sample and chromatographic conditions for this chromatogram.



FOO 16 | Analysis of Triglyceride Standards on HT5

Column Part No.:	054661
Phase:	HT5, 0.1 µm
Column:	6 m x 0.53 mm I.D. (Aluminum Clad)
Initial Temp.:	60 °C, 0 min
Program Rate:	10 °C/min
Final Temp.:	370 °C, 5 min
Carrier Gas:	H_2, 2 psi
Detector:	F.I.D.
Sensitivity:	32 x 10-12 AFS
Injection Mode:	On-column

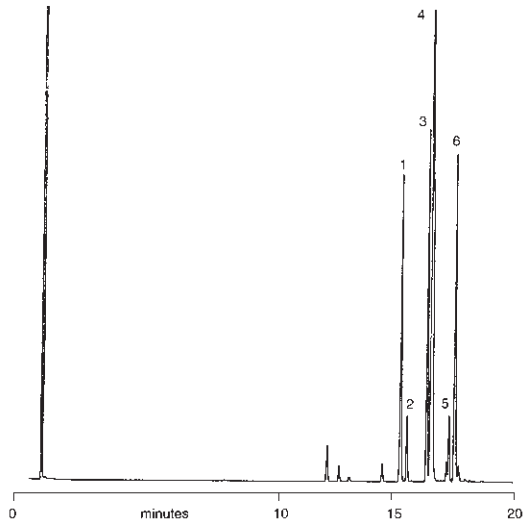


Notes: For the analysis of triglycerides, on-column injection is recommended. Temperatures above 380 °C are not recommended as triglycerides can degrade.

FLA 05 | Analysis of Menthol Oil on CYDEX-B

Column Part No.:	**054901**
Phase:	Cydex-B, 0.25 µm film
Column:	50 m x 0.22 mm I.D.
Initial Temp.:	100 °C, 5 min
Rate:	2 °C/min

Final Temp.:	130 °C
Carrier Gas:	H_2
Detector:	F.I.D.
Sensitivity:	32 x 10-12 AFS
Injection Mode:	Split



Components

1. (+) Neomenthol
2. (-) Neomenthol
3. (+) Menthol
4. (-) Menthol
5. (+) a-Terpineol
6. (-) a-Terpineol

Notes: Cydex - B column enables the separation of three different enantiomer pairs in Menthol Oil.

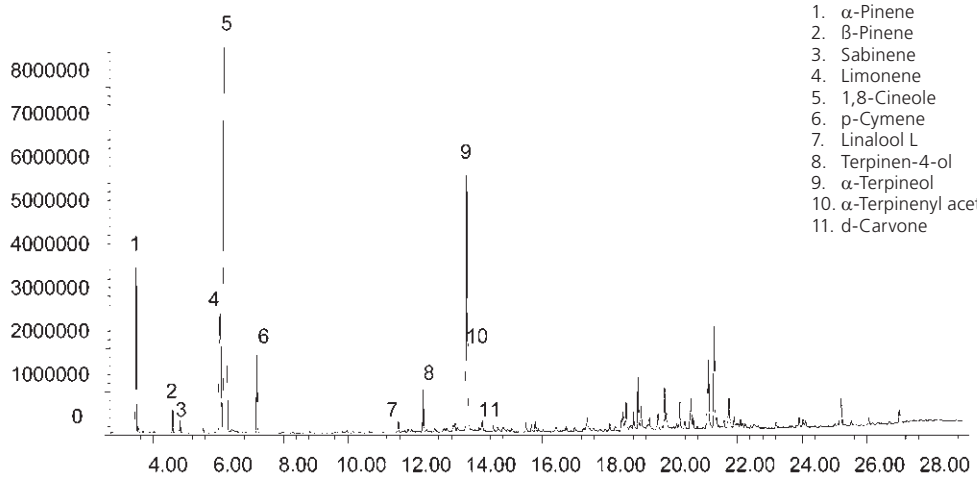
FLA 19 | Analysis of Eucalyptus Oil on SolGel-WAX™

Column Part No.:	**054796**
Phase:	SolGel-WAX™, 0.25 µm film
Sample:	Neat
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min.
Rate 1:	8 °C/min to 220 °C,
Final Temp:	220 °C, 5 min.
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 25.7 psi
Carrier Gas Flow:	1.8 mL/min.

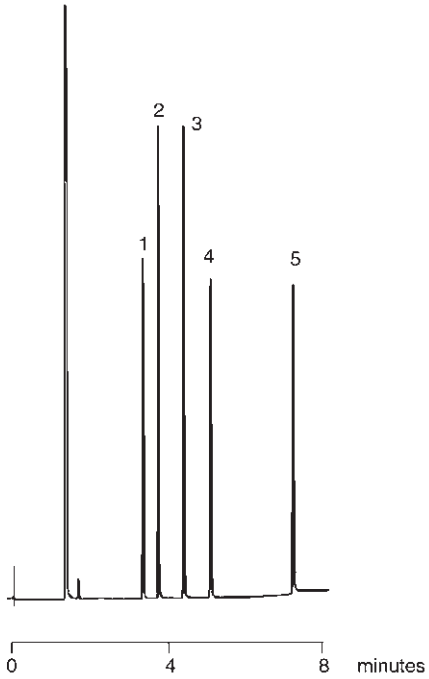
Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part Number:	092017
Full Scan / SIM:	Full scan 45-450

Components

1. α-Pinene
2. ß-Pinene
3. Sabinene
4. Limonene
5. 1,8-Cineole
6. p-Cymene
7. Linalool L
8. Terpinen-4-ol
9. α-Terpineol
10. α-Terpinenyl acetate
11. d-Carvone



FOO 02 | Analysis of Food Additives Antimicrobials on BP5



Column Part No.:	054186
Phase:	BP5, 0.5 µm film
Column:	25 m x 0.32 mm ID
Initial Temp:	160 °C, 0 min
Rate:	15 °C/min
Final Temp:	280 °C, 0 min
Detector:	FID
Sensitivity:	256 x 10-12 AFS
Injection Mode:	Split

Components

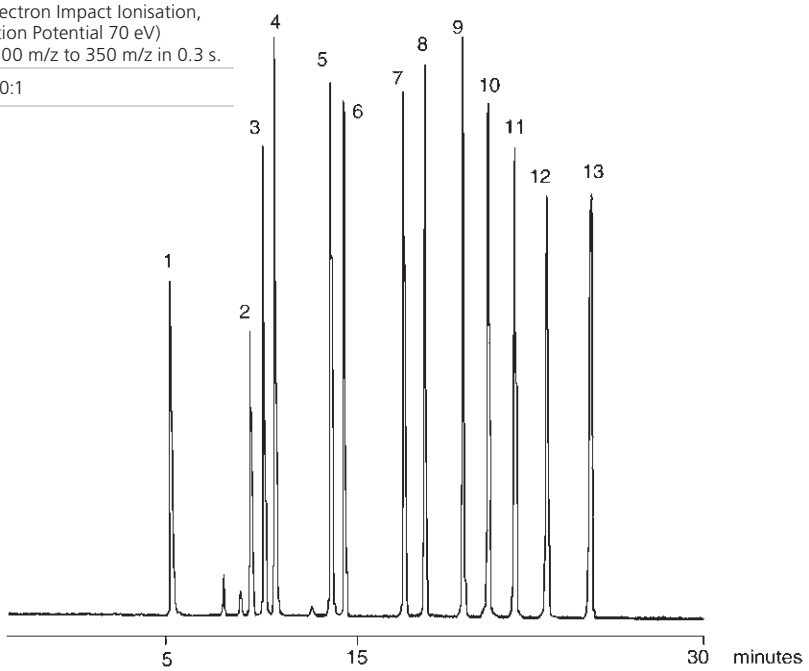
1. Methyl Paraben
2. Ethyl Paraben
3. Propyl Paraben
4. Butyl Paraben
5. Heptyl Paraben

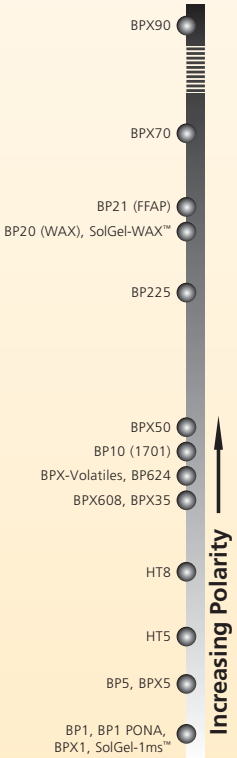
FOO 04 | Analysis Of 13 Sugar Component Alditol Acetate Mixture on BPX70

Column Part No.:	054622
Phase:	BPX70, 0.25 µm film
Column:	30 m x 0.25 mm I.D.
Initial Temp.:	190 °C, 1 min.
Program Rate:	3 °C/min.
Final Temp:	260 °C, 10min.
Carrier Gas:	He, 50 kPa
Detector:	MS (Electron Impact Ionisation, Ionisation Potential 70 eV) Scan 100 m/z to 350 m/z in 0.3 s.
Injection Mode:	Split 50:1

Components

1. Erythritol
2. 2-Deoxy-ribitol
3. Rhamnitol
4. Fucitol
5. Ribitol
6. Arabinitol
7. Xylitol
8. 2-Deoxy-glucitol
9. Allitol
10. Mannitol
11. Galacitol
12. Glucitol
13. Myo-inositol



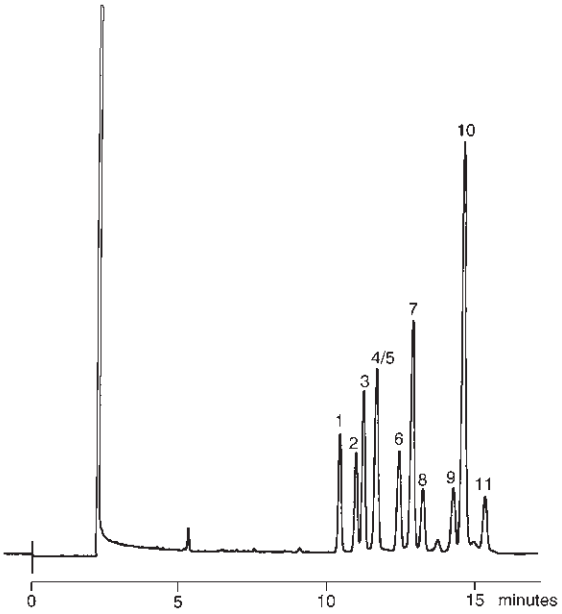


FOO 21 | Plant Sterols

Column Part No.:	054148
Phase:	BPX5, 1.0 µm
Column:	30 m x 0.53 mm ID
Initial Temp.:	320 °C
Detector:	FID, 360 °C
Injector Mode:	split 100:1
Carrier Gas:	He, 3 psi
Injection Volume:	1 µL

Components

1. Coprosterol
2. Cholesterol
3. Cholestanol
4. Desmosterol
5. Brassicasterol
6. Ergosterol
7. Campasterol
8. Stigmasterol
9. Unknown
10. beta-Sitosterol
11. Lanosterol

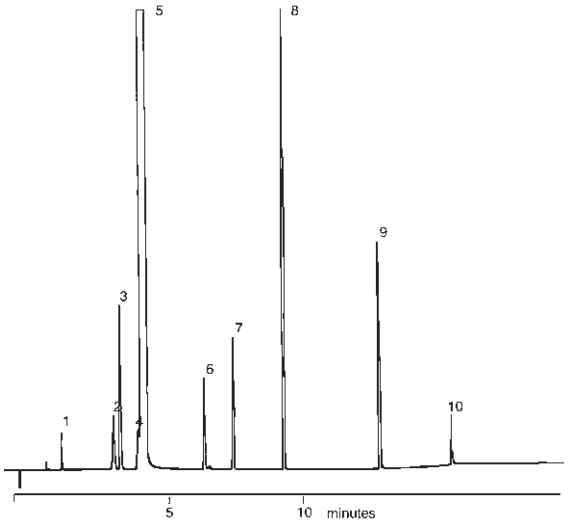


FOO 24 | Analysis of Wine on BP20

Column Part No.:	054442
Phase:	**BP20, 1.0 µm**
Column:	25 m x 0.32 mm ID
Initial Temp.:	40 °C, 2 min
Rate 1:	5 °C/min
Temp 2:	50 °C
Rate 2:	15 °C/min
Final Temp.:	190 °C
Carrier Gas:	H_2, 6 psi
Injection Mode:	2 µL

Components

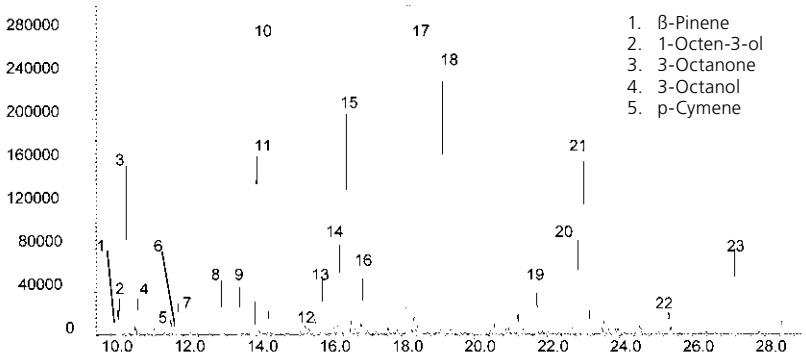
1. Acetaldehyde
2. Ethyl Acetate
3. Methanol
4. Isopropanol
5. Ethanol
6. Propanol
7. Isobutanol
8. Isoamyl Alcohol
9. Acetic Acid
10. Unknown



FLA 14 | Analysis of Lavender Oil on BPX5

Column Part No.:	054101
Phase:	BPX5, 0.2 5 µm film
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min
Rate 1:	5 °C/min to 260 °C
Final Temp:	260 °C
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 7.0 psi
Carrier Gas Flow:	1.0 mL/min
Constant Flow:	On

Average Linear Velocity:	36 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	200:1
Purge on (Split) Vent Flow:	200 mL/min
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018

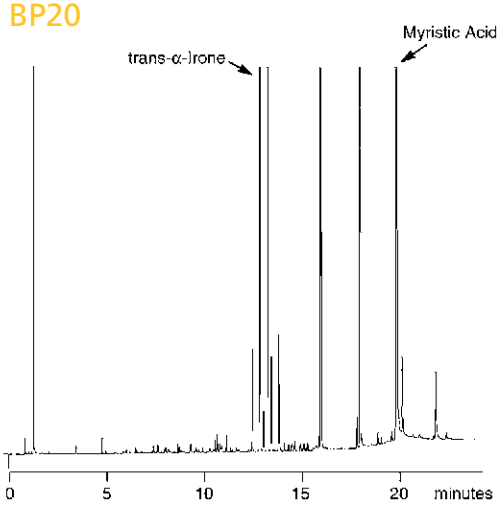


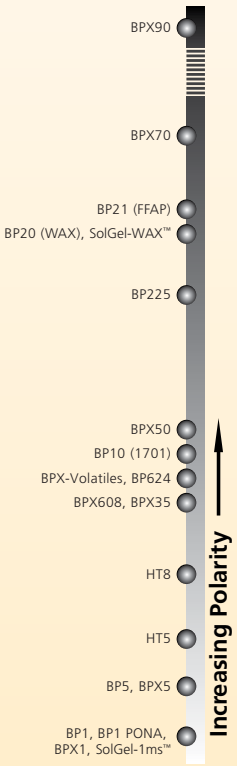
Components

1. ß-Pinene
2. 1-Octen-3-ol
3. 3-Octanone
4. 3-Octanol
5. p-Cymene
6. Limonene
7. cis-Ocimene
8. cis-Linalool oxide
9. Trans-Linalool oxide
10. Linalool L
11. Octenyl acetate
12. Camphor
13. Lavandulol
14. Borneol L
15. Terpinen-4-ol
16. α-Terpineol
17. Linalyl acetate
18. Lavundyl Acetate
19. Geranyl Acetate
20. α-Santalene
21. ß-Caryophyllene
22. α-Cadinene
23. α-Caryophyllene oxide

FLA 03 | Analysis of Orris Concentrate on BP20

Column Part No.:	054436
Column:	BP20, 0.5 µm
Phase:	25 m x 0.32 mm I.D.
Initial Temp.:	70 °C, 1 min
Rate:	10 °C/min
Final Temp.:	250 °C, 10 min
Carrier Gas:	Helium
Carrier Pressure:	10 psi
Injection Mode:	Split 50:1

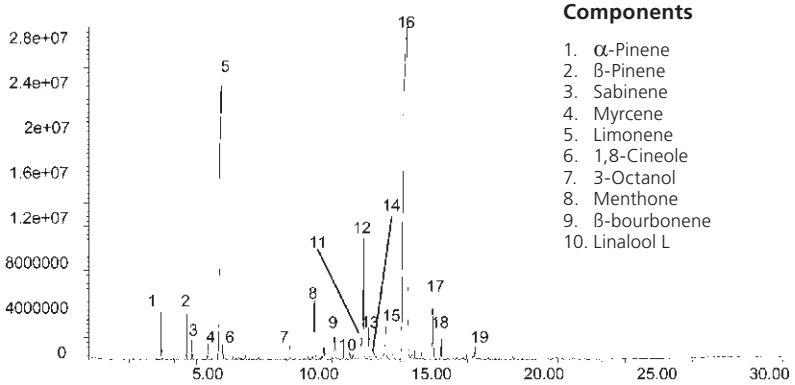




FLA 21 | Analysis of Spearmint Oil on SolGel-WAX™

Column Part No.:	054796
Phase:	SolGel-WAX™, 0.25 µm film
Sample:	Neat
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min.
Rate 1:	8 °C/min to 220 °C
Final Temp:	220 °C, 5 min.
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 25.7 psi
Carrier Gas Flow:	1.8 mL/min.

Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part Number:	092017
Full Scan / SIM:	Full scan 45-450



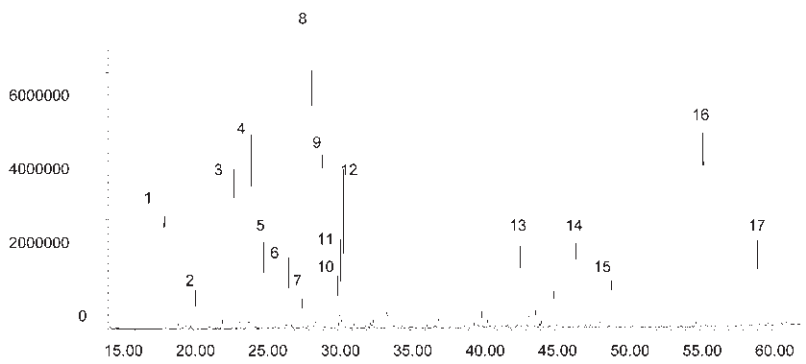
Components

1. α-Pinene
2. ß-Pinene
3. Sabinene
4. Myrcene
5. Limonene
6. 1,8-Cineole
7. 3-Octanol
8. Menthone
9. ß-bourbonene
10. Linalool L
11. *trans* Caryophyllene
12. *cis* dihydrocarvone
13. Trans dihydrocarvone
14. Menthol
15. Dihydrocarvyl acetate
16. L-Carvone
17. *trans* Carveol
18. *cis* Carveol
19. Caryophyllene oxide

FLA 18 | Analysis of Ylang Ylang Oil on SolGel-WAX™

Column Part No.:	054796
Phase:	SolGel-WAX™, 0.25 µm
Sample:	Ylang Ylang oil neat.
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 2 min.
Rate 1:	3 °C/min to 250 °C
Final Temp:	250 °C, 10 min.
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 25.7 psi
Carrier Gas Flow:	1.8 mL/min.

Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	120:1
Injection Volume:	0.1 µL
Injection Temp.:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018
Full Scan / SIM:	Full scan 45-450



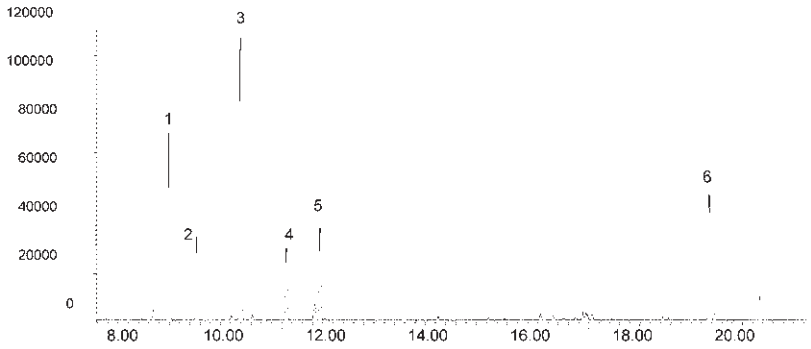
Components

1. p-Methyl anisole
2. α-Copaene
3. Linalool L
4. ß-Caryophyllene
5. Methyl benzoate
6. α-Humulene
7. α-Amorphene
8. Germacrene
9. Benzyl acetate
10. δ-Cadinene
11. α-Farnesene
12. Geranyl acetate
13. trans-Cinamyl acetate
14. Farnesyl acetate
15. Farnesol
16. Benzyl benzoate
17. Benzyl salicylate

FLA 16 | Analysis of Pine Oil on BPX5

Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min.
Rate 1:	5 °C/min to 260 °C
Final Temp:	260 °C
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 7.0 psi
Carrier Gas Flow:	1.0 mL/min.
Constant Flow:	On

Average Linear Velocity:	36 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	200:1
Purge on (Split)	
Vent Flow:	200 mL/min.
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018



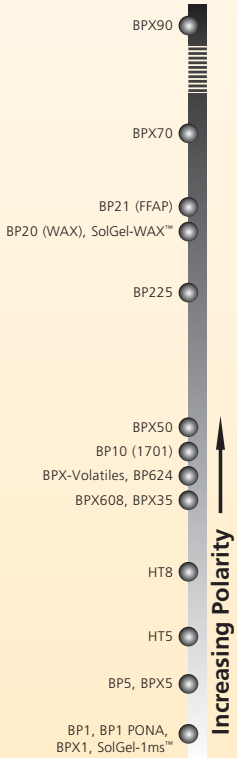
Components

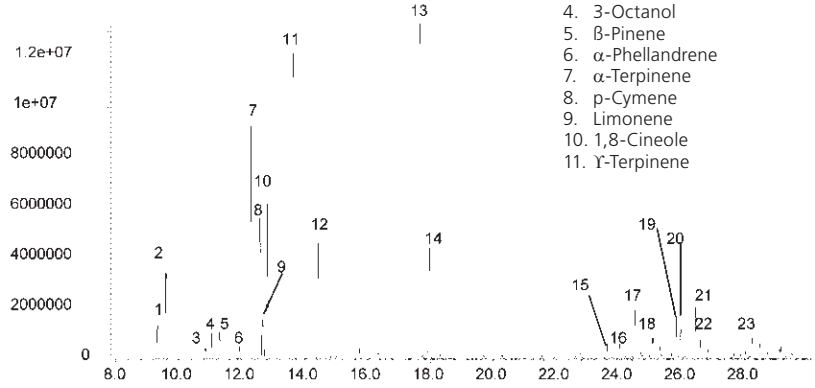
1. α-Pinene
2. Camphene
3. ß-Pinene
4. δ-3-Carene
5. Limonene
6. Endobornyl acetate

FLA 15 | Analysis of Tea Tree Oil on BPX5

Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min.
Rate 1:	5 °C/min to 200 °C
Final Temp:	200 °C
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 7.0 psi
Carrier Gas Flow:	1.0 mL/min.
Constant Flow:	On

Average Linear Velocity:	36 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	200:1
Purge on (Split)	
Vent Flow:	200 mL/min.
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018





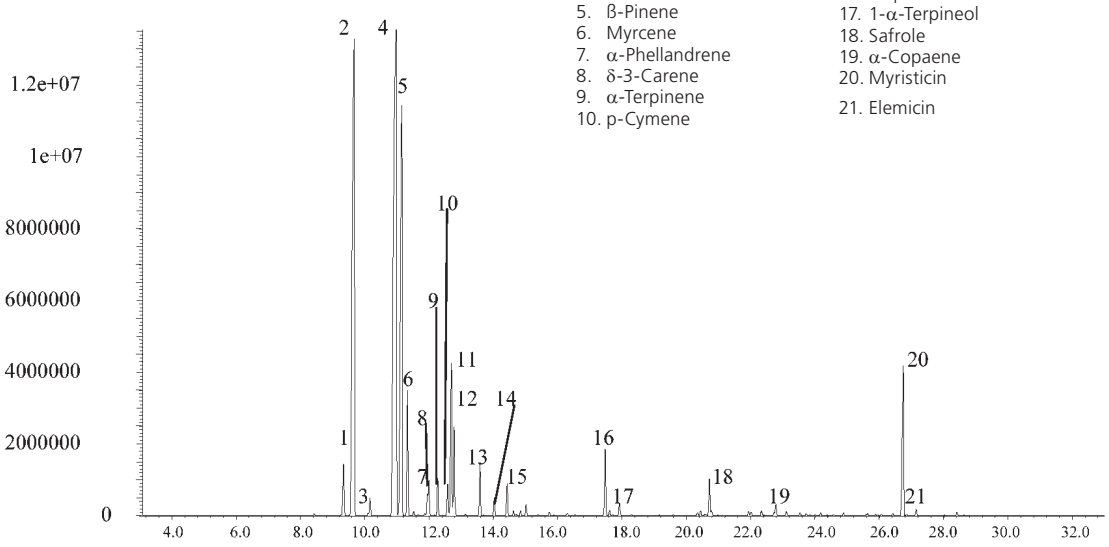
Components

1. Thujene
2. α-Pinene
3. Sabinene
4. 3-Octanol
5. ß-Pinene
6. α-Phellandrene
7. α-Terpinene
8. p-Cymene
9. Limonene
10. 1,8-Cineole
11. ϒ-Terpinene
12. Terpinolene
13. Terpinen-4-ol
14. α-Terpineol
15. α-Gurjunene
16. (trans)-ß-Caryophyllene
17. Aromadendrene
18. Alloaromadendrene
19. Ledene
20. Germacrene B
21. δ-Cadinene
22. 1s, cis-Calamenene
23. Globulol

FLA 12 | Analysis of Nutmeg Oil on BPX5

Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min.
Rate:	5 °C/min to 260 °C,
Final Temp:	260 °C
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 7.0 psi
Carrier Gas Flow:	1.0 mL/min.

Constant Flow:	On
Average Linear Velocity:	36 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	200:1
Purge on (Split) Vent Flow:	200 mL/min.
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018



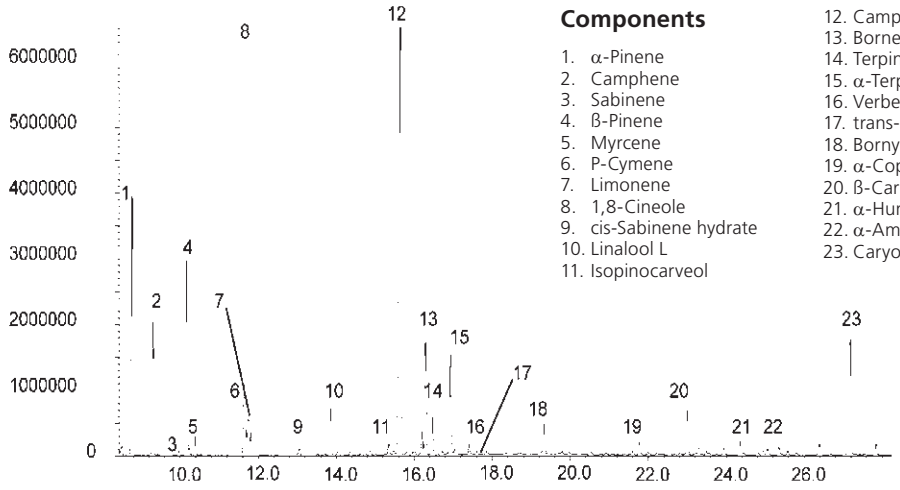
Components

1. α-Thujene
2. α-Pinene
3. Camphene
4. Sabinene
5. ß-Pinene
6. Myrcene
7. α-Phellandrene
8. δ-3-Carene
9. α-Terpinene
10. p-Cymene
11. Limonene
12. ß-Phellandrene
13. ϒ-Terpinene
14. trans-Sabinene hydrate
15. α-Terpinolene
16. Terpinen-4-ol
17. 1-α-Terpineol
18. Safrole
19. α-Copaene
20. Myristicin
21. Elemicin

FLA 13 | Analysis of Rosemary Oil on BPX5

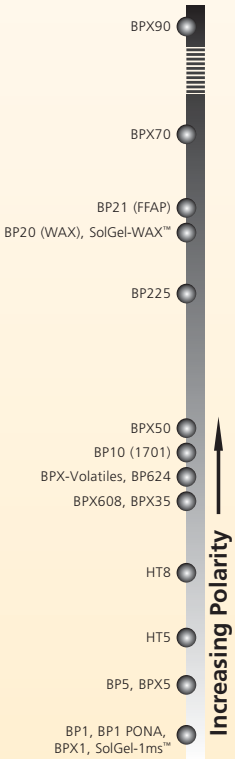
Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min.
Rate 1:	5 °C/min to 260 °C,
Final Temp:	260 °C
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 7.0 psi
Carrier Gas Flow:	1.0 mL/min.
Constant Flow:	On

Average Linear Velocity:	36 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	200:1
Purge on (Split)	
Vent Flow:	200 mL/min.
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018



Components

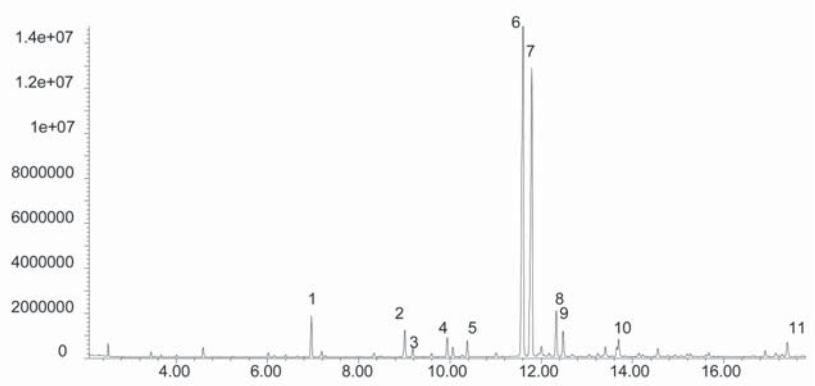
1. α-Pinene
2. Camphene
3. Sabinene
4. ß-Pinene
5. Myrcene
6. P-Cymene
7. Limonene
8. 1,8-Cineole
9. cis-Sabinene hydrate
10. Linalool L
11. Isopinocarveol
12. Camphor
13. Borneol L
14. Terpinen-4-ol
15. α-Terpineol
16. Verbenone
17. trans-(+)-Carveol
18. Bornyl acetate
19. α-Copaene
20. ß-Caryophyllene
21. α-Humulene
22. α-Amorphene
23. Caryophyllene oxide



FLA 22 | Analysis of Tasmanian Lavender Oil on SolGel-WAX™

Column Part No.:	054796
Phase:	SolGel-WAX™, 0.25 µm film
Sample:	Neat
Column:	30 m x 0.25 mm ID
Initial Temp.:	40 °C, 1 min.
Rate 1:	8 °C/min to 220 °C,
Final Temp:	220 °C, 5 min.
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 25.7 psi
Carrier Gas Flow:	1.8 mL/min.

Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	0.2 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part Number:	092017
Full Scan / SIM:	Full scan 45-450



Components

1. 3-Octanone
2. Octenyl acetate
3. Octanol
4. Cis Linalool oxide
5. Trans Linalool Oxide
6. Linalool L
7. Linalyl acetate
8. Terpinen-4-ol
9. Lavandulyl acetate
10. Borneol L
11. Caryophyllene oxide

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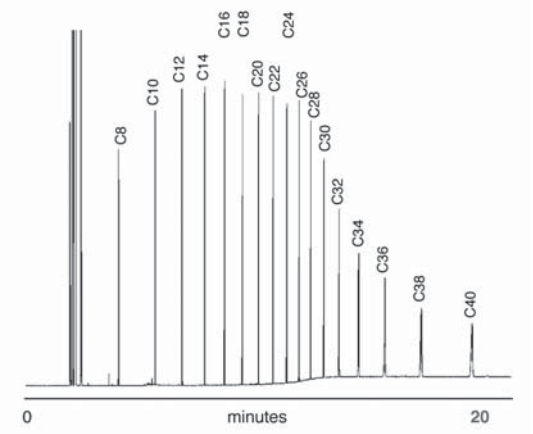
ENV 54 | Total Recoverable Petroleum Hydrocarbons (TRPH) Analysis on Standard and Fast BPX5

Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm ID
TRPH (C8-C40):	5 ng/ µL in dichloromethane
Initial Temp:	40 °C , 2 min
Rate 1:	30 °C/min to 330 °C
Rate 2:	N/A
Final Temp.:	330 °C, 9 min
Detector Type:	FID, 350 °C
Carrier Gas:	He, 14.1 psi
Carrier Gas Flow :	1.29 mL/min
Constant Flow:	On
Average Linear Velocity:	40 cm/sec at 40 °C
Injection Mode:	Split, 120:1
Purge On Time:	N/A
Purge On (Split) Vent Flow:	160 mL/min
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	Yes
Liner Type :	4 mm ID FocusLiner™ with single taper
Liner Part Number:	092003

Column Part Number:	054099
Phase:	BPX5, 0.10 µm film
Column:	10 m x 0.10 mm ID
TRPH (C8-C40) Standard:	5 ng/ µL in dichlormethane
Initial Temp.:	40 °C , 1 min
Rate 1:	30 °C/min to 330 °C
Rate 2:	N/A
Final Temp:	330 °C, 0 min
Detector Type:	FID, 350 °C
Carrier Gas:	He, 28 psi
Carrier Gas Flow :	0.52 mL/min
Constant Flow:	On
Average Linear Velocity:	55 cm/sec at 40 °C
Injection Mode:	Split, 120:1
Purge On Time:	N/A
Purge On (Split) Vent Flow:	62 mL/min
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	Yes
Liner Type :	2.3 mm ID FocusLiner™
Liner Part Number:	092005

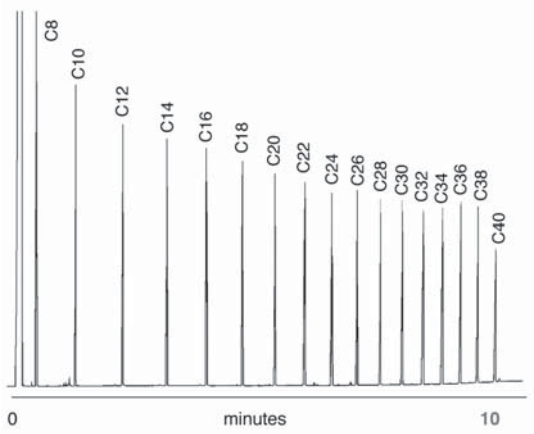
NORMAL

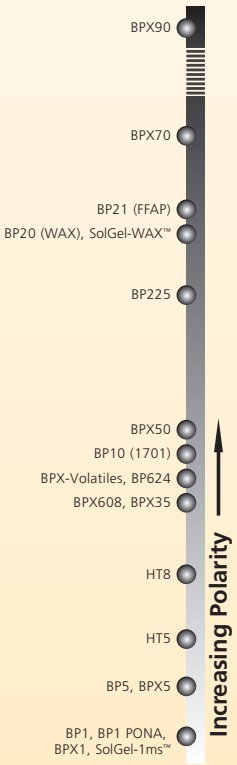
Chromatogram showing separation of Total Recoverable Petroleum Hydrocarbons using a conventional 30 meter x 0.25 mm ID BPX5 column with a 0.25 micron film.



FAST

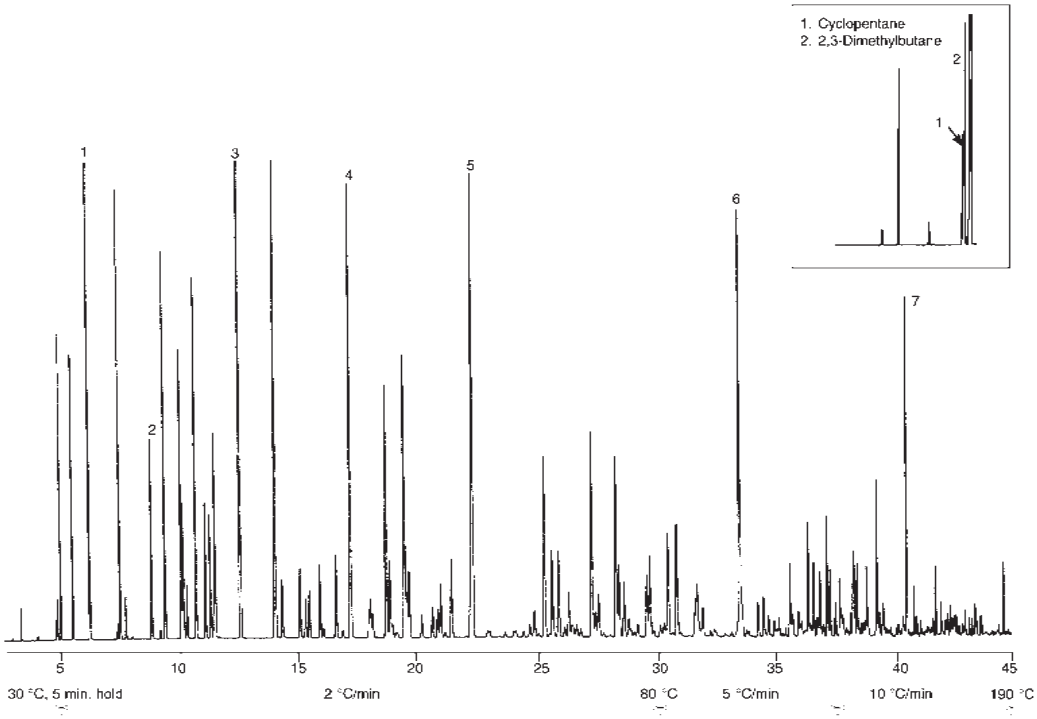
Chromatogram showing separation of Total Recoverable Petroleum Hydrocarbon using a FAST BPX5 column.





PET 01 | Analysis of Gasoline Range Hydrocarbons on BP1-PONA

Column Part No.:	054950
Phase:	BP1 PONA
Column:	50 m x 0.15 mm ID
Initial Temp.:	30 °C, 5 min hold
Rate 1:	2 °C/min
Temp. 2:	80 °C
Rate 2:	50 °C/min
Temp. 3:	120 °C
Rate 3:	10 °C/min
Final Temp.:	190 °C
Detector:	FID
Sensitivity:	32 x 10-12 AFS
Injection Mode:	Split
Carrier Gas:	H_2, 40 psi



Components

TIME COMPOUND
4.85 Cyclopentane
5.00 2,3-Dimethylbutane
5.25 2-Methylpentane
5.74 3-Methylpentane
1. 6.45 n-Hexane
7.46 2,2-Dimethylpentane
7.60 Methylcyclopentane
7.91 2,4-Dimethylpentane
8.18 2,2,3-Trimethylbutane
2. 8.99 Benzene
9.35 3,3-Dimethylpentane
9.55 Cyclohexane
10.23 2-Methylhexane
10.32 2,3-Dimethylpentane
10.47 1,1-Dimethylcyclohexane
10.83 3-Methylhexane
11.23 1-trans-3-Dimethylcyclopentane
11.43 1-cis-3-Dimethylcyclopentane
11.55 3-Ethylpentane
11.63 1-trans-2-Dimethylcyclopentane
11.78 2,2,4-Trimethylpentane
3. 12.73 n-Heptane
14.23 Methylcyclohexane
14.53 2,2-Dimethylhexane
15.27 Ethylcyclopentane
15.49 2,5-Dimethylhexane
15.65 2,4-Dimethylhexane
16.09 1-trans-2-cis-4-Trimethylcyclo-pentane
16.24 2,3,4-Trimethylpentane
16.78 1-trans-2-cis-3-Trimethylcyclo-pentane
17.05 2,3,3-Trimethylpentane
4. 17.39 Toluene
18.27 2,3-Dimethylhexane
18.43 2-Methyl-3-ethylpentane
18.84 2-Methylheptane
19.69 1-Methyl-2-ethylcyclopentane
18.98 4-Methylheptane
19.23 1-cis-2-cis-4-trans-Trimethylcy-clopentane
19.50 3-Methylheptane
19.77 1-trans-4-Dimethylcyclohexane
20.73 1-Methyl-cis-2-ethylcyclopentane
20.86 1-Methyl-trans-3-ethylcyclo-pentane
21.08 1-Methyl-cis-3-ethylcyclohexane
21.27 1-Ethy-1-methycyclopentane
21.53 1-trans-2-Dimethylcyclohexane
5. 22.43 n-Octane
23.05 iso-Propylcyclopentane
24.14 2.2.5-Trimethylhexane
24.19 2,2,4-Trimethylhexane
24,53 2,4,4-Trimethylhexane
24.79 2,3,5-Trimethylhexane
25.16 2,4-Dimethylheptane
25.41 n-Propylcyclopentane
25.73 1-cis-2-Dimethylcyclohexane
26.00 1,1,3-Trimethylcyclohexane
26.25 2,5-Dimethylheptane
26.44 3,3-Dimethylheptane
26.58 3,5-Dimethylheptane
26.77 4,4-Dimethylheptane
26.94 2,3,3-Trimethylhexane
27.43 Ethylbenzene
27.57 1-cis-3-cis-5-Trimethylpentane
27.69 1,1,4-Trimethylcyclohexane
27.88 2,3,4-Trimethylhexane
28.15 3,3,4-Trimethylhexane
28.42 m-Xylene
28.54 p-Xylene
28.74 2,3-Dimethylheptane
28.84 1-cis-2-trans-4-trans-Trimethylcy-clohexane
28.95 1-cis-2-trans-4-cis-Trimethylcy-clohexane
29.16 3,4-Dimethylheptane
29.31 3-Methylethylhexane
29.68 4-Methyloctane
29.81 2-Methyloctane
30.56 3-Methyloctane
30.93 o-Xylene
31.75 1-Methyl-2-propylcyclopentane and 1-Methyl-trans-4-ethylcyclohexane
31.98 1-Methyl-cis-4-ethylcyclohexane
32.46 3,3-Diethylpentane
32.89 2,2,6-Trimethylheptane
33.17 1,1,2-Trimethycyclohexane
6. 33.52 n-Nonane
34.26 iso-Propylbenzene
34.48 tert-Butylcyclopentane
34.68 tert-Butylbenzene
35.57 sec-Butylcyclopentane
36.33 3-Methylnonane
36.56 n-Propylbenzene
36.83 n-Propylcyclohexane
37.12 m-Ethyltoluene
37.24 p-Ethyltoluene
37.64 1,3,5-Trimethylbenzene
38.20 2-Methylnonane
38.36 o-Ethyltoluene
38.75 3,6-Dimethyloctane
38.75 1,2,4-Trimethylbenzene
7. 40.32 n-Decane
40.63 1,2,3-Trimethylbenzene
41.57 4-Methyldecane
41.94 sec-Butylbenzene
42.45 n-Butylbenzene
44.54 n-Undecane

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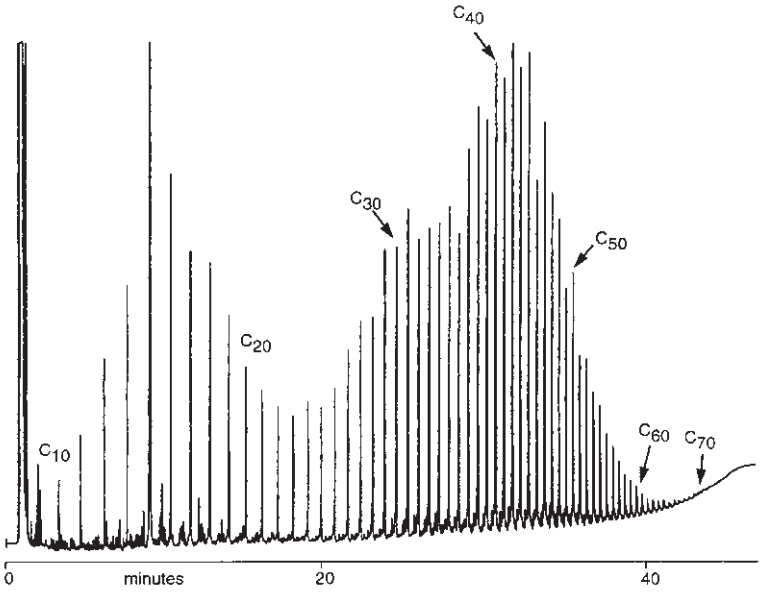
P: 1300 855 315

PET 11 | Analysis of Crude Oil and Wax Mixtures on HT5

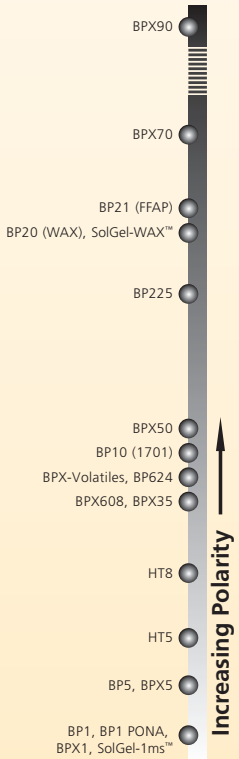
Column Part No.:	054635
Phase:	HT5, 0.1 µm
Column:	12 m x 0.22 mm I.D. (Aluminum Clad)
Initial Temp.:	35 °C
Program Rate:	10 °C/min.
Final Temp.:	480 °C
Carrier Gas:	H_2, 15 psi
Detector:	F.I.D.
Sensitivity:	32 x 10 -12 AFS
Injection Mode:	Split

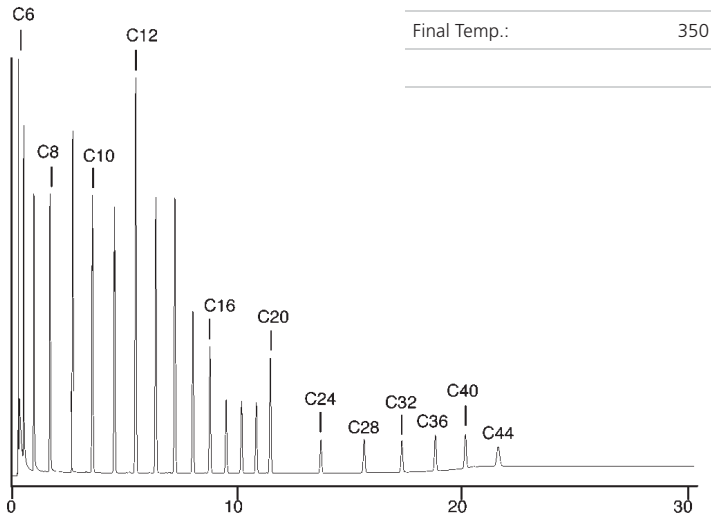
Notes: HT5 is the best column for the analysis of hydrocarbons C_{10} - C_{70}.



PET 26 | Standard for D2887 on BPX1

Column Part No.:	054802
Phase:	BPX1, 2.65 µm film
Column:	10 m x 0.53 mm ID
Initial Temp.:	40 °C
Rate:	15 °C/min
Final Temp.:	350 °C, 10min
Detector Temp.:	400 °C
Carrier Gas:	He, 20 mL/min
Instrument:	HP 6890
Separation Systems Injector	
Initial Temp.:	80 °C
Rate:	15 °C/min
Final Temp.:	350 °C, 10 min



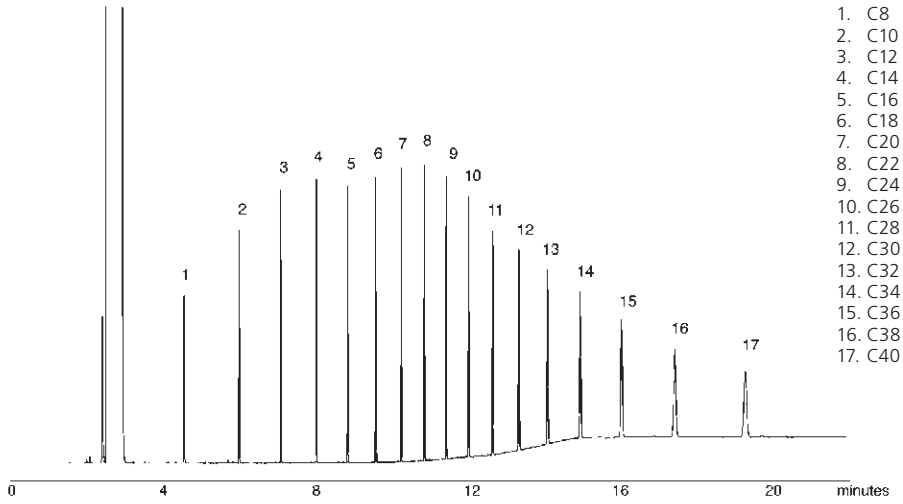


ENV 51 | Total Recoverable Petroleum Hydrocarbons (TRPH) C8-C40 on SolGel-1ms™

Column Part No.:	054795
Phase:	SolGel-1, 0.25 µm film 30 m x 0.25 mm ID
Sample Introduction:	Split / Splitless
Injector Temp.:	250 °C
Injection Volume:	0.5 µL
Autosampler Syringe:	5 µL Fixed Needle Part No. 001810
Septa:	Auto-Sep T™ Part No. 041882
Injection Type:	Split
Purge On Time:	NA
Purge On (Spilt) Vent:	100 mL/min
Split Ratio:	62.5 to 1
Liner Type:	Double taper Part No. 092018
Carrier Gas:	He
Constant Flow:	On

Pressure:	16.6 psi
Column Flow:	1.6 mL/min
Linear Velocity:	35 cm/sec at 40 °C
Initial Temp:	40 °C
Initial Time:	2 min
Rate 1:	30 °C/min
Final Temp.1:	310 °C
Hold Time:	0 min
Rate 2:	10 °C/min
Final Temp. 2:	340 °C
Hold Time:	0 min
Run Time:	22.00 min
Detector Type:	FID at 340 °C

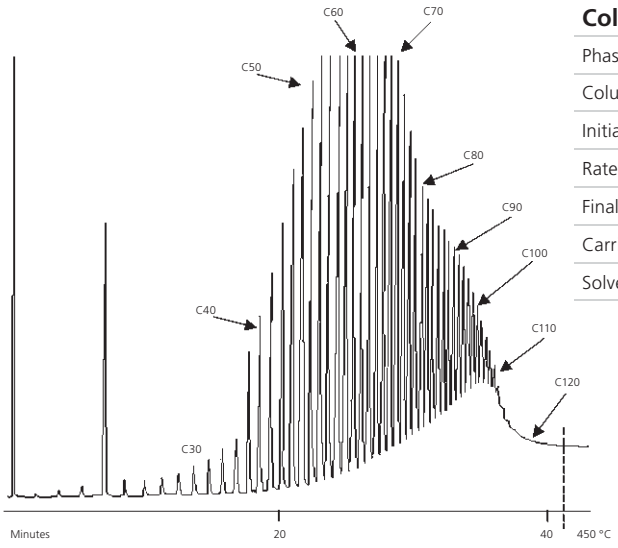
Sample Description: TRPH mix 500 mg/L, 4 ng per component on column.



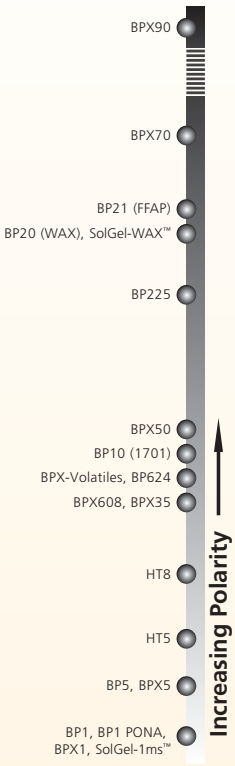
Components

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

PET 27 | Analysis of Polywax 1000 on an Aluminum Clad HT5



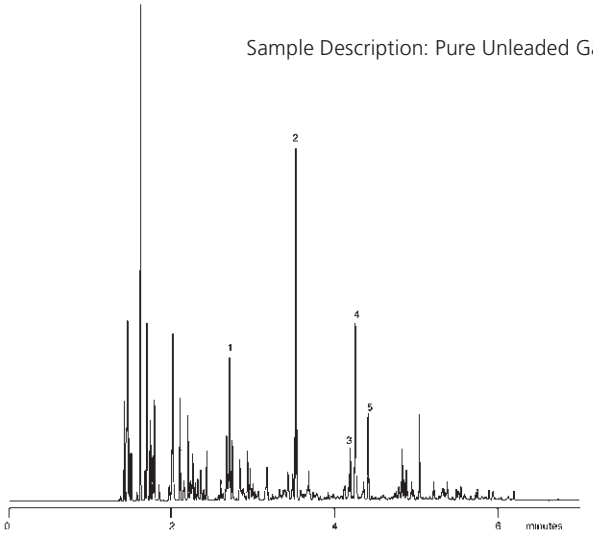
Column Part No.:	054673
Phase:	HT5, 0.075 µm film
Column:	5 m x 0.53 mm ID
Initial Temp.:	40 °C, 1 min
Rate:	10 °C/min
Final Temp.:	450 °C, 10 min
Carrier Gas:	He, 20 mL/min
Solvent:	CS_2



PET 22 | Unleaded Gasoline on BPX5

Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm ID
Sample Introduction:	Split / Splitless
Injector Temp.:	240 ˚C
Injection Volume:	0.1 µL
Autosampler Syringe:	0.5 µL Removable Needle Part No. 000410
Septa:	Auto-Sep T™ Part No. 041882
Injection Type:	Split
Purge On Time:	NA
Purge On (Split) Vent:	200 mL/min
Split Ratio:	149 to 1
Liner Type:	FocusLiner™ single taper Part No. 092003
Carrier Gas:	He

Constant Flow:	On
Pressure:	13.6 psi
Column Flow:	1.34 mL/min
Linear Velocity:	30 cm/sec at 25 ˚C
Initial Temp.:	25 ˚C
Initial Time:	1 min
Rate 1:	30 ˚C/min
Final Temp. 1:	240 ˚C
Hold Time:	1 min
Run Time:	9.17 min
Final Temp. 2:	340 ºC
Hold Time:	0 min
Run Time:	22.00 min
Detector Type:	FID at 280 ˚C



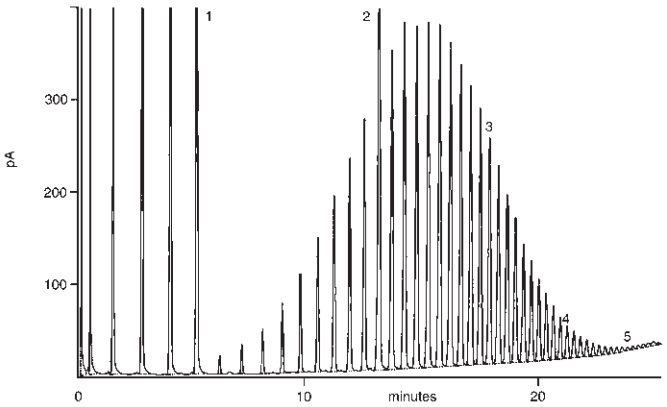
Components

1. Benzene
2. Toluene
3. Ethylbenzene
4. m, p - Xylene
5. o - Xylene

PET 18 | Analysis of Polywax 655 on Megabore BPX1

Column Part No.:	054800
Phase:	BPX1, 0.1 µm
Column:	5 m x 0.53 mm ID
Initial Temp:	40 °C
Rate:	15 °C

Final Temp:	420 °C, 5 min
Detector Temp:	440 °C
Carrier:	He, 10 mL/min
Instrument:	HP 6890
Solvent:	CS_2

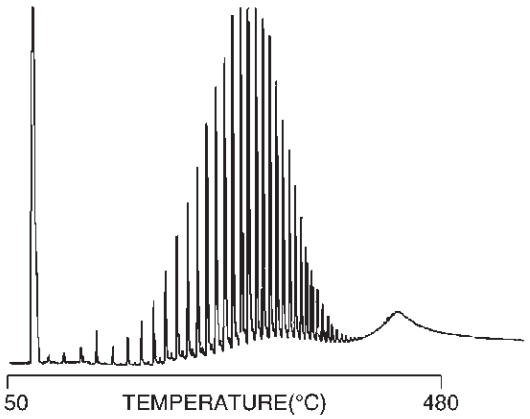


PET 06 | Analysis of Polywax 655 and Refinery Lubrication Oil on HT5

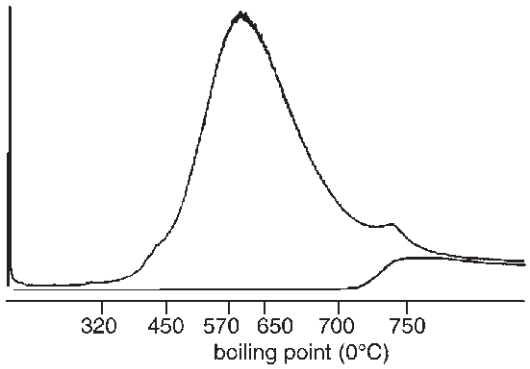
Column Part No.:	**054661**
Phase:	HT5, 0.1 µm
Column:	6 m x 0.53 mm ID
Initial Temp.:	50 °C
Rate:	10 °C/min
Final Temp.:	480 °C, 15 min

Detector:	FID
Sensitivity:	40 x 10 -12 AFS
Injection Mode:	On-Column
Carrier Gas:	Hydrogen, 20 ml/min
Solvent:	CS_2

POLYWAX 655



REFINERY LUBRICATION OIL



ENV 54 | BPX1 A New Era in Simulated Distillation Technology (SimD)

Column Part No:	**054800**
Phase:	BPX1, 0.1 µm
Column:	5 m x 0.53 mm ID
Initial Temp.:	40 °C
Rate:	15 °C
Final Temp.:	420 °C, 5 min.

Detector Temp:	440 °C
Carrier Gas:	Helium, 10 mL/min
Instrument:	HP6890
Initial Temp.:	40 °C
Rate:	15 °C
Final Temp.:	420 °C, 5 min.

Data supplied by Dr. J. Lubkowitz and the staff at Separation Systems Inc.

Figure. 1. Standard mix for HTSD using BPX1-SimD

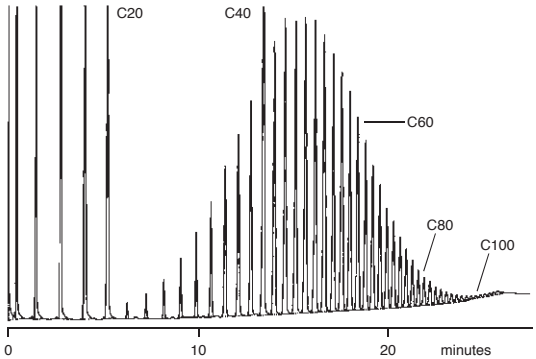
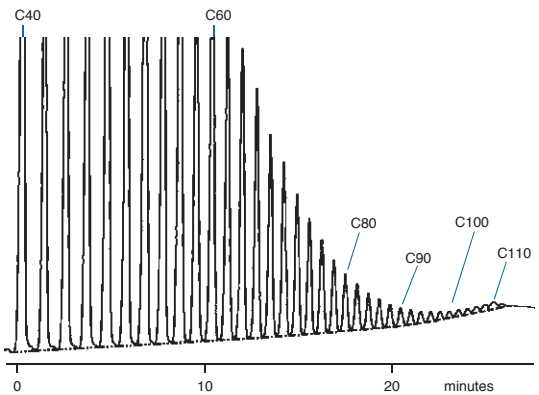
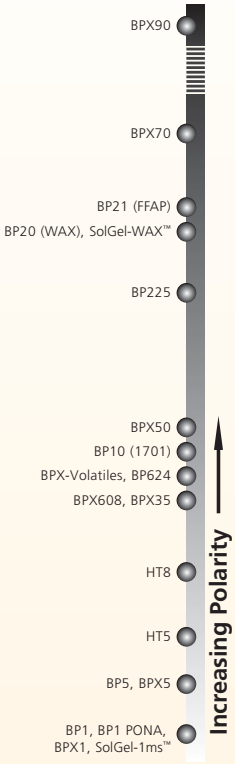


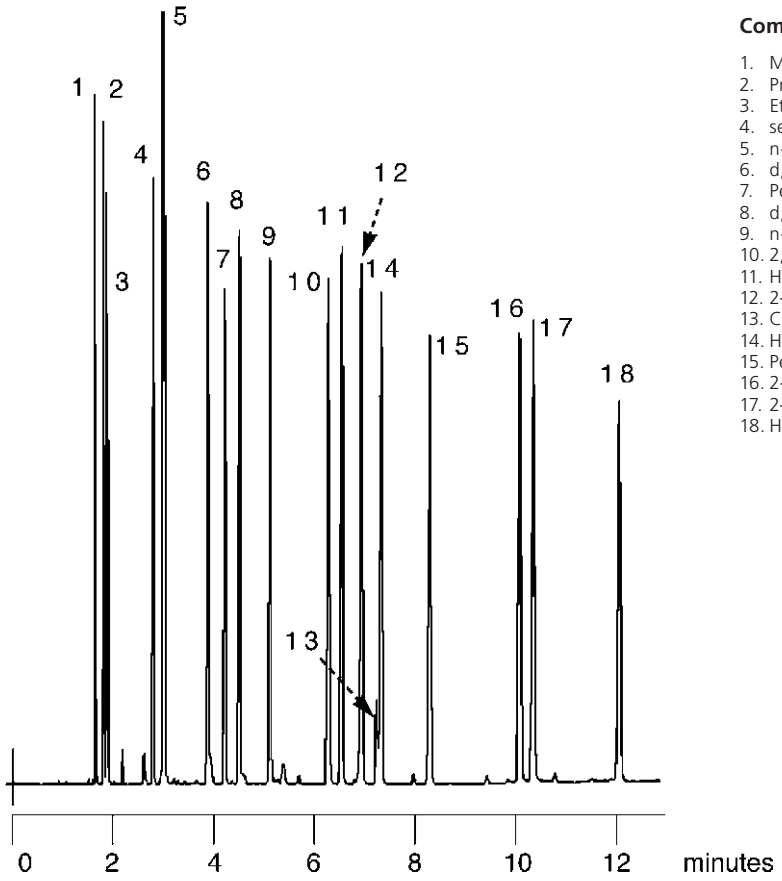
Figure. 2. Enlarged section of Figure 1.



ALC 02 | Analysis of 18 Alcohols on BP20

Column Part No.:	054427		
Phase:	BP20, 0.25 µm film	Final Temp:	80 °C, 0 min
Column:	30 m x 0.25 mm ID	Detector:	FID
Initial Temp:	45 °C, 2 min	Sensitivity:	128 x 10^{-12} AFS
Rate:	3 °C/min	Injection Mode:	Split



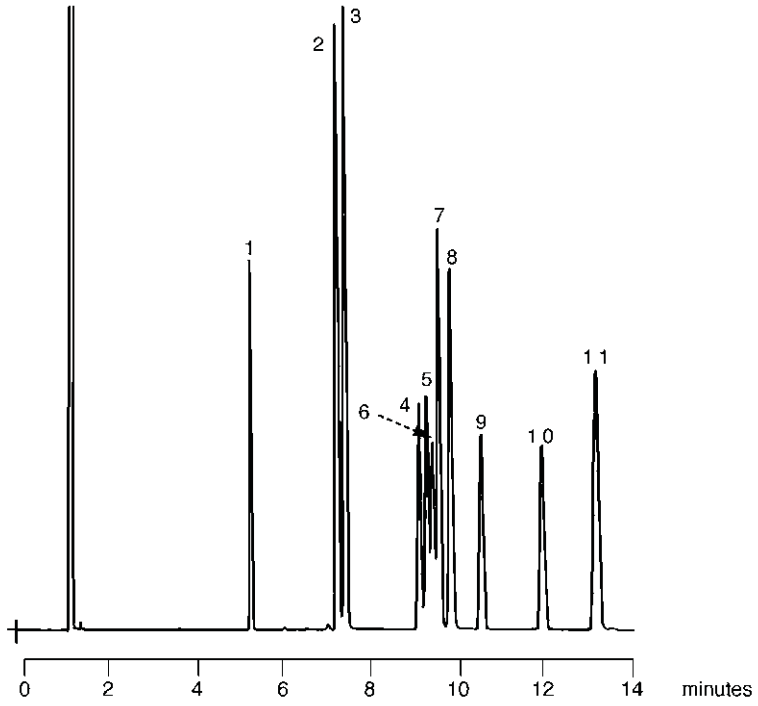


Components

1. Methanol
2. Propan-2-ol
3. Ethanol
4. sec-Butan-1-ol
5. n-Propanol + 2-Methyl-3-Buten-2-ol
6. d,l-3-Methyl-2-Butan-1-ol
7. Pentan-3-ol
8. d,l-2-Pentan-1-ol
9. n-Butanol
10. 2,4-Dimethyl, Pentan-3-ol
11. Hexan-3-ol
12. 2-Methyl Prop-2-en-1-ol
13. Crotyl Alcohol (2-Buten-1-ol)
14. Hexan-2-ol
15. Pentan-1-ol
16. 2-Methyl Pentan-1-ol
17. 2-Ethyl Butan-1-ol
18. Hexan-1-ol

ACI 03 | Analysis of 11 Organic Acids on BP20

Column Part No.:	054427		
Phase:	BP20, 0.25 µm film	Detector:	FID
Column:	30 m x 0.25 mm ID	Sensitivity:	32 x 10-12 AFS
Initial Temp:	Isothermal at 155 °C	Injection Mode:	Split



Components

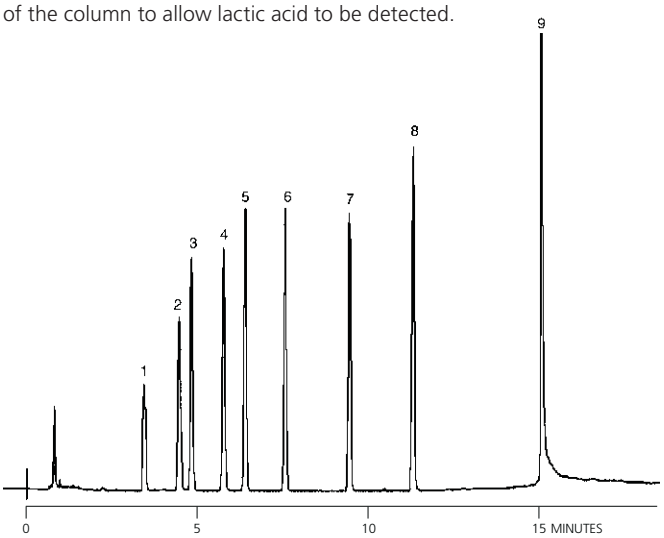
1. 2,6-Xylenol
2. o-Cresol
3. Phenol
4. o-Ethylphenol
5. 2,5-Xylenol
6. p-Cresol
7. 2,4-Xylenol
8. m-Cresol
9. 2-iso Propylphenol
10. 2,3-Xylenol
11. 3,5-Xylenol + p-Ethylphenol

Notes: BP20 column completely resolves the three cresol isomers.

ACI 02 | Analysis of Organic Acids in Water on BP21

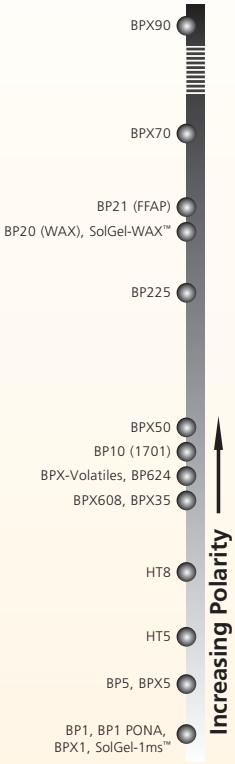
Column Part No.:	054477		
Phase:	BP21, 0.5 µm film	Final Temp:	180 °C, 5 min
Column:	30 m x 0.53 mm ID	Detector:	FID
Initial Temp:	85 °C, 0 min	Sensitivity :	64 x 10^{-12} AFS
Rate:	6 °C/min	Injection Mode:	On-Column

Notes: On-column injection and the addition of a 0.03 M Oxalic acid (2%) to the injection solution increases the acidity of the column to allow lactic acid to be detected.



Components

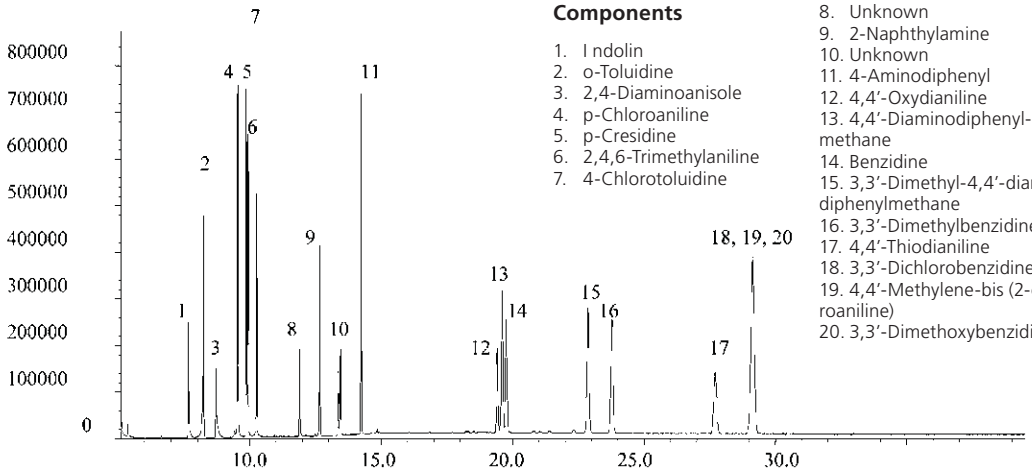
1. Acetic Acid
2. Propanoic Acid
3. iso-Butyric Acid
4. n-Butyric Acid
5. iso-Valeric Acid
6. n-Valeric Acid
7. n-Caproic Acid
8. n-Heptanoic Acid
9. Lactic Acid



AMI 06 | Analysis of Aromatic Amines from Diazo Dyes on BPX35

Column Part No:	054701
Phase:	BPX35 0.25 µm film
Azo Dyes standard:	10 ppm solution in DCM
Column:	30 m x 0.25 mm ID
Initial Temp:	50 °C, 2 min
Rate 1:	15 °C to 240 °C
Rate 2:	10 °C to 280 °C
Final Temp:	280 °C, 25 min
Detector Type:	MS D
Carrier Gas:	He, 7.1 psi
Carrier Gas Flow:	1.0 mL/min

Constant Flow:	On
Average Linear Velocity:	36 cm/sec at 50 °C
Injection Mode:	Splitless
Purge on Time:	1.0 min
Purge on (Split)	
Vent Flow:	60 mL/min
Injection Volume:	1 µL
Injection Temp:	250 °C
Liner Type:	4 mm ID Double Taper Liner
Liner Part No:	092018



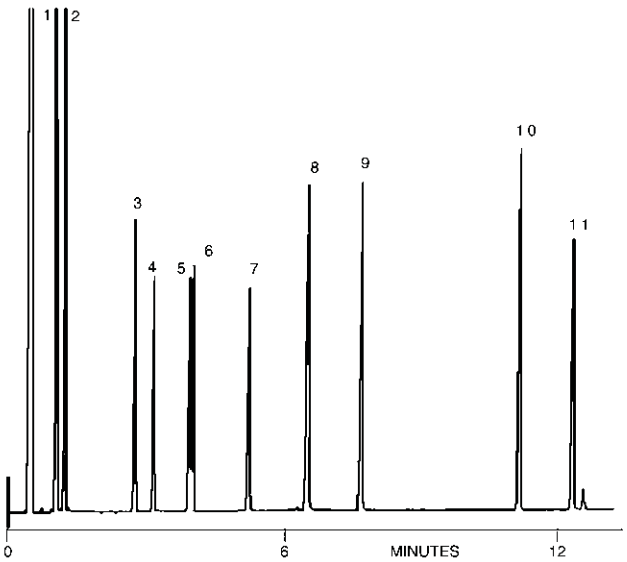
Components

1. I ndolin
2. o-Toluidine
3. 2,4-Diaminoanisole
4. p-Chloroaniline
5. p-Cresidine
6. 2,4,6-Trimethylaniline
7. 4-Chlorotoluidine
8. Unknown
9. 2-Naphthylamine
10. Unknown
11. 4-Aminodiphenyl
12. 4,4′-Oxydianiline
13. 4,4′-Diaminodiphenyl-methane
14. Benzidine
15. 3,3′-Dimethyl-4,4′-diamino-diphenylmethane
16. 3,3′-Dimethylbenzidine
17. 4,4′-Thiodianiline
18. 3,3′-Dichlorobenzidine
19. 4,4′-Methylene-bis (2-chloroaniline)
20. 3,3′-Dimethoxybenzidine

AMI 03 | Analysis of Aromatic Amines on BP5

Column Part No.:	054197
Phase:	BP5, 1.0 µm film
Column:	12 m x 0.53 mm ID
Initial Temp:	60 °C, 0 min
Rate:	10 °C/min

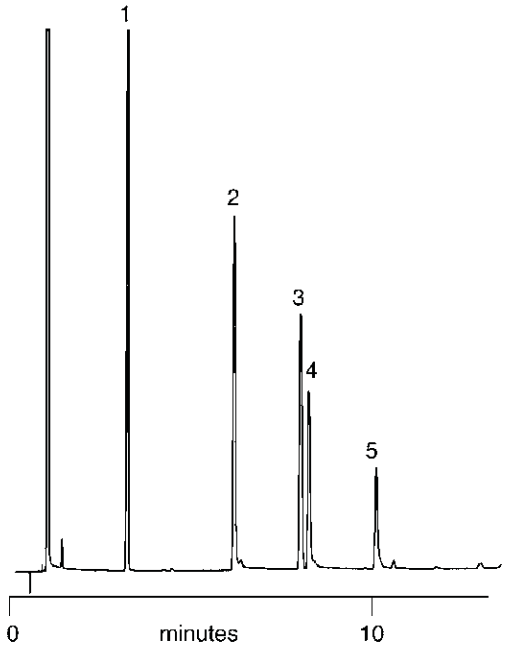
Final Temp:	190 °C, 0 min
Detector:	FID
Sensitivity :	128 x 10-12 AFS
Injection Mode:	Split



Components

1. Pyridine
2. 2-Methyl Pyridine
3. Aniline
4. Benzylamine
5. o-Toluidine
6. m-Toluidine
7. 2,6-Dimethylaniline
8. 1,4-Phenyldiamine
9. Nicotine
10. Biphenylamine
11. Bibenzylamine

AMI 04 | Analysis of Amines on BP1



Column Part No:	054097
Phase:	BP1, 3.0 µm film
Column:	12 m x 0.53 mm ID
Initial Temp:	70 °C
Rate:	10 °C/min
Final Temp.:	250 °C
Carrier Gas:	Nitrogen
Injection Volume:	0.1 µL

Components

1. Aniline
2. Decylamine
3. Dicyclohexylamine
4. Dodecylamine
5. Tetradecylamine

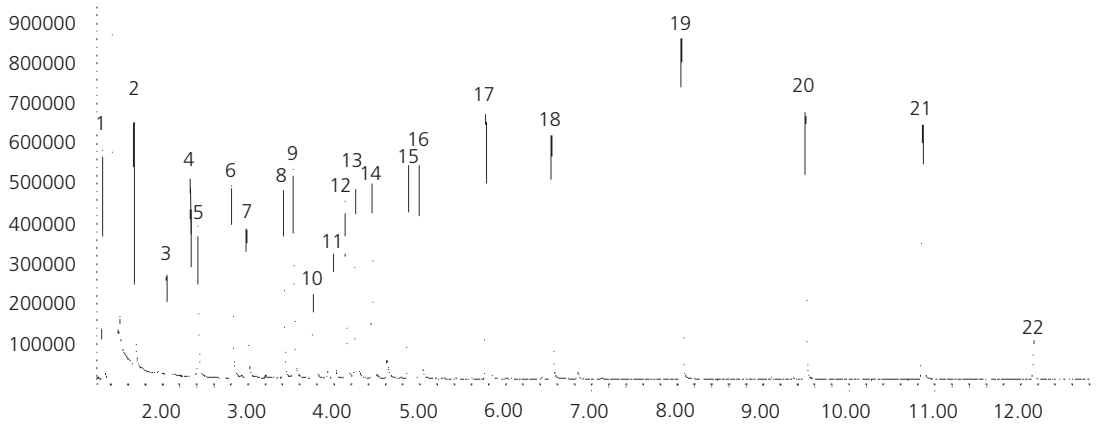
SOL 25 | Analysis of 22 Ketones on BPX35

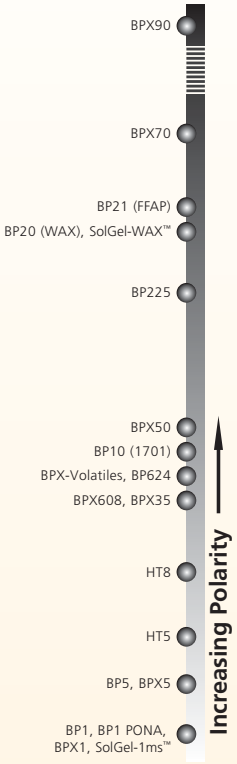
Column Part No.:	054701
Phase:	BPX35, 0.25 µm film
Sample:	300 ppm in dichloromethane
Column:	30 m x 0.25 mm ID
Initial Temp:	40 °C, 5 min.
Rate:	10 °C/min to 170 °C
Final Temp:	170 °C, 5 min.
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 25.6 psi
Carrier Gas Flow:	1.6 mL/min.

Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	80:1
Injection Volume:	0.5 µL
Injection Temp.:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part Number:	092017
Full Scan / SIM:	Full scan 45-450

Components

1. Acetone
2. 2-Butanone
3. 3-Methyl-2-butanone
4. 2-Pentanone
5. 3-Pentanone
6. 4-Methyl-2-pentanone
7. 3-Methyl-2-pentanone
8. 3-Hexanone
9. 2-Hexanone
10. Mesityl oxide
11. 2-Methyl-3-hexanone
12. Cyclopentanone
13. 4-Methyl-2-hexanone
14. 5-Methyl-2-hexanone
15. 3-Heptanone
16. 2-Heptanone
17. Cyclohexanone
18. 2-Octanone
19. 2-Nonanone
20. 2-Decanone
21. 2-Undecanone
22. 2-Dodecanone





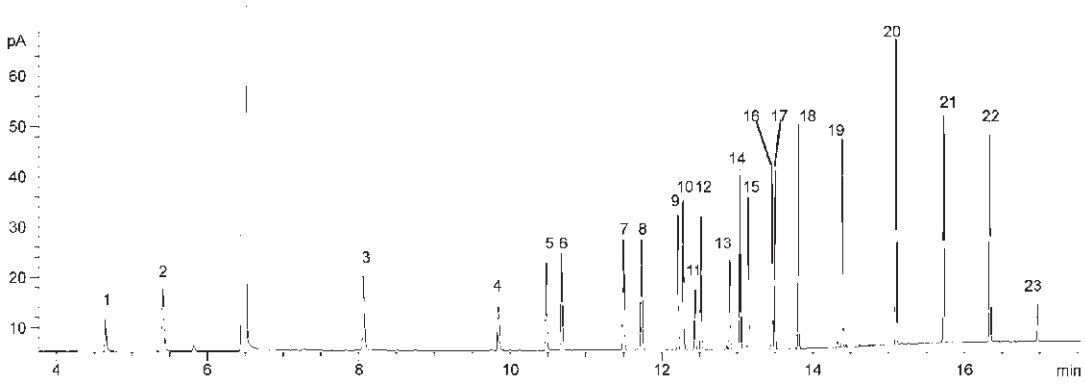
SOL 33 | Analysis of Ketones on Thick Film BPX5

Column Part No.:	054123
Phase:	BPX5, 1.0 µm film
Sample:	300 ppm in dichloromethane
Column:	60 m x 0.25 mm ID
Initial Temp.:	40 °C, 5 min.
Rate 1: 1	0 °C/min to 80 °C
Rate 2:	30 °C/min to 260 °C
Final Temp:	260 °C, 4 min.
Detector Type:	FID
Detector Temp.:	360 °C

Carrier Gas:	He, 27.6 psi
Carrier Gas Flow:	1.9 mL/min.
Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	0.4 µL
Injection Tem.:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part Number:	092017

Components

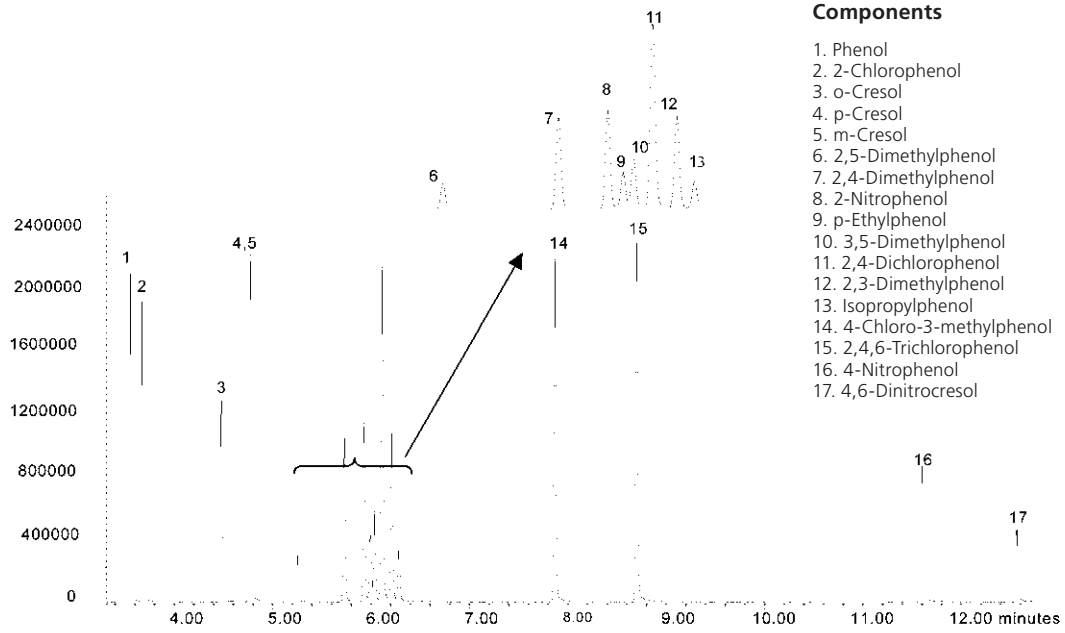
1. Ethanol
2. Acetone
3. 2-Butanone
4. 3-Methyl-2-butanone
5. 2-Pentanone
6. 3-pentanone
7. 4-Methyl-2-pentanone
8. 3-Methyl-2-pentanone
9. 3-Hexanone
10. 2-Hexanone
11. Mesityl oxide
12. Cyclopentanone
13. 2-Methyl-3-hexanone
14. 4-Methyl-2-hexanone
15. 5-Methyl-2-hexanone
16. 3-Heptanone
17. 2-Heptanone
18. Cyclohexanone
19. 2-Octanone
20. 2-Nonanone
21. 2-Decanone
22. 2-Undecanone
23. 2-Dodecanone



ALC 09 | Analysis of Phenols Mixture on BPX35

Column Part No:	054701
Phase:	BPX35, 0.25 µm film
Sample:	200 ppm in methanol
Column:	30 m x 0.25 mm ID
Initial Temp:	80 °C, 1 min
Rate 1:	10 °C/min to 300 °C
Final Temp:	300 °C, 5 min
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 29.2 psi
Carrier Gas Flow:	1.7 mL/min.

Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 80 °C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	1 µL
Injection Temperature:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part No.:	092017
Full Scan / SIM:	Full scan 45-450



Components

1. Phenol
2. 2-Chlorophenol
3. o-Cresol
4. p-Cresol
5. m-Cresol
6. 2,5-Dimethylphenol
7. 2,4-Dimethylphenol
8. 2-Nitrophenol
9. p-Ethylphenol
10. 3,5-Dimethylphenol
11. 2,4-Dichlorophenol
12. 2,3-Dimethylphenol
13. Isopropylphenol
14. 4-Chloro-3-methylphenol
15. 2,4,6-Trichlorophenol
16. 4-Nitrophenol
17. 4,6-Dinitrocresol

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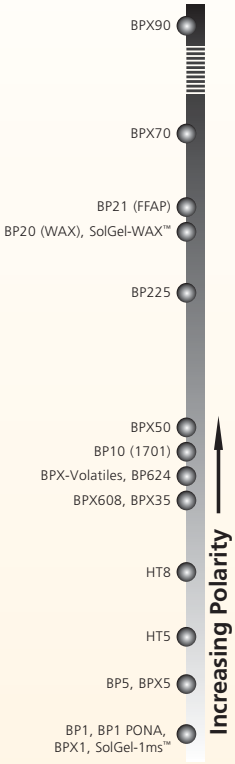
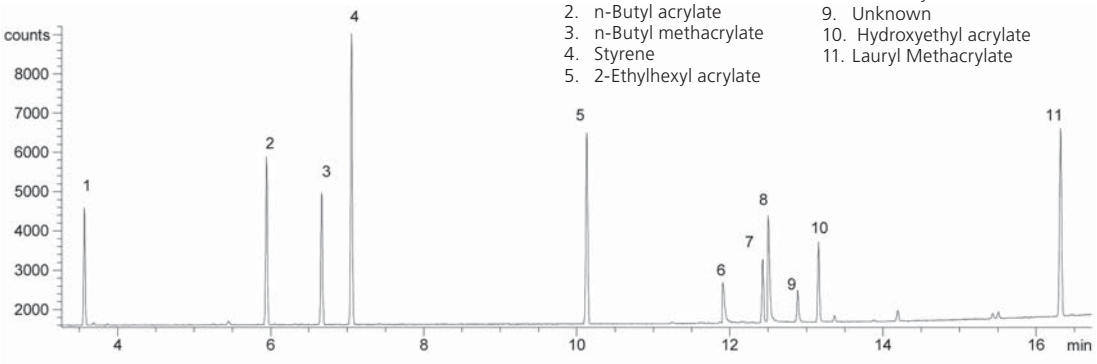


POL 06 | Analysis of Various Monomers on SolGel-WAX™

Column Part No.:	054796
Phase:	SolGel-WAX, 0.25 µm film
Sample:	250 ppm in Hexane
Column:	30 m x 0.25 mm ID
Initial Temp:	40 °C, 1 min.
Rate 1:	10 °C/min to 250 °C
Final Temp:	250 °C,
Detector Type:	FID
Detector Temp.:	320 °C
Carrier Gas:	He, 16.6 psi

Carrier Gas Flow:	1.6 mL/min.
Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Split
Split Ratio:	80:1
Injection Volume:	1 µL
Injection Temperature:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Single Taper Liner
Liner Part Number:	092017



Components

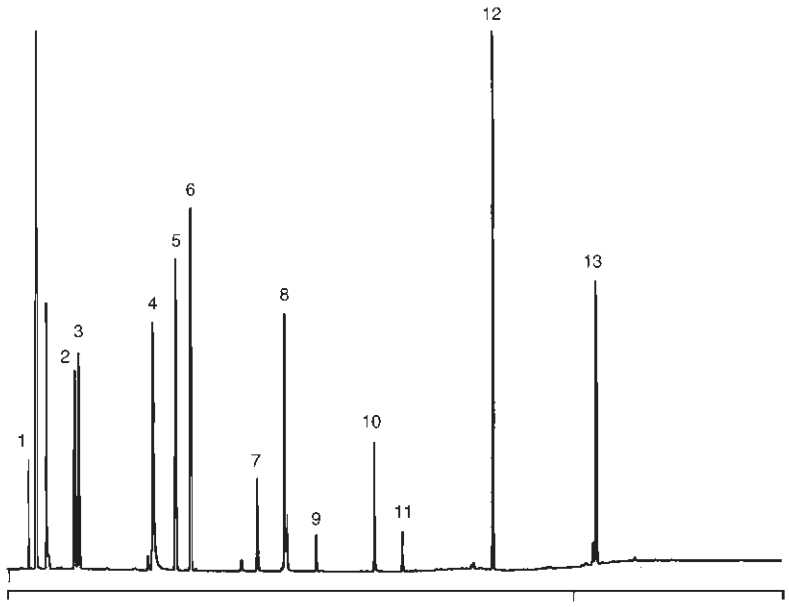
1. Ethyl acrylate
2. n-Butyl acrylate
3. n-Butyl methacrylate
4. Styrene
5. 2-Ethylhexyl acrylate
6. Acrylic acid
7. Hydroxypropyl acrylate
8. Methacrylic acid
9. Unknown
10. Hydroxyethyl acrylate
11. Lauryl Methacrylate

POL 01 | Analysis of Unreacted Monomers in Latex on BP20

Column Part No.:	054488
Phase:	BP20, 1.0 µm
Column:	25 m x 0.53 mm ID
Initial Temp.:	40 °C, 2 min
Rate:	10 °C/min

Final Temp.:	230 °C, 5 min
Injector Cond.:	Split, 280 °C
Detector:	FID, 280 °C
Carrier Gas:	Hydrogen, 4 psi

Note: This was performed by heated headspace analysis.



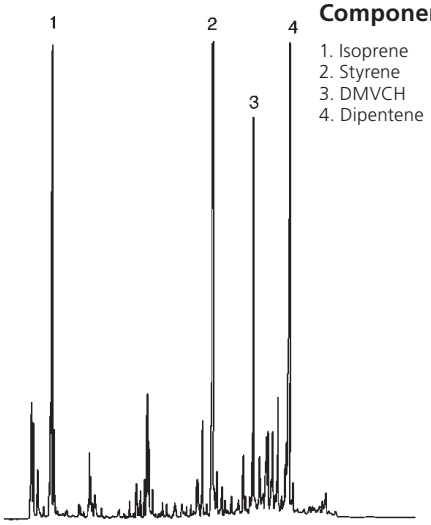
Components

1. Vinyl Acetate
2. Ethyl Acrylate
3. Monomethyl Methacrylate
4. Butyl Acrylate
5. Butyl Methacrylate
6. Styrene
7. Di-methylamino Ethyl-methacrylate
8. 2-Ethyl Hexylacrylate
9. Octanol
10. Unknown
11. 2-(acetoacetoxy) Ethyl Methacrylate
12. Dibutyl Maleate
13. Dicyclopentenyloxyethyl Methacrylate

POL 05 | Pyrolysis of Styrene-isoprene Copolymer Pyrolysis of Polystyrene on BP1

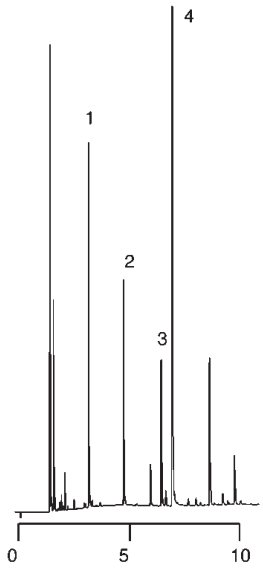
Column Part No.:	054053
Phase:	BP1, 1.0 µm
Column:	25 m x 0.22 mm ID
Initial Temp.:	40 ˚C, 1 min
Rate:	10 ˚C/min
Final Temp.:	140 ˚C
Detector:	FID
Pyrolysis Temp.:	550 ˚C
Carrier Gas:	H_2 10 psi

Column Part No.:	054065
Phase:	BP1, 0.5 µm
Column:	25 m x 0.32 mm ID
Initial Temp.:	40 ˚C, 1 min
Rate:	10 ˚C/min
Final Temp.:	130 ˚C
Detector:	FID
Pyrolysis Temp.:	800 ˚C
Carrier Gas:	H_2, 5 psi



Components

1. Isoprene
2. Styrene
3. DMVCH
4. Dipentene



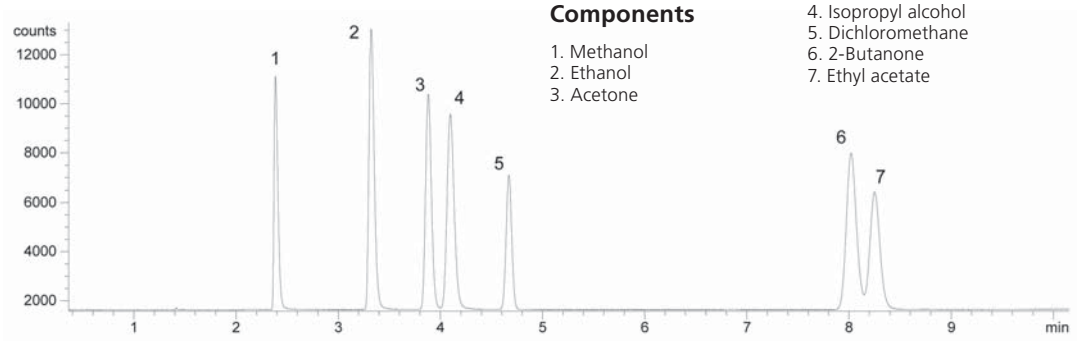
Components

1. Benzene
2. Toluene
3. Ethylbenzene
4. Styrene

SOL 21 | Analysis of a Common Solvent Mixture on BP624

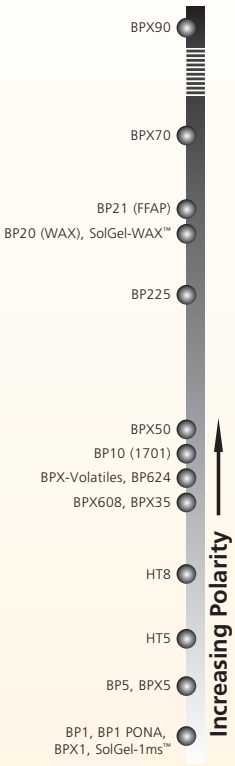
Column Part No.:	054832
Phase:	BP624, 1.8 µm film
Alcohol mix:	1000 ppm in Dimethyl Sulfoxide
Column:	30 m x 0.32 mm ID
Initial Temp:	32 °C, 9 min.
Rate:	30 °C/min to 190 °C
Final Temp:	190 °C, 0 min.
Detector Type:	FID
Carrier Gas:	He, 9.6 psi
Carrier Gas Flow:	2.2 mL/min.

Constant Flow:	On
Average Linear Velocity:	34 cm/sec at 32 °C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	0.2 µL
Injection Temperature:	250 °C
Autosampler:	No
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018



Components

1. Methanol
2. Ethanol
3. Acetone
4. Isopropyl alcohol
5. Dichloromethane
6. 2-Butanone
7. Ethyl acetate

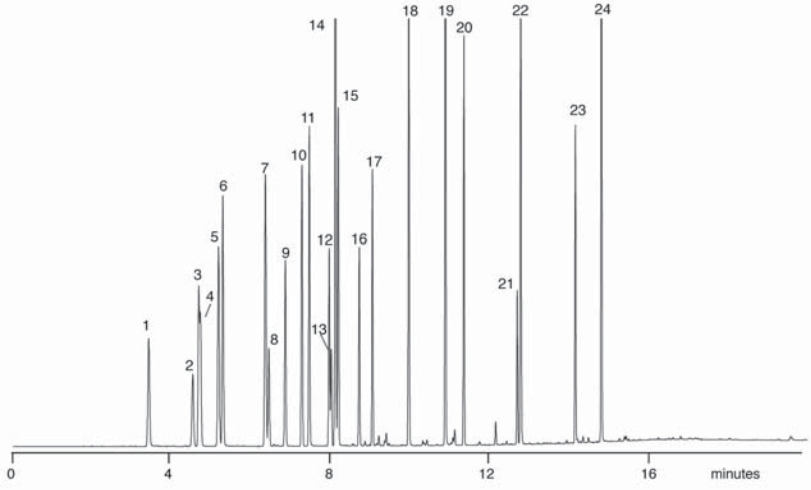


ENV 52 | Industrial Solvents on SolGel-WAX™

Column Part No.	054797
Phase:	SolGel-WAX™, 0.5 µm film 30 m x 0.32 mm ID
Split / Splitless	
Injector Temp:	240 °C
Injection Volume:	0.1 µL
Autosampler Syringe:	0.5 µL Removable Needle Part No. 000410
Septa:	Auto-Sep T™ Part No. 041882
Injection Type:	Split
Purge On Time:	NA
Purge On (Spilt) Vent:	150 mL/min
Split Ratio:	83 to 1
Liner Type:	Single taper Part No. 092017
Carrier Gas:	He

Constant Flow:	On
Pressure:	8.4 psi
Column Flow:	1.84 mL/min
Linear Velocity:	30 cm/sec at 35 °C
Initial Temp.:	35 °C
Initial Time:	3 min
Rate 1:	15 °C/min
Final Temp .1:	230 °C
Hold Time:	4 min
Run Time:	20.00 min
Detector Parameters	
Detector Type:	FID at 270 °C

Sample Description: Industrial solvents mix, 25 to 50 ng per component on column



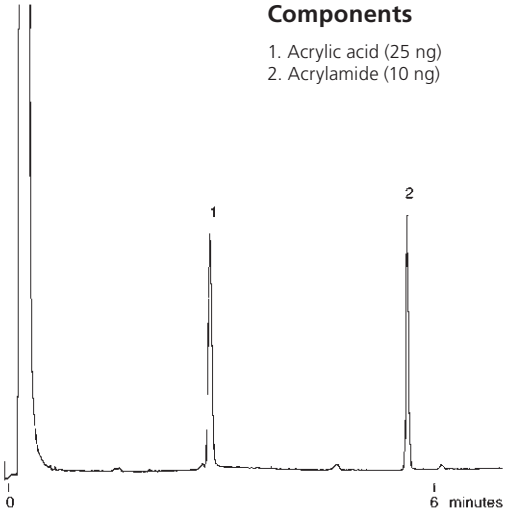
Components

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

SOL 04 | Acrylic Acid/Acrylamide Analysis on BP21

Column Part No.:	054473
Phase:	BP21, 0.5 µm film
Column:	12 m x 0.53 mm ID
Initial Temp:	75 °C, 0.5 min
Rate:	10 °C/min
Final Temp:	150 °C
Detector:	FID, 280 °C
Injection Mode:	On-Column
Carrier Gas:	He, 6 psi

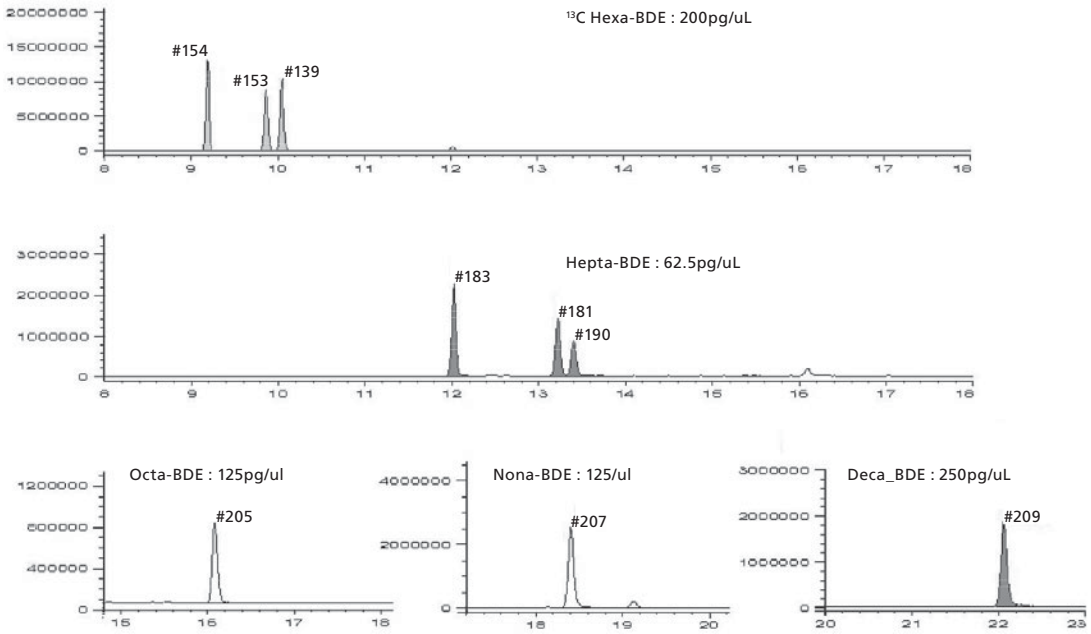
Notes: When response of acrylic acid is low, removal of 30 cm from the front of the column will correct this loss. On-column injection is recommended or polymerization of acrylic acid may occur.



Components

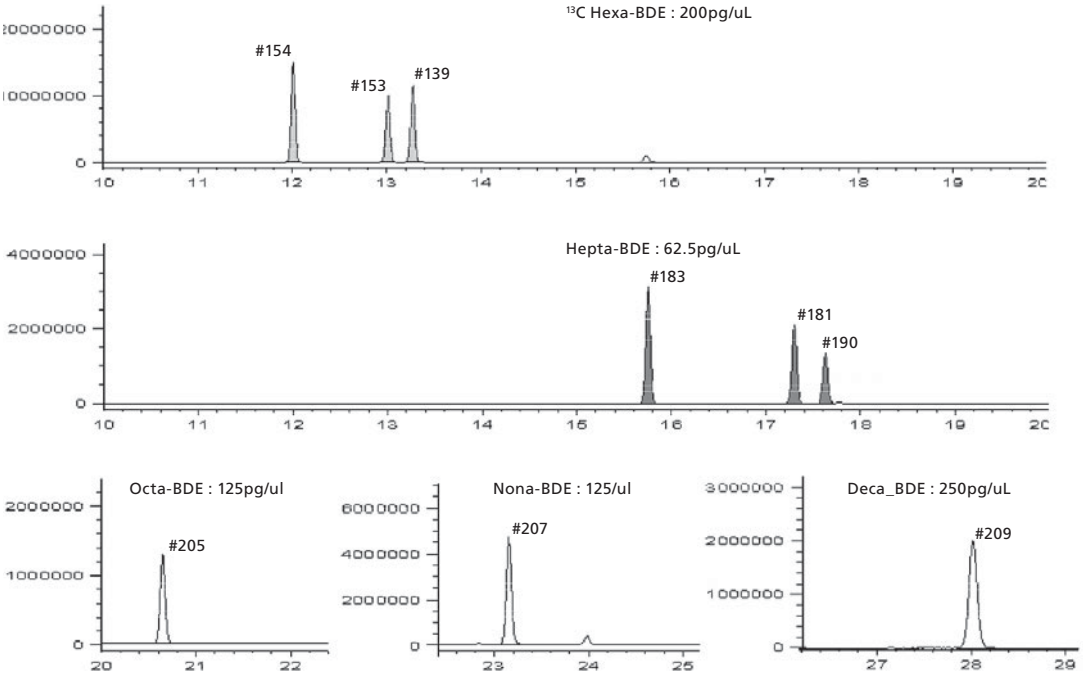
1. Acrylic acid (25 ng)
2. Acrylamide (10 ng)

TP-0138-C | Analysis Of Polybrominated Diphenyl Ethers on BP1



SGE would like to thank the Japan Food Research Centre for evaluating the BP1 column, SGE Japan and Chemicals Evaluation and Research Institute, Japan Toshiyuki KATAOKA, Masahiro AKIBA and Shinnichi KUDO.

TP-0138-C | Analysis Of Polybrominated Diphenyl Ethers on BPX5



SGE would like to thank SGE Japan and Chemicals Evaluation and Research Institute, Japan Toshiyuki KATAOKA, Masahiro AKIBA and Shinnichi KUDO.

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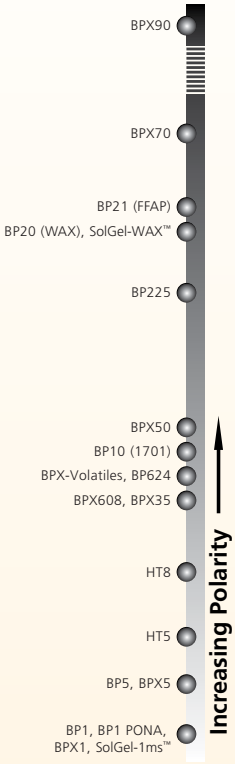
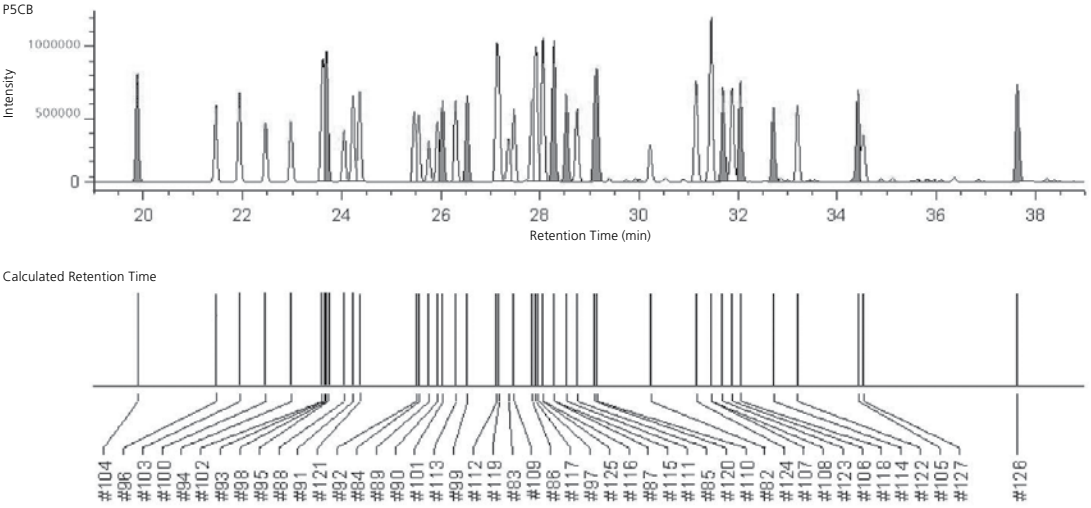


TP-0138-C | Analysis Of A Mixture Of Pentachlorobiphenyls on HT8-PCB



The separation of a mixture of pentachlorobiphenyls using an HT8-PCB column. Elution order calculated for the 5CBs from structure activity relationships based on coplanarity and confirmation, steric factors and electron density show a high correlation with experimental results.

SGE would like to thank T. Nakano, C. Matsumura and M. Tsurukawa at Hyogo Prefectural Institute of Public Health and Environmental Sciences, for providing the PCBs on HT8-PCB data.

TP-0138-C | Analysis Of A Mixture Of PBDD, PCDD And PBDF on BPX70

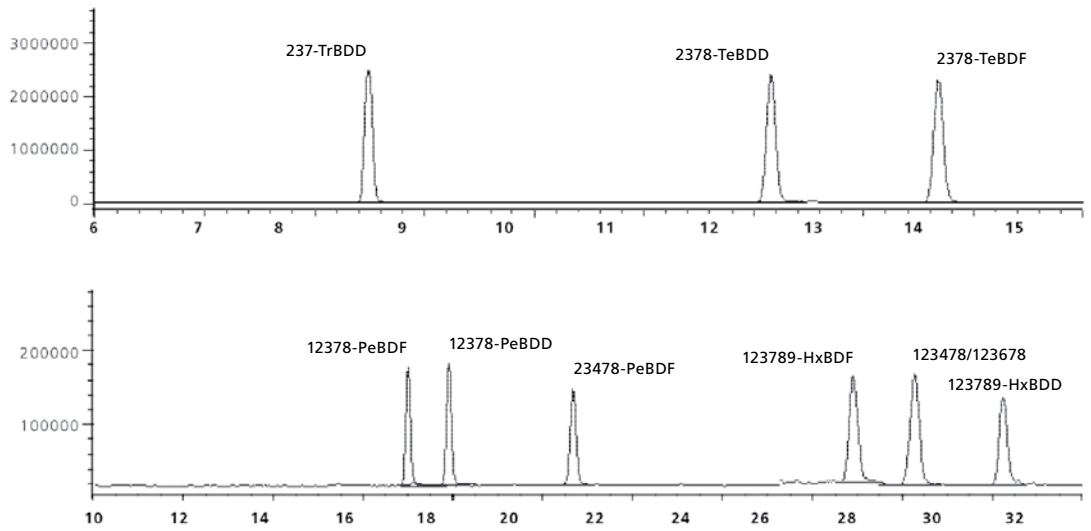


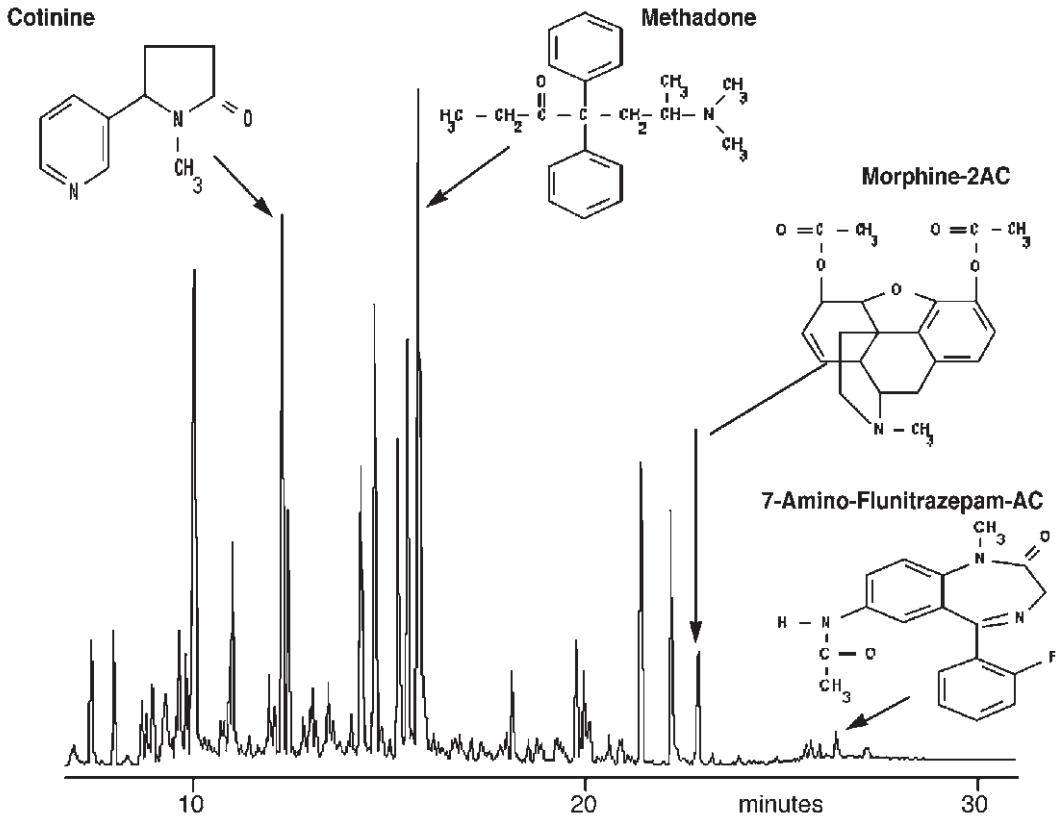
Figure 4. The separation of a mixture of PBDD and PBDF on a BPX70 column. The mixture was separated using the π-π interaction between the compounds and the cyano phase of the BPX70 column.

SGE would like to thank Toshiyuki Kataoka, Masahiro Akiba and Shinnichi Kudo of the Chemicals Evaluation and Research Institute, Japan, and SGE Japan, for providing the chromatograms of PBDEs on the ENV-5 and BPX70 columns.

PHA 14 | Analysis of Drugs of Abuse on BPX35

Column Part No.:	054711
Phase:	BPX35, 0.25 µm film
Column:	25 m x 0.22 mm ID
Initial Temp.:	80 °C
Rate 1:	15 °C/min

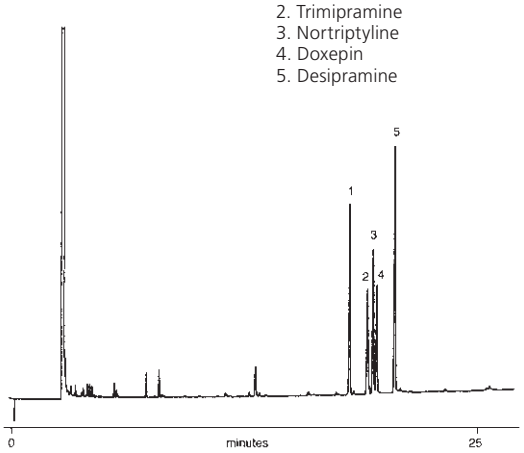
Temp 2:	200 °C
Rate 2:	7 °C/min
Temp 3:	295 °C
Rate 3:	20 °C/min
Final Temp.:	340 °C, 6 min



PHA 09 | Analysis of Tricyclic Antidepressants on BPX35

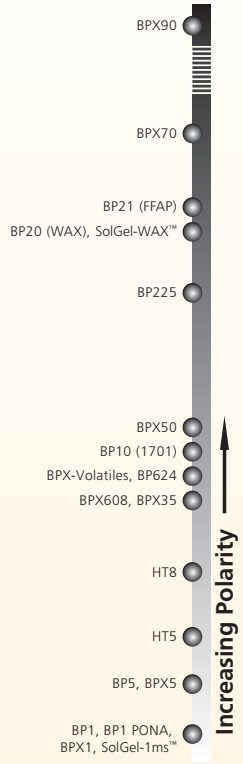
Column Part No.:	054711
Phase:	BPX35, 0.25 µm
Column:	25 m x 0.22 mm ID
Initial Temp.:	210 °C, 1 min
Rate:	5 °C/min
Final Temp:	280 °C
Carrier Gas:	Helium, 150 kpa
Injection Mode:	Split (20:1)
Detector:	FID, 380 °C

Note: BPX35 is a low bleed, chemically inert phase which allows trace analysis to occur.



Components

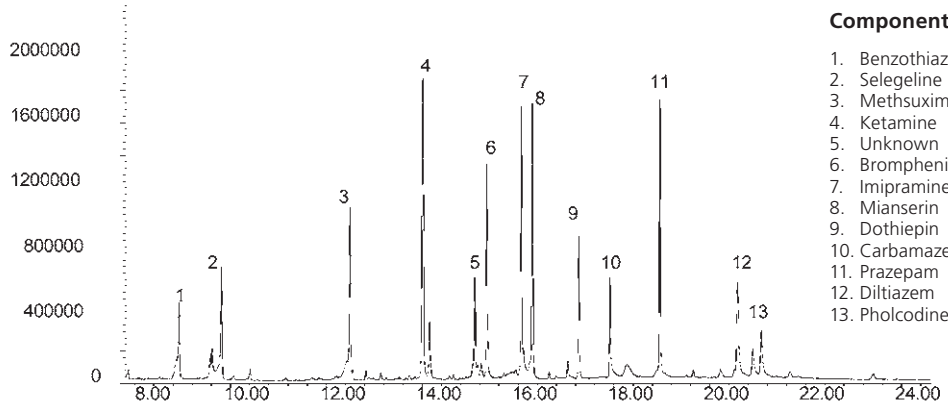
1. Amitriptyline
2. Trimipramine
3. Nortriptyline
4. Doxepin
5. Desipramine



PHA 19 | Analysis of a Variety of Antidepressant and Anticonvulsant Drugs on BPX50

Column Part No.:	054751
Phase:	BPX50, 0.25 µm film
Column:	30 m x 0.25 mm ID
Sample:	5-10 ppm in methanol
Initial Temp:	150 °C, 0.5 min
Rate 1:	10 °C/min to 180 °C
Rate 2:	1.5 °C/min to 220 °C
Rate 2:	30 °C/min to 260 °C
Final Temp:	260 °C, 5 min
Detector Type:	FID
Detector Temp.:	320 °C
Carrier Gas:	He, 25.7 psi

Carrier Gas Flow:	1.8 mL/min.
Constant Flow:	On
Average Linear Velocity:	35 cm/sec at 40 °C
Injection Mode:	Splitless
Purge on Time:	0.5 min
Purge on (Split) Vent Flow:	60 mL/min
Injection Volume:	1 µL
Injection Temperature:	250 °C
Liner Type:	4 mm ID Single Taper Liner
Liner Part Number:	092017
Full Scan / SIM:	Full scan 45-450



Components

1. Benzothiazole
2. Selegeline
3. Methsuximide
4. Ketamine
5. Unknown
6. Brompheniramine
7. Imipramine
8. Mianserin
9. Dothiepin
10. Carbamazepine
11. Prazepam
12. Diltiazem
13. Pholcodine

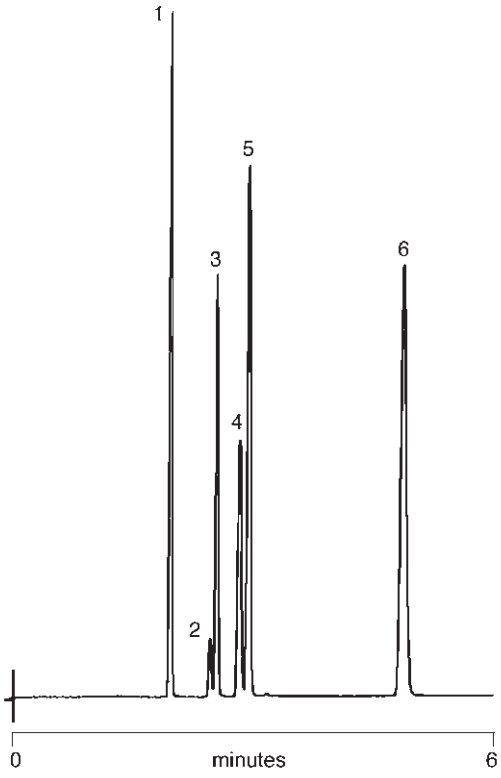
PHA 13 | Analysis of Blood Alcohol on BP20

Column Part No.:	054442
Phase:	BP20, 1.0 µm film
Column:	25 m x 0.32 mm ID
Initial Temp:	Isothermal, 60 °C
Detector:	FID
Sensitivity:	64 x 10 -12 AFS
Injection Mode:	Split

Note: The BP20 column allows the use of aqueous solutions.

Components

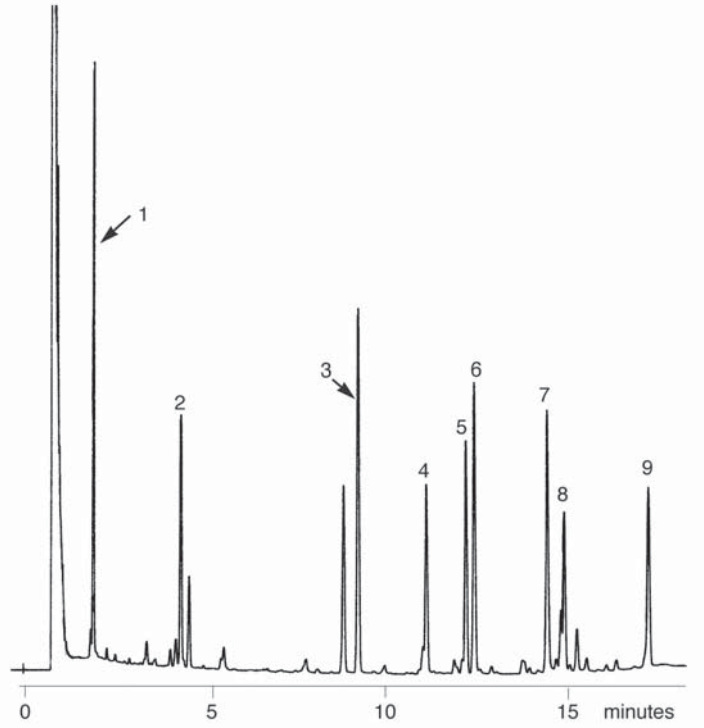
1. Acetone
2. Ethyl Acetate
3. Methanol
4. iso-Propanol
5. Ethanol
6. n-Propanol



PHA 06 | Analysis of Basic Drug Screen on BPX5 (10-20 ng/component)

Column Part No.:	054131
Phase:	BPX5, 1.0 µm
Column:	25 m x 0.53 mm I.D.
Initial Temp.:	120 °C
Rate:	10 °C/min
Final Temp.:	310 °C
Detector:	FID
Injector:	Split, 240 °C
Carrier Gas:	H_2, 2 psi

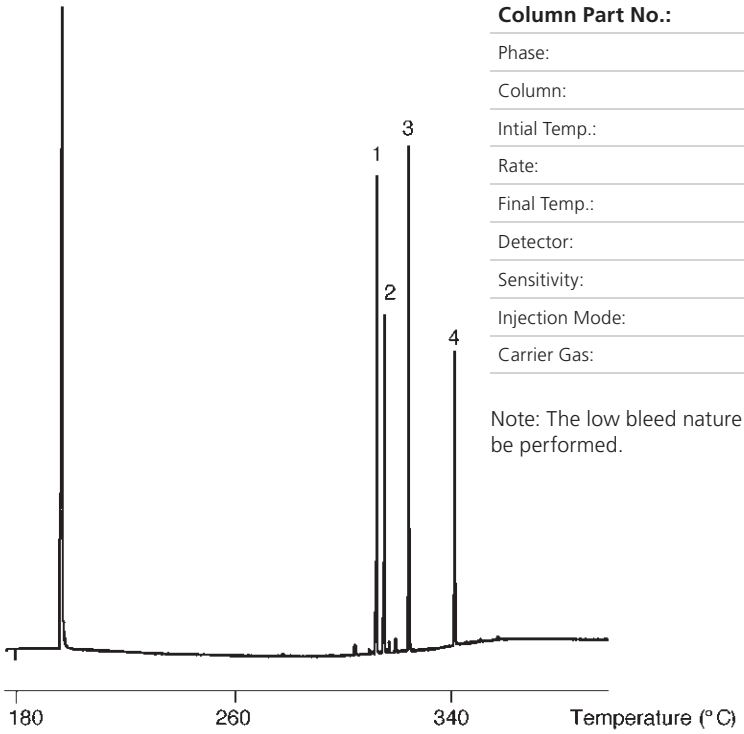
Note: The low bleed nature of the BPX5 allows trace analysis to be performed.



Components

1. Methamphetamine
2. Phendimetrazine
3. Phencyclidine
4. Mepivocaine
5. Methaqualone
6. Amitriptyline
7. Codeine
8. Diazepam
9. Fentanyl

PHA 08 | Underivatized Steroid Analysis on BPX5

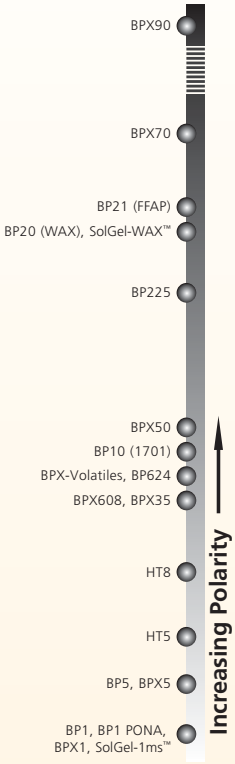


Column Part No.:	054113
Phase:	BPX5, 0.25 µm
Column:	25 m x 0.22 mm ID
Intial Temp.:	180 °C
Rate:	8 °C/min
Final Temp.:	350 °C, 10 min
Detector:	FID
Sensitivity:	32 x 10 -12 AFS
Injection Mode:	Split
Carrier Gas:	H_2, 10 psi

Note: The low bleed nature of the BPX5 allows trace analysis to be performed.

Components

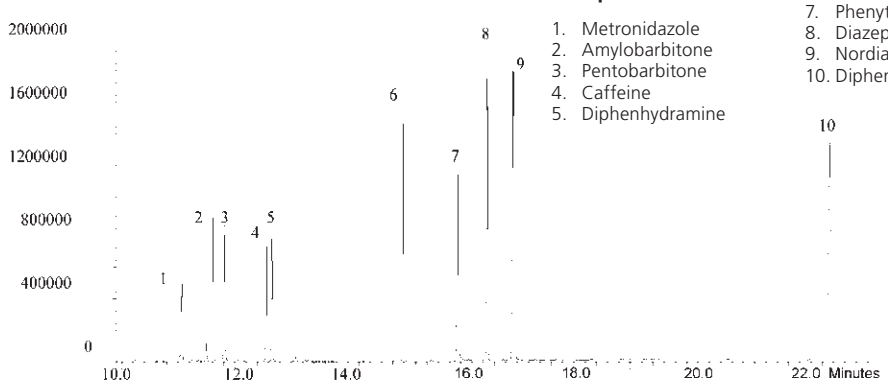
1. Testosterone
2. Pregnenolone
3. Progesterone
4. Cholesterol



PHA 15 | Analysis of Horse Racing Test Mix on BPX5

Column Part No.:	054101
Phase:	BPX5, 0.25 µm film
Column:	30 m x 0.25 mm ID
Horse Racing standard*:	10 ppm in methanol
Initial Temp:	75 °C, 2 min
Rate 1:	15 °C/min to 300 °C
Rate 2:	20 °C/min to 320 °C
Final Temp:	320 °C, 8 min.
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 14.5 psi
Carrier Gas Flow:	1.5 mL/min

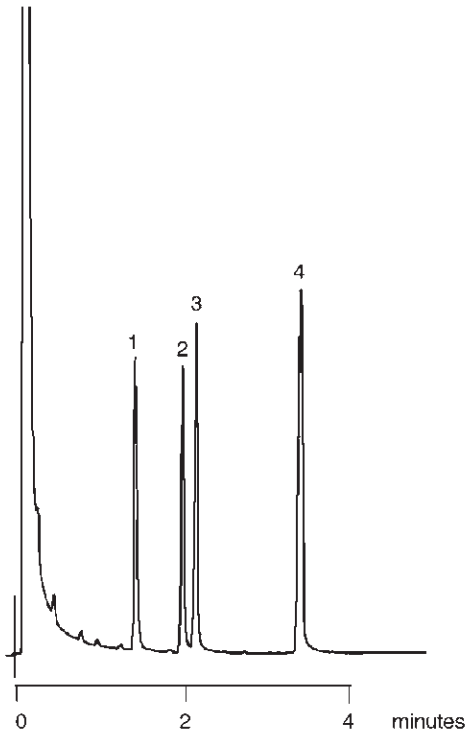
Constant Flow:	On
Average Linear Velocity:	45 cm/sec at 75 °C
Injection Mode:	Splitless
Purge on Time:	0.5 min
Purge on (Split)	
Vent Flow:	60 mL/min
Injection Volume:	1 µL
Injection Temperature:	250 °C
Liner Type:	4 mm ID Double Taper Liner
Liner Part Number:	092018



Components

1. Metronidazole
2. Amylobarbitone
3. Pentobarbitone
4. Caffeine
5. Diphenhydramine
6. Trimipramine
7. Phenytoin
8. Diazepam
9. Nordiazepam
10. Diphenoxylate

PHA 03 | Analysis of Alkaloids on BP5



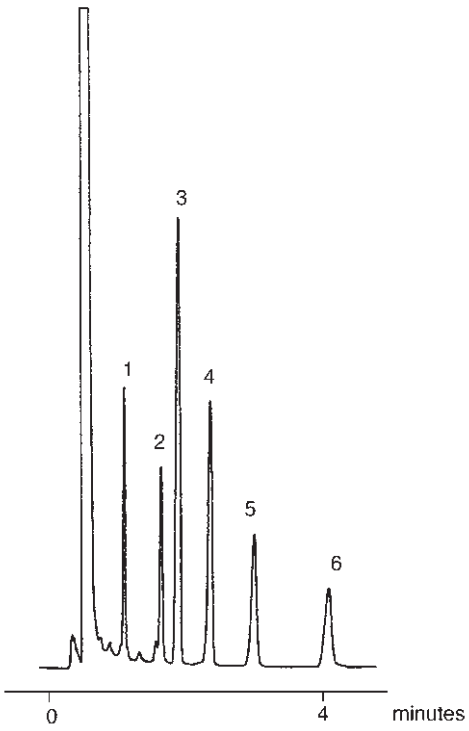
Column Part No.:	054198
Phase:	BP5, 1.0 µm film
Column:	25 m x 0.53 mm ID
Initial Temp.:	200 °C, 0 min
Rate:	25 °C/min
Final Temp:	300 °C, 0 min
Detector:	FID
Sensitivity:	128 x 10 -12 AFS
Injection Mode:	Split

Note: A 0.53 mm ID column can be used to screen samples rapidly.

Components

1. Cocaine
2. Codeine
3. Morphine
4. Quinine

PHA 10 | Underivatized Barbiturates on BP5



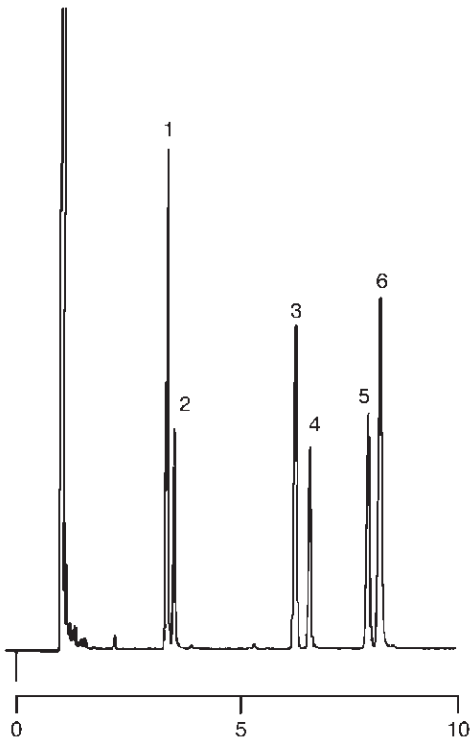
Column Part No.:	054197
Phase:	BP5, 1.0 µm
Column:	12 m x 0.53 mm I.D.
Temp:	195 °C
Carrier Gas:	Hydrogen
Carrier Flow:	10 mL/min
Injection Volume:	0.1 µL

Note: A 0.53 mm ID column can be used to screen samples rapidly.

Components

1. Barbital
2. Butabarbital
3. Amobarbital
4. Pentabarbital
5. Secobarbital
6. Hexabarbital

PHA 04 | Analysis of Sedatives/Hypnotics on BP1



Column Part No.:	054087
Phase:	BP1, 1.0 µm film
Column:	25 m x 0.53 mm ID
Initial Temp.:	180 °C, 0 min
Rate:	10 °C/min
Final Temp.:	250 °C, 3 min
Detector:	FID
Sensitivity:	1024 x 10 -12 AFS
Injection Mode:	Split

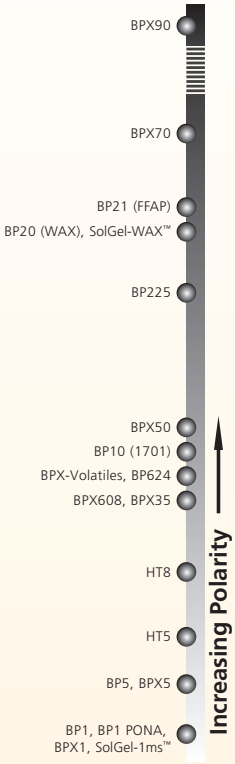
Components

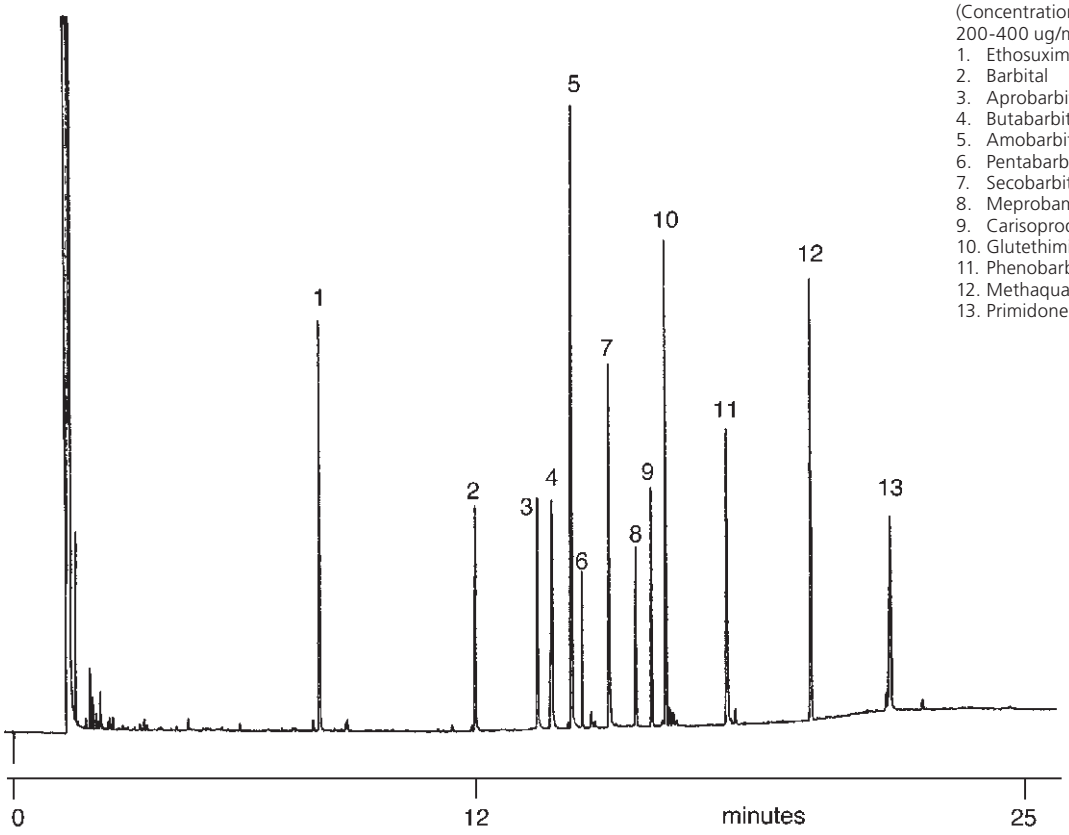
1. Allobarbital
2. Aprobarbital
3. Diphenhydramine
4. Mephobarbital
5. Methapyrilene
6. Chloropheniramine

PHA 01 | Analysis of Acid/Neutral Drugs on BPX35

Column Part No.:	054711		
Phase:	BPX35, 0.25 µm	Final Temp.:	300 °C, 5 min
Column:	25 m x 0.22 mm ID	Carrier Gas:	He, 150 kpa
Initial Temp.:	100 °C, 1 min	Injection Mode:	Split, (20:1)
Rate:	10 °C/min	Detector:	FID, 380 °C

Note: BPX35 is a low bleed column with a maximum temperature of 360 °C. Very compatible with GC/MS systems.





Components

(Concentration: 200-400 ug/ml)
1. Ethosuximide
2. Barbital
3. Aprobarbital
4. Butabarbital
5. Amobarbital
6. Pentabarbital
7. Secobarbital
8. Meprobamate
9. Carisoprodal
10. Glutethimide
11. Phenobarbital
12. Methaqualone
13. Primidone