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PRODUCT DATA

BPX5

A Capillary Column which will perform 80% of all applications

What is BPX5?

BPX5 is a 5% phenyl (equivalent) / 95% methyl polysilphenylene / siloxane phase.

Why use a 5% phenyl phase?

It is estimated that 80% of all analyses can be carried out on one column with one set of dimensions and film thickness. The 5% phenyl column is still a non-polar column, but the small amount of phenyl content gives the phase a little edge in selectivity compared with the 100% methyl phases.

The non-polar phases tend to have lower bleed and are more robust compared with polar phases.

What can the BPX5 column be used for?

The BPX5 is a multi-purpose column which can be used for a range of applications from non-polar components (such as those in gasoline) to polar components such as amines, pesticides, triglycerides, drugs and polycyclic aromatic hydrocarbons.

Equivalent Columns

If you are using any 5% phenyl column, BPX5 can replace it. The table below is an excellent replacement reference.

This column is a direct replacement for:

CP-SIL 8CB	**OV-5ms**
CP-SIL 8CBms	**PE-5**
DB-5	**PTE-5**
DB-5.625	**Rtx-5**
DB-5-MS	**Rtx-5MS**
HP-5	**SPB-5**
HP-5MS	**VB-5**
HP-5TA	**XTI-5**
HP-Ultra2	**ZB-5 (RH-5)**
MDN-5, MDN-5S	**007-5**
OV-5	**007-5MS**

Operating Temperatures

0.25µm – 1.0µm -40°C to 360°C/370°C

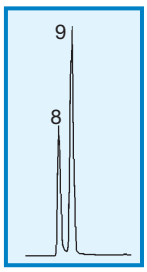
>1.0µm -40°C to 350°C/360°C

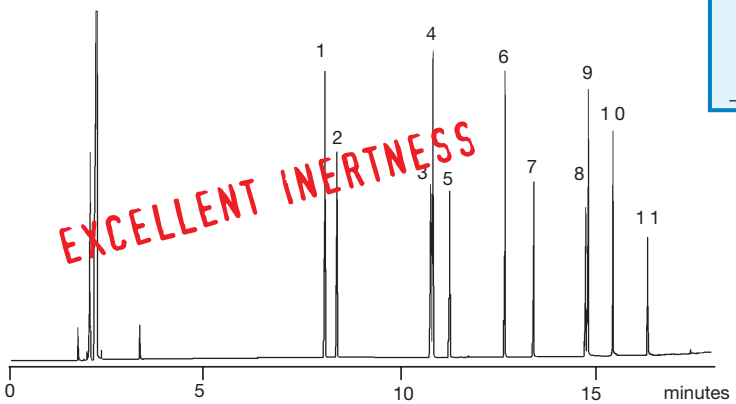
PHENOLS

USEPA 625 Phenols Mix

Phase:	**BPX5, 0.25mm**
Column:	**30m x 0.25mm ID**
Injector Temp.:	240°C
Injector Mode:	Split, 80:1, 1.3ng O.C.
Injection Volume:	0.5mL
Carrier Gas:	Helium, 25cm/sec
Initial Oven Temp.:	40°C, 1min
Rate 1:	10°C/min
Temp. 1:	140°C, 0min
Rate 2:	20°C/min
Temp.:	280°C, 0min
Detector:	FID, 300°C
Part No.:	**054101**

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

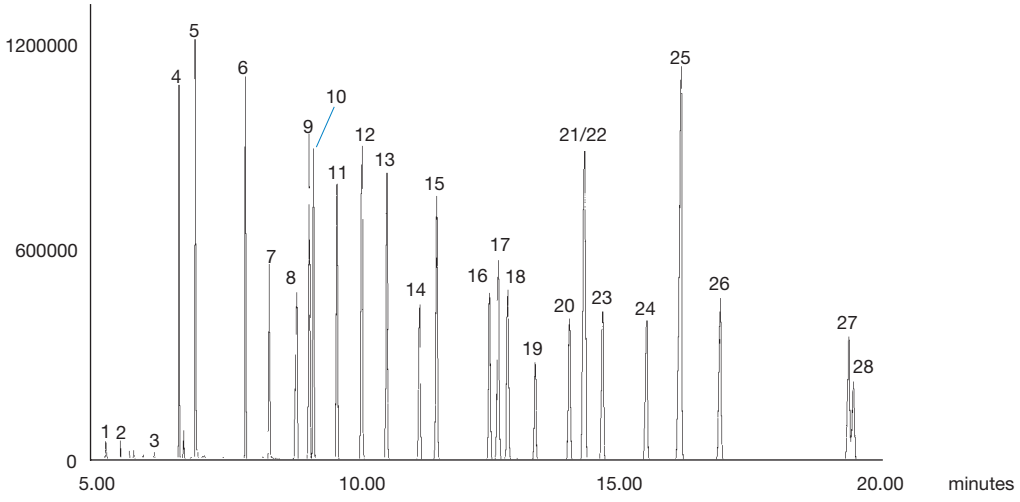




PESTICIDES - BROAD RANGE PESTICIDE MIXTURE

Phase:	**BPX5, 0.25µm**
Column:	**30m x 0.22mm**
Initial Temp.:	50°C, 1min
Rate 1:	30°C/min
Temp. 2:	190°C
Rate 2:	4°C/min
Final Temp.:	280°C, 5min
Detector:	5973 MSD
Injector Mode:	Splitless, 1.0min
Carrier Gas:	Helium, 35cm/sec
Injection Volume:	1µL
Interface/Source/Quad:	320°C, 250°C, 150°C
Part No.:	**054142**

1. Methyl-Dymron decomp. I
2. Methyl-Dymron decomp. II
3. Trichlorfon (DEP)
4. Etridiazol
5. Chloroneb
6. Benfluralin
7. Pencycuron
8. Simazine (CAT)
9. Diazinon
10. Propyzamide
11. Chlorothalonil (TPN)
12. Terbucarb (MBPMC)
13. Tolcolphos-Methyl
14. Fenitrothion (MEP)
15. Chlorpyrifos
16. Pendimethalin
17. Isofenphos
18. Methyl-Dymron
19. Captan
20. Butamifos
21. Napropamide
22. Flutolanil
23. Isoprothioate
24. Isoxathion
25. Bensulide
26. Mepronil
27. Pyridaphenthion
28. Iprodione

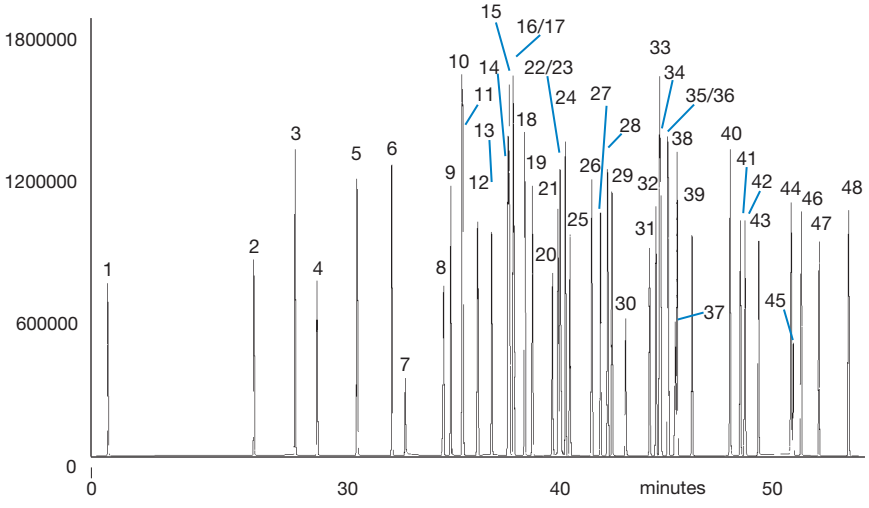


Note: The non-polar nature of the BPX5 and the high maximum operating temperature are the main reasons our customers prefer this column.

ANALYSIS OF CHLORINE, PHOSPHOROUS AND NITROGEN BASED PESTICIDES

Phase:	**BPX5, 0.25µm**
Column:	**30m x 0.25mm ID**
Initial Temp.:	50°C, 1min
Rate 1:	4°C/min
Final Temp.:	280°C, 1.5min
Detector:	5973 MSD
Injector Mode:	Splitless, 0.50min
Carrier Gas:	Helium, 33cm/sec
Injection Volume:	0.5µL
Part No.:	**054101**

1. DDVP
2. Etridiazol
3. Chloroneb
4. Molinate
5. BPMC
6. Benfluralin
7. Pencycuron
8. Simazin
9. Diazinon-ox
10. Propyzamide
11. Diazinon
12. TPN
13. IBP
14. ECP
15. MBPMC
16. Bromobutide
17. MEP-ox
18. Tolclophos-Methyl
19. Simetryn
20. MEP
21. Esprocarb
22. Malathion
23. Probenazole
24. Chlorpyrifos
25. Thiobancarb
26. Fthalide
27. Pendimethalin
28. Isofenphos
29. Methyl-Dymron
30. Captan
31. Butamifos
32. Napropamide
33. Flutolanil
34. Prethirachlor
35. Isoxathon-ox
36. Isoprothioate
37. Tricyclazole
38. Buprofezine
39. Isoxathion
40. Mepron:1
41. Chloronitrofen
42. EDDP
43. EPN-ox
44. Pyridaphenthion
45. Iprodione
46. EPN
47. Bifenox
48. Mefenacet

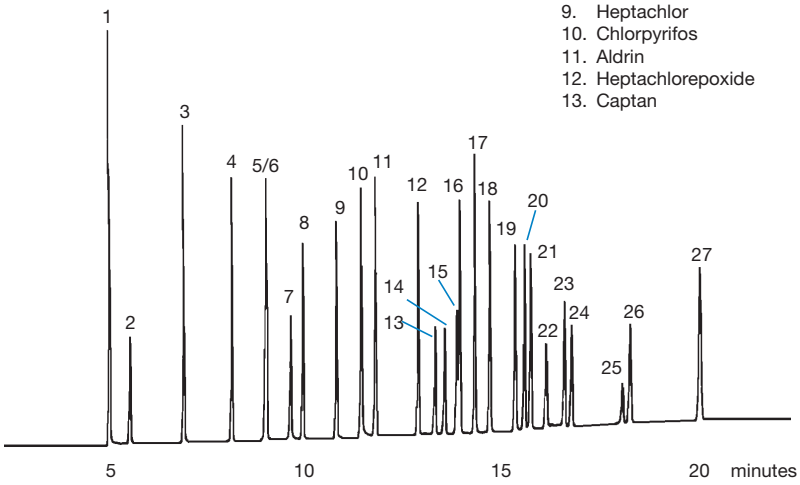


Note: The BPX5 column is an ideal partner column to BP10 (1701 phase), BPX608, or BPX50.

PESTICIDES - EPA METHOD 608 AND ADDITIONAL PESTICIDES

Phase:	**BPX5, 0.25µm**
Column:	**30m x 0.22mm ID**
Initial Temp.:	160°C
Rate 1:	7°C/min
Final Temp.:	290°C, 5min
Detector:	ECD, 320°C
Injector Mode:	Split, 300:1
Carrier Gas:	Helium, 25cm/sec
Injection Volume:	0.5µL
Part No.:	**054142**

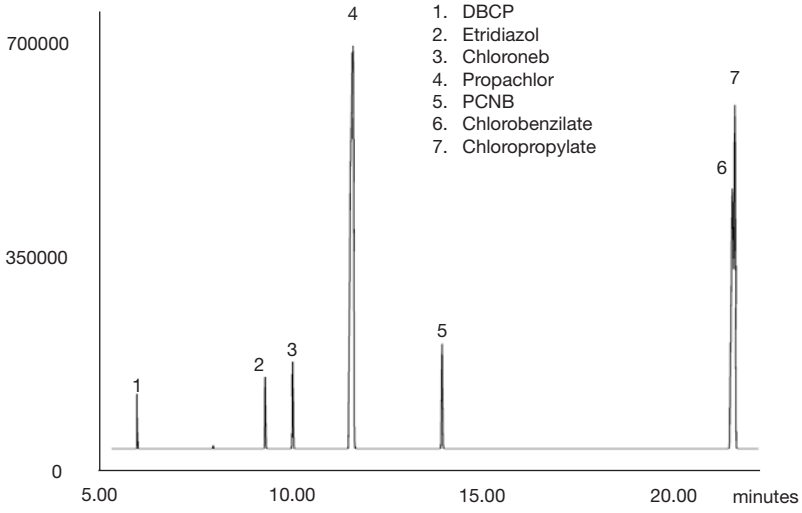
Note: BPX5 column exhibits very low column bleed with selective detectors like ECD.



1. Etridiazol
2. Chloroneb
3. Trifluralin
4. alpha-BHC
5. gamma-BHC
6. beta-BHC
7. Chlorothalonil
8. omega-BHC
9. Heptachlor
10. Chlorpyrifos
11. Aldrin
12. Heptachlorepoxide
13. Captan
14. gamma-Chlordane
15. alpha-Chlordane
16. Endosulfan I
17. Dieldrin
18. p,p'-DDE
19. Endrin
20. Endosulfan II
21. p,p'-DDD
22. Endrin aldehyde
23. p,p'-DDT
24. Endosulfan sulfate
25. Endrin ketone
26. Methoxychlor
27. Mirex

USEPA METHOD 608.1 - ORGANOCHLORINE PESTICIDES

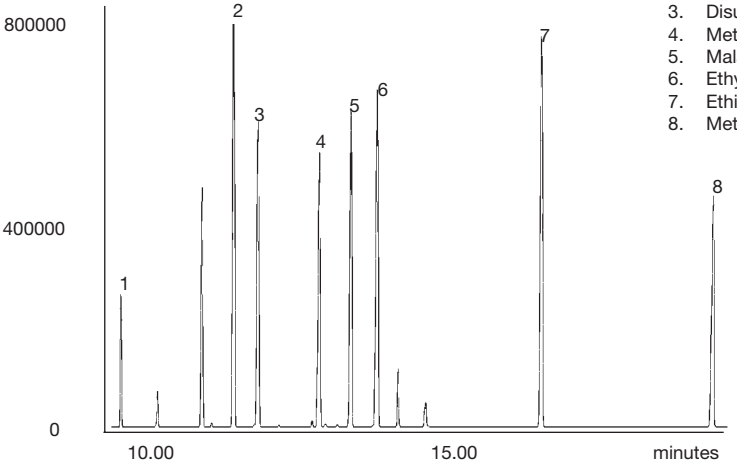
Phase:	**BPX5, 0.25µm**
Column:	**30m x 0.22mm ID**
Initial Temp.:	50°C, 1min
Rate 1:	30°C/min
Temp. 2:	150°C
Rate 2:	6°C/min
Final Temp.:	260°C
Detector:	5973 MSD
Injector Mode:	Splitless, 0.5min
Carrier Gas:	Helium, 30cm/sec
Injection Volume:	1µL
Interface/Source/Quad:	320°C, 250°C ,150°C
Part No.:	**054142**



1. DBCP
2. Etridiazol
3. Chloroneb
4. Propachlor
5. PCNB
6. Chlorobenzilate
7. Chloropropylate

USEPA METHOD 614 - ORGANOPHOSPHOROUS PESTICIDES

Phase:	**BPX5, 0.25µm**
Column:	**30m x 0.22mm ID**
Initial Temp.:	50°C, 1min
Rate 1:	30°C/min
Temp. 2:	150°C
Rate 2:	10°C/min
Final Temp.:	320°C
Detector:	5973 MSD
Injector Mode:	Splitless, 0.5 min
Carrier Gas:	Helium, 30cm/sec
Injection Volume:	1µL
Interface/Source/Quad:	320°C, 250°C, 150°C
Part No.:	**054142**

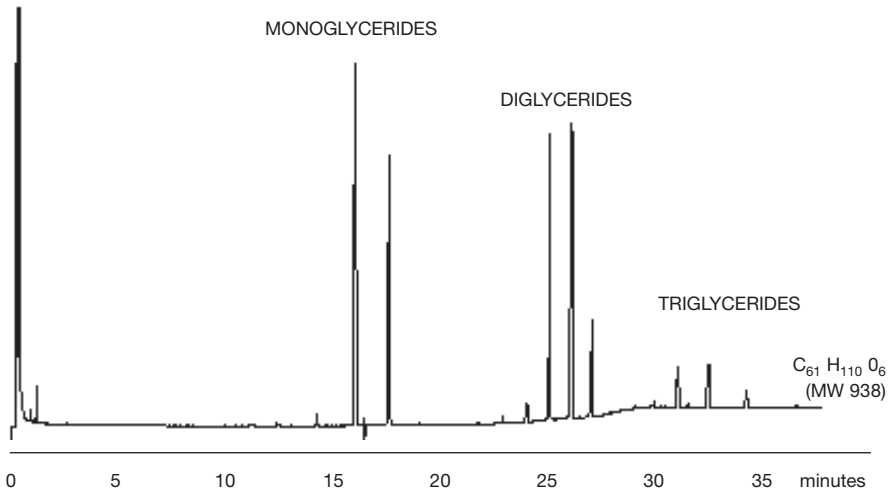


1. Demeton S
2. Diazinon
3. Disulfoton
4. Methyl Parathion
5. Malathion
6. Ethyl Parathion
7. Ethion
8. Methyl Azinphos

TRIGLYCERIDES - ANALYSIS OF MONO-, DI-, AND TRIGLYCERIDES

Phase:	**BPX5, 0.25µm**
Column:	**12m x 0.32mm ID**
Initial Temp.:	80°C, 1min
Rate:	10°C/min
Final Temp.:	365°C, 10min
Detector:	FID
Injector Mode:	On-Column (SGE OCI-5)
Carrier:	He, 10psi
Part No.:	**054118**

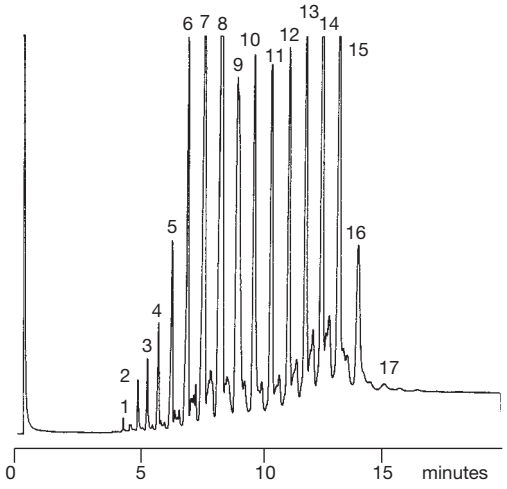
Note: Triglycerides require high oven temperatures for elution. Therefore, the BPX5 column is the ideal choice for this analysis.



TRIGLYCERIDE DISTRIBUTION IN MILK FAT

Phase:	**BPX5, 0.25µm**
Column:	**12m x 0.53mm ID**
Initial Temp.:	100°C, 0.5 min
Rate 1:	50°C/min
Temp.:	280°C
Rate 2:	10°C/min
Final Temp.:	360°C, 5 min
Carrier Gas:	Helium, 6psi
Injection Mode:	On-column (SGE OCI)
Injection Volume:	1µL
Part No.:	**054133**

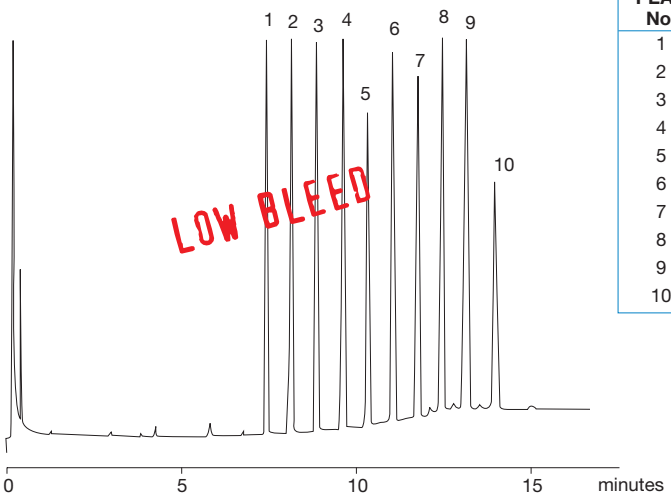
Note: The low bleed nature of this column at high oven temperatures ensures reproducible analyses.



PEAK No.	TRIGLYCERIDE CARBON No.	COMPOSITION (%)
1	T24	0.12
2	T26	0.41
3	T28	0.64
4	T30	1.30
5	T32	2.61
6	T34	5.99
7	T36	11.22
8	T38	13.49
9	T40	10.55
10	T42	7.36
11	T44	6.90
12	T46	7.10
13	T48	8.41
14	T50	10.49
15	T52	9.34
16	T54	3.95
17	T56	0.22

STANDARD MIXTURE OF TRIGLYCERIDES

Phase:	**BPX5, 0.25µm**
Column:	**12m x 0.53mm ID**
Initial Temp.:	100°C, 0.5min
Rate 1:	50°C/min
Temp.:	280°C
Rate 2:	10°C/min
Final Temp.:	360°C, 5min
Carrier Gas:	Helium, 6psi
Detector:	FID
Injector Mode:	On-Column (SGE OCI-5)
Injection Volume:	1µL
Part No.:	**054133**

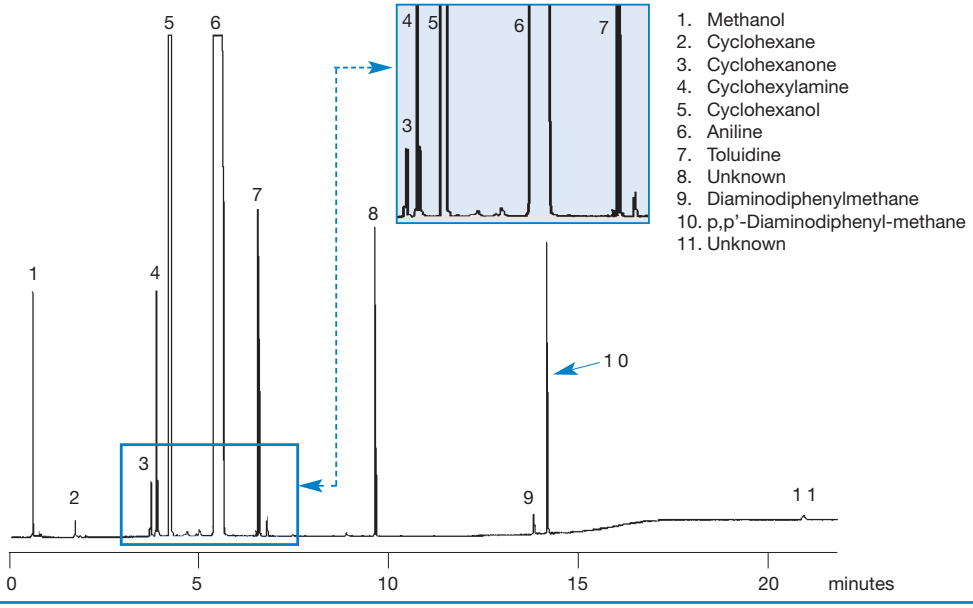


PEAK No.	TRIGLYCERIDE CARBON No.
1	T36
2	T38
3	T40
4	T42
5	T44
6	T46
7	T48
8	T50
9	T52
10	T54

AMINES - ANALYSIS OF ANILINE IMPURITIES

Phase:	**BPX5, 1.0µm**
Column:	**12m x 0.32mm ID**
Initial Temp.:	50°C, 1min
Rate 1:	15°C/min
Temp. 1:	120°C
Rate 2:	20°C/min
Final Temp.:	330°C, 10min
Detector:	FID, 380°
Injector:	Split
Carrier Gas:	He, 4psi
Part No.:	**054127**

Note: Thick film BPX5 column provides excellent separation with high temperature compatibility.

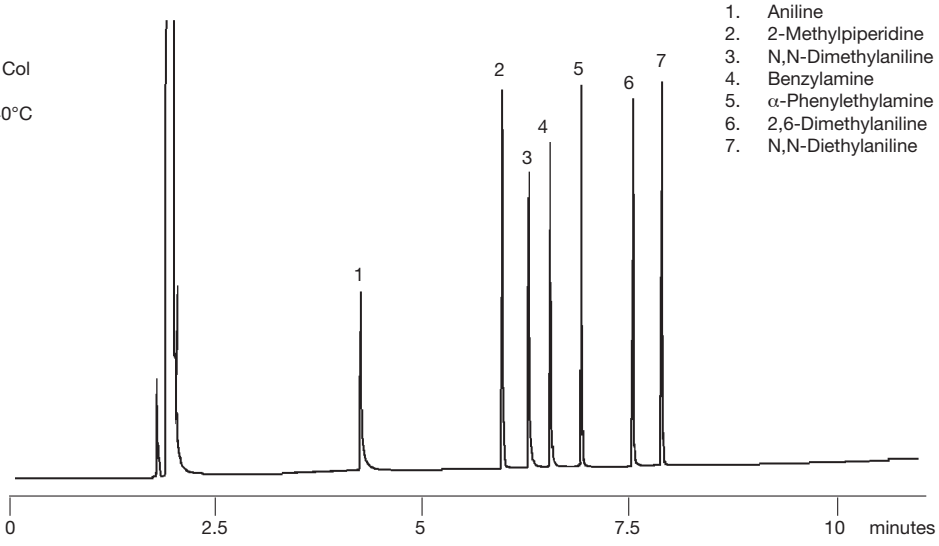


1. Methanol
2. Cyclohexane
3. Cyclohexanone
4. Cyclohexylamine
5. Cyclohexanol
6. Aniline
7. Toluidine
8. Unknown
9. Diaminodiphenylmethane
10. p,p'-Diaminodiphenyl-methane
11. Unknown

ANALYSIS OF AROMATIC AMINES

Phase:	**BPX5, 0.25mm**
Column:	**30m x 0.25mm ID**
Injector Temp.:	240°C
Injector Mode:	Split, 80:1, 3.25ng On Col
Injection Volume:	0.5µL
Carrier Gas:	Helium, 30cm/sec @ 40°C
Initial Oven Temp.:	40°C, 1min
Rate 1:	20°C/min
Final Temp.:	240°C, 0min
Detector:	FID, 300°C
Part No.:	**054101**

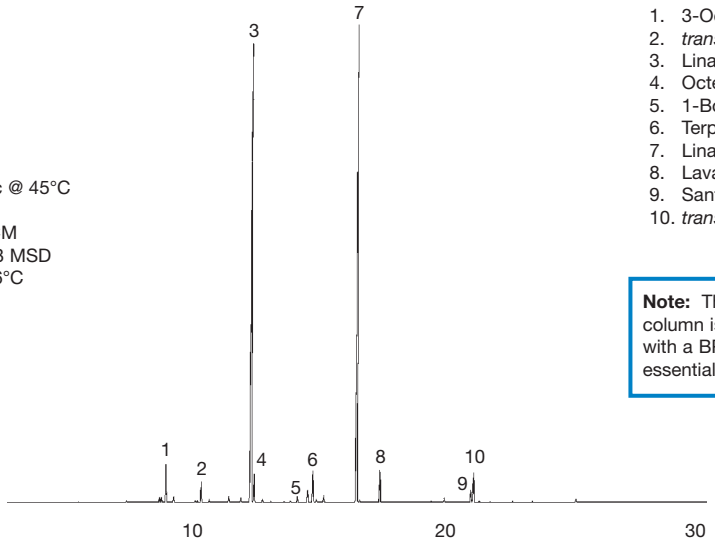
Note: Every BPX5 column is supplied with a test chromatogram which is produced from that column.



1. Aniline
2. 2-Methylpiperidine
3. N,N-Dimethylaniline
4. Benzylamine
5. α-Phenylethylamine
6. 2,6-Dimethylaniline
7. N,N-Diethylaniline

FRAGRANCE - ANALYSIS OF LAVENDER ESSENTIAL OIL

Phase:	**BPX5, 0.25µm**
Column:	**30m x 0.25mm ID**
Initial Oven Temp.:	45°C, 1 min
Rate 1:	5°C/min
Final Temp.:	250°C, 15 min
Detector:	5973 MSD
Injector Mode:	Split (50:1)
Injector Temp.:	250°C
Carrier Gas:	Helium, 35 cm/sec @ 45°C
Injection Volume:	1µL
Concentration (ng/mL):	1:20 dilution in DCM
GC model:	HP 6890 GC, 5973 MSD
Interface/Source/Quad:	320°C, 250°C, 106°C
Part No.:	**054101**

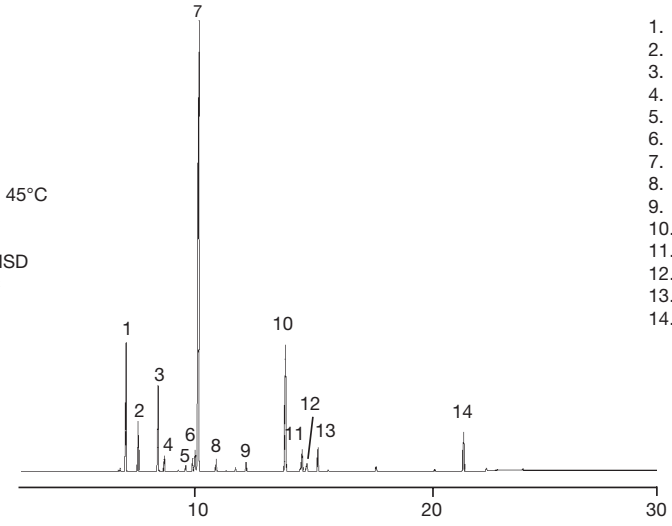


1. 3-Octanone
2. *trans*-beta-Ocimene
3. Linalool L
4. Octenyl Acetate
5. 1-Borneol
6. Terpinene-4-ol
7. Linalyl Acetate
8. Lavandulyl Acetate
9. Santalene
10. *trans*-Caryophyllene

Note: The 5% phenyl BPX5 column is the perfect partner with a BP20 column for essential oil analysis.

ANALYSIS OF ROSEMARY ESSENTIAL OIL

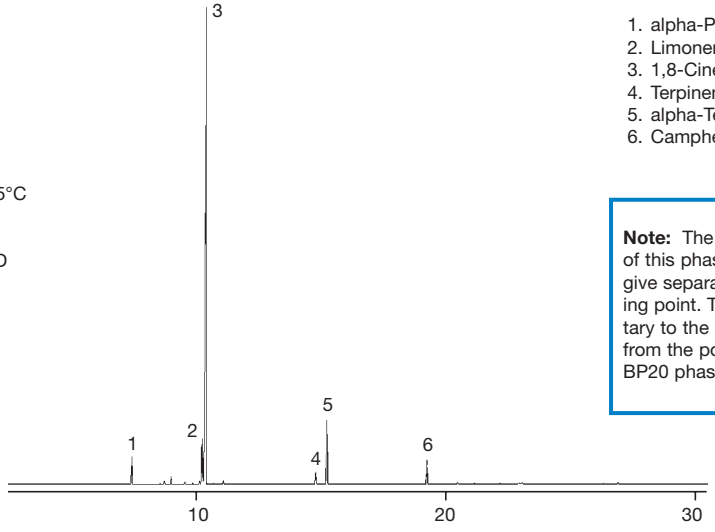
Phase:	**BPX5, 0.25µm film**
Column:	**30 x 0.25mm ID**
Initial Temp.:	45°C, 1 min
Rate 1:	5°C/min
Final Temp.:	250°C, 15 min
Detector:	5973 MSD
Injector Mode:	Split (50:1)
Injector Temp.:	250°C
Carrier Gas:	Helium, 35 cm/sec @ 45°C
Injection Volume:	1µL
Concentration (ng/mL):	1:20 dilution in DCM
GC model:	HP 6890 GC, 5973 MSD
Interface/Source/Quad:	320°C, 250°C, 106°C
Part No.:	**054101**



1. alpha-Pinene
2. Camphene
3. beta-Pinene
4. beta-Myrcene
5. p-Cymene
6. Limonene
7. 1,8-Cineole
8. gamma-Terpinene
9. Linalool L
10. Camphor
11. 1-Borneol
12. Terpinene-4-ol
13. alpha-Terpineol
14. *trans*-Caryophyllene

ANALYSIS OF EUCALYPTUS ESSENTIAL OIL

Phase:	**BPX5, 0.25µm film**
Column:	**30m x 0.25mm ID**
Initial Temp.:	45°C, 1 min
Rate 1:	5°C/min
Final Temp.:	250°C, 15 min
Detector:	5973 MSD
Injector Mode:	Split (50:1)
Injector Temp.:	250°C
Carrier Gas:	Helium, 35 cm/sec @ 45°C
Injection Volume:	1mL
Concentration (ng/mL):	1:20 dilution in DCM
GC model:	HP 6890 GC, 5973 MSD
Interface/Source/Quad:	320°C, 250°C, 106°C
Part No.:	**054101**



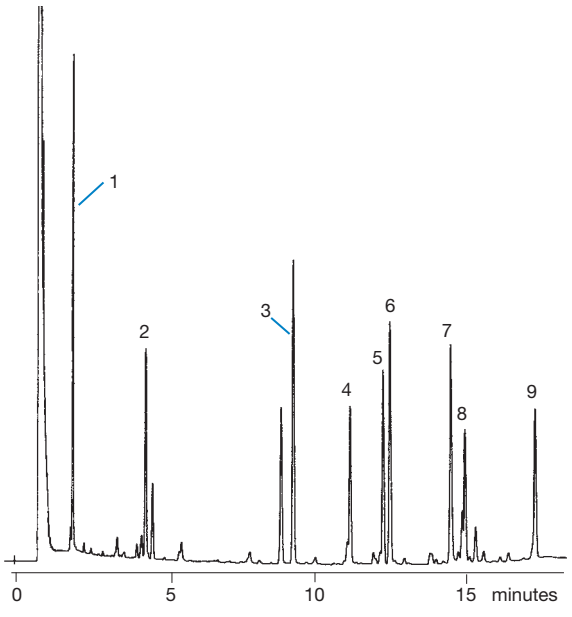
1. alpha-Pinene
2. Limonene
3. 1,8-Cineole
4. Terpinene-4-ol
5. alpha-Terpineol
6. Camphene

Note: The non-polar nature of this phase will generally give separation based on boiling point. This is complimentary to the unique selectivity from the polyethylene glycol BP20 phase.

PHARMACEUTICALS - BASIC DRUG SCREEN (10-20ng/component)

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

Note: A high degree of inertness and the high maximum operating temperature (for semi-volatile drugs), makes the BPX5 column suitable for this class of compounds.

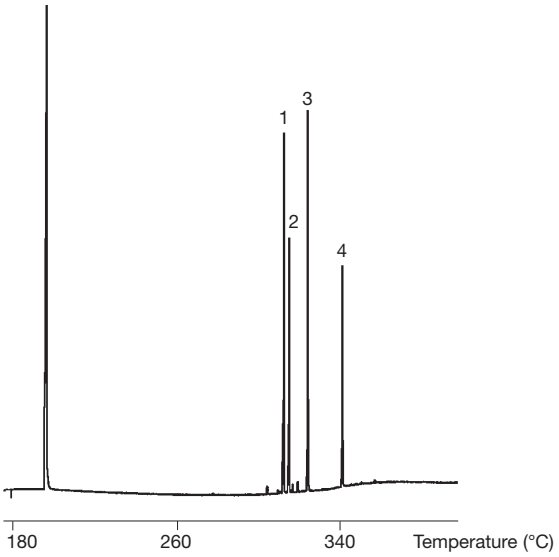


1. Methamphetamine
2. Phendimetrazine
3. Phencyclidine
4. Mepivocaine
5. Methaqualone
6. Amitriptyline
7. Codeine
8. Diazepam
9. Fentanyl

STEROID ANALYSIS (UNDERIVATIZED)

Phase:	**BPX5, 0.25µm**
Column:	**25m x 0.22mm 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, 10psi
Part No.:	**054113**

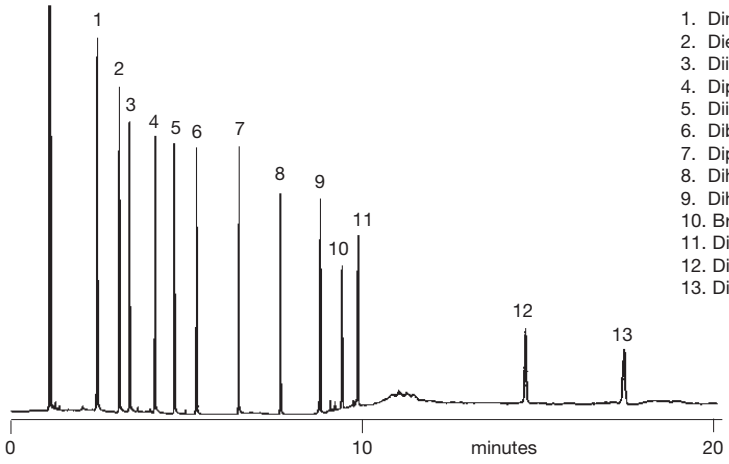
Note: Whether your particular application is forensic screening or pharmaceutical testing, the BPX5 phase is ideal.



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

PHTHALATES - ANALYSIS OF PHTHALATE ESTERS

Phase:	**BPX5, 0.5µm film**
Column:	**25m x 0.32mm ID**
Initial Temp.:	180°C, 0min
Rate:	15°C/min
Final Temp.:	350°C, 5min
Carrier Gas:	H_2, 6psi
Detector:	FID
Sensitivity:	140 x 10^{-12} AFS
Injection Mode:	Split
Part No.:	**054125**

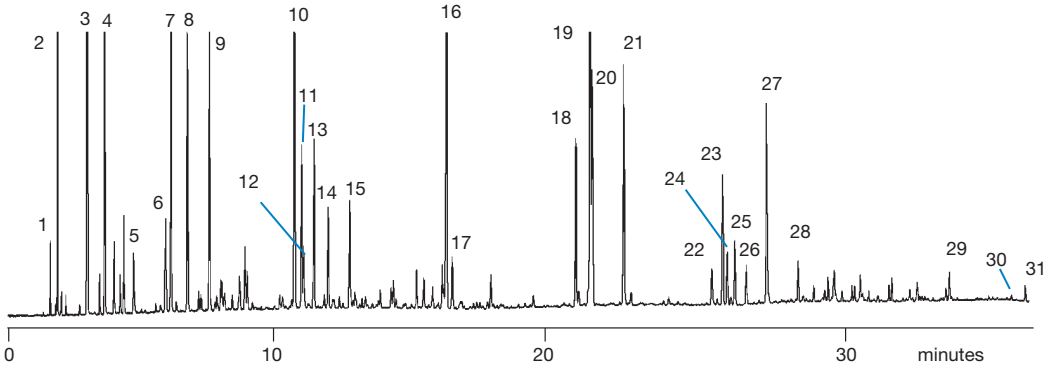


1. Dimethyl Phthalate
2. Diethyl Phthalate
3. Diisopropyl Phthalate
4. Dipropyl Phthalate
5. Diisobutyl Phthalate
6. Dibutyl Phthalate
7. Dipropyl Phthalate
8. Dihexyl Phthalate
9. Diheptyl Phthalate
10. Branched Dinonyl Phthalate
11. Dioctyl Phthalate
12. Diundecyl Phthalate
13. Didodecyl Phthalate

PETROLEUM - LEADED GASOLINE

Phase:	**BPX5, 0.25µm film**
Column:	**25m x 0.22mm ID**
Initial Temp.:	-20°C, 1min
Rate 1:	4°C/min
Temp. 2:	40°C
Rate 2:	8°C/min
Final Temp.:	150°C
Detector:	FID
Sensitivity:	10 x 10^{-12} AFS
Injection Mode:	Split
Carrier Gas:	H_2, 10psi
Part No.:	**054113**

1. iso-Butane
2. n-Butane
3. iso-Pentane
4. n-Pentane
5. 2,2-Dimethylbutane
6. 2,3-Dimethylbutane
7. 2-Methylpentane
8. 3-Methylpentane
9. n-Hexane
10. Benzene
11. 2-Methylhexane
12. 2,3-Dimethylpentane
13. 3-Methylhexane
14. 2,2,4-Trimethylpentane
15. n-Heptane
16. Toluene
17. 2,3-Dimethylhexane
18. Ethylbenzene
19. m-Xylene
20. p-Xylene
21. o-Xylene
22. n-Propylbenzene
23. 1-Methyl-3-ethylbenzene
24. 1-Methyl-4-ethylbenzene
25. 1,3,5-Trimethylbenzene
26. 1-Methyl-2-ethylbenzene
27. 1,2,4-Trimethybenzene
28. 1,2,3-Trimethyllbenzene
29. Naphthalene
30. 2-Methylnaphthalene
31. 1-Methylnaphthalene



ORDERING INFORMATION - BPX5

Column Type	ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
BPX5	**0.10**	10	0.10	-40 to 360/370	**054099**
	0.15	10	1.20	-40 to 360/370	**054106**
		12	0.25	-40 to 360/370	**054103**
		12	0.40	-40 to 360/370	**054107**
		25	0.25	-40 to 360/370	**054104**
		25	0.40	-40 to 360/370	**054108**
		30	0.15	-40 to 360/370	**054110**
		50	0.25	-40 to 360/370	**054105**
	0.22	12	0.25	-40 to 360/370	**054112**
		25	0.25	-40 to 360/370	**054113**
		25	1.00	-40 to 360/370	**054116**
		30	0.25	-40 to 360/370	**054142**
		50	0.25	-40 to 360/370	**054114**
		50	1.00	-40 to 360/370	**054117**
	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	6	1.00	-40 to 360/370	**0541261**
		12	0.25	-40 to 360/370	**054118**
		12	0.50	-40 to 360/370	**054124**
		12	1.00	-40 to 360/370	**054127**
		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**
		25	1.00	-40 to 360/370	**054128**
		25	3.00	-40 to 350/360	**054136**
		30	0.25	-40 to 360/370	**054145**
		30	0.50	-40 to 360/370	**0541205**
		30	1.00	-40 to 360/370	**054153**
		50	0.25	-40 to 360/370	**054120**
		50	0.50	-40 to 360/370	**054126**
		50	1.00	-40 to 360/370	**054129**
		60	0.25	-40 to 360/370	**054146**
		60	1.00	-40 to 360/370	**054154**
	0.53	12	0.25	-40 to 360/370	**054133**
		12	1.00	-40 to 360/370	**054130**
		12	3.00	-40 to 350/360	**054138**
		15	0.50	-40 to 360/370	**0541344**
		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	0.25	-40 to 360/370	**054134**
		25	1.00	-40 to 360/370	**054131**
		25	3.00	-40 to 350/360	**054139**
		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**
		50	1.00	-40 to 360/370	**054132**
		60	1.00	-40 to 360/370	**054158**

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