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PRODUCT DATA

BPX70

FAME ANALYSIS

Thermally Stable Polar Stationary Phase

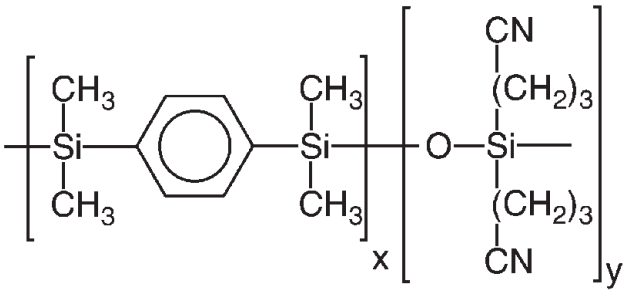
Introduction

- Excellent separation of fatty acid methyl ester (FAME) geometric and positional isomers
- Suitable for isomeric drug compounds and carbohydrates
- Equivalent polarity to 70% cyanopropyl siloxane
- Modified silphenylene siloxane backbone for high thermal stability
- Low bleed

BPX70 is a phase specifically designed to aid in the analysis of FAMEs no matter how simple or complex the mixture. BPX70 utilizes the phase technology developed by SGE to enhance the performance of what would be, "just another cyanopropyl stationary phase".

The incorporation of the aromatic silphenylene group into the siloxane backbone provides many benefits. As the initials BP (Bonded Phase) imply, the stationary phase is crosslinked. The most obvious benefit of crosslinking is in allowing the column to be rinsed to remove contaminant material. Crosslinking also has a stabilizing effect on the film coating which, for high cyanopropyl content phases, can undergo break down at elevated temperatures.

Bis-cyanopropylsiloxane - silphenylene polymer

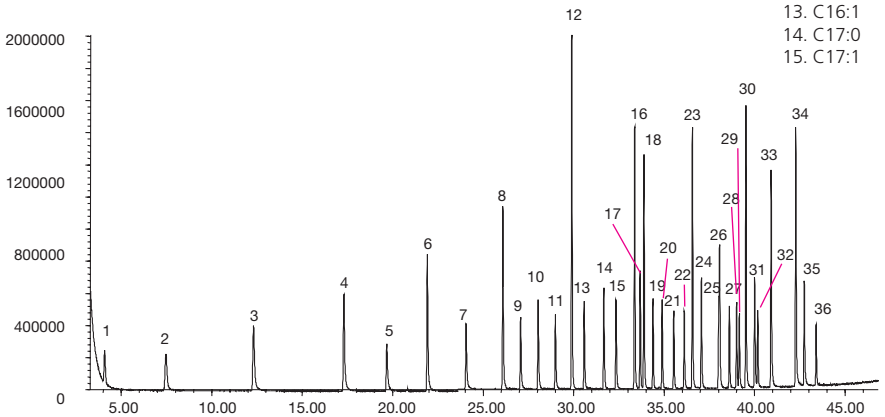


Analysis of a Complex FAME mixture on BPX70

Phase:	**BPX70, 0.25µm film**
Sample:	**1000 ppm in dichloromethane**
Column:	**30m x 0.25mm ID**
Initial Temp.:	50°C, 2min
Rate 1:	4°C/min to 250°C
Final Temp.:	250°C, 15min
Detector Type:	Mass Spectrometer
Carrier Gas:	He, 7.63 psi
Carrier Gas Flow:	0.5mL/min
Constant Flow:	On

Average Linear Velocity:	19 cm/sec at 50°C
Injection Mode:	Split
Split Ratio:	100:1
Injection Volume:	1µL
Injection Temp.:	250°C
Liner Type:	4mm ID Single Taper Liner
Liner Part No.:	**092017**
Column Part No.:	**054622**
ms-NoVent™ Part No.:	113400
HP5973 restrictor:	113409
Full Scan / SIM:	Full scan 45-500

1. C4:0
2. C6:0
3. C8:0
4. C10:0
5. C11:0
6. C12:0
7. C13:0
8. C14:0
9. C14:1
10. C15:0
11. C15:1
12. C16:0
13. C16:1
14. C17:0
15. C17:1
16. C18:0
17. C18:1n9 (*trans*)
18. C18:1n9 (*cis*)
19. C18:2n6 (*trans*)
20. C18:2n6 (*cis*)
21. C18:3n6
22. C18:3n3
23. C20:0
24. C20:1n9
25. C21:0
26. C20:3n6
27. C20:3n3
28. C20:4n6
29. C22:0
30. C22:1n9
31. C20:5n3
32. C23:0
33. C22:2
34. C24:0
35. C24:1n9
36. C22:6n3



However, the most dramatic improvement is the increase in the maximum operating temperature of the phase. Suddenly those analyses which were difficult due to temperature limitations, become routine. With a maximum operating temperature of 260°C, continual operation at 250°C (generally regarded as the upper limit for other polar columns) has a minimal effect to the life of a BPX70 column.

Specifications

BPX70 is a modified polycyanopropylsiloxane phase with equivalent polarity to 70% cyanopropyl.

Minimum Operating Temp.= 50°C

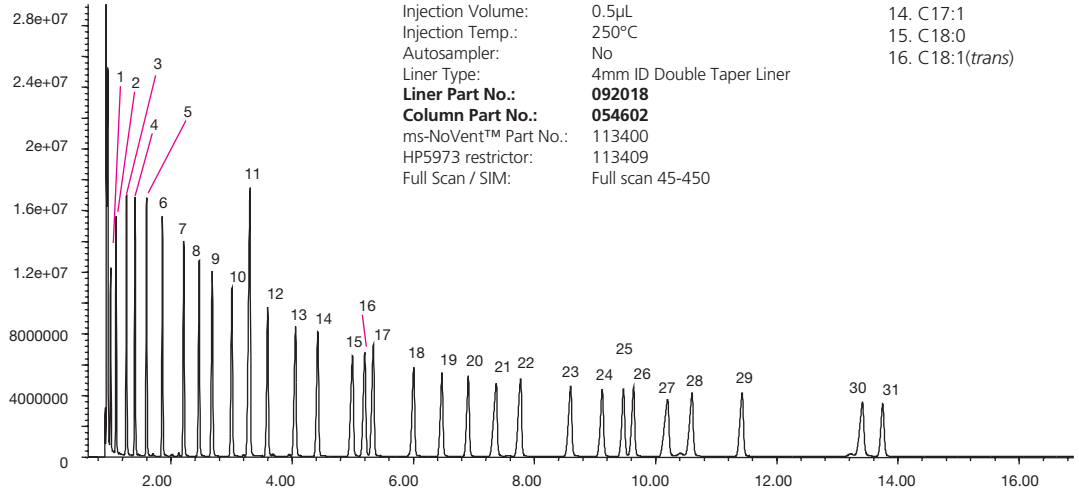
Maximum Continuous Temp.= 250°C

Maximum Cycling Temp.= 260°C

FAME reference standard on BPX70

Phase:	**BPX70 0.25µm film**
Sample:	**200ppm in dichloromethane**
Column:	**25m x 0.22mm ID**
Initial Temp.:	155°C
Rate 1:	2°C/min to 180°C
Rate 2:	4°C/min to 220°C
Final Temp.:	220°C, 5min
Detector Type:	MSD
Carrier Gas:	He, 35.3psi
Carrier Gas Flow:	1.6mL/min
Constant Flow:	On
Average Linear Velocity:	35cm/sec at 155°C
Injection Mode:	Split
Split Ratio:	80:1
Injection Volume:	0.5µL
Injection Temp.:	250°C
Autosampler:	No
Liner Type:	4mm ID Double Taper Liner
Liner Part No.:	**092018**
Column Part No.:	**054602**
ms-NoVent™ Part No.:	113400
HP5973 restrictor:	113409
Full Scan / SIM:	Full scan 45-450

1. C6:0
2. C8:0
3. C10:0
4. C11:0
5. C12:0
6. C13:0
7. C14:0
8. C14:1
9. C15:0
10. C15:1
11. C16:0
12. C16:1
13. C17:0
14. C17:1
15. C18:0
16. C18:1(*trans*)
17. C18:1(*cis*)
18. C18:2
19. C18:3
20. C18:3
21. C20:0
22. C20:1
23. C20:2
24. C20:3
25. C20:3
26. C20:4
27. C22:0
28. C22:1
29. C22:2
30. C24:1
31. C22:6



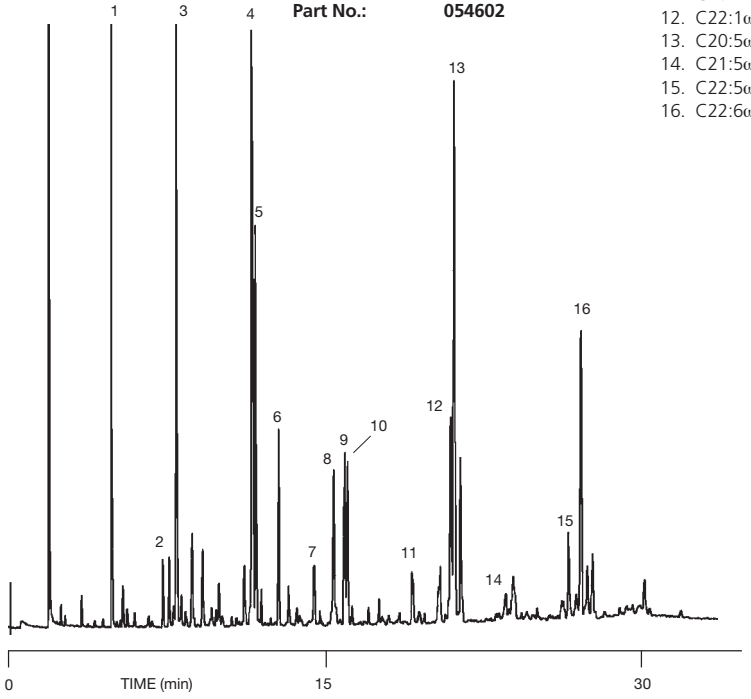
Phases of Similar Polarity to BPX70

SGE	BPX70	Bonded (70% cyanopropyl (modified))
J&W	DB-23	Bonded (50% cyanopropyl)
Restek	Rtx-2330	Non-bonded
Chrompack	CP-Sil 88	Non-bonded
Supelco	SP-2330	Non-bonded

PUFA-1 MARINE FAME

Phase:	**BPX70, 0.25µm film**
Column:	**25m x 0.22mm ID**
Initial Temp.:	150°C, 0min
Program Rate:	2°C/min
Final Temp.:	210°C, 5min
Carrier Gas:	He, 15psi
Detector:	FID, 280°C
Sensitivity:	32 x10-12AFS
Injection Mode:	Split, 50:1
Part No.:	**054602**

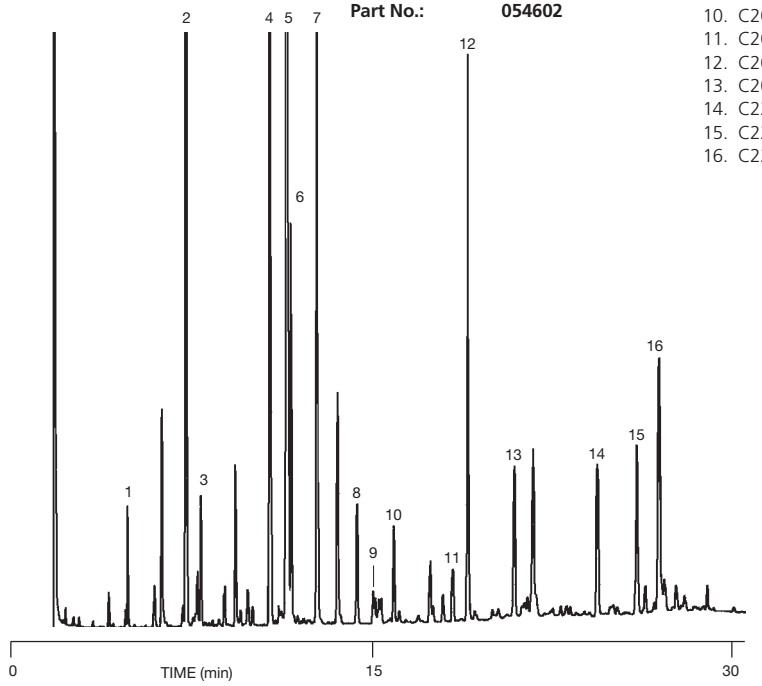
1. C14:0
2. C16:0
3. C16:1ω7
4. C18:1ω9
5. C18:1ω7
6. C18:2ω6
7. C18:3ω3
8. C18:4ω3
9. C20:1
10. C20:1ω9
11. C20:4ω6
12. C22:1ω11
13. C20:5ω3
14. C21:5ω3
15. C22:5ω3
16. C22:6ω3



PUFA-2 ANIMAL FAME

Phase:	**BPX70, 0.25µm film**
Column:	**25m x 0.22mm ID**
Initial Temp.:	150°C, 0min
Program Rate:	2°C/min
Final Temp.:	210°C, 5min
Carrier Gas:	He, 15psi
Detector:	FID, 280°C
Sensitivity:	32 x10-12AFS
Injection Mode:	Split, 50:1
Part No.:	**054602**

1. C14:0
2. C16:0
3. C16:1ω7
4. C18:0
5. C18:1ω9
6. C18:1ω7
7. C18:2ω6
8. C18:3ω3
9. C20:0
10. C20:1ω11
11. C20:3ω6
12. C20:4ω6
13. C20:5ω3
14. C22:5ω6
15. C22:5ω3
16. C22:6ω3



Application Areas

Although BPX70 phase was specifically designed for the separation of geometric and positional isomer of fatty acid methyl esters, wider applications have been found in areas such as the analysis of isomeric drug compounds, including tricyclic antidepressants and carbohydrates.

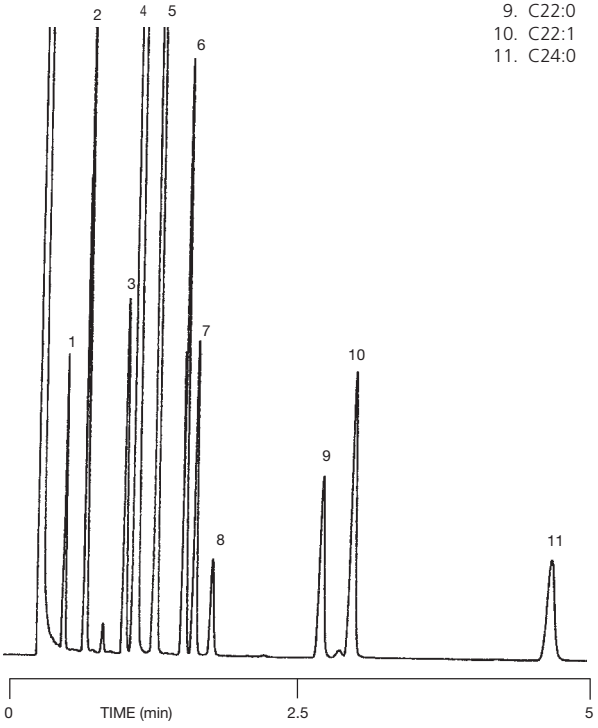
BPX70 columns are essential for laboratories involved in the following areas:

- Food/Nutrition analyzing Vegetable Oils (Peanut, Olive and Palm Oils)
- Fish Oils
- Dairy Products
- Medical Diagnostics
- Cosmetic Oils
- Soaps and Detergents
- Pharmaceutical Products
- Paints and Varnishes
- Plastics
- Geochemical Samples
- Sugar Products

RAPESEED OIL FAME

Phase:	**BPX70, 0.25µm film**
Column:	**12m x 0.22mm ID**
Temp.:	Isothermal at 175°C
Carrier Gas:	He, 15psi
Detector:	FID
Sensitivity:	32 x10-12AFS
Injection Mode:	Split, 50:1
Part No.:	**054601**

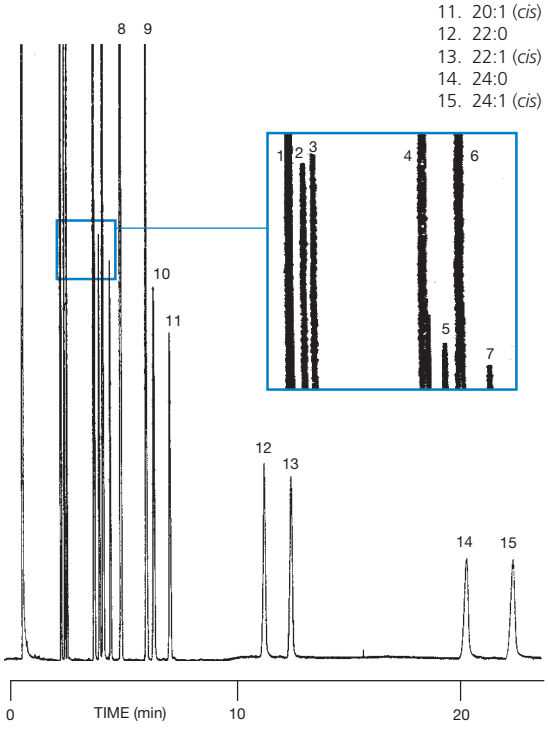
1. C14:0
2. C16:0
3. C18:0
4. C18:1
5. C18:2
6. C18:3
7. C20:0
8. C20:1
9. C22:0
10. C22:1
11. C24:0



FAME MIXTURE

Phase:	**BPX70, 0.25µm film**
Column:	**25m x 0.32mm ID**
Temp.:	Isothermal at 170°C
Carrier Gas:	H2, 6psi
Detector:	FID
Sensitivity:	32 x10-12AFS
Injection Mode:	Split, 50:1
Part No.:	**054606**

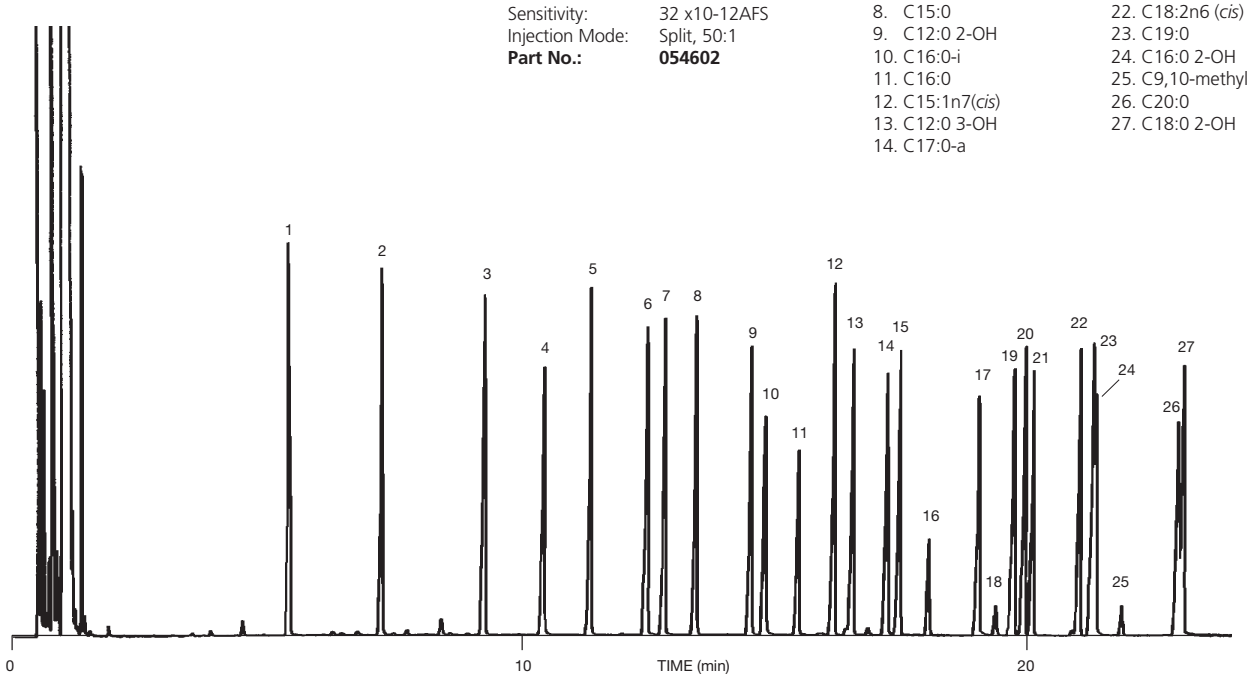
1. 16:0
2. 16:1 (*trans*)
3. 16:1 (*cis*)
4. 18:0
5. 18:1 (*trans*)
6. 18:1 (*cis*)
7. 18:2 (*trans*)
8. 18:2 (*cis*)
9. 18:3 (*cis*)
10. 20:0
11. 20:1 (*cis*)
12. 22:0
13. 22:1 (*cis*)
14. 24:0
15. 24:1 (*cis*)

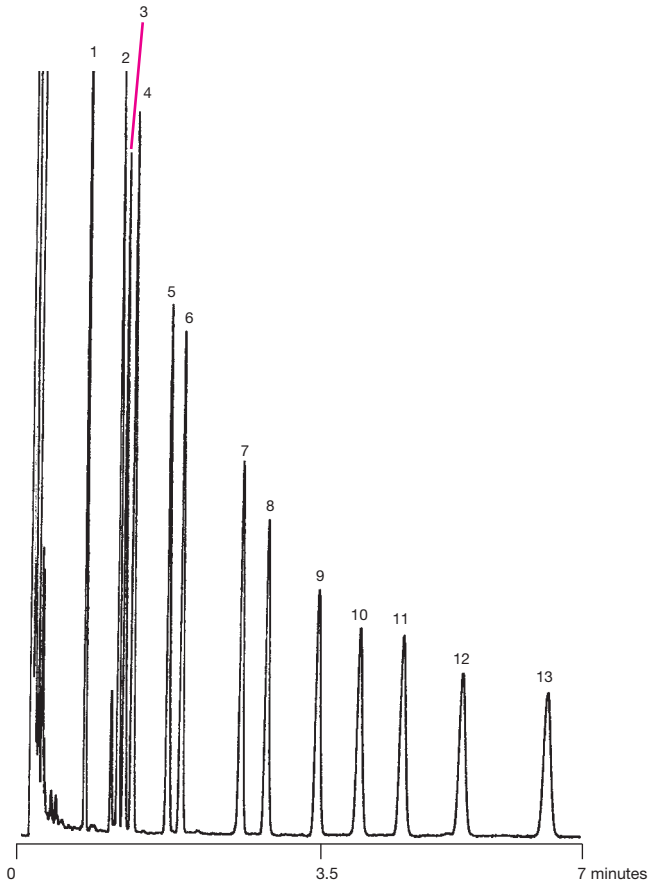


BACTERIAL ACID METHYL ESTERS

Phase:	**BPX70, 0.25µm film**
Column:	**25m x 0.22mm ID**
Initial Temp.:	100°C, 1min
Program Rate:	5°C/min
Final Temp.:	220°C, 0min
Carrier Gas:	H2, 10psi
Detector:	FID
Sensitivity:	32 x10-12AFS
Injection Mode:	Split, 50:1
Part No.:	**054602**

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

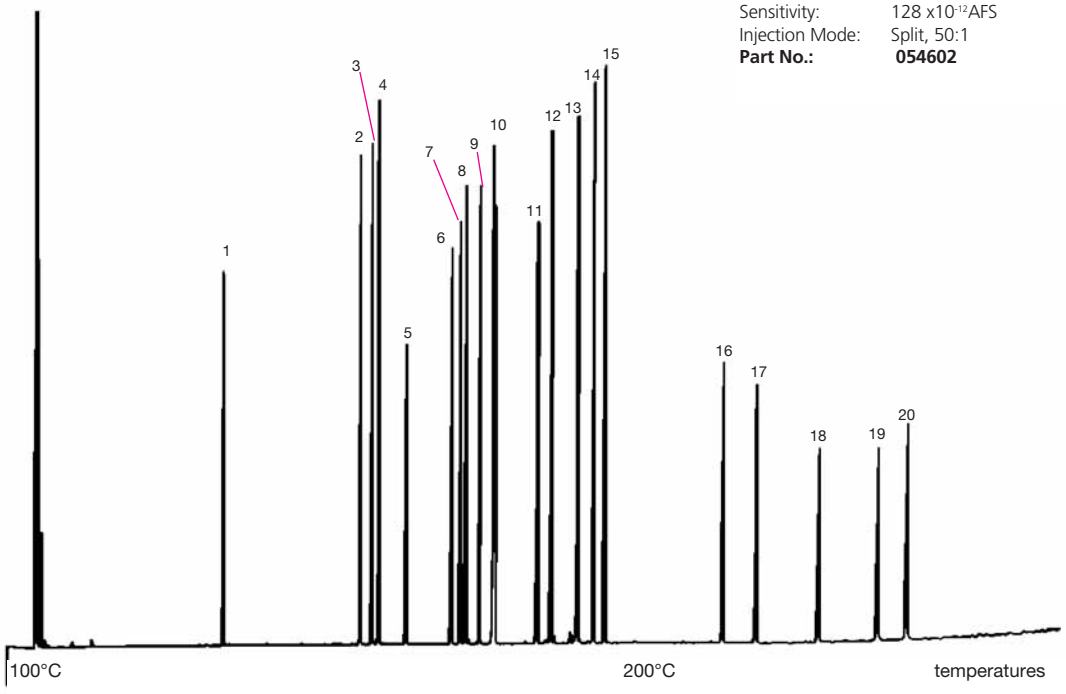




Analysis of Sugar Alditol Acetates on BPX70

Phase:	**BPX70, 0.25µm film**
Column:	**12m x 0.32mm ID**
Temp.:	Isothermal at 210°C
Carrier Gas:	H, 3.3psi 2
Detector:	FID
Sensitivity:	16 x10-12AFS
Injection Mode:	Split, 50:1
Part No.:	**054605**

1. Eythritol
2. Deoxyribitol
3. Rhamnitol
4. Fucitol
5. Ribitol
6. Arabinitol
7. Xylitol
8. Deoxyglucitol
9. Allitol
10. Mannitol
11. Galactitol
12. Glucitol
13. Inositol



FATTY ACID METHYL ESTER MIXTURE

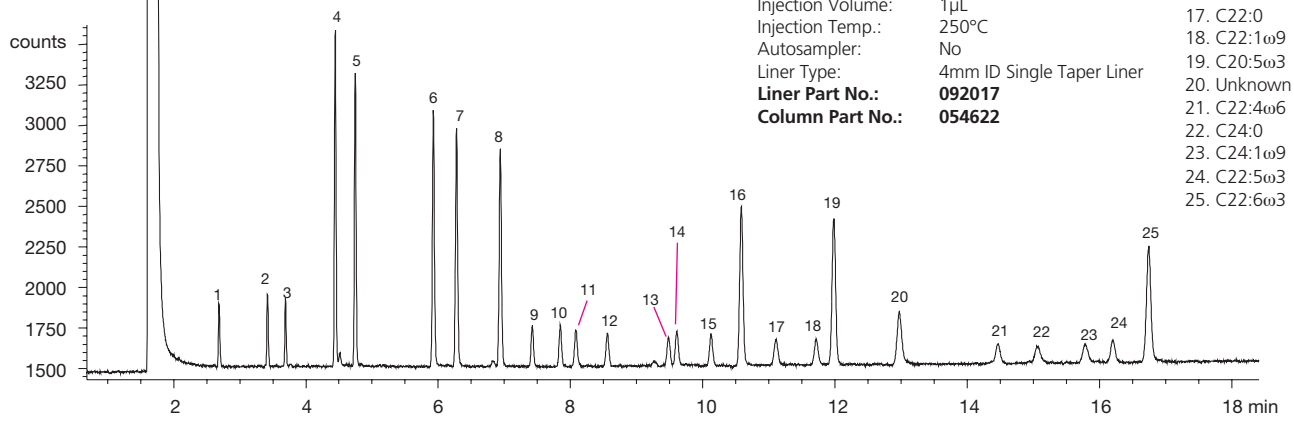
Phase:	**BPX70, 0.25µm film**
Column:	**25m x 0.22mm ID**
Initial Temp.:	100°C, 0min
Program Rate:	4°C/min
Final Temp.:	260°C, 5min
Detector:	FID
Sensitivity:	128 x10^{-12}AFS
Injection Mode:	Split, 50:1
Part No.:	**054602**

1. 13:0
2. 16:0
3. 16:1 (*trans*)
4. 16:1 (*cis*)
5. 17:0
6. 18:0
7. 18:1 (*trans*)
8. 18:1 (*cis*)
9. 18:2 (*trans*)
10. 18:2 (*cis*)
11. 20:0
12. 20:1
13. 20:2
14. 20:3
15. 20:4
16. 25:0
17. 26:0
18. 28:0
19. 30:0
20. 31:0

Analysis of a 24 Component FAME Mixture on BPX70

Phase:	**BPX70, 0.25µm film**
Sample:	**100ppm in Hexane**
Column:	**30m x 0.25mm ID**
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 3:	30°C/min to 260°C
Final Temp.:	260°C, 5min
Detector Type:	FID
Detector Temp.:	280°C
Carrier Gas:	He, 20.7 psi
Carrier Gas Flow:	1.3 mL/min
Constant Flow:	On
Average Linear Vel.:	35 cm/sec at 150°C
Injection Mode:	Split
Split Ratio:	15:1
Injection Volume:	1µL
Injection Temp.:	250°C
Autosampler:	No
Liner Type:	4mm ID Single Taper Liner
Liner Part No.:	**092017**
Column Part No.:	**054622**

1. C12:0
2. C14:0
3. C14:1ω5
4. C16:0
5. C16:1ω7
6. C18:0
7. C18:1ω9
8. C18:2ω6
9. C18:3ω6
10. C18:3ω3
11. C20:0
12. C20:1ω9
13. C20:2ω6
14. C20:3ω9
15. C20:3ω6
16. C20:4ω6
17. C22:0
18. C22:1ω9
19. C20:5ω3
20. Unknown
21. C22:4ω6
22. C24:0
23. C24:1ω9
24. C22:5ω3
25. C22:6ω3



ORDERING INFORMATION - BPX70

Column Type	ID (mm)	Length (m)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
BPX70	**0.10**	10	0.20	50 to 250/260	**054600**
	0.22	12	0.25	50 to 250/260	**054601**
		25	0.25	50 to 250/260	**054602**
		30	0.25	50 to 250/260	**054612**
		50	0.25	50 to 250/260	**054603**
		60	0.25	50 to 250/260	**054613**
	0.25	15	0.25	50 to 250/260	**054621**
		30	0.25	50 to 250/260	**054622**
		60	0.25	50 to 250/260	**054623**
		120	0.25	50 to 250/260	**054624**
	0.32	12	0.25	50 to 250/260	**054605**
		25	0.25	50 to 250/260	**054606**
		30	0.25	50 to 250/260	**054616**
		50	0.25	50 to 250/260	**054607**
		60	0.25	50 to 250/260	**054617**
	0.53	15	0.50	50 to 250/260	**054619**
		25	0.50	50 to 250/260	**054610**
		30	0.50	50 to 250/260	**054620**

BPX70 was developed in conjunction with C.S.I.R.O. Australia.

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