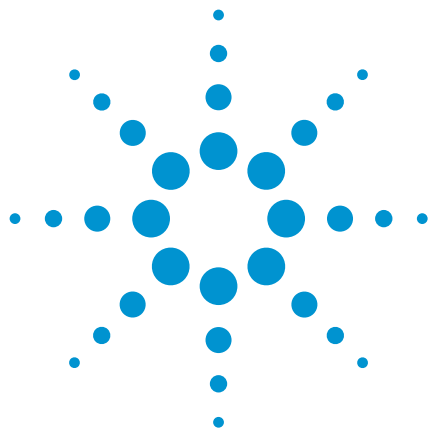




Polychlorinated biphenyls

Analysis of PCBs in oyster-catcher liver

Application Note

Environmental

Authors

Agilent Technologies, Inc.

Introduction

Gas chromatography with an Agilent CP-Sil 8 CB column separates 40 polychlorinated biphenyls in the liver of an oyster catcher in 56 minutes.



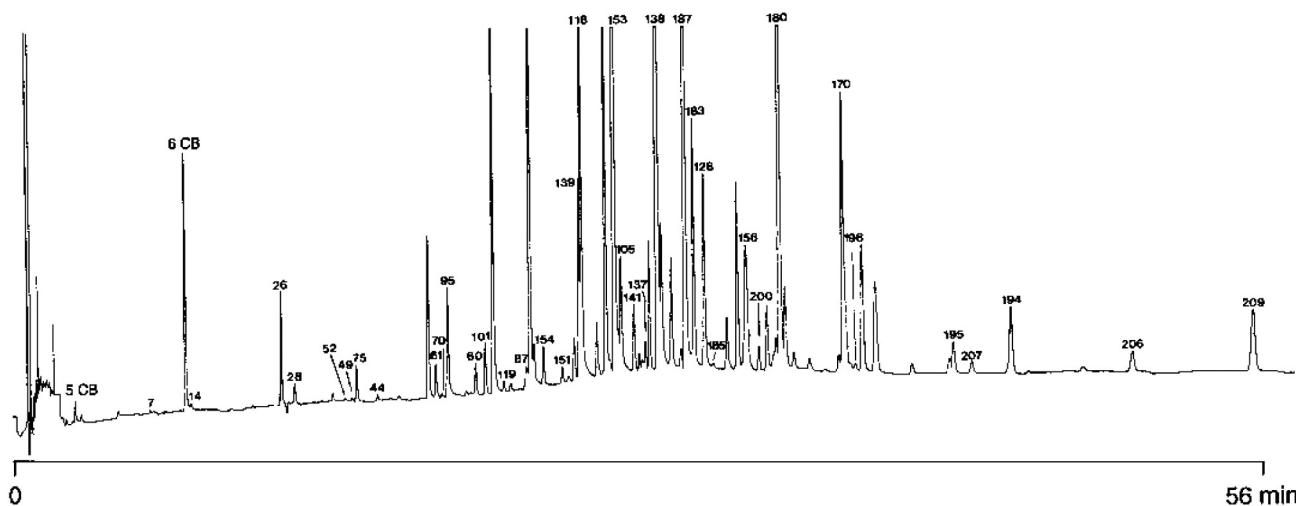
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Conditions

Technique	: GC-capillary
Column	: Agilent CP-Sil 8 CB, 0.22 mm x 50 m fused silica WCOT CP Sil 8 CB (0.12 µm) (Part no. CP7721) + retentiongap 0.32 mm x 1.5 m
Instrument	: Chrompack Packard 438A with automatic liquid sampler 910 and CR-3A integrator.
Temperature	: 60 °C (2 min) → 180 °C. 180 °C (6 min) → 220 °C. 4 °C/min, 220 °C (2 min) → 250 °C, 5 °C/min, 250 °C (26 min)
Carrier Gas	: He, 175 kPa (1.75 bar, 25 psi)
Injector	: Splitless T = 240 °C
Detector	: ECD Ni 63, 10 mCi by pass: 30 mL/min N ₂ Attn 2 ⁶ , T = 320 °C
Sample Size	: 1 µL
Courtesy	: J. Nieuwenhuize and J. M. van Liere, Delta Inst. for Hydrobiological Research, Vierstraat 28, 4401 EA Yerseke, The Netherlands

Peak identification

5 CB.	pentachlorobenzene	0.21
7.	2,4-dichlorobiphenyl	0.15
6 CB.	hexachlorobenzene	2.25
14.	3,5-dichlorobiphenyl	0.45
26.	2,3',5-trichlorobiphenyl	3.51
28.	2,4,4'-trichlorobiphenyl	0.63
52.	2,2',5,5'-tetrachlorobiphenyl	0.09
49.	2,2',4,5'-tetrachlorobiphenyl	0.09
75.	2,4,4',6-tetrachlorobiphenyl	0.74
44.	2,2',3,5'-tetrachlorobiphenyl	0.10
61.	2,3,4,5-tetrachlorobiphenyl	0.75
70.	2,3',4',5-tetrachlorobiphenyl	0.16
95.	2,2',3,5',6-pentachlorobiphenyl	2.84
60.	2,3,4,4'-tetrachlorobiphenyl	0.70
101.	2,2',4,5,5'-pentachlorobiphenyl	1.31
119.	2,3',4,4',6-pentachlorobiphenyl	0.22
87.	2,2',3,4,5'-pentachlorobiphenyl	0.40
154.	2,2',4,4',5,6'-hexachlorobiphenyl	1.17
151.	2,2',3,5,5,6-hexachlorobiphenyl	0.41
139.	2,2',3,4,4',6-hexachlorobiphenyl	4.09
118.	2,3',4,4',5,-pentachlorobiphenyl	15.85
153.	2,2',4,4',5,5'-hexachlorobiphenyl	41.99
105.	2,3,3',4,4',-pentachlorobiphenyl	3.19
141.	2,2',3,4,5,5-hexachlorobenzene	1.56
137.	2,2',3,4,4',5-hexachlorobenzene	0.86
138.	2,2',3,4,4',5'-hexachlorobenzene	47.67
187.	2,2',3,4',5,5',6-heptachlorobiphenyl	37.17
183.	2,2',3,4,4',5',6-heptachlorobiphenyl	7.63
128.	2,2',3,3',4,4'-hexachlorobiphenyl	6.22
185.	2,2',3,4,5,5',-heptachlorobiphenyl	0.15
156.	2,3,3',4,4',5,-hexachlorobiphenyl	4.20
200.	2,2',3,3',4,5',6,6'-octachlorobiphenyl	0.97
180.	2,2',3,4,4',5,5'-heptachlorobiphenyl	28.12
170.	2,2',3,3',4,4',5-heptachlorobiphenyl	10.48
198.	2,2',3,3',4,5,5',6-octachlorobiphenyl	0.22
195.	2,2',3,3',4,4',5,6-octachlorobiphenyl	1.43
207.	2,2',3,3',4,4',5,6,6'-nonachlorobiphenyl	0.56
194.	2,2',3,3',4,4',5,5'-octachlorobiphenyl	1.95
206.	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	1.56
209.	2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	6.55

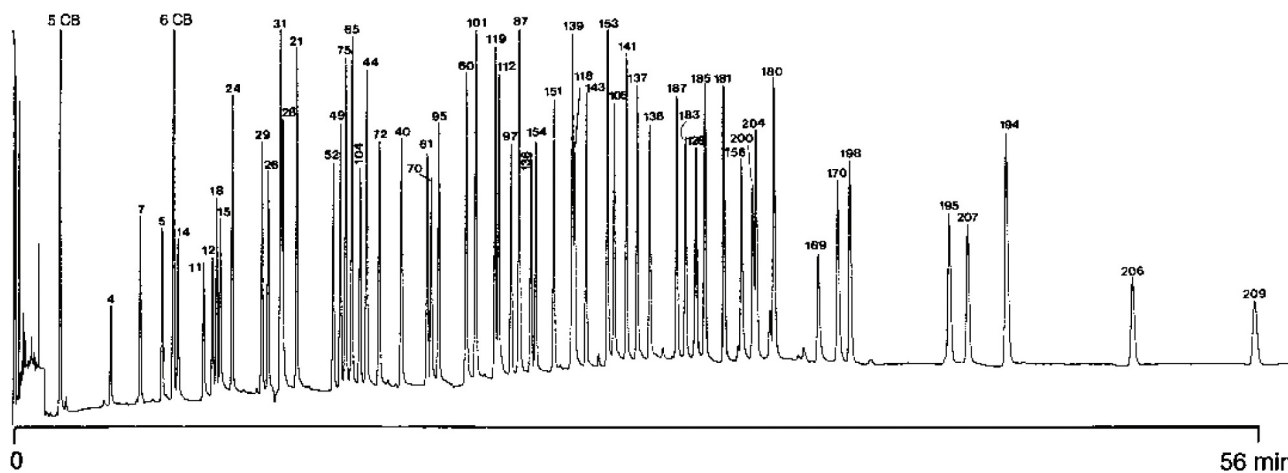


Polychlorinated biphenyls in oyster-catcher liver

The chromatogram shows the determination of PCBs in the liver of an oyster-catcher (female), one year old, which died from freezing in the winter of 1985/86. The results are given in ppm PCB on fat bases.

Standard Mixture PCBs

Ballschmider numbers:		Concentration (pg/ μ L)	
5 CB. pentachlorobenzene	10.5	40. 2,2',3,3'-tetrachlorobiphenyl	20
4. 2,2'-dichlorobiphenyl	100	61. 2,3,4,5-tetrachlorobiphenyl	15
7. 2,4-dichlorobiphenyl	20	70. 2,3',4',5-tetrachlorobiphenyl	20
5. 2,3-dichlorobiphenyl	20	95. 2,2',3,5',6-pentachlorobiphenyl	20
6 CB. hexachlorobenzene	11.5	60. 2,3,4,4'-tetrachlorobiphenyl	20
14. 3,5-dichlorobiphenyl	40	101. 2,2',4,5,5'-pentachlorobiphenyl	20
11. 3,3'-dichlorobiphenyl	100	119. 2,3',4,4',6-pentachlorobiphenyl	20
12. 3,4-dichlorobiphenyl	40	112. 2,3,3',5,6-pentachlorobiphenyl	20
18. 2,2',5-trichlorobiphenyl	25	97. 2,2',3',4,5-pentachlorobiphenyl	20
15. 4,4'-dichlorobiphenyl	100	87. 2,2',3,4,5'-pentachlorobiphenyl	20
24. 2,3,6-trichlorobiphenyl	20	136. 2,2',3,3',6,6'-hexachlorobiphenyl	20
29. 2,4,5-trichlorobiphenyl	20	154. 2,2',4,4',5',6-hexachlorobiphenyl	20
26. 2,3',5-trichlorobiphenyl	20	151. 2,2',3,5,5',6-hexachlorobiphenyl	20
31. 2,4',5-trichlorobiphenyl	20	139. 2,2',3,4,4',6-hexachlorobiphenyl	20
28. 2,4,4'-trichlorobiphenyl	20	118. 2,3',4,4',5-pentachlorobiphenyl	20
21. 2,3,4-trichlorobiphenyl	20	143. 2,2',3,4,5,6'-hexachlorobiphenyl	20
52. 2,2',5,5'-tetrachlorobiphenyl	20	153. 2,2',4,4',5,5'-hexachlorobiphenyl	25
49. 2,2',4,5'-tetrachlorobiphenyl	20	105. 2,3,3',4,4'-pentachlorobiphenyl	20
75. 2,4,4',6-tetrachlorobiphenyl	20	141. 2,2',3,4,5,5'-hexachlorobiphenyl	20
65. 2,3,5,6-tetrachlorobiphenyl	20	137. 2,2',3,4,4',5-hexachlorobiphenyl	20
104. 2,2',4,6,6'-pentachlorobiphenyl	20	138. 2,2',3,4,4',5'-hexachlorobiphenyl	20
44. 2,2',3,5'-tetrachlorobiphenyl	20	187. 2,2',3,4',5,5',6-heptachlorobiphenyl	20
72. 2,3',5,5'-tetrachlorobiphenyl	25	183. 2,2',3,4,4',5',6-heptachlorobiphenyl	20
		128. 2,2',3,3',4,4'-hexachlorobiphenyl	20
		185. 2,2',3,4,5,5',6-heptachlorobiphenyl	20
		181. 2,2',3,4,4',5,6-heptachlorobiphenyl	20
		156. 2,3,3',4,4',5-hexachlorobiphenyl	20
		200. 2,2',3,3',4,5',6,6'-octachlorobiphenyl	20
		204. 2,2',3,4,4',5,6,6'-octachlorobiphenyl	20
		180. 2,2',3,4,4',5,5'-heptachlorobiphenyl	25
		169. 3,3',4,4',5,5'-hexachlorobiphenyl	25
		170. 2,2',3,3',4,4',5-heptachlorobiphenyl	20
		198. 2,2',3,3',4,5,5',6-octachlorobiphenyl	20
		195. 2,2',3,3',4,4',5,6-octachlorobiphenyl	20
		207. 2,2',3,3',4,4',5,6,6'-nonachlorobiphenyl	20
		194. 2,2',3,3',4,4',5,5'-octachlorobiphenyl	20
		206. 2,2',3,3',4,4',5,5',6-nonachlorobiphenyl	20
		209. 2,2',3,3',4,4',5,5',6,6'-decachlorobiphenyl	20



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