

APPLICATIONS

Single Column Solution for GC-MS Analysis of PAH, PCB and Chloroterphenyls using a Zebron ZB-PAH-EU GC Column

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Overview

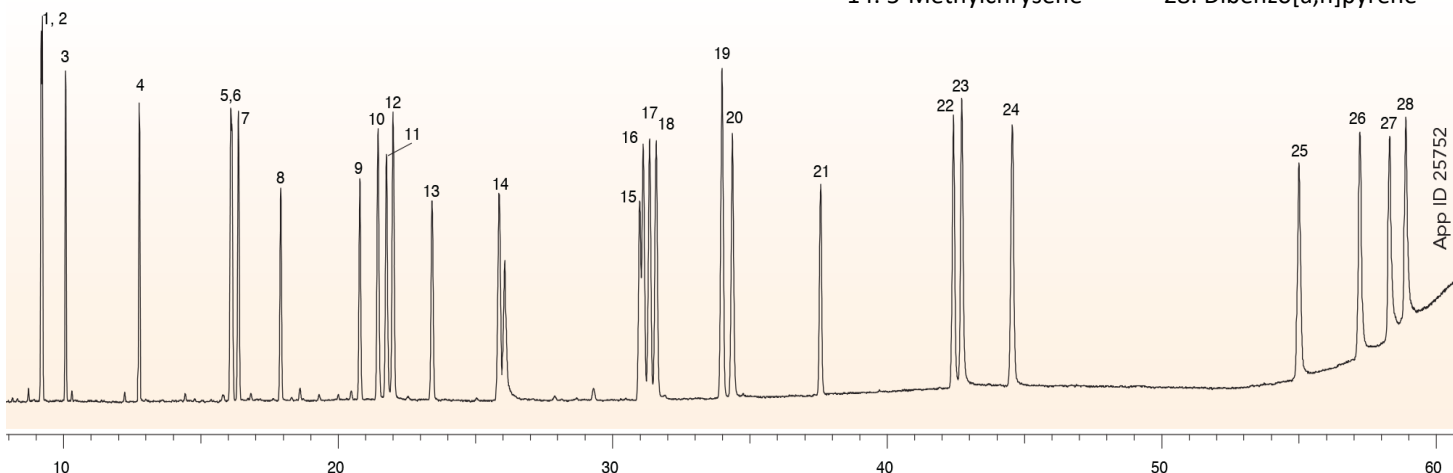
Persistent Organic Pollutants POPs include a variety of compounds including Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), Chloroterphenyls and many other chemical components. The structures of PAHs, PCBs and Terphenyl compounds are quite similar. Any analysis of combinations of these compound classes requires a stationary phase selectivity that can recognize small changes in electron density around aromatic rings in order to provide separation. For these environmentally monitored POPs, there is definitely a need for a one column solution that can provide productivity gains. Presented in **Figure 1** is an example of this type of separation in which 28 different PAHs, PCBs and Chloroterphenyl are analyzed in a single method. The column used was the Zebron™ ZB-PAH-EU which provides the enhanced selectivity needed to separate PAHs, PCBs and Chloroterphenyls in a one method. In addition, the ZB-PAH-EU offers a temperature limit of 340/360 °C (isothermal/gradient) that accommodates a higher inlet and transfer line temperature which affords better sensitivity for heavier PAHs and PCBs

GC-MS Conditions

Column: Zebron ZB-PAH-EU
Dimension: 30 meter x 0.25 mm x 0.20 µm
Part No.: [7HG-G043-10](#)
Injection: Split 2:1 @ 320 °C, 1 µL
Recommended Liner: Zebron PLUS Single Taper Z-Liner
Liner Part No.: [AG2-4B13-05](#) (for Shimadzu 2010 GC)
Carrier Gas: Helium @ 1.3 mL/min (constant flow)
Oven Program: 45 °C for 1 min to 200 °C @ 50 °C/min to 250 °C @ 3 °C/min for 5 min to 300 °C @ 3 °C/min for 10 min to 340 °C @ 5 °C/min for 0 min
Detector: MSD, 100-500 m/z
Transfer line Temperature: 300 °C
Source Temperature: 300 °C

- | | | |
|----------------|---------------------------|----------------------------|
| Sample: | 1. PCB 31 | 15. Tetrachloroterphenyl |
| | 2. PCB 28 | 16. Benzo[b]fluoranthene |
| | 3. PCB-52 | 17. Benzo[k]fluoranthene |
| | 4. PCB 101 | 18. Benzo[j]fluoranthene |
| | 5. PCB 153 | 19. Benzo[e]pyrene |
| | 6. PCB118 | 20. Benzo[a]pyrene |
| | 7. Benzo[c]fluorene | 21. Pentachloroterphenyl |
| | 8. PCB138 | 22. Indeno[1,2,3-cd]pyrene |
| | 9. PCB180 | 23. Dibenzo[a,h]anthracene |
| | 10. Benz[a]anthracene | 24. Benzo[g,h,i]perylene |
| | 11. Cyclopenta[c,d]pyrene | 25. Dibenzo[a,i]pyrene |
| | 12. Chrysene | 26. Dibenzo[a,e]pyrene |
| | 13. Trichlorotriphenyl | 27. Dibenzo[a,i]pyrene |
| | 14. 5-Methylchrysene | 28. Dibenzo[a,h]pyrene |

Figure 1: Analysis of PAHs, PCBs and Chloroterphenyls using a Zebron ZB-PAH-EU GC Column



APPLICATIONS

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