Oxygenates, $C_1$ - $C_7$
Analysis of oxygenated compounds in botanical air

Application Note

Energy & Fuels

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Introduction
The highly selective Lowox phase generates highest retention for oxygenated compounds. Majority of oxygenated compounds elute after the hydrocarbon matrix, making accurate quantification possible. The very low bleed combined with the high temperature stability of the Lowox phase, makes trace analysis of oxygenated compounds possible.
Conditions

Technique: GC-wide-bore
Column: Agilent Lowox, 0.53 mm x 10 m fused silica PLOT (Part no. CP8587)
Temperature: 30 °C (3 min) → 280 °C, 3 °C/min
Carrier Gas: He, 3.5 mL/min, 10 kPa (10 bar, 1.2 psi)
Injector: Injection via thermal desorption using a Tenax trap
Desorption: 5 min at 280 °C
Detector: FID
T = 300 °C
Sample Size: 10 liters of air
Concentration Range: ppb-ppm level

Peak identification
1. iso-pentane/n-pentane
2. hexane
3. 3-methylhexane
4. 2-methylhexane
5. heptane
6. isoprene
7. octane
8. 1-heptene
9. benzene
10. nonane
11. toluene
12. decane
13. ethylbenzene
14. undecane
15. m-xylene
16. p-xylene
17. o-xylene
18. C₃-alkybenzene
19. C₄-alkybenzene
20. C₅-alkybenzene
21. acetone
22. pentanal
23. methyl vinyl ketone
24. ethyl methyl ketone
25. naphthalene
26. hexanal
27. methyl propyl ketone
28. heptanal
29. octanal
30. benzaldehyde
31. nonanal
32. decanal
33. acetophenone
34. 2-ethylhexanol
35. phenol

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