

Volatile organic components

Separation of volatile organic components in whole air

Application Note

Environmental

Authors

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Introduction

In the framework of an environmental study, the anthropogenic and biogenic contribution of organic material in air samples was determined. For the QA/QC procedures the composition of the whole air samples needed to be determined. A column was selected for the separation of non-polar volatiles and semivolatiles, with an extended range, up to C_{12} . The high maximum operating temperature of Agilent PoraPLOT Q-HT (290 °C) makes this possible. It is a good alternative for an Agilent CP-Al₂O₃ aluminium oxide PLOT column, because it also elutes polar compounds in combination with high retention power.



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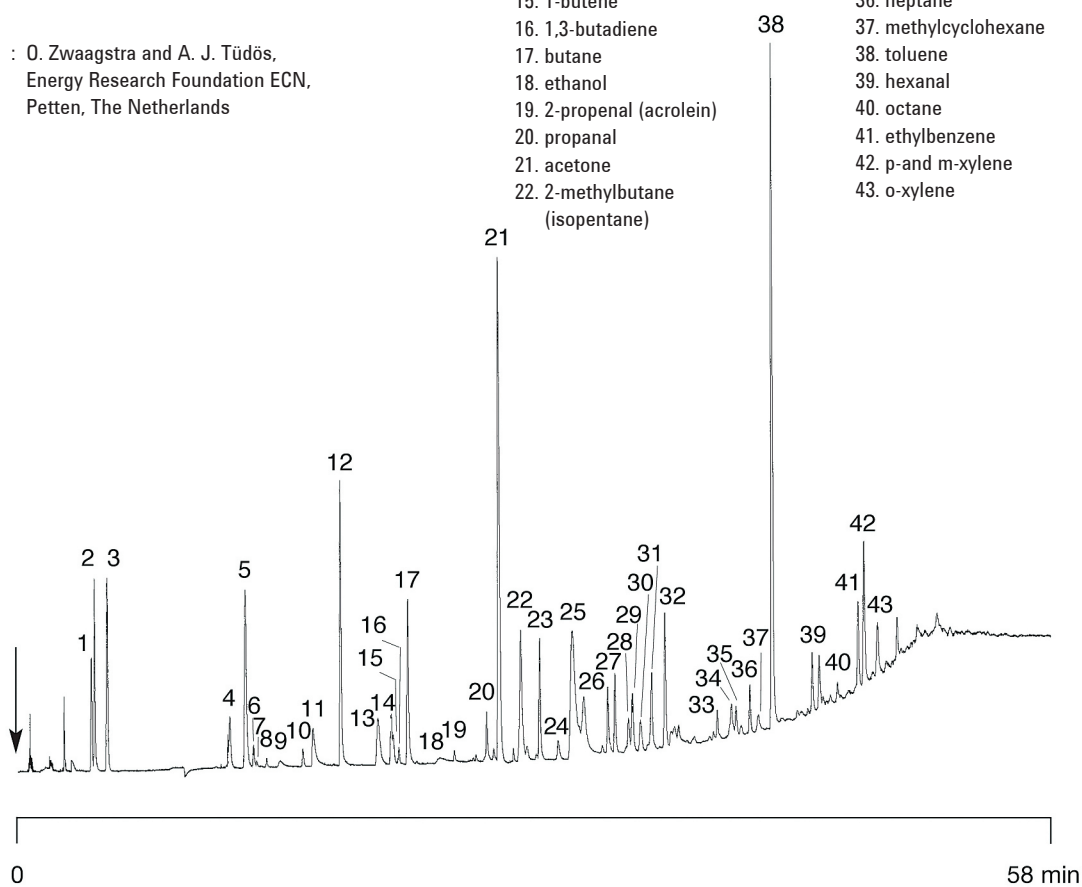
Conditions

Technique : GC-capillary
Column : Agilent PoraPLOT Q-HT, 0.32 mm x 25 m fused silica PLOT (df = 10 µm) (Part no. CP7557)
Temperature : 35 °C (6 min) → 250 °C, 5 °C/min; 250 °C (10 min)
Carrier Gas : He (6.0), 107 kPa (15 psi, 1.07 bar)
Injector : Cold Trap (-150 °C),
T = 250 °C
Detector : FID/MS
T = 250 °C
Sample Size : 1 L on Cold Trap
Concentration Range : ppb in air

Courtesy : O. Zwaagstra and A. J. Tüdös,
Energy Research Foundation ECN,
Petten, The Netherlands

Peak identification

1. ethene
2. acetylene (ethyne)
3. ethane
4. propene
5. propane
6. chloromethane
7. 1,2-propadiene
8. 1-propyne
9. dichlorodifluoromethane
10. methanol
11. dimethylether
12. acetaldehyde
13. isobutane
14. 2-methylpropene
15. 1-butene
16. 1,3-butadiene
17. butane
18. ethanol
19. 2-propenal (acrolein)
20. propanal
21. acetone
22. 2-methylbutane (isopentane)
23. pentane
24. cyclopentane
25. 1,1,2-trichloro-1,2,2-trifluoro ethane
26. butanal
27. 2-butanone
28. 2-methylpentane
29. ethyl acetate
30. 3-methylpentane
31. hexane
32. benzene
33. pentanal
34. 2-methylhexane
35. 3-methylhexane
36. heptane
37. methylcyclohexane
38. toluene
39. hexanal
40. octane
41. ethylbenzene
42. p-and m-xylene
43. o-xylene



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