

Application Report 399

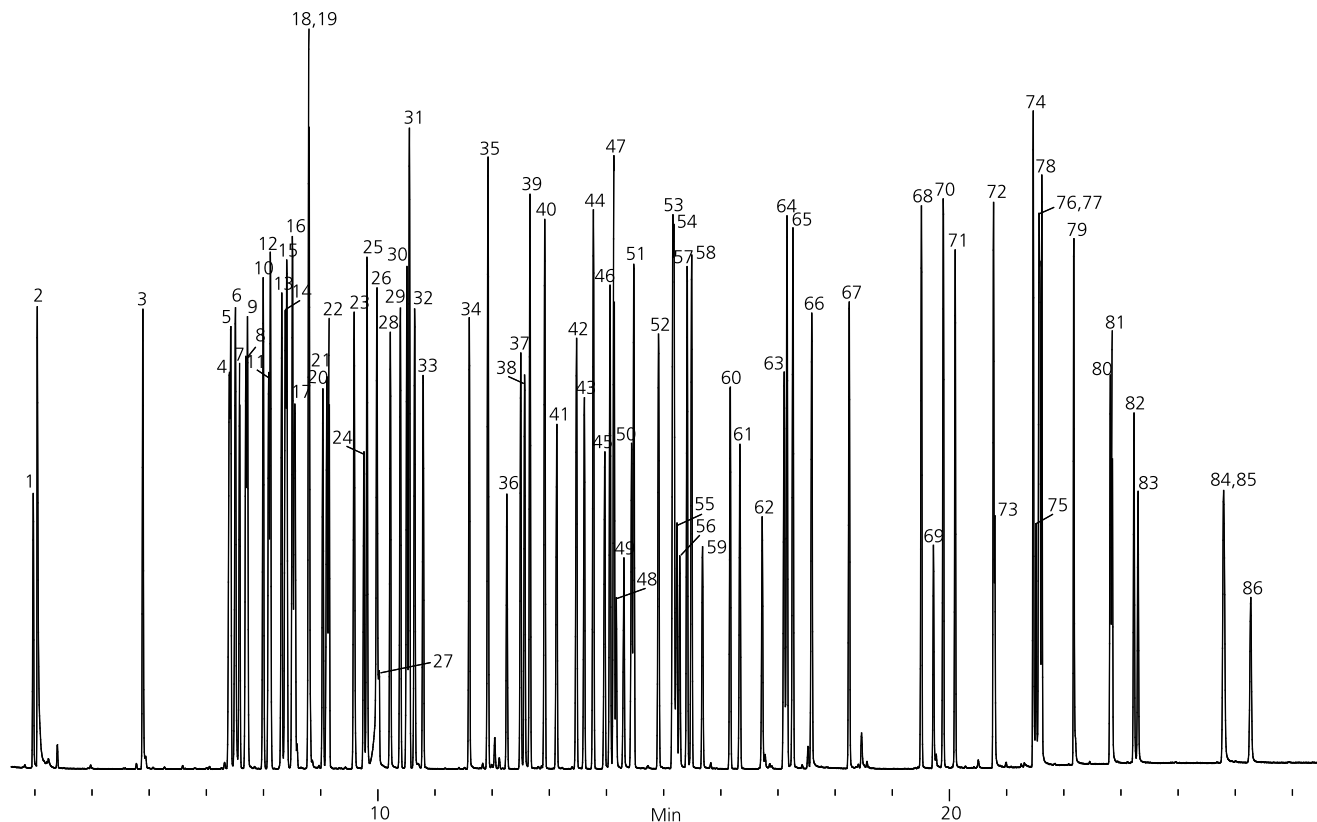
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Acquisition System: 6890 GC / 5973 MSD
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Analysis of US EPA Method 8270D Semivolatiles Using a 30 m x 0.25 mm I.D., 0.50 µm SLB-5ms

US EPA Method 8270D specifies a procedure for the determination of semivolatiles in solid waste and ground water samples. The long list of analytes includes compounds of a variety of functionalities. A 0.25 µm df column is commonly used for this method, as it will allow for a short analysis time. However, the thin phase film of this dimension limits its sample capacity. An alternative choice is a 0.50 µm df column, which can accommodate higher concentrations and thus extend the calibration range.

Key Words

semivolatiles, BNA, 506508, 861148, 48467, 46702-U, 46955-U, US EPA Method 8270D, RCRA, SLB-5ms, 28473-U



G003578

Conditions

column: SLB-5ms, 30 m x 0.25 mm I.D., 0.50 µm (28473-U)
oven: 40 °C (1 min.), 12 °C/min. to 250 °C, 25 °C/min. to 340 °C (4.5 min.)
inj.: 250 °C
MSD interface: 340 °C
scan range: m/z 40-450
carrier gas: helium, 1.5 mL/min. constant flow
injection: 1.0 µL, pulsed (15 psi until 0.10 min.), splitless (0.50 min.)
liner: 4 mm I.D., single taper
sample: 50 ng on-column of a 72 component semivolatile standard and 8 surrogate compounds, plus 6 internal standards (at 40 ng on-column)

27. Benzoic acid	59. 2,4,6-tribromophenol (surr.)
28. 2,4-dichlorophenol	60. 4-bromophenyl phenyl ether
29. 1,2,4-trichlorobenzene	61. Hexachlorobenzene
30. Naphthalene-d ₈ (I.S.)	62. Pentachlorophenol
31. Naphthalene	63. Phenanthrene-d ₁₀ (I.S.)
32. 4-chloroaniline	64. Phenanthrene
33. Hexachlorobutadiene	65. Anthracene
34. 4-chloro-3-methylphenol	66. Carbazole
35. 2-methylnaphthalene	67. Di-n-butyl phthalate
36. Hexachlorocyclopentadiene	68. Fluoranthene
37. 2,4,6-trichlorophenol	69. Benzidine
38. 2,4,5-trichlorophenol	70. Pyrene
39. 2-fluorobiphenyl (surr.)	71. Terphenyl-d ₁₄ (surr.)
40. 2-chloronaphthalene	72. Butylbenzyl phthalate
41. 2-nitroaniline	73. 3,3'-dimethylbenzidine
42. Dimethyl phthalate	74. Bis(2-ethylhexyl)phthalate
43. 2,6-dinitrotoluene	75. 3,3'-dichlorobenzidine
44. Acenaphthylene	76. Benzo(a)anthracene
45. 3-nitroaniline	77. Chrysene-d ₁₂ (I.S.)
46. Acenaphthene-d ₁₀ (I.S.)	78. Chrysene
47. Acenaphthene	79. Di-n-octyl phthalate
48. 2,4-dinitrophenol	80. Benzo(b)fluoranthene
49. 4-nitrophenol	81. Benzo(k)fluoranthene
50. 2,4-dinitrotoluene	82. Benzo(a)pyrene
51. Dibenzofuran	83. Perylene-d ₁₂ (I.S.)
52. Diethyl phthalate	84. Indeno(1,2,3-cd)pyrene
53. 4-chlorophenyl phenyl ether	85. Dibenzo(a,h)anthracene
54. Fluorene	86. Benzo(g,h,i)perylene
55. 4-nitroaniline	
56. 2-methyl-4,6-dinitrophenol	
57. N-nitrosodiphenylamine	
58. Azobenzene	

Peak IDs

1. N-nitrosodimethylamine	14. 1,2-dichlorobenzene-d ₄ (surr.)
2. Pyridine	15. 1,2-dichlorobenzene
3. 2-fluorophenol (surr.)	16. 2-methylphenol
4. Phenol-d ₆ (surr.)	17. Bis(2-chloroisopropyl)ether
5. Phenol	18. N-nitroso-di-n-propylamine
6. Aniline	19. 4-methylphenol
7. Bis(2-chloroethyl)ether	20. Hexachloroethane
8. 2-chlorophenol-d ₄ (surr.)	21. Nitrobenzene-d ₅ (surr.)
9. 2-chlorophenol	22. Nitrobenzene
10. 1,3-dichlorobenzene	23. Isophorone
11. 1,4-dichlorobenzene-d ₄ (I.S.)	24. 2-nitrophenol
12. 1,4-dichlorobenzene	25. 2,4-dimethylphenol
13. Benzyl alcohol	26. Bis(2-chloroethoxy)methane