

# Application Report 474

## Fast GC-MS Analysis of US EPA Method 8270D Semivolatiles Using Supelco 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. In addition to the challenge posed by the activity of some of these compounds, the method specifies that all analyses must be completed within 12 hours of meeting specific MS tune criteria. In this application, the principles of fast GC were applied to analyze a typical 8270 analyte list in under 8.5 minutes. This was achieved by using a 20 m x 0.18 mm I.D. x 0.18 µm column in combination with a rapid oven ramp rate and high carrier gas linear velocity.

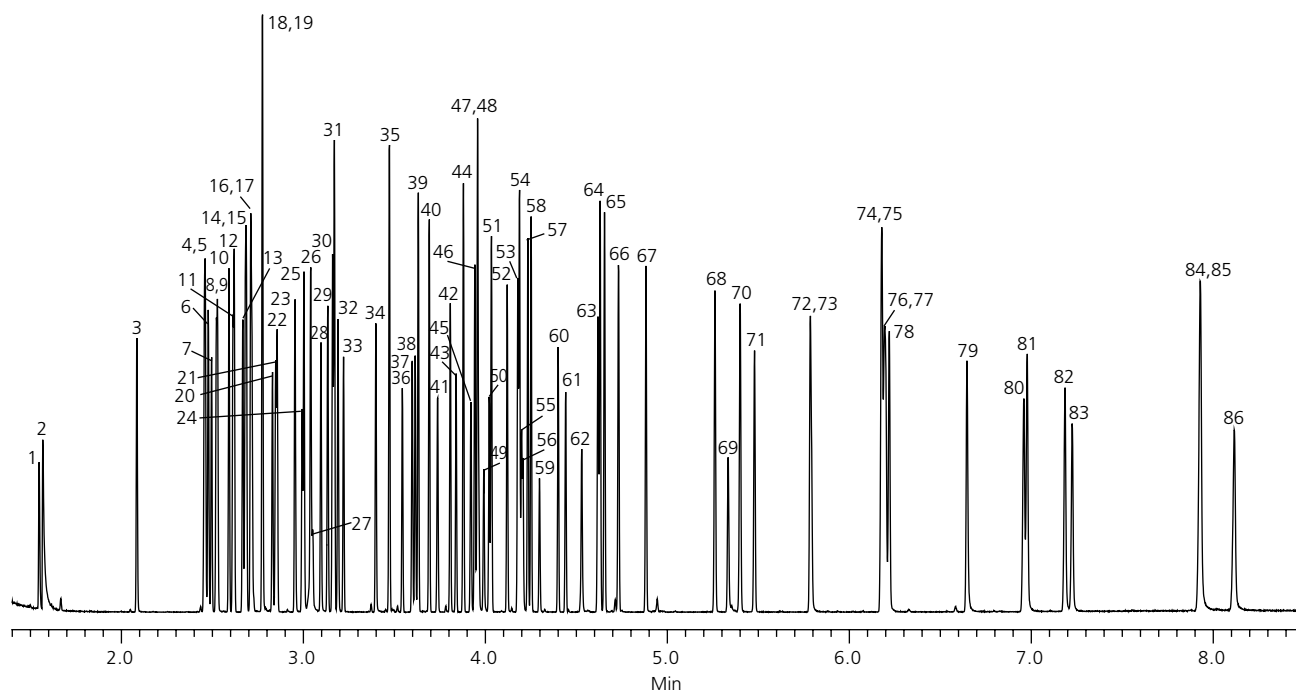
### Key Words

semivolatiles, BNA, 28564-U, 506508, 861148, 48467, 46702-U, 46955-U, US EPA Method 8270D, RCRA, SLB-5ms, fast GC, 2879501-U, GC-MS

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Acquisition System: 6890GC/  
5973MSD

Notebook Reference: 1569-86



G003739

### Conditions

column: SLB-5ms, 20 m x 0.18 mm I.D., 0.18 µm (28564-U)  
oven: 40 °C (0.7 min.), 55 °C/min. to 240 °C, 28 °C/min. to 330 °C (2 min.)  
inj.: 250 °C  
MSD interface: 330 °C  
scan range: m/z 40-450  
carrier gas: helium, 40 cm/sec., constant  
injection: 0.5 µL, 10:1 split  
liner: 2 mm I.D., FAST FocusLiner™ with taper (2879501-U)  
sample: 80 component semivolatile standard at 50 ppm plus 6 internal standards (at 40 ppm) in methylene chloride

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 <sub>8</sub> (I.S.)	62. Pentachlorophenol
31. Naphthalene	63. Phenanthrene-d <sub>10</sub> (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 <sub>14</sub> (surr.)
40. 2-Chloronaphthalene	72. 3,3'-Dimethylbenzidine
41. 2-Nitroaniline	73. Butylbenzyl phthalate
42. Dimethyl phthalate	74. 3,3'-Dichlorobenzidine
43. 2,6-Dinitrotoluene	75. Bis(2-ethylhexyl)phthalate
44. Acenaphthylene	76. Benzo(a)anthracene
45. 3-Nitroaniline	77. Chrysene-d <sub>12</sub> (I.S.)
46. Acenaphthene-d <sub>10</sub> (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 <sub>12</sub> (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 <sub>4</sub> (surr.)
2. Pyridine	15. 1,2-Dichlorobenzene
3. 2-Fluorophenol (surr.)	16. 2-Methylphenol
4. Phenol-d <sub>6</sub> (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 <sub>4</sub> (surr.)	21. Nitrobenzene-d <sub>5</sub> (surr.)
9. 2-Chlorophenol	22. Nitrobenzene
10. 1,3-Dichlorobenzene	23. Isophorone
11. 1,4-Dichlorobenzene-d <sub>4</sub> (I.S.)	24. 2-Nitrophenol
12. 1,4-Dichlorobenzene	25. 2,4-Dimethylphenol
13. Benzyl alcohol	26. Bis(2-chloroethoxymethane)