

## REFERENCES

- Sittig, M., "Handbook of Toxic and Hazardous Chemicals,"
   Noyes Publications, New York, 1981.
- 2. Futoma, D.J., T.E. Smith, and J. Tanaka, "Polynuclear

  Aromatic Hydrocarbons in Water systems," CRC

  Press Inc., Florida, 1981.
- 3. Yoshikata Miyashita, Tohru Okayama, Kazutomo Yamaura,

  Kiyokatsu Jinno, and Shin-ichi Sasaki,

  "Prediction of Carcinogenicity of PAHs on the

  Basis of their Chemical Structures," Anal.

  Chim. Acta., 202, 207, 1987.
- 4. U.S. Environmental Protection Agency, "Polynuclear

  Aromatic Hydrocarbons: Ambient Water Quality

  Criteria," Washington, D.C., 1980.
- 5. Cole, T., R. Riggin and J. Glaser, "Evaluation of

  Method Detection Limits and Analytical Curve

  for EPA Method 610-PAH," PAH Chemical Analysis

  and Biological Fate. (Cooke, M.), Battelle

  Press., Ohio, 1981.
- 6. Dressler, M., "Extraction of Trace Organic Compounds

- from Water with Porous Organic Polymers,"

  J. Chromatogr., 165, 167, 1979.
- 7. Junk, G.A., and J.J. Richard, "Use of Macroreticular Resins in the Analysis of Water for Trace Organic Contaminants," J. Chromatogr., 99, 745, 1974.
- 9. Lagana, A., B.M. Petronio, and M. Rotatori,

  "Concentration and Determination of Polynuclear

  Aromatic Hydrocarbons in Aqueous Samples on

  Graphitized Carbon Black," J. Chromatogr.,

  198, 143, 1980.
- 10. Bruner, F., G. Furlani, and F. Mangani, "Sample Enrichment for Gas Chromatographic-Mass Spectrometric Analysis of Polynuclear Aromatic Hydrocarbons in Water and in Organic Mixtures," J. Chromatogr., 302, 167, 1984.
- 11. Stenberg, U.R., and T.E. Alsberg, "Vacuum Sublimation and Solvent Extraction of Polynuclear Aromatic Compounds Adsorbed on Carbonaceous Materials," Anal. Chem., 53, 2067, 1981.
- 12. Leoni, V., G. Puccetti, and A. Grella, "Preliminary

  Results on the Use of Tenax for the Extraction

- of Pesticides and Polynuclear Aromatic
  Hydrocarbons from Surface and Drinking Water
  for Analytical Purposes," <u>J. Chromatogr.</u>, 106,
  119, 1975.
- 13. Pankow, F., M. Isabelle, and J. Kristensen, "Tenax-GC Cartridge for Interfacing Capillary Column Gas Chromatography with Adsorbtion/Thermal Desorption for Determination of Trace Organics,"

  Anal. Chem., 54, 1815, 1982.
- 14. Pankow, F., M. Isabelle, and J. Kristensen, "Effect of
  Flow Rate and Temperature on Thermal
  Desorbability of Polycyclic Aromatic Hydrocarbons
  and Pesticides from Tenax-GC," Anal. Chem., 55,
- 15. Navratil, J.D., R.E. Sieverks, and H.F. Walton, "OpenPore Polyurethane Columns for Collection and
  Concentration for Polynuclear Aromatic
  Hydrocarbons from Water," Anal. Chem., 49,
  2260, 1977.
- 16. Olyer, A.R., D.L. Bordenner, K.J. Welch, R.J.

  Liukkonen, R.M. Carlson, H.L. Kopperman and R.

  Caple, "Determination of Aqueous Chlorination

- Reaction Product of Polynuclear Aromatic

  Hydrocarbons by Reversed Phase HPLC,"

  Anal. Chem., 50, 837, 1978.
- 17. Hetrz, H.S., W.E. May, S.N. Charles, and B.H. Gump,

  "Petroleum Analysis: Methodology for

  Quantitative and qualitative Assessment of Oil

  Spill," Environ. Sci. Technol., 10, 900, 1976.
- 18. Murray, D.A.J., "Rapid Microextraction Procedure for Analyses of Trace Amounts of Organic Compounds in Water by Gas Chromatography and Comparison with Macroextraction Methods," J. Chromatogr., 177, 135, 1979.
- 19. Kasiske, D., K.D. Klinkmuller, and M. Sonneborn,

  "Application of High Performance Liquid

  Chromatography to Water Pollutants Analysis,"

  J. Chromatogr., 149, 703, 1978.
- 20. Grob, K., K. Jr. Grob, and G. Grob, "Organic Substances in Potable Water and in its Precursor,"

  J.Chromatogr., 106, 299, 1975.
- 21. Rhoades, J.W., and J.D. Millar, "Gas Chromatographic Method for Comparative Analysis of Fruit Flavors," J. Agr. Food. Chem., 13, 5, 1965.

- 22. Rhoades, J.W., and C.P. Nulton, "Microextraction as a Approach to Analysis for Priority Pollutant in Industrial Wastewater," Adv. Identif. Anal.
  Org. Pollut. Water. (Keith, L.H.), Vol.1, p.241,
  Inst. Appl. Sci., Texas, 1981.
- 23. Junk, G.A., I. Ogawa, and H.J. Swec, "Extraction of Organic Compounds from Water Using Small Amounts of Solvent," Adv. Identif. Anal. Org.

  Pollut. Water.(Keith, L.H.), Vol.1, p.281,
  Inst. Appl. Sci., Texas, 1981.
- 24. Thrun, K.E., and J.E. Oberholtzer, "Evaluation of the Microextraction Technique to Analyze Organics in Water," <u>Adv. Identif. Anal. Org. Pollut.</u>
  Water. (Keith, L.H.), Vol.1, p.253, Inst. Appl.
  Sci., Texas, 1981.
- 25. Murray, D.A.J., and W.L. Lockhart, "Microextraction and Gas Chromatographic Analysis of Selected Petroleum Hydrocarbons in Water and Fish Tissue," J. Chromatogr., 212, 305, 1981.
- 26. Theilen, R., and A.D. Olsen, "An Evaluation of Microextraction/Capillary Column Gas Chromatography for Monitoring Industrial Outfalls,"

- J. Chromatogr. Sci., 25, 12, 1987.
- 27. Tong, H.Y., and F.W. Karasek, "Quantitation of Polycyclic Aromatic Hydrocarbons in Diesel Exhaust Particulate Matter by High Performance Liquid Chromatography Fractionation and High Resolution Gas Chromatography," Anal. Chem., 56, 2129,1984.
- 28. JohnDennis, M., C. Massey, and J. McWeeny, "Comparison of a Capillary Gas Chromatographic and a High Performance Liquid Chromatographic Method of Analysis for Polycyclic Aromatic Hydrocarbons in Food," J. Chromatogr., 302, 127, 1984.
- 30. Krustrulovic, M., M. Rosie and R. Brown, "Selective Monitoring of Polynuclear Aromatic Hydrocarbons by High Performance Liquid Chromatography with a Variable Wavelength Detector," <a href="Anal. Chem.">Anal. Chem.</a>, 48(9), 1383, 1976.
- 31. O'Haver, T.C., "Derivative and Wavelength Modulation Spectrometry," Anal. Chem., 51, 91A, 1979.

- 32. O'Haver, T.C., and W.M. Parks, "Selective Modulation:

  A New Instrumental Approach to the Fluorimetric

  Analysis of Mixture without Separation," Anal.

  Chem., 46, 1886, 1974.
- 33. Hood, L.V.S., and J.D. Winefordner, "Thin Layer

  Separation and Low Temperature Luminescence

  Measurement of Mixtures of Carcinogens," Anal.

  Chim. Acta., 42, 199, 1968.
- 34. Wise, S.A., and W.E. May, "Effect of C<sub>18</sub> Surface

  Coverage on Selectivity in Reversed Phase Liquid

  Chromatography of Polynuclear Aromatic

  Hydrocarbons," Anal. Chem., 55, 1479, 1983.
- 35. Baweja, R., "Application of Reversed Phase High

  Performance Liquid Chromatography for the

  Separation of Deuterium and Hydrogen Analogs of

  Aromatic Hydrocarbons," Anal. Chim. Acta., 192,

  345, 1987.
- 36. Nielsen, T., "Isolation of Polycyclic Aromatic Hydrocarbons and Nitro Derivative in Complex Mixtures by Liquid Chromatography," Anal. Chem., 55, 286, 1983.
- 37. Radicki, A., H. Lamparczyk, J. Grazybowski, and J.

Halkiewicz, "Separation of Polycyclic Aromatic Hydrocarbons and Determination of Benzo(a)Pyrene in Liquid Smoke Preparations," <u>J. Chromatogr.</u>, 150, 527, 1978.

- 38. Driscoll, J.N., "Evaluation of a New Photoionization

  Detector for Organic Compounds," <u>J. Chromatogr.</u>,

  134, 49, 1977.
- 39. Freed, D.J., and L.R. Faulkner, "Characterization of Gas

  Chromatographic Effluents via Scanning Fluores
  cence Spectrometry," Anal. Chem., 44(7), 1194,

  1972.
- 40. Johnson, E., and A. Abu-Shumays, "Use of Fluorescence

  Detection in High Performance Liquid

  Chromatography," J. Chromatogr., 134, 107, 1977.
- 41. Vo-Dinh, T., G.L. Walden, and J.D. Winefordner,

  "Instrument for the Facilitation of Room Temperature Phosphorimetry with a Continuous Filter

  Paper Device," Anal. Chem., 49, 1126, 1977.
- 42. Stroupe, R.C., P. Tokousbalides, R.B. Dickinson, E.L.

  Wehry, and G. Mamantov, "Low Temperature

  Fluorescence Spectrometric Determination of

  Polycyclic Aromatic Hydrocarbons by Matrix

Isolation," Anal. Chem., 49, 701, 1977.

- 43. Dong and Locke., "High Pressure Liquid Chromatographic

  Method for Routine Analysis of Major Parent

  Polycyclic Aromatic Hydrocarbons in Suspended

  Particular Matters," Anal. Chem., 48(2), 368,
- 44. Yeung, S., and E. Synovec, "Detector for Liquid Chromatography," Anal. Chem., 58(12), 1237A, 1986.
- 45. Lao, R.S., and R.S. Thomas, "Application of a GC-MS-Data Processor Combination to the Analysis the Polycyclic Aromatic Hydrocarbons Content of Airborne Pollutants," Anal. Chem., 45, 908, 1973.
  - 46. Eugene W. Berg, "Physical and Chemical Methods of Separation," McGraw-Hill Book, New York, 1963.
  - 47. Arnold Weissberger, "Separation and Purification.",

    Vol.3, part 1, 2nd ed., International Science

    Publisher, New York, 1954.
  - 48. Robert V. Dilts, "Analytical Chemistry", D. Van
    Nostrand Company, New York, 1974.
  - 49. Morrison, G.H., and H. Friesen, "Solvent Extraction in Analytical Chemistry.", Chap.2, John Wiley &

Sons Inc., New York, 1965, p.7

50. Whitehead, K.E., and C. Geankoplis, "Separation of Formic and Sulfuric Acids by Extraction,"

Industrial and Engineering Chemistry., 47(10),
2114, 1955.

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