

## បរចាំនាក់រាល់

1. Suess, M.J. Examination of water pollution control. Vol.2  
World Healthy Organization , 1982.
2. Greenberg, A.E., Connors, J.J., Jenkins, D., and Franson, M.H.  
Standard method for the examination of water and waste  
water 15th ed. United States of America : Donnelley  
& Sons, 1980.
3. Kirk-Othmer. Encyclopedia of Chemical Technology. 26 Vols.  
3rd ed. New York : John Wiley & Sons, 1985.
4. Klein, L. River Pollution. Vol.1 Great Britain : Butterworth,  
1971.
5. Bassett, J., Denney, R.C., Jeffery, G.H., and Mendham, J.  
Vogel's Textbook of Quantitative Inorganic Analysis.  
Great Britain : William Clowes , 1978.
6. Florence, T.M., and Farrar, Y.J. Titration of microgram  
amounts of sulphide with a sulphide-selective electrode.  
Anal.Chim. Acta. 116(1980) : 175-179.
7. Barica, J. Use of a silver-sulfide electrode for standardizing  
aqueous sulfide solution in determining sulfide in water  
J. Fish. Res. Board Can. 30(1973) : 1589-1591.
8. Small, H., Stevens, T.S., and Bauman, W.C. Novel ion  
exchange chromatographic method using conductimetric  
detection. Anal. Chem. 47(1975) : 1801 - 1809.

9. Nyarady S.A., Barkley R.M., and Sievers, R.E. Redox chemi  
luminescence detector : Application to Gas Chromatography  
Anal. Chem. 57(1985) : 2074-2079
10. Smith, F.C., and Chang, R.C. The practice of ion chromatography.  
United States of America : John Wiley & Sons , 1983.
11. Gjerde, D.T., and Fritz, J.S. Effect of capacity on the behavior  
of anion-exchange resins J. Chromatogr. 176(1979) :  
199-206.
12. \_\_\_\_\_ and Fritz, J.S. Sodium and potassium benzoate and  
benzoic acid as eluents for ion chromatography. Anal. Chem.  
53(1981) : 2324-2327.
13. \_\_\_\_\_ Fritz, J.S., and Schmuckler, G. Anion chromatography  
with low-conductivity eluents J. Chromatogr. 186(1979)  
: 509-519.
14. \_\_\_\_\_ Fritz, J.S., and Becker, R.M. Cation chromatography  
with a conductivity detector. Anal. Chem. 52(1980) :  
1519-1522.
15. Fritz, J.S., Du Val, D.L., and Barron, R.E. Organic acid eluents  
for single-column ion chromatography. Anal. Chem.  
56(1984) : 1177-1182.
16. Glatz, J.A., and Girard, J.E. Factors affecting the resolution  
and detectability of inorganic anions by non-suppressed ion  
chromatography. J. Chromatogr. Sci. 20(1982) : 266-273.
17. Gjerde, D.T., Schmuckler, G., and Fritz, J.S. Anion Chromatography  
with low-conductivity eluents II. J.Chromatogr.  
187(1980) : 35-45.
18. Haddad, P.R., Jackson, P.E., and Heckenberg, A.L. Performance  
characteristics of some commercially available low capacity

- anion-exchange columns suitable for non-suppressed ion chromatography. J. Chromatogr. 346(1985) : 139-148.
19. Rocklin, R.D., Pohl, C.A., and Schibler, J.A. Gradient elution in ion chromatography. J. Chromatogr. 411(1987) : 107-119.
20. Wheals, B.B. Ion chromatography of inorganic anions on a dynamically modified polystyrene divinylbenzene packing material and its application to anion screening by sequential ultraviolet absorbance and electrochemical detection J. Chromatogr. 402(1987) : 115-126.
21. Golombek, R., and Schwedt, G. 2,4-Dihydroxybenzoic acid as a novel eluent in single column anion chromatography. J. Chromatogr. 367(1986) : 69-76.
22. Tarter, J.G. Non-suppressed determination of cations and anions using a differential conductivity detector. J. Chromatogr. 367(1986) : 191-194.
23. Michigami, Y., Yamamoto, Y., and Ueda, K. Determination of nitrite, sulfate, bromine and nitrate in human serum by ion chromatography. Analyst. 114(1989) : 1201-1205.
24. Cruz, L.A., and Jenke, D.R. Evaluation of assay specificity in non-suppressed ion chromatography. J. Chromatogr. 477(1989) : 271-276.
25. Poulson, R.E., and Borg, H.M. Separation and determination of sulfur-containing anions using single column ion chromatography. J. Chromatogr. Sci. 25(1987) : 409-414.
26. Gerritse, R.G., and Adeney, J.A. Rapid determination in water of chloride , sulphate , sulphite , selenite , selenate and

arsenate among other inorganic and organic solutes by ion chromatography with UV detector below 195 nm.

J.Chromatogr. 347(1985) : 419-428.

27. Schmuckler, G. Recent developments in ion chromatography.

J.Chromatogr. 313(1984) : 47-57.

28. Matsushita, S. Simultaneous determination of anions and metal cations by single-column ion chromatography with ethylenediamine tetraacetate as eluent and conductivity and ultra-violet detection. J.Chromatogr. 312(1984) : 327-336.

29. Varga, G.M., Csiky, I., and Jonsson, J.A. Ion chromatographic determination of nitrate and sulfate in natural waters containing humic substances. Anal. Chem. 56(1984) : 2066-2069.

30. Franklin, G.O. Ion chromatography provides useful analysis of the chemistry of pulping and bleaching liquors. Tappi. 65(1982) : 107-111.

31. Han, K., and Koch, W.F. Determination of sulfide at the part-per-billion level by ion chromatography with electrochemical detector. Anal. Chem. 59(1987) : 1016-1020.

32. Uddin, Z., Markuszewski, R., and Johnson, D.C. Determination of inorganic sulfur species in highly alkaline solutions by liquid chromatography with polarographic detection. Anal. Chim. Acta. 200(1987) : 115-129.

33. Franklin, G.O., and Fitchett, A.W. Fast chemical characterization of pulping and bleaching process liquors by ion chromatography. Pulp & Paper Canada. 83(1982) : 40-44.

34. Bond , A.M., Heritage, I.D., Wallance, G.G., and McCormik, M.J.  
Simultaneous determination of free sulfide and cyanide by  
ion chromatography with electrochemical detection.  
Anal. Chem. 54(1982) : 582-585.
35. Migneault, D.R. Enhanced detection of sulfite by inductively  
coupled plasma atomic emission spectroscopy with high-  
performance liquid chromatography. Anal. Chem.  
61(1989) : 272-275.
36. Ricci, G.R., Shepard, L.S. , Colovos, G., and Hester, N.E.  
Ion chromatography with atomic absorption spectrometric  
detection for determination of organic and inorganic  
arsenic species. Anal. Chem. 53(1981) : 610-613
37. Buytenhuys, F.A. Ion chromatography of inorganic and organic  
ionic species using refractive index detection.  
J.Chromatogr. 218(1981) : 57-64.
38. Stevens, T.S., Davis, J.C., and Small, H. Hollow fiber ion-  
exchange suppressor for ion chromatography. Anal. Chem.  
53(1981) : 1488 - 1492.
39. Sato, H., and Miyanaga, A. Background suppression by chelation  
in the ion-exchange chromatographic separation of anions.  
Anal.Chem. 61(1989) : 122-125.
40. Hanaoka, Y., Murayama, T. Muramoto, S., Matsuura, T., and Nanba,  
A. Ion chromatography with an ion-exchange membrane  
suppressor. J.Chromatogr. 239(1982) : 537 - 548.
41. Shintani,H., and Dasgupta, P.K. Gradient anion chromatography  
with hydroxide and carbonate eluents using simultaneous  
conductivity and pH detection. Anal.Chem. 59(1987):  
802 - 808.

42. Sunden, T., Lindgren, M., Cedergren, A., and Siemer, D.D.  
Separation of sulfite, sulfate, and thiosulfate by ion chromatography with gradient elution. Anal. chem. 55(1983) : 2 - 4.
43. Jones, W.R., Jandik, P., and Heckenberg, A.L. Gradient elution of anions in single column ion chromatography. Anal. Chem. 60(1988) : 1977 - 1979.
44. Wetzel, R.A., Anderson, C.L., Schleicher, H., and Crook, G.D. Determination of trace level ions by ion chromatography with concentrator columns. Anal. Chem. 51(1979) : 1532 - 1535.
45. Iskandaranl, Z., and Pietrzyk, D.J. Ion interaction chromatography of inorganic anions on a poly (styrene - divinylbenzene) absorbent in the presence of tetraalkylammonium salts. Anal. Chem. 54(1982) : 2427 - 2431.
46. Girard, J.E., Rebbani, N., Buell, P.E., and AL-Khalidi, A.H.E. Carbohydrate - borate eluents for anions chromatography J. Chromatogr. 448(1988) : 355 - 363.
47. Borgarello, E., Serpone, N., Torcini, s., Minero, C., and Pelizzetti, E. Separation of inorganic anions by un suppressed ion chromatography. Anal. Chim. Acta. 188(1986) : 317 - 319.
48. Yamamoto, M., Yamamoto, H., Yamamoto, Y., Matsushita, S., Baba, N., Ikushige, T. Simultaneous determination of inorganic anions and cations by ion chromatography with ethylene diaminetetraacetic acid as eluent. Anal. Chem. 56(1984): 832 - 834.

49. Heckenberg, A.L., and Haddad, P.R. Studies on Sample preconcentration in ion chromatography. J.Chromatogr. 330(1985) : 95 - 111.
50. Matsushita, S., Tada, Y., Baba, N., and Hosako, K. High performance ion chromatography of ions. J.Chromatogr. 259(1983) : 459 - 464.
51. Girard, J.E., and Badio, D.Y. Capacity variation of silica-based single column ion chromatography columns. Anal.Chem. 56(1984) : 2992 - 2994.
52. Story, J.N. High speed LC of sulfur anions with sulfur selective detection. J.Chromatogr.Sci. 21(1983) : 272 - 277.
53. Lindgren, M., Cedergren, A., and Lindberg, J. Condition for sulfite stabilization and determination by ion chromatography. Anal. Chim. Acta. 141(1982) : 279 - 286
54. Veuthey, J.L., Senn, J.P., and Haerdi, W. Low-cost rapid separation and determination of ionic species by single - column ion chromatography. J.Chromatogr. 445(1988) : 183 - 188.
55. Steudel, R., Holdt, G., and Gobel, T. Ion-pair chromatographic separation of inorganic sulphur anions including polysulphide. J.Chromatogr. 475(1989) : 442 - 446.
56. Golombek, R., and Schwedt, G. Methyl green-coated column for seperation of inorganic anions by ion chromatography. J.Chromatogr. 452(1988) : 283 - 294.
57. Qi, D., Okada, T., and Dasgupta, P.K. Direct current conductivity detection in ion chromatography. Anal. Chem.

- 61(1989) : 1383 - 1387.
58. Brunt, K. Sulfate determination in industrial wastewater by liquid chromatography with postcolumn solid-phase reaction detection. Anal. Chem. 57(1985) : 1338-1341.
59. Williams, R.J. Determination of inorganic anions by ion chromatography with ultraviolet absorbance detection. Anal. Chem. 55(1983) : 851 - 854.
60. Nieto, K.F., and Frankenberger, W.T. single column ion chromatography : I. Analysis of inorganic anion in soils. Soil Sci. Soc. Am. J. 49(1985) : 587-592
61. Cutler, F.M. Anion analysis of high purity water. J. of environmental sciences. January/February (1986): 44- 49.
62. Reiter, C., Muller, S., and Muller, T. Improved method for the determination of sulphate in human serum using ion chromatography. J. Chromatogr. 413(1987) : 251 - 256.
63. Jenke, D.R. , Mitchell, P.K., and Pagenkopf, G.K. Anion content of snow by suppressed and non-suppressed ion chromatography. J. Chromatogr. Sci. 21(1983) : 487 - 489.
64. Baltensperger, U., and Kern, S. Determination of mono-and divalent cations and anions in small fog samples by ion chromatography. J.Chromatogr. 439(1988) : 121 - 127.
65. Anderson, C., Warner, C.R., Daniels, D.H., and Padgett, K.L. Ion chromatographic determination of sulfites in foods. J. ASSOC.OFF.ANAL.CHEM. 69(1986) : 14 - 19.
66. Hansen, L.d., Richter, B.E., Rollins , D.K., Lamb, J.D., and Eatough., D.J. Determination of arsenic and sulfur species in environmental samples by ion chromatography.

Anal. Chem. 51(1979) : 633 - 635.

67. Stevens, T.S., and Turkelson, V.T. Determination of amions in boiler blow-down water with ion chromatography.

Anal. Chem. 49(1977) : 1176 - 1178.

68. Goodwin, L.R., Francom, D., Urso, A., and Dieken, F.P.

Determination of trace sulfides in turbid water by gas dialysis/ion chromatography. Anal. Chem. 60(1988) : 216 - 219.

69. Trujillo, F.J., Miller, M.M., Skogerboe, R.K., Taylor, H.E., and Grant, C.L. Ion chromatographic determination of thiosulfate in oil shale leachates. Anal. Chem. 53(1981) : 1944 - 1946.

70. Krishnagopalan, J., Hill, M., and Fricke, A.L. Chromatographic analysis of kraft liquor anions. Tappi. September (1985) : 108 - 112

ประวัติผู้เขียน

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