



References:

Adelman A.H. and Oster G. (1956) Long-lived states in photochemical reactions. II Photoreduction of fluorescein and its halogenated derivatives. *Journal of the American Chemical Society*. **78** 3977-3980.

Albert A. and Serjeant E.P. (1984) *The Determination of Ionisation Constants - A laboratory manual*. (3rd Ed.) Chapman and Hall. London.

American Chemical Society (1990) *Analytical Chemistry*. **62** 91.

Atkinson T.C., Smith D.I., Lavis J.J. and Whitaker R.J. (1973) Experiments in tracing underground waters in limestones. *Journal of Hydrology*. **19** 323-349.

Bannerjee N.R. and Vig S.K. (1971) Polarographic current-voltage curves of fluorescein: Part III – Course of electrode process. *Indian Journal of Chemistry*. **9** 444-448.

Behrens H. (1986) Water tracer chemistry a factor determining performance and analytics of tracers. *Proceedings of the 5th International Symposium on Underground Water Tracing*. Athens, Greece. 121-133.

Behrens H., Moser H. and Wildner E. (1977) Investigation of groundwater flow with the aid of indium-EDTA-complex using neutron activation for the determination of the tracer. *Journal of Radioanalytical Chemistry*. **38** 491-498.

Bjerrum N. (1926) Die verdünnungswärme einer ionenlösung in der theorie von Debye und Hückel. *Zeitschrift für Physikalische Chemie*. **119** 145-160.

Boets P.M., Van Vreeswijk H., Verhaegen A., Den Hartigh J. and Van Best J.A. (1992) Determination of the molar absorption coefficient of fluorescein sodium. *Experimental Eye Research*. **54** 143-144.

Boning C.W. (1974) Generalization of stream travel rates and dispersion characteristics from time-of-travel measurements. *Journal of Research of the U.S. Geological Survey*. **2** (4) 495-499.

Braude E.A., Fawcett J.S. and Timmons C.J. (1950) Fluorescence and the Beer-Lambert law. A note on the technique of absorption spectrophotometry. *Journal of the Chemical Society*. 1019-1021.

Carleton G.B., Welty C. and Buxton H.T. (1999) Design and analysis of tracer tests to determine effective porosity and dispersivity in fractured sedimentary rocks, Newark Basin, New Jersey. *U.S. Geological Survey*. Water-Resources Investigations Report 98-4126.

Chen S., Nakamura H. and Tamura Z. (1979) Supplemental studies on relationship between structure and spectrum of fluorescein. *Chemical and Pharmaceutical Bulletin*. **27** (2) 475-479.

Clark J. and Cunliffe A.E. (1973) Rapid spectrophotometric measurement of ionisation constants in aqueous solution. *Chemistry and Industry*. **17** (6) 281-283.

Cox J.D., Wagman D.D. and Medvedev V.A. (1989) *CODATA Key values for thermodynamics*. Hemisphere Publishing Corp. New York.

CRC Handbook (1992) *CRC Handbook of Chemistry and Physics*. Editor-in-Chief: D.R. Lide. (73rd Ed.) CRC Press, Inc. Boca Raton. U.S.A.

Delori F.C., Castany M.A. and Webb R.H. (1978) Fluorescence characteristics of sodium fluorescein in plasma and whole blood. *Experimental Eye Research*. **27** 417-425.

Dictionary of Organic Compounds (1996) *Dictionary of Organic Compounds*. Editors: J.I.G. Cadogan, S.V. Ley, G. Pattenden, R.A. Raphael and C.W. Rees. (6th Ed.) Chapman and Hall. London.

Diehl H. (1989) Studies on fluorescein - VI. Absorbance of the various prototropic forms of yellow fluorescein in aqueous solution. *Talanta*. **36** (3) 413-415.

Diehl H. and Horchak-Morris N. (1987) Studies on fluorescein - V. The absorbance of fluorescein in the ultraviolet, as a function of pH. *Talanta*. **34** (8) 739-741.

Diehl H., Horchak-Morris N., Hefley A.J., Munson L.F. and Markuszewski R. (1986) Studies on fluorescein III - The acid strengths of fluorescein as shown by potentiometric titration. *Talanta*. **33** (11) 901-905.

Diehl H. and Markuszewski R. (1985) Studies on fluorescein II. The solubility and acid dissociation constants of fluorescein in water solution. *Talanta*. **32** (2) 159-165.

Diehl H. and Markuszewski R. (1989) Studies on fluorescein - VII. The fluorescence of fluorescein as a function of pH. *Talanta*. **36** (3) 416-418.

Feng X., Kirchner J.W., Renshaw C.E., Osterhuber R.S., Klaue B. and Taylor S. (2001) A study of solute transport mechanisms using rare earth element tracers and artificial rainstorms on snow. *Water Resources Research*. **37** (5) 1425-1435.

Ferguson P.L., Grange A.H., Brumley W.C., Donnelly J.R. and Farley J.W. (1998) Capillary electrophoresis/laser-induced fluorescence detection of fluorescein as a groundwater migration tracer. *Electrophoresis*. **19** 2252-2256.

Feuerstein D.L. and Selleck R.E. (1963) Fluorescent tracers for dispersion measurements. *Journal of the Sanitary Engineering Division. Proceedings of the American Society of Civil Engineers*. **89** (SA 4) 1-21.

Gibson K.S. and Keegan H.J. (1938) On the magnitude of the error resulting from fluorescence in spectrophotometric measurements. *Journal of the Optical Society of America*. **28** 180.

Grotte D., Mattox V. and Brubaker R. (1985) Fluorescent, physiological and pharmacokinetic properties of fluorescein glucuronide. *Experimental Eye Research*. **40** 23-33.

Guggenheim E.A. (1935) The specific thermodynamic properties of aqueous solutions of strong electrolytes. *Philosophical Magazine and Journal of Science*. **XIX** (CXXVII) 588-643.

Guggenheim E.A. and Schindler T.D. (1934) Studies of cells with liquid-liquid junctions. V. *Journal of Physical Chemistry*. **38** 533-541.

Güntelberg E. (1938) *Studier over elektrolyt-aktiviteter: i vandige opløsninger*. PhD Thesis. Copenhagen.

Hammond P.R. (1979) Spectroscopic and laser properties of the dye chromogen red B. *Journal of Photochemistry*. **10** 467-471.

Heller C.A., Henry R.A., McLaughlin B.A. and Bliss D.E. (1974) Fluorescence spectra and quantum yields: Quinine, Uranine, 9,10-Diphenylanthracene, and 9,10-Bis(phenylethynyl)anthracenes. *Journal of Chemical and Engineering Data*. **19** (3) 214-219.

Hendry M.J., Wassenaar L.I. and Kotzer T. (2000) Chloride and chlorine isotopes (^{36}Cl and $\delta^{37}\text{Cl}$) as tracers of solute migration in a thick, clay-rich aquitard system. *Water Resources Research*. **36** (1) 285-296.

Imamura M. (1958) Irreversible photobleaching of the solutions of fluorescent dyes. VI. Photobleaching of uranin in alkaline solutions. *Bulletin of the Chemical Society of Japan*. **31** (8) 962-969.

Imamura M. and Koizumi M. (1955) Irreversible photobleaching of the solution of fluorescent dyes. I. Kinetic studies on the primary process. *Bulletin of the Chemical Society of Japan*. **28** (2) 117-124.

Imamura M. and Koizumi M. (1956) Irreversible photobleaching of the solution of fluorescent dyes. III. Photoreaction of eosine in the aqueous alcoholic solutions under evacuated state. *Bulletin of the Chemical Society of Japan*. **29** (8) 913-918.

Kasche V. and Lindqvist L. (1964) Reactions between the triplet state of fluorescein and oxygen. *Journal of Physical Chemistry*. **68** (4) 817-823.

Kasnavia T. (1997) *Influence of molecular structure and functional groups on fluorescent dye sorption*. MSc Thesis. University of Oklahoma, Norman. U.S.A.

Kasnavia T., Vu D. and Sabatini D.A. (1999) Fluorescent dye and media properties affecting sorption and tracer selection. *Ground Water*. **37** (3) 376-381.

Kielland J. (1937) Individual activity coefficients of ions in aqueous solutions. *Journal of the American Chemical Society*. **59** 1675-1678.

Klonis N. and Sawyer W.H. (1996) Spectral properties of the prototropic forms of fluorescein in aqueous solution. *Journal of Fluorescence*. **6** (3) 147-157.

Lange's Handbook (1992) *Lange's Handbook of Chemistry*. Editor J.A. Dean. (14th Ed.) McGraw-Hill, Inc. New York.

Larsen M. and Johansson L.B.-Å. (1989) Time-resolved fluorescence properties of fluorescein and fluorescein glucuronide. *Experimental Eye Research*. **48** 477-485.

Launay M., Tripiet M., Guizerix J., Viriot M.L. and André J.C. (1980) Pyranine used as a fluorescent tracer in hydrology: pH effects in determination of its concentration. *Journal of Hydrology*. **46** 377-383.

Lee K.K. (1995) Stream velocity and dispersion characteristics determined by dye-tracer studies on selected stream reaches in the Willamette river basin, Oregon. *U.S. Geological Survey*. Water-Resources Investigations Report 95-4078.

Leonhardt H., Gordon L. and Livingston G. (1971) Acid-base equilibria of fluorescein and 2',7'-dichlorofluorescein in their ground and fluorescent states. *Journal of Physical Chemistry*. **75** (2) 245-249.

Levenspiel O. (1972) *Chemical Reaction Engineering*. John Wiley and Sons. New York.

Lewschin W.L. (1931) Das gesetz der spiegelkorrespondenz der absorption und fluoreszenzspektren. I. *Zeitschrift für Physik*. **72** 368-381.

Lindqvist L. (1960) A flash photolysis study of fluorescein. *Arkiv för Kemi*. **16** 79-138.

Makinia J. and Wells S.A. (2000) A general model of the activated sludge reactor with dispersive flow-I. Model development and parameter estimation. *Water Research*. **34** (16) 3987-3996.

Malatesta P.F. and Schwartz L.H. (1985) Use of a chemical tracer to evaluate water movement through two automatic watering rack manifolds during flushing. *Laboratory Animal Science*. **35** (1) 89-91.

Manov G.G., Bates R.G., Hamer W.J. and Acree S.F. (1943) Values of the constants in the Debye-Hückel equation for activity coefficients. *Journal of the American Chemical Society*. **65** 1765-1767.

Markuszewski R. and Diehl H. (1980) The infrared spectra and structures of the three solid forms of fluorescein and related compounds. *Talanta*. **27** 937-946.

Martin M.M. and Lindqvist L. (1975) The pH dependence of fluorescein fluorescence. *Journal of Luminescence*. **10** 381-390.

Meehan E.J. (1981) *Treatise on Analytical Chemistry*. Editors: P.J. Elving, E.J. Meehan and I.M. Kolthoff. (2nd Ed.) Part I. **7** 71-91. Interscience. New York.

Meigs L.C. and Beauheim R.L. (2001) Tracer tests in a fractured dolomite. 1. Experimental design and observed tracer recoveries. *Water Resources Research*. **37** (5) 1113-1128.

Meinke W.W. and Scribner B.F. (1967) Trace characterisation: Chemical and Physical. *National Bureau of Standards Monograph 100*. United States Department of Commerce.



Melhado L.L., Peltz S.W., Leytus S.P. and Mangel W.F. (1982) p-Guanidinobenzoic acid esters of fluorescein as active-site titrants of serine proteases. *Journal of the American Chemical Society*. **104** (25) 7299-7306.

Merck Index (1989) *The Merck Index*. Editor S. Budavari (11th Ed.) Merck and Co., Inc. Rahway, New Jersey. U.S.A.

Moran J.J. and Stonehill H.I. (1957) Fading and tendering activity in anthraquinonoid vat dyes. Part II. Fluorescence, absorption spectra, and stability to light of dyed films. *Journal of the Chemical Society*. 779-788.

Orndorff W.R., Gibbs R.C. and Shapiro C.V. (1928) The absorption spectra of fluorescein, fluoran and some related compounds. *Journal of the American Chemical Society*. **50** 819-828.

Paybins K.S., Nishikawa T., Izbicki J.A. and Reichard E.G. (1998) Statistical analysis and mathematical modeling of a tracer test on the Santa Clara river, Ventura County, California. *U.S. Geological Survey*. Water-Resources Investigations Report 97-4275.

Peña M.R., Mara D.D. and Sanchez A. (2000) Dispersion studies in anaerobic ponds: implications for design and operation. *Water Science and Technology*. **42** (10-11) 273-282.

Pretorius P.C. and Pretorius W.A. (1999) Disinfection of purified sewage effluent with monochloramine. *Water SA*. **25** (4) 463-471.

Reynolds E.R.C. (1966) The percolation of rainwater through soil demonstrated by fluorescent dyes. *Journal of Soil Science*. **17** (1) 127-132.

Sabatini D.A. and Austin T.A. (1991) Characteristics of rhodamine WT and fluorescein as adsorbing ground-water tracers. *Ground Water*. **29** (3) 341-349.

Sawyer C.N., McCarty P.L. and Parkin G.F. (1994) *Chemistry for Environmental Engineering*. (4th Ed.) McGraw-Hill, Inc. New York.



Scatchard G. (1936) Concentrated solutions of strong electrolytes. *Chemical Reviews*. **19** 309-327.

Seybold P.G., Gouterman M. and Callis J. (1969) Calorimetric, photometric and lifetime determinations of fluorescence yields of fluorescein dyes. *Photochemistry and photobiology*. **9** 229-242.

Shilton A., Wilks T., Smyth J. and Bickers P. (2000) Tracer studies on a New Zealand waste stabilisation pond and analysis of treatment efficiency. *Water Science and Technology*. **42** (10-11) 343-348.

Sjöback R., Nygren J. and Kubista M. (1995) Absorption and fluorescence properties of fluorescein. *Spectrochimica Acta. Part A*. **51** L7-L21.

Skoog D.A., West D.M. and Holler F.J. (1992) *Fundamentals of Analytical Chemistry*. (6th Ed.) Saunders College Publishing. Fort Worth.

Smart P.L. and Laidlaw I.M.S. (1977) An evaluation of some fluorescent dyes for water tracing. *Water Resources Research*. **13** (1) 15-33.

Snoeyink V.L. and Jenkins D. (1980) *Water Chemistry*. John Wiley and Sons. New York.

Stumm W. and Morgan J.J. (1970) *Aquatic Chemistry*. John Wiley and Sons. New York.

Umberger J.Q. and LaMer V.K. (1945) The kinetics of diffusion controlled molecular and ionic reactions in solution as determined by measurements of the quenching of fluorescence. *Journal of the American Chemical Society*. **67** 1099-1109.

Vig S.K. (1967) *Reduction of fluorescein at DME*. PhD. Thesis. Delhi University.

Webster D.A. (1996) Results of ground-water tracer tests using tritiated water at Oak Ridge National Laboratory, Tennessee. *U.S. Geological Survey. Water-Resources Investigations Report* 95-4182.



Wilson J.F. (1968) Fluorometric procedures for dye tracing, in Techniques of Water Resources Investigations of the U.S. Geological Survey. *U.S. Geological Survey*. Washington D.C. 3 31pp.

Wilson J.F., Cobb E.D. and Kilpatrick F.A. (1986) Fluorometric procedures for dye tracing, in Techniques of Water Resources Investigations of the U.S. Geological Survey. *U.S. Department of the Interior*. Washington DC. Book 3. Chapter A12.

Wolfbeis O.S., Förlinger E., Kroneis H. and Marsoner H. (1983) Fluorimetric analysis. 1. A study on fluorescent indicators for measuring near neutral ("physiological") pH-values. *Fresenius' Zeitschrift für Analytische Chemie*. 314 119-124.

Zanker V. and Peter W. (1958) Die prototropen formen des fluoresceins. *Chemische Berichte*. 91 572-580.