

J.M.H. LEVELT SENGERS
National Institute of Standards and Technology
Materials Measurement Laboratory
Chemical Sciences Division
Period 1954 – 2016

PUBLICATIONS, PROCEEDINGS, AND REPORTS

1. Michels, A., Wassenaar, T. and Levelt, J.M.H., Compressibility isotherms of air at temperatures between -25 and -155 °C and at densities up to 560 amagats (pressures up to 1000 atmospheres), *Appl. Sci. Res.* A4, 381-392 (1954).
2. Levelt, J.M.H., *Measurements of the compressibility of argon in the gaseous and liquid phase*, Ph.D. Thesis, University of Amsterdam. Van Gorkum & Co., Assen (1958).
3. Michels, A., Levelt, J.M.H. and Wolkers, G., Thermodynamic properties of argon at temperatures between 0°C and -140°C and at densities up to 640 amagat (pressures up to 1050 atm.), *Physica* 24, 769-794 (1958).
4. Michels, A., Levelt, J.M.H. and de Graaff, W., Compressibility isotherms of argon at temperatures between -25°C and -155°C, and at densities up to 640 amagat (pressures up to 1050 atm). *Physica* 24, 659-671 (1958).
5. Michels, A., de Graaff, W., Wassenaar, T. Levelt, J.M.H. and Louwerse, P., Compressibility isotherms of hydrogen and deuterium (-175°C - +150°C, up to 960 amagat), *Physica* 25, 25 (1959).
6. Levelt, J.M.H., The reduced equation of state, internal energy and entropy of Ar and Xe, *Physica* 26, 361-377 (1960).
7. Levelt, J.M.H., Some aspects of molecular physics, *Amer. J. Phys.* 28, 192-196 (1960).
8. Levelt, J.M.H., Over de geldigheid van de wet van overeenstemmende toestanden (On the validity of the law of corresponding states), *Ned. Tijdschr. Natuurk* 26, 250-253 (1960).
9. Levelt, J.M.H. and Cohen, E.G.D., The thermodynamic properties of dense gases and liquids, *Inst. Int. du Froid. Comm.* 1 Annexe, 1960-1961, 129-132 (1960).
10. Levelt, J.M.H. and Hurst, R.P., Quantum mechanical cell model of the liquid state I, *J. Chem. Phys.* 32, 96-104 (1960).
11. Hurst, R.P. and Levelt, J.M.H., Quantum mechanical cell model of the liquid state II, *J. Chem. Phys.* 34, 54-63 (1961).

12. Larsen, S.Y. and Levelt Sengers, J.M.H., On the behavior of the compressibility along the critical isotherm, *Advances in Thermophysical Properties at Extreme Temperatures and Pressures*, Proc. 3rd Symp. Thermophys. Properties, 74-75. S. Gratch, Ed. ASME, New York (1965).
13. Levelt Sengers, J.M.H., Compressibilities, Gases, Encyclopedia of Physics, Reinholdt Publishing Co., N.Y., 118-120 (1966).
14. Green, Melville S., Vicentini-Missoni, M. and Levelt Sengers, J.M.H., Scaling-law equation of state for gases in the critical region, Phys. Rev. Letters 18, No.25, 1113-1117 (1967).
15. Vicentini-Missoni, M., Levelt Sengers, J.M.H. and Green, M.S., Thermodynamic anomalies of C0₂, Xe, and He-4 in the critical region, Phys. Rev. Letters 22, 389-393 (1969).
16. Levelt Sengers, J.M.H., On the determination of virial coefficients from PVT data, *Proc. 4th Symp. on Thermophysical Properties*, 37-44. J. Moszynski, Ed. ASME, New York (1968).
17. Levelt Sengers, J.M.H. and Vicentini-Missoni, M., Thermodynamic anomalies near the gas-liquid critical point, *Proc. 4th Symp. on Thermophysical Properties*, 79-86. J. Moszynski, Ed. ASME, New York (1968).
18. Sengers, J.V. and Levelt Sengers, J.M.H., The critical region, Chem. & Engr. News 46, No.25, 104-118, (June 10, 1968).
19. Vicentini-Missoni, M., Levelt Sengers, J.M.H. and Green, M.S., Scaling analysis of thermodynamic properties in the critical region of fluids, J. Research, NBS, A. Physics and Chemistry, 73A, No.6, 563-583 (Nov.-Dec. 1969).
20. Haar, L. and Levelt Sengers, J.M.H., The solubility of condensed substances in dense gases and the effect on PVT properties, J. Chem. Phys. 52, No.10, 5069-5079 (1970).
21. Levelt Sengers, J.M.H., Scaling predictions for thermodynamic anomalies near the gas-liquid critical point, Ind. Eng. Chem. Fund. Quarterly 9, 470-480 (1970).
22. Vicentini-Missoni, M., Joseph, R.I., Green, M.S. and Levelt Sengers, J.M.H., Scaled equation of state and critical exponents in magnets and fluids, Phys. Rev. B1, No.5, 2312-2331 (1970).
23. Green, M.S., Cooper, M.J. and Levelt Sengers, J.M.H., Extended thermodynamic scaling from a generalized parametric form, Phys. Rev. Letters 26, No.9, 492-495 (1971).
24. Levelt Sengers, J.M.H., Straub, J. and Vicentini-Missoni., The coexistence curves of C0₂, N₂O and CClF₃ in the critical region, J. Chem. Phys. 54, No.12, 5034-5050 (1971).

25. Levert Sengers, J.M.H., Klein, M. and Gallagher, J.S., Pressure-volume-temperature relationships of gases, virial coefficients, Air Force Systems Command, Arnold Engineering, AEDC-TR-31-39, AD 719749 (1971).
26. Greer, Sandra C., Levert Sengers, J.M.H. and Furukawa, G.T., Heat capacity near the consolute point in solid $\text{CH}_4 + \text{Ar}$, *J. Chem. Phys.* 57, No.12, 5052-5058 (1972).
27. Levert Sengers, J.M.H. and Chen, W. T., The vapor pressure, critical isochore and some metastable states of CO_2 , *J. Chem. Phys.* 56, 595-608 (1972).
28. Levert Sengers, J.M.H. and Greer, Sandra C., Thermodynamic anomalies near the critical point of steam, *Intern. J. of Heat and Mass Transfer* 15, 1865-1886 (1972).
29. Murphy, T.A., Sengers, J.V. and Levert Sengers, J.M.H., Analysis of the pressure of gases near the critical point in terms of a scaled equation of state, *Proc. 6th Symp. on Thermophysical Properties*, 180-188. P.E. Liley, Ed. ASME, New York (1973).
30. Levert Sengers, J.M.H., Critical point, *Encyclopedia Americana* 8, 219-220 (1973).
31. Murphy, T.A., Sengers, J.V. and Levert Sengers, J.M.H., Scaled parametric equation of state for steam in the critical region, *Proc. 8th Intern. Conf. on Properties of Steam*, Vol. I, 603-613. (1974).
32. Levert Sengers, J.M.H., From van der Waals' equation to the scaling laws, Centennial Issue of *Physica*, 73, 73-106 (1974).
33. Levert Sengers, J.M.H., Compressibility, gas, *Encyclopedia of Physics*, Second Edition, 159-161 (1974).
34. Levert Sengers, J.M.H., Universality of critical behavior in fluids, *Proc. 8th Intern. Conf. on Properties of Steam*, Vol. I, 56 (1974).
35. Levert Sengers, J.M.H., Greer, W.L. and Sengers, J.V., Scaled equation- of-state for oxygen in the critical region, *Advances in Cryogenic Engineering* 19, 358-364 (1974).
36. Mulholland, G.W., Zollweg, J.A. and Levert Sengers, J.M.H., Liquid-vapor asymmetries in pure fluids, *J. Chem. Phys.* 62, No.7, 2535-2549 (1975).
37. Levert Sengers, J.M.H. and Sengers, J.V., On universality of critical behavior in gases, *Phys. Rev. A* 12, 2622-2627 (1975).
38. Levert Sengers, J.M.H., Critical exponents at the turn of the century, *Physica*, 82A, 319-351 (1976).

39. Levelt Sengers, J.M.H., Greer, W.L. and Sengers, J.V., Scaled equation of state parameters for gases in the critical region, *J. Phys. Chem. Ref. Data* 5, No.1, 1-51 (1976).
40. Balfour, F.W., Sengers, J.V., Moldover, M.R. and Sengers, J.M.H. Levelt, A revised and extended scaled equation of state for steam in the critical region, *Proc. 7th Symp. on Thermophysical Properties*, A. Cezairliyan, Ed. ASME, New York, 786-793 (1977).
41. Hastings, J.R. and Levelt Sengers, J.M.H., Vapor pressure, critical pressure and critical isochore of ethylene, *Proc. 7th Symp. on Thermophysical Properties*, A. Cezairliyan, Ed. ASME, New York, 794-806 (1977).
42. Levelt Sengers, J.M.H., A scaled fundamental equation for the critical region of steam, *Proc. 7th Symp. on Thermophysical Properties*, ASME, New York, A. Cezairliyan, Ed. 774-785 (1977).
43. Levelt Sengers, J.M.H., Universality of thermophysical properties near critical points, *Proc. 7th Symp. on Thermophysical Properties*, ASME, New York, A. Cezairliyan, Ed. 766-773 (1977).
44. Levelt Sengers, J.M.H., Hocken, R. and Sengers, J.V., Critical-point universality and fluids, *Physics Today* 30, No.12 (1977).
45. Sengers, J.V. and Levelt Sengers, J.M.H., Concepts and methods for describing critical phenomena in fluids, *NASA Contractor Report* 149665 (Sept. 1977).
46. Balfour, F.W., Sengers, J.V., Moldover, M.R. and Levelt Sengers, J.M.H., Universality, revisions of and corrections to scaling in fluids, *Phys. Letters*, 65A, 223-225 (1978).
47. Waxman, M., Davis, H.A., Levelt Sengers, J.M.H. and Klein, M., The equation of state of isobutane: An interim assessment, *Nat. Bur. Stand. (U.S.) Interim Report No.79-1715*, Nat. Tech. Info. Service PB82, 120, 528 (Nov. 1978).
48. Kim, M.W., Goldburg, W.I., Esfandiari, P. and Levelt Sengers, J.M.H., Test of a mean-field behavior by light scattering in three phases of a fluid mixture near its tricritical point, *J. Chem. Physics*, 71, 4888-4898 (1979).
49. Levelt Sengers, J.M.H., Liquidons and gasons. Controversies about the continuity of states, *Physica*, 98A, 363-402, (1979).
50. Levelt Sengers, J.M.H. and Sengers, J.V., A powerhouse at NBS, *Staff Report for Dimensions*, 18-21 (1979).
51. Thijssse, B.J., Doiron, T. and Levelt Sengers, J.M.H., A new upper bound for a critical anomaly in the dielectric constant of SF₆, *Chem. Phys. Letters*, 546-550 (1979).

52. Balfour, F.W., Sengers, J.V. and Levelt Sengers, J.M.H., A revised and extended scaled fundamental equation for the thermodynamic behavior of steam in the critical region, *Water and Steam, Proc. 9th Intern. Conf. on Properties of Steam*, J. Straub and K. Scheffler, Eds. Pergamon, Oxford, 128-137 (1980).
53. Hastings, J.R., Levelt Sengers, J.M.H. and Balfour, F.W., The critical-region equation of state of ethene and the effect of small impurities, *J. Chem. Thermodynamics* 12, 1009-1045 (1980).
54. Kim, M.W., Goldburg, W.L., Esfandiari, P., Levelt Sengers, J.M.H. and Wu, E.S., Light scattering and sum rules in three phases of a liquid mixture near its tricritical point, *Phys. Rev. Letters* 44, 80-84 (1980).
55. Levelt Sengers, J.M.H., Overeenstemmende toestanden en universaliteit by het kritische punt (Corresponding states and universality at the critical point), *Nederlands Tijdschrift voor Natuurkunde* A47 (4), 137-143 (1981).
56. Levelt Sengers, J.M.H. and Hastings, J.R., Equation of state of ethylene vapor between 223 and 273 K by the Burnett method, *Intern. J. Thermophysics* 2, 269-288 (1981).
57. Sengers, J.V., Basu, R.S. and Levelt Sengers, J.M.H., Representative equations for the thermodynamic and transport properties of fluids near the gas-liquid critical point, NASA Contractor Report 3424 (May 1981).
58. Masui, R., Davis, H.A. and Levelt Sengers, J.M.H., A new magnetic suspension densimeter for determining fluid densities by weighing, *Proc. 8th Symp. on Thermophysical Properties* Vol. I, 128-133. J. V. Sengers, Ed. ASME, New York (1982).
59. Levelt Sengers, J.M.H. and Hastings, J.R., Virial coefficients of ethylene, *Proc. 8th Symp. Thermophysical Prop.* Vol. I, 66-70. J.V. Sengers. Ed. ASME, New York (1982).
60. Levelt Sengers, J.M.H., Gallagher, J.S., Balfour, F.W. and Sengers, J.V., Thermodynamic surface for the critical region of ethylene, *Proc. 8th Symp. Thermophys. Prop.* Vol I, 368-376. J.V. Sengers, Ed. ASME, New York (1982).
61. Waxman, M., Klein, M., Gallagher, J.S. and Levelt Sengers, J.M.H., Thermodynamic properties of isobutane, *Nat. Bur. Stand. (U.S.) Interim Report* 81-2435 (1982).
62. Chang, R.F., Levelt Sengers, J.M.H., Doiron, T. and Jones, J., Gravity-induced density and concentration profiles in binary mixtures near critical lines, *J. Chem. Phys.* 79, No.6, 3058-3066 (1983).
63. Kamgar-Parsi, B., Levelt Sengers, J.M.H. and Sengers, J.V., Thermodynamic properties of D₂O in the critical region, *J. Phys. Chem. Ref. Data* 12, 513-529 (1983).

64. Levelt Sengers, J.M.H., The state of the critical state of fluids, Pure & Applied Chem. 55, No.3, 437-453 (1983).
65. Levelt Sengers, J.M.H., Kamgar-Parsi, B. and Sengers, J.V., Thermodynamic properties of steam in the critical region, J. Phys. Chem. Ref. Data 12, No.1, 1-28, Reprint No.214 (1983).
66. Levelt Sengers, J.M.H., Kamgar-Parsi, B. and Sengers, J.V., Thermodynamic properties of isobutane in the critical region, J. Chem. Eng. Data 28, 354-362 (Oct. 1983).
67. Levelt Sengers, J.M.H., Morrison, G. and Chang, R.F., Critical behavior in fluids and fluid mixtures, Fluid Phase Equilibria, 14, 19-44 (1983).
68. Levelt Sengers, J.M.H., Physics Nobel Prize, Letters, Science 219, 1172 (1983)
69. Chang, R.F., Morrison, G. and Levelt Sengers, J.M.H., The critical dilemma of dilute mixtures, J. Phys. Chem. 88, No.16, 3389-3391 (1984).
70. Gallagher, J.S. and Levelt Sengers, J.M.H., Thermodynamic properties of isobutane-isopentane mixtures, Geothermal Resources Council Transactions 8, 59 Reno, NV (1984).
71. Gallagher, J.S., Levelt Sengers, J.M.H., Morrison, G. and Sengers, J.V., Thermodynamic properties of isobutane-isopentane mixtures from 240 to 600 K and up to 20 MPa, Nat. Bur. Stand. (U.S.) Interim Report 84-2971, Nov. 1984.
72. Kestin, J., Sengers, J.V., Kamgar-Parsi, B. and Levelt Sengers, J.M.H., Thermophysical properties of fluid H₂O, J. Phys. Chem. Ref. Data 13, No.1, 175-183 (1984).
73. Masui, R., Haynes, W.M., Chang, R.F., Davis, H.A. and Levelt Sengers, J.M.H., Densimetry in compressed fluids by combining hydrostatic weighing and magnetic levitation, Rev. Sci. Instr., 55, 1132-1142 (1984).
74. Levelt Sengers, J.M.H. and Linsky, D., Semi-automated facilities for measuring density, PVT and VLE of energy-related fluids, *Proc. 2nd Symp. on Energy Engineering Sciences*, DOE, 17-27 (1984).
75. Levelt Sengers, J.M.H., Everhart, C.M., Morrison, G. and Chang, R.F., Impure steam near the critical point, *Proc. 10th Intern. Conf. on Properties of Steam*, 277-287. V.V. Sytchev and A.A. Aleksandrov, Eds. Mir Publishers, Moscow (1986).
76. Levelt Sengers, J.M.H., Olchowy, G.A., Kamgar-Parsi, B. and Sengers, J.V., A thermodynamic surface for the critical region of ethylene, Nat. Bur. Stand. (U.S.) Tech. Note 1189 (May 1984).

77. Sengers, J.V. and Levelt Sengers, J.M.H., A universal representation of the thermodynamic properties of fluids in the critical region, Intern. J. Thermophysics 5, No.2, 195-208 (Feb. 1984).
78. Diller, D.E., Gallagher, J.S., Morrison, G., Levelt Sengers, J.M.H., Sengers, J.V. et al., Thermophysical properties of working fluids for binary geothermal cycles, Nat. Bur. Stand. (U.S.) Interim Report No.85-3124 (DOE). (May 1985).
79. Levelt Sengers, J.M.H., Straub, J., Watanabe, K., and Hill, P.G., Assessment of critical parameter values for H₂O and D₂O, J. Phys. Chem. Ref. Data 14, No.1, 193-207 (1985).
80. Sengers, J.V., Levelt Sengers, J.M.H. and Kamgar-Parsi, B., A scaled fundamental equation for the thermodynamic properties of steam near the critical point, Strojnický Casopis (J. Mech. Eng.), Czechoslovakia 36, No.3, 277-291 (1985).
81. Chang, R.F. and Levelt Sengers, J.M.H., Behavior of dilute mixtures near the solvent's critical point, J. Phys. Chem. 90, No.22, 5921-5927 (1986).
82. Levelt Sengers, J.M.H., Dilute mixtures and solutions near critical points, Fluid Phase Equilibria 30, 31-39 (1986).
83. Levelt Sengers, J.M.H., Everhart, C.M., Morrison, G., and Pitzer, K.S., Thermodynamic anomalies in near-critical aqueous NaCl solutions, Chem. Eng. Comm. 47, 315-328 (1986).
84. Levelt Sengers, J.M.H., Morrison, G., Nielson, G., Chang, R.F. and Everhart, C.M., Thermodynamic behavior of supercritical fluid mixtures, *Proc. 9th Symp. on Thermophysical Properties*, ASME, A. Cezairliyan and J.V. Sengers, Eds. Intern. J. Thermophysics 7, No.2, 231-243 (1986).
85. Sengers, J.V. and Levelt Sengers, J.M.H., Thermodynamic behavior of fluids near the critical point, Ann. Rev. Phys. Chem. 7 189-222 (1986).
86. Linsky, D., Levelt Sengers, J.M.H. and Davis, H.A., A semi-automated PVT facility for fluids and fluid mixtures, Rev. Sci. Inst. 58 No.5, 817 (1987).
87. Linsky, D., Levelt Sengers, J.M.H., and Davis, H.A., Semi-automated Burnett PVT apparatus - properties of a geothermal working fluid, *Proc. 5th Symp. on Energy Eng. Sci.*, Argonne Natl. Lab., Argonne, IL, 26-36, CONF-8706187 (June 1987).
88. Linsky, D., Levelt Sengers, J.M.H., and Gallagher, J.S., A semi-automated Burnett facility - PVT of a geothermal working fluid mixture, Fluid Phase Equilibria 36, 149-165 (1987).
89. Nielson, G.C. and Levelt Sengers, J.M.H., Decorated lattice gas model for supercritical solubility, J. Phys. Chem. 91, 4078 (1987).

90. Gallagher, J.S. and Levelt Sengers, J.M.H., Modelling the thermodynamic properties of sodium chloride in steam through extended corresponding states, *Intern. J. Thermophysics* 9, 649-661 (1988).
91. Peters, C.J., de Swaan Arons, J., Levelt Sengers, J.M.H., and Gallagher, J.S., Global phase behavior of mixtures of short and long n-alkanes, *AIChE Journal*, 34, No.5, 834-839 (1988).
92. Levelt Sengers, J.M.H., Solubility in near- and supercritical water, *Proc. EPRI Conf. on Cycle Chemistry in Fossil Plants*, Seattle (1988).
93. Green, M.S. (updated by Levelt Sengers, J.M.H.), Phase transition, *Encyclopedia of Physics* (Second Edition), edited by Rita G. Lerner and George L. Trigg, VHC Publishers, Inc. New York, 897-901.
94. Harvey, A.H. and Levelt Sengers, J.M.H., On the NaCl-H₂O coexistence curve near the critical temperature of H₂O, *Chem. Phys. Lett.* 156, 415-417 (1989).
95. Japas, M.L. and Levelt Sengers, J.M.H., Gas solubility and Henry's law near the solvent's critical point, *AIChE Journal* 35, No.5, 705-713 (1989).
96. Peters, C., van der Kooi, H., de Roo, J., de Swaan Arons, J., Gallagher, J., and Levelt Sengers, J.M.H., The search for tricriticality in binary mixtures of near-critical propane and normal paraffins, *Fluid Phase Equilibria*, 339-351 (1989).
97. Levelt Sengers, J.M.H. and Sengers, J.V., Van der Waals-fund, van der Waals laboratory and Dutch high-pressure science, *Physica* A156, 1-14, (1989).
98. Japas, M.L. and Levelt Sengers, J.M.H., The coexistence curve of tetra n-pentyl ammonium bromide in water near the consolute point, Properties of Water and Steam, *Proc. 11th Intern. Conf. on Properties of Water and Steam*, 196-2020. M. Pichal and O. Sifner, Eds. Hemisphere Publishers, Washington, DC (1990).
99. Schiebener, P., Straub, J., Levelt Sengers, J.M.H., and Gallagher, J.S., Formulation of the refractive index of water and steam, *Properties of Water and Steam*, Proc. 11th Intern. Conf. on Properties of Water and Steam, 103-110. M. Pichal and O. Sifner, Eds. Hemisphere Publishers, Washington, DC (1990).
100. Harvey, A.H. and Levelt Sengers, J.M.H., Correlation of aqueous Henry's constants from 0°C to the critical point, *AIChE J.* 36, 539-546 (1990).
101. Harvey, A.H., Crovetto, R., Levelt Sengers, J.M.H., True versus apparent asymptotic critical behavior of Henry's constants and K-factors, *AIChE J.* 36, 1901-1904 (1990).

102. Hubbard, J.B., Clark, E.J., and Levelt Sengers, J.M.H., A survey of selected topics relevant to bioprocess engineering, NIST Tech Note 1276, 88 pages (1990).
103. Japas, M.L. and Levelt Sengers, J.M.H., The critical behavior of a conducting ionic solution near its consolute point, *J. Phys. Chem.* 94, No.13, 5361-5368 (1990).
104. Peters, C.J., De Swaan Arons, J., Harvey, A.H., and Levelt Sengers, J.M.H., On the relationship between the carbon-number of n-paraffins and their solubility in supercritical solvents, *Fluid Phase Equilibria* 52, 389-396 (1990).
105. Schiebener, P., Straub, J., Levelt Sengers, J.M.H., and Gallagher, J.S., Refractive index of water and steam as function of wavelength, temperature, and density, *J. Phys. Chem. Ref. Data* 19 No.3, 677-715 (1990).
106. Levelt Sengers, J.M.H., Thermodynamic properties of aqueous solutions at high temperatures - needs, methods, and challenges, *Intern. J. Thermophysics* 11, 399-415 (1990).
107. Levelt Sengers, J.M.H. and Gallagher, J.S., Generalized corresponding states and high-temperature aqueous solutions, *J. Phys. Chem.* 94, 7913-7922 (1990).
108. Weber, L.A. and Levelt Sengers, J.M.H., Critical parameters and saturation densities of 1,1-dichloro-2,2,2-trifluoroethane, *Fluid Phase Equilibria* 55, p. 241-249 (1990).
109. Harvey, A.H. and Levelt Sengers, J.M.H., Comment on “Liquid-liquid phase separation and critical exponents in ionic fluid mixtures”, *Phys. Rev. A* 46, No.2, 1148-1149(1992)
110. Harvey, A.H., Levelt Sengers, J.M.H., Tanger, J.C., Unified description of infinite-dilution thermodynamic properties for aqueous solutes, *J. Phys. Chem.* 95, 932-937 (1991).
111. Sato, H., Watanabe, K., Gallagher, J.S., Levelt Sengers, J.M.H., Hill, P., Straub, J., and Wagner, W., 16 000 evaluated experimental thermodynamic property data for water and steam, *J. Phys. Chem. Ref. Data* 20, No.5, 1-22 (1991).
112. Levelt Sengers, J.M.H., Solubility near the solvent's critical point, *Proc. 2nd Intern. Symp. on Supercritical Fluids, J. Supercrit. Fluids* 4, No.4, 215-222 (1991).
113. Levelt Sengers, J.M.H., Harvey, A.H., Crovetto, R., and Gallagher, J.S., Standard-states, reference states and finite-concentration effects in near-critical mixtures with applications to aqueous systems, *Fluid Phase Equilibria*, 81, 85-107 (1992).
114. Gallagher, J.S., Crovetto, R., and Levelt Sengers, J.M.H., The thermodynamic behavior of the CO₂-H₂O system from 400 to 1000 K, up to 100 MPa and 30% mole fraction of CO₂, *J. Phys. Chem. Ref. Data* 22, No.2, 431-513 (1993).

115. Zhang, K.C., Briggs, M.E., Gammon, R.W., and Levelt Sengers, J.M.H., The susceptibility critical exponent of a nonaqueous ionic binary near a consolute point, *J. Chem. Phys.* 97, No.11, 8692-8697 (1992).
116. Levelt Sengers, J.M.H., Deiters, U.K., Klask, U., Swidersky, P., and Schneider, G.M., Application of the Taylor dispersion method in supercritical fluids, *Intern. J. Thermophysics*, 14, No.4, p. 893-922 (1993).
117. Levelt Sengers, J.M.H. and Given, J.A., Critical behavior of ionic fluids, *Molecular Physics*, 80, No.4, 899-913 (1993).
118. Gallagher, J.S., Levelt Sengers, J.M.H., Abdulagatov, I.M., Fenghour, A., and Watson, J.T.R., Thermodynamic properties of the mixtures of nitrogen and water from 440 to 1000 K, up to 100 MPa and 0.8 mole fraction N₂, *NIST Technical Note 1404*, 71 pages (1993).
119. Gallagher, J.S., Friend, D.G., Given, J.A., and Levelt Sengers, J.M.H., Critical lines for type-III aqueous mixtures by generalized corresponding-states models, *Intern. J. Thermophysics* 15, No.6, 1271-1278 (1994).
120. Fernández, D.P., Mulev, Y., Goodwin, A.R.H., and Levelt Sengers, J.M.H., A database for the static dielectric constant of water and steam, *J. Phys. Chem. Ref. Data* 24, No.1, 33-69 (1995).
121. Fernández, D.P., Goodwin, A.R.H., Williams, R.C., Mulev, Y., Levelt Sengers, J.M.H., and Penoncello, S.G., The static dielectric constant of water and steam, *Physical Chemistry of Aqueous Systems*, Proc. 12th Intern. Conf. on Properties of Water and Steam, 109-116. H.J. White, J.V. Sengers, D.B. Neumann and J.C. Bellows, Eds. Begell House, New York (1995).
122. Peters, C.J., Florusse, L.J., de Roo, J.L., de Swaan Arons, J., and Levelt Sengers, J.M.H., The principle of congruence and its application to compressible states, *Fluid Phase Equilibria*, 105, 193-219 (1995).
123. Fernández, D.P., Goodwin, A.R.H., and Levelt Sengers, J.M.H., Measurements of the relative permittivity of liquid water at frequencies in the range 0.1 kHz to 10 kHz and at temperatures between 273.1 K and 373.2 K at ambient pressure, *Intern. J. Thermophysics*, 16, No.4, 929-955 (1995).
124. Kiselev, S.B., Levelt Sengers, J.M.H., and Zheng, Q., Physical limit to the stability of superheated and stretched water, *Physical Chemistry of Aqueous Systems*, Proc. 12th Intern. Conf. on the Properties of Water and Steam, 378-385. H.J. White, J.V. Sengers, D.B. Neumann and J.C. Bellows, Eds. Begell House, New York (1995).

125. Levelt Sengers, J.M.H., Significant contributions of IAPWS to the power industry, science and technology, *Physical Chemistry of Aqueous Systems*, Proc. 12th Intern. Conf. on Properties of Water and Steam, 1-12. H.J. White, J.V. Sengers, D.B. Neumann and J.C. Bellows, Eds. Begell House, New York (1995).
126. Levelt Sengers, J.M.H., Solutions near the solvent's critical point: A summary, *Fluides Supercritiques et Matériaux*, 9-16. E. Cansell and J.P. Petitet, Edts. Presence Graphique, France (1995).
127. Wiegand, S., Levelt Sengers, J.M.H., Zhang, K.J., Briggs, M.E., and Gammon, R.W., Discrepancies in turbidity measurements in the ionic binary mixture triethyl n-hexyl ammonium triethyl boride in diphenyl ether, *J. Chem. Phys.* 106, No.7, 777-2781 (1997).
128. Fernández, D.P., Goodwin, A.R.H., Lemmon, E.W., Levelt Sengers, J.M.H., Williams, R.C., A formulation for the static permittivity of water and steam at temperatures from 238 to 873 K at pressures up to 1200 MPa, including derivatives and Debye-Hueckel coefficients, *J. Phys. Chem. Ref. Data* 26, No.4, 1125-1166 (1997).
129. Povodyrev, A.A., Anisimov, M.A., Sengers, J.V., and Levelt Sengers, J.M.H., Vapor-liquid equilibria, scaling, and crossover in aqueous solutions of sodium chloride near the critical line, *Physica A* 244, 298-328 (1997).
130. Harvey, A.H., Gallagher, J.S., and Levelt Sengers, J.M.H., Revised formulation for the refractive index of water and steam as a function of wavelength, temperature and density, *J. Phys. Chem. Ref. Data* 27, 761-774 (1998).
131. Wiegand, S., Berg, R.F., and Levelt Sengers, J.M.H., Critical viscosity of the ionic mixture triethyl n-hexyl ammonium triethyl n-hexyl borate in diphenyl ether, *J. Chem. Phys.* 109, No.11, 4533-4545 (1998).
132. Wiegand, S., Briggs, M.E., Levelt Sengers, J.M.H., Kleemeier, M., and Schroer, W., Turbidity light scattering and coexistence curve data for the ionic binary mixture triethyl n-hexyl ammonium triethyl n-hexyl borate in diphenyl ether, *J. Chem. Phys.* 109, 9038-9051 (1998).
133. Levelt Sengers, J.M.H., Mean-field theories, their weaknesses and strength, *Fluid Phase Equilibria*, 158-160, 3-17 (1999).
134. Povodyrev, A.A., Anisimov, M.A., Sengers, J.V., Marshall, M.L., and Levelt Sengers, J.M.H., Critical locus of aqueous solutions of sodium chloride, *Intern. J. Thermophysics* 20, No.5, 1529-1545 (1999).
135. Bellows, J.C., Friend, D.G., Harvey, A.H., Levelt Sengers, J.M.H., Parry, W.T., Sengers, J.V., Sewell, J.B. and H.J. White, Jr., New steam properties are coming, *Proc. 61th American Power Conference*, 589-593 (1999).

136. Abdulagatov, I.M., Valyashko, V., and Levelt Sengers, J.M.H., Vapor-liquid-solid phase transitions in aqueous sodium sulfate and sodium carbonate from heat capacity measurements near the first critical endpoint: Part II, the phase boundaries. *J. Chem. Eng. Data* 45, 1139-1149 (2000).
137. Kh. S. Abdulkadirova, M.A. Anisimov, J.V. Sengers, and Levelt Sengers, J.M.H., A crossover equation for the thermodynamic properties of mixtures of light and heavy steam in the critical region, *Steam, water and hydrothermal systems*, Proc. 13th Intern. Conf. on Properties of Water and Steam, 382-390. P. Tremaine, P.G. Hill, D.E. Irish and P.V. Balakrishnan, Eds. NRC Research Press, Ottawa (2000).
138. Levelt Sengers, J.M.H., The laboratory founded by Van der Waals, Proc. 14th Symposium on Thermophysical Properties, W.M. Haynes, Edt., *Intern. J. Thermophysics* 22, 3-22 (2001).
139. Levelt Sengers, Johanna, and Antonius H.M. Levelt, Diederik Korteweg, Pioneer of Criticality, *Physics Today* 55, 47-53, Dec. (2002).
140. Levelt Sengers, J.M.H., The discovery of Type-IV binary fluid phase behavior, *Fluid Phase Equil.* 223, 339-343 (2004).
141. Levelt Sengers, J.M.H., Kamerlingh Onnes constructs Gibbs surfaces assuming continuity of states, *Molecular Physics* 103, 2979-2988 (2005). Benjamin Widom special issue.
142. Manju Sharma and J.M.H Levelt Sengers, Women for Science, An Advisory Report, InterAcademy Council, Edita, KNAW, Amsterdam (June 2006). Johanna Levelt Sengers was the panel co-chair.
143. Levelt Sengers, J.M.H., Gas-gas equilibria – from Van der Waals to Ulrich Franck, *J. Supercrit. Fluids* 39, 144-153 (2006).
144. Levelt Sengers, J.M.H., Women scientists and engineers essential to global capacity building – A recent IAC report. *Proc. 12th Gender and Science and Technology International Conference*, Brighton, UK (2006).
145. Johanna (Anneke) Levelt Sengers, History of Division 838 - emphasizing the Gaithersburg part of the Division. Feb. 2008. NIST Division Archives.
146. Levelt Sengers, Johanna, Shanahan, Betty and Castillo, Steven, Global efforts for local empowerment of women engineers, *AIChE J. Perspective*, *AIChE Journal* 54, 836-843 (2008).

147. Johanna Levelt Sengers, A gas that sinks in a liquid – the first helium experiment published by Kamerlingh Onnes, *J. Phys. Condensed Matter* 21 (2009) 164222 (10 pages).

BOOK CHAPTERS

1. Levelt, J.M.H. and Cohen, E.G.D., A critical study of some theories of the liquid state, including a comparison with experiment, *Studies in Stat. Mech., Vol. II, Part B, Ch.1*, 111-236, J. de Boer and G.E. Uhlenbeck, Eds. North Holland Publishing Co., Amsterdam (1964).
2. Levelt Sengers, J.M.H., The experimental determination of the equation of state of gases and liquids at low temperatures, *Physics of High Pressure and the Condensed Phase*, Ch. 3, 60-98, A. van Itterbeek and O. Verbeke, Eds. North Holland Publishing Co., Amsterdam (1965).
3. Levelt Sengers, J.M.H., Klein, M. and Gallagher, J.S., Pressure-volume-temperature relationships of gases, virial coefficients, *AIP Handbook, 3rd. Edition*, Ch.4, 204-221. D.E. Gray, Ed. McGraw Hill Book Co. (1972).
4. Levelt Sengers, J.M.H., Thermodynamic properties near the critical state, *Experimental Thermodynamics*, Vol. II, IUPAC, Ch. 15, 657-724. B. Le Neindre and B. Vodar, Eds. Butterworth, London (1975).
5. Levelt Sengers, J.M.H., Critical behavior in fluids, *High Pressure Technology, Vol. II, Applications and Processes*, Ch. 5, 161-251. I. Spain and J. Paauwe, Eds. Marcel Dekker, Inc., New York (1977).
6. Sengers, J.V., and Levelt Sengers, J.M.H., Critical phenomena in classical fluids, *Progress in Liquid Physics*, Ch. 4, 103-174. C.A. Croxton, Ed. New York, (1978).
7. Levelt Sengers, J.M.H. and Sengers, J.V., How close is close to the critical point ?, *Perspectives in Statistical Physics: Memorial Vol. for M.S. Green*, Ch. 14, 239-271. H.J. Raveché, Ed. North Holland, Amsterdam (1980).
8. Morrison, G., Levelt Sengers, J.M.H., Chang, R.F. and Christensen, J.J., Thermodynamic anomalies in supercritical fluid mixtures, 25-43, *Supercritical Fluids Technology*. J.M.L. Penninger, M. Radosz, M. A. McHugh and V.J. Krukonis, Eds. Elsevier, Amsterdam (1985).
9. Levelt Sengers, J.M.H., Chang, R.F. and Morrison, G., Nonclassical description of (dilute) near-critical mixtures, *Equations of State: Theories and Applications*, Ch. 5, 110-131. K.C. Chao and R.L. Robinson, Jr., Eds. ACS Symp. Series 300, (1986).

10. Levelt Sengers, J.M.H., Thermodynamics of solutions near the solvent's critical point, *Supercritical Fluid Technology: Reviews in Modern Theory and Applications*, Ch. 1, 1-56. J. Ely and T. Bruno, Eds. CRC Press, Boca Raton, FL (1991).
11. Levelt Sengers, J.M.H., Critical behavior of fluids: concepts and applications, *Supercritical Fluids: Fundamentals for Application*, NATO Advanced Science Institute, Series E: Applied Sciences, 273, Ch. 1, 3-38. E. Kiran and J.M.H. Levelt Sengers, Eds. Kluwer Academic Publishers, Dordrecht, Netherlands (1994).
12. Levelt Sengers, J.M.H., *Supercritical fluids, fundamentals and applications*, NATO Advanced Science Institute, Series E: Applied Sciences 366, Ch. 1, 1-29. E. Kiran, P.G. Debenedetti, and C.J. Peters, Eds. Kluwer Academic Publishers, Dordrecht, Netherlands (2000).
13. Levelt Sengers, J.M.H., Harvey, A.H., and Wiegand, S., Ionic fluids near critical points and at high temperatures, *Equations of state for fluids and fluid mixtures*, IUPAC, Ch. 17, 805-847. J.V. Sengers, R.F. Kayser, C.J. Peters, and H.J. White, Eds. Elsevier, Amsterdam (2000).
14. Anisimov, M.A., Sengers, J.V., and Levelt Sengers, J.M.H. Near-critical behavior of aqueous systems, *The physical and chemical properties of aqueous systems at elevated temperatures and pressures: water, steam and hydrothermal solutions*. D.A. Palmer, R. Fernández-Prini and A.H. Harvey, Eds. , 29-74. Elsevier, Amsterdam (2004).

BOOKS

1. Jacobsen, R.T., Jahangiri, M., Stewart, R.B., McCarty, R.D., Levelt Sengers, J.M.H., White, H.J. Jr, Sengers, J.V., and Olchowy, G.A., *Ethylene (ethene), IUPAC International Thermodynamic Tables of the Fluid State-10*. K.M. de Reuck, S. Angus, W.A. Cole, R.J.B. Raven and W.A. Wakeham, Eds. Blackwell Scientific Publications, Oxford (1989).
2. Kiran, E. and Levelt Sengers, J.M.H., Editors, *Supercritical Fluids; Fundamentals for Application*, NATO ASI Series E, Vol. 273. Kluwer Academic Publishers, Dordrecht (1994).
3. Levelt Sengers, Johanna, *How fluids unmix; discoveries by the school of Van der Waals and Kamerlingh Onnes*, Vol. 4 in History of Science and Scholarship in the Netherlands, Edita, Royal Netherlands Academy of Arts and Sciences, Amsterdam (2002), ISBN 90-6984-357-9.

BOOK REVIEWS

1. Levelt Sengers, J.M.H., *The perfect gas* by J.S. Rowlinson, Physics Today 17, No.9, 74-76 (1964).
2. Levelt Sengers, J.M.H., *J.D. van der Waals: On the continuity of the gaseous and liquid states; edited with an Introductory Essay* by J.S. Rowlinson. Nederlands Tijdschrift voor Natuurkunde A54 (3/4), 86-87 (1988).
3. Levelt Sengers, J.M.H. and Brush, S.G., *Van der Waals and molecular science*, by A. Ya. Yavelov, B.E. Kipnis, and J.S. Rowlinson, J. Stat. Phys. 89, No.5/6, 1099-1103 (1997).
4. Levelt Sengers, J.M.H., *Cohesion: A Scientific History of Intermolecular Forces*, by J.S. Rowlinson, Isis 94, 694-695 (2003).

OBITUARIES, MEMORIAL TRIBUTES

1. Peter Briggs, and Levelt Sengers, Johanna M.H., *Lyman James Briggs 1874-1965*, Biographical Memoirs Vol. 77, National Academy of Sciences (1999)
2. Jan Sengers and Anneke Levelt Sengers, *Nestor Joseph Trappeniers*, in Dutch, Royal Netherlands Academy of Arts and Sciences (2006).
3. Johanna Levelt Sengers, *Hans Pieter Roetert Frederikse, 13 juli 1920 - 6 maart 2008*, in Dutch, Levensberichten (Biographical Memoirs), Royal Netherlands Academy of Arts and Sciences (2009).
4. Jan V. Sengers, Anneke Levelt Sengers, and Allan Harvey, Tribute to Dr. Howard Julian White, Jr. 1920-2010, www.iapws.org