

REFERENCES

1. Abrams, D.S., and Prausnitz, J.M., (1975). Statistical thermodynamics of liquid mixtures: A new expression for the Excess Gibbs energy of partly or completely miscible systems, *AIChE Journal*, 21, 116 – 128.
2. Al-Ghawas, H.A., Hagewiesche, D.P., Ruiz-Ibanez, G. and Sandall, O.C., (1989). Physicochemical properties important for carbon dioxide absorption in aqueous methyldiethanolamine. *J. Chem. Eng. Data*, 34, 385 – 391.
3. Alper, E., (1990). Reaction mechanism and kinetics of aqueous solutions of 2-amino-2-methyl-1-propanol and carbon dioxide. *J. Chem. Eng. Data*, 29, 1725 – 1728.
4. Appl, M., Wagner, U., Henrici, H.J, Kuessner, K, Voldamer, K., Fuerest, E., (1982). Removal of CO₂ and/or H₂S and/or COS from gases containing these constituents. U.S. Patent, 4,336,233.
5. Aroua, M.K., Haji sulaiman, M.Z., Ramasamy, K., (2002). Modelling of carbon dioxide absorption in aqueous solutions of AMP and MDEA and their blends using Aspenplus, *Sep. Purif. Techn.*, 29, 153 – 162.
6. Astarita, G., (1967). *Mass Transfer with Chemical Reaction*, New York; Elsevier Publishing Company.
7. Astarita, G., Savage, D.W. and Bisio, A., (1983). *Gas Treating with Chemical Solvents*, John Wiley.
8. Astarita, G., Savage, D.W., Longo, J.M., (1981). Promotion of CO₂ mass transfer in carbonate solutions. *Chem. Eng. Sci.*, 36, 581 – 588.
9. Austgen, D.M., Rochelle, G.T., Chen, C.C., (1991). Model of vapor-liquid equilibria for aqueous acid gas-alkanolamine systems. 2. Representation of H₂S

- and CO₂ solubility in aqueous MDEA and CO₂ solubility in aqueous mixtures of MDEA with MEA or DEA. *Ind. Eng. Chem. Res.*, 30, 543 – 555.
10. Austgen, D.M., Rochelle, G.T., Peng, X., Chen, C.C., (1989). Model of vapor-liquid equilibria for aqueous acid gas-alkanolamine systems using the electrolyte-NRTL equation. *Ind. Eng. Chem. Res.*, 28, 1060 –1073.
 11. Bard, A.J., (1966). *Chemical equilibria*, New York: Harper and Row Publisher.
 12. Benamor, A., (1998). Solubility of carbon dioxide in aqueous solutions of diethanolamine (DEA) and methyldiethanolamine (MDEA) and their mixtures, Ph.D. Thesis, University of Malaya, Kuala Lumpur, Malaysia.
 13. Bhide, B.D., Voskericyan, A., Stern, S.A., (1998). Hybrid processes for the removal of acid gases from natural gas, *J. Membr. Sci.* 140, 27 – 49.
 14. Bishnoi, S. and Rochelle, G.T., (2002a). Thermodynamics of piperazine/methyldiethanolamine/water/carbon dioxide. *Ind. Eng. Chem. Res.*, 41, 604 –612.
 15. Bishnoi, S. and Rochelle, G.T., (2002b). Absorption of carbon dioxide in aqueous piperazine/methyldiethanolamine, *AIChE Journal*, 48, 2788 –2797.
 16. Bishnoi, S., Rochelle, G.T., (2000). Absorption of carbon dioxide into aqueous piperazine reaction kinetics, mass transfer, and solubility. *Chem. Eng. Sci.*, 55, 5531 – 5543.
 17. Blauwhoff, P.M.M., Versteeg, G. F., Van Swaaij, W.P.M., (1984). A study on the reaction between CO₂ and alkanolamines in aqueous solutions. *Chem. Eng. Sci.*, 39, 2, 207 – 225.

18. Blauwhoff, P.M.M., Versteeg, G.F and Van Swaaij, W.P.M., (1983). A study on the reaction between CO₂ and alkanolamines in aqueous solution, *Chem. Eng. Sci.*, 38, 1411 – 1429.
19. Brey, W.S. Jr., (1978). *Principle of physical chemistry: An introduction to their use in the biological science*, New York: Academic Press.
20. Butler, J.N, (1982). *Carbon Dioxide Equilibria and Their Applications*, Massachusetts; Addison-Wesley Publishing Company.
21. Camacho, F., Sanchez, S., Pacheco, R., (1997). Absorption of carbon dioxide at high partial pressures in 1-amino-2-propanol aqueous solution. Considerations of thermal effects. *Ind. Eng. Res.*, 36, 4358 – 4364.
22. Caplow, M., (1968). Kinetics of carbamate formation and breakdown. *J. Am. Chem. Soc.*, 90, 6795 – 6803.
23. Carroll, J.J. and Mather, A.E., (1996). Model for the distribution of acid gases between an aqueous alkanolamine solution and LPG, *Chem. Eng. Comm.*, 144, 95 – 101.
24. Chakraborty, A.K, Astarita, G., and Bischoff, K.B., (1986), CO₂ absorption in aqueous solutions of hindered amines, *Chem. Eng. Sci.*, 41, 997 – 1003.
25. Chakravarty, T., Phukan, U.K., Weiland, R. H., (1985). Reaction of acid gases with mixtures of amines. *Chem. Eng. Prog.*, 8, April, 32 – 36.
26. Chan, A., Maham, Y., Mather, A.E., Mathonat, C., (2002). Densities and volumetric properties of the aqueous solutions of 2-amino-2-methyl-1-propanol, n-butyldiethanolamine and n-propylethanolamine at temperatures from 298.15 to 353.15 K, *Fluid Phase Equilibria*, 198, 239 – 250.

27. Chan, H.M and Danckwerts, P.V., (1981). Equilibrium of MEA and DEA with bicarbonate and carbamate, *Chem. Eng. Sci.*, 36, 229 – 230.
28. Chunxi, L. and Furst, W., (2000). Representation of CO₂ and H₂S solubility in aqueous MDEA solutions using an electrolyte equation of state, *Chem. Eng. Sci.*, 55, 2975 – 2988.
29. Clegg, S.L. and Pitzer, K.S., (1992). Thermodynamics of multicomponent, miscible, ionic solutions : Generalized equations for symmetrical electrolytes, *J. Phys. Chem*, 96, 3513 – 3520.
30. Danckwerts, P.V. and McNeil, K.M., (1967). The absorption of carbon dioxide into aqueous amine solutions and the effects of catalysis, *Trans. Inst. Chem. Engr.*, 45, T32 – T38.
31. Danckwerts, P.V., (1979). The reaction of CO₂ with ethanolamines. *Chem. Eng. Sci.*, 34, 443 – 446.
32. Dang, H. and Rochelle, G.T., (2003). CO₂ absorption rate and solubility in monoethanolamine/piperazine/water, *Sep. Sci. and Techn.*, 38, 337 – 357.
33. Deshmukh, R. D., Mather, A. E., (1981). A mathematical model for equilibrium solubility of hydrogen sulfide and carbon dioxide in aqueous alkanolamine solutions. *Chem. Eng. Sci.*, 36, 355 – 362.
34. DiGuilio, R.M., Lee, R-J., Schaeffer, S.T, Brasher, L.L and Teja, A.S, (1992). Densities and viscosities of ethanolamines, *J. Chem. Eng. Data*, 37, 239 – 242.
35. Edwards, T.J., Maurer, G., Newman, J., Prausnitz, J.M., (1978). Vapor-Liquid equilibria in multicomponent aqueous solutions of volatile weak electrolytes, *AIChE Journal*, 24, 966 – 976.

36. Ermatchkov, V., Kamps, A.P, Maurer, G., (2003). Chemical equilibrium constants for the formation of carbamates in (carbon dioxide + piperazine + water) from $^1\text{H-NMR}$ -spectroscopy, *J. Chem. Thermo.*, 35, 1277 – 1289.
37. Furst, W. and Renon, II., (1993). Representation of excess properties of electrolyte solutions using a new equation of state. *AIChE J.*, 39, 335 – 343.
38. Gmehling J., Onken, U., Arlt, W., (1977). Vapor-liquid equilibrium data, Chemistry Data Series, Frankfurt; DECHEMA,
39. Hagewiesche, D.P., Ashour, S.S., Al-Ghawas, H.A., Sandall, O.C., (1995). Absorption of carbon dioxide into aqueous blends of monoethanolamine and N-methyldiethanolamine. *Chem. Eng. Sci.*, 50,7, 1071 – 1079
40. Haimour, N., Sandall, O.C., (1984). Absorption of carbon dioxide into aqueous methyldiethanolamine, *Chem. Eng. Sci.*, 39, 12, 1796 –1796.
41. Haji. Sulaiman . M.Z. , Aroua, M.K., and Benamor, A., (1998). Analysis of equilibrium data of CO in aqueous solutions of diethanolamine (DEA), methyldiethanolamine (MDEA) and their mixtures using the modified Kent Eisenberg model, *Trans IchemE*, 76A, 961-968.
42. Haji. Sulaiman , M.Z. and Aroua, M.K., (1996). Equilibrium of CO in aqueous diethanolamine (DEA) and amino methyl propanol (AMP) solutions. *Chem. Eng. Comm*, 140, 157 – 171.
43. Henni, A., Maham, Y., Tontiwachwuthikul, P., Chakma, A. and Mather, A.E., (2000). Densities and viscosities for binary mixtures of N-methyldiethanolamine + triethylene glycol monomethyl ether from 25 °C to 70 °C, *J. Chem. Eng. Data*, 45, 247 – 253.

44. Hikita, H., Asai, S., Ishikawa, H., Honda, M., (1977). The kinetics of reaction of carbon dioxide with monoethanolamine, diethanolamine and triethanolamine by rapid mixing method. *Chem. Eng. Journal*, 13, 7 – 12.
45. Hsu, C.H and Li, M.H., (1997). Densities of aqueous blended amines, *J. Chem. Eng. Data*, 42, 502 –507.
46. Hu, W. and Chakma, A., (1990). Modelling of equilibrium solubility of CO₂ and H₂S in aqueous amino methyl propanol (AMP) solutions, *Chem. Eng. Comm.*, 94, 53 – 61.
47. Huang, F.S., Li, M.H., Lee, L.L., Starling, K.E., Chun, F.F.H, (1985). Accurate equation of state for carbon dioxide, *J. Chem. Eng. Japan*, 18, 490 – 496.
48. Jane, I.S., Li, M.H., (1997). Solubilities of mixtures of carbon dioxide and hydrogen sulphide in water + diethanolamine + 2-amino-2-methyl-1-propanol, *J. Chem. Eng. Data*, 42, 98 – 105.
49. Jensen., M.B., Jorgensen, E., Faurholt, C., (1954). Reactions between carbon dioxide and amino alcohols. *Acta Chem. Scan.*, 8, 1137-1140
50. Kaewsichan, L., Al-Bofersen, O., Yesavage, V.F., Selim, M.S., (2001). Predictions of the solubility of acid gases in monoethanolamine (MEA) and methyldiethanolamine (MDEA) solutions using the electrolyte-UNIQUAC model, *Fluid Phase Equilibria*, 183, 159 - 171.
51. Kaganoi, S., (1997). Carbon dioxide absorption in methyldiethanolamine with piperazine or diethanolamine: Thermodynamic modeling and rate measurement, M. Sc. Thesis, University of Texas, Austin.

52. Kamps, A.P.S., Xia, J. and Maurer, G., (2002). Solubility of CO₂ in (H₂O + piperazine) and in (H₂O + MDEA + piperazine), *AIChE Journal*, 49, 2662 – 2670.
53. Kent, R.L., Eisenberg, B., (1979). Better data for amine treating. *Hydrocarbon Proc.* 55, 2, 87 – 90.
54. Kim, Y.S., Yang, S.M., (2000). Absorption of carbon dioxide through hollow fiber membranes using various aqueous absorbents, *Sep. purif. Techn.*, 21, 101 – 109.
55. Kohl, A.L. and Riesenfeld, (1985). *Gas Purification*, 4th edition, Houston; Gulf Publishing Company.
56. Kritpiphat, W. and Tontiwachwutikul, P., (1996). New modified Kent Eisenberg model for predicting carbon dioxide solubility in aqueous 2-amino-2-methyl-1-propanol (AMP) solutions, *Chem. Eng. Comm.*, 144, 73 – 83.
57. Kuranov, G., Rumpf, B., Smirnova, N.A. and Maurer, G., (1997). VLE modeling for aqueous systems containing methyldiethanolamine, carbon dioxide and hydrogen sulphide. *Fluid Phase Equilibria*, 136, 147 – 162.
58. Laddha S.S., Danckwerts, P.V., (1981). Reaction of CO₂ with ethanalamines : Kinetics from gas absorption. *Chem. Eng. Sci*, 36, 479 – 482.
59. Lebrette, L., Maham, Y., Teng, T.T., Hepler, L.G, Mather, A.E., (2002). Volumetric properties of aqueous solutions of mono and diethylethanalamines at temperatures from 5 to 80 °C II, *Thermochimica Acta*, 386, 119 – 126.
60. Lewis, R.J. Sr., (1992). *Hawley's condensed chemical dictionary*, 12th edition, New York: Van Nostrand Reinhold.

61. Li, M. H., Shen, K.P., 1992, Densities and solubilities of solutions of carbon dioxide in water + monoethanolamine + n-methyldiethanolamine. *J. Chem. Eng. Data*, 37, 288 – 290.
62. Li, M.H, Chang, B.C., 1994, Solubilities of carbon dioxide in water + monoethanolamine + 2-amino-2-methyl-1-propanol. . *J. Chem. Eng. Data*, 39, 448 – 452.
63. Li, M.H. and Lai, M.D., (1995). Solubility and diffusivity of N₂O and CO₂ in (Monoethanolamine + N-Methyldiethanolamine + water) and in (Monoethanolamine + 2-Amino-2-Methyl-1-Propanol + water), *J. Chem. Eng. Data*, 40, 486 – 492.
64. Li, M.H. and Lie, Y.C, (1994). Densities and viscosities of solutions of monoethanolamine + N-methyldiethanolamine + water and monoethanolamine + 2-amino-2-methyl-1-propanol + water, *J. Chem. Data*, 39, 444 – 447.
65. Li, M.H., Lee, W.C., (1996). Solubility and diffusivity of N₂O and CO₂ in (diethanolamine + n-methyldiethanolamine + water) and in (diethanolamine + 2 amino-2-methyl-1-propanol + water). *J. Chem. Eng. Data*, 41, 551 – 556.
66. Li, Y. G., Mather, A.E., (1994). Correlation and prediction of the solubility of carbon dioxide in mixed alkanolamine solution. *Ind. Eng. Chem. Res.*, 33, 2006 – 2015.
67. Li, Y.G. and Mather, A.E., (1996). Correlation and prediction of the solubility of CO₂ and H₂S in an aqueous solution of triethanolamine, *Ind. Eng. Chem. Res.*, 35, 4804 – 4809.

68. Li, Y.G. and Mather, A.E., (1997). Correlation and prediction of the solubility of CO₂ and H₂S in an aqueous solution of methyldiethanolamine Ind. Eng. Chem. Res, 36, 2760 – 2765.
69. Liu, H.B., Zhang, C.F., Xu, G.W., (1999b). A study on equilibrium solubility for carbon dioxide in methyldiethanolamine-piperazine-water solution. Ind. Eng. Chem. Res., 38, 4032 – 4036.
70. Liu, Y., Zhang, L., Watanasiri, S., (1999a). Representing vapor-liquid equilibrium for aqueous MEA-CO₂ system using the electrolyte Non-random-two-liquid model., Ind. Eng. Chem. Res., 38, 2080-2090.
71. Lunsford, K.M., Bullin, J.A., (2001). Optimization of amine sweetening units, , URL www.bre.com/technicalpapers/technicalpaper-home.asp.
72. Maham, Y., Teng, T.T, Hepler, L.G and Mather, A.E, (2002). Volumetric properties of aqueous solutions of monoethanolamine, mono- and dimethylethanolamines at temperatures from 5 to 80 °C, Thermochemica Acta, 386, 111 – 118.
73. Maham, Y., Teng, T.T, Hepler, L.G and Mather, A.E., (1994). Densities, excess molar volumes and partial molar volumes for binary mixtures of water with monoethanolamine, diethanolamine and triethanolamine from 25 to 80 °C, J. Solution Chemistry, 23, 195 – 205.
74. Mandal, B.P, Biswa, A.K., Bandyopadhyay, S.S., (2003). Absorption of carbon dioxide into aqueous blends of 2-amino-2-methyl-1-propanol and diethanolamine, Chem. Eng. Sci., 58, 4137 – 4144.
75. Mason, J.W. and Dodge, B.F., (1936). Equilibrium absorption of carbon dioxide by solutions of the ethanolamine, Trans.Am. Inst. Chem. Engr., 32, 27 – 48.

76. Pagano, J.M., Goldberg, D.E and Fernelius, W.C., (1961). A thermodynamic study of homopiperazine, piperazine and N-(2-aminoethyl)-piperazine and their complexes with copper(II) ion. *J. of Phy. Chem.*, 65, 1062 – 1064.
77. Park, S.H, Lee, K.B., Hyun, J.C., Kim, S.H, (2002). Correlation and prediction of the solubility of carbon dioxide in aqueous alkanolamine and mixed alkanolamine solutions, *Ind. Eng. Chem. Res.*, 41, 1658 – 1665.
78. Parker, S.P., (1993). McGraw-Hill encyclopedia of chemistry, 2nd edition, New York: McGraw Hill.
79. Perrin, D.D., Dissociation constants of organic bases in aqueous solutions. (1965), Buter worth, London.
80. Perry R.H. Green, D.W., Maloney, J.O., (1997). Perry's Chemical Engineers' Handbook. 7th edition, New York; McGraw Hill.
81. Pinsent, B.R.W., Pearson, L. and Roughton, F.J.W.,(1952). The kinetics of combination of carbon dioxide with hydroxide ions, *Trans. Faraday. Soc.* 52, 1512 – 1520.
82. Pitzer, K.S., (1973). Thermodynamic of electrolyte. I. Theoretical basic and general equations, 17, 268 –277.
83. Polasek, J. and Bullin, J.A., (2001b). Selecting amines for sweetening units, URL www.bre.com/technicalpapers/technicalpaper-home.asp
84. Polasek, J., Gustavo, A., Iglesias-silva, Bullin, J.A., (2001a). Using mixed amine solutions for gas sweetening, , URL www.bre.com/technicalpapers/technicalpaper-home.asp
85. Posey, M.L. and Rochelle, G.T., (1997). A thermodynamic model of methyldiethanolamine-CO₂-H₂S-water. *Ind. Eng. Chem. Res.*, 36, 3944 –3958

86. Posey, M.L., Tapperson, K.G., Rochelle, G.T., (1996). A simple model for prediction of acid gas solubilities in alkanolamines, *Gas. Sep. Purif.*, 10, 181 – 186.
87. Prausnitz J.M., Grens, E.A, Anderson, T.F., Eckert, C.A, Hsieh, O'Connell, J.P, (1980). Computer calculations for multicomponent vapor-liquid and liquid-liquid equilibrium. Prentice Hall.
88. Prausnitz, J.M., Lichtenthaler, R.N., Azevedo E.G, (1999). *Molecular Thermodynamics of Fluid-Phase Equilibria*, 3rd edition, New Jersey; Prentice-Hall.
89. Qian, W.M., Li, Y.G. and Mather, A.E., (1995). Correlation and prediction of the solubility of CO₂ and H₂S in an aqueous solution of methyldiethanolamine and sulfolane, *Ind. Eng. Chem. Res*, 34, 2545 – 2550
90. Ramasamey, K., (2000). Absorption of CO₂ into AMP and MDEA mixtures. Personal communications.
91. Rinker, E.B., Ashour, S.S., Sandall, O.C., (1996). Kinetics and modelling of carbon dioxide absorption into aqueous solutions of diethanolamine. *Ind. Eng. Chem. Res.*, 35, 1107 – 1114.
92. Rinker, E.B., Oelschlager, D.W., Colussi, A.T., Henry, K.R and Sandall, O.C, (1994). Viscosity, density and surface tension of binary mixtures of water and n-methyldiethanolamine and water and diethanolamine and tertiary mixtures of these amines with water over the temperature range 20 – 100 °C, *J. Chem. Eng. Data*, 39, 392 – 395.
93. Robbins, G.D. and Bullin, J.A., (2001). Analysis of amine solutions by gas chromatography, , URL www.bre.com/technicalpapers/technicalpaper-home.asp

94. Saha, A.K., Bandyopadhyay, S.S., and Biswa, A.K., (1993). Solubility and diffusivity of N_2O and CO_2 in aqueous solutions of 2-amino-2-methyl-1-propanol, *J. Chem. Eng. Data*, 38, 78 – 82.
95. Sandler, S.I., (1989). *Chemical and Engineering Thermodynamic*, 2nd edition, New York; John Wiley & Son Inc.
96. Sartori, G. and Savage, D.W., (1983). Sterically hindered amines for CO_2 removal from gases, *Ind. and Eng. Chem. Fund.* 22, 239 – 249.
97. Say, G.R., Heinzelmann, F.J., Iyengar, J.N., Savage, D.W., Sartori, G., (1984). A new, hindered amine concept for simultaneous removal of CO_2 and H_2S from gases. *Chemical Engineering Progress*, Oct, 72 – 77
98. Seo, D.J., Hong, W. H., (2000). Effect of piperazine on the kinetics of carbon dioxide with aqueous solutions of 2-amino-2-methyl-1-propanol. *Ind. Eng. Chem. Res.*, 39 , 2062 – 2067.
99. Sidi-Boumedine, R., Horstmann, S., Fischer, K., Provost, E., Fürst, W., Gmehling, J., (2004). Experimental determination of hydrogen sulfide solubility data in aqueous alkanolamine solutions. *Phase Fluid Equilibria*, 218, 149 – 155.
100. Silkenbäumer, D., Rumpf, B., Lichtenthaler, R.N., (1998). Solubility of carbon dioxide in aqueous solutions of 2-amino-2-methyl-1-propanol and N-methyldiethanolamine and their mixtures in the temperature range from 313 to 353 K and pressure up to 2.7 MPa, *Ind. Eng. Chem. Res.*, 37, 3133 - 3141.
101. Teng, T.T, (1998). *Pengolahan gas asid industri: Perkembangan semasa dalam proses amina*, Siri Syarahan Umum USM, Pusat Pengajian Teknologi Industri , Universiti Sains Malaysia.

102. Teng, T.T., Maham, Y., Hepler, L.G., Mather A.E., (1994). Viscosity of aqueous solutions of N-Methyldiethanolamine and of diethanolamine, *J. Chem. Eng. Data*, 39, 290 – 293.
103. The mathworks, (2001). Optimization toolbox for use with MATLAB, User Guide, version 2.
104. Valee, G., Mougin P, Jullian S., Furst, W., (1999). Representation of CO₂ and H₂S absorption by aqueous solutions of diethanolamine using an electrolyte equation of state, *Ind. Eng. Chem. Res.*, 38, 3473 –3480.
105. Wang, R., Li, D.F., Zhou, C., Liu, M., Liang, D.T., (2004). Impact of DEA solutions with and without CO₂ loading on porous polypropylene membranes intended for use as contactors, *J. Membr. Sci.* 229, 147 – 157.
106. Weiland, R.H., (2000). Comments on “A study on equilibrium solubility for carbon dioxide in methyldiethanolamine-piperazine-water solution”, *Ind. Eng. Chem. Res.*, 39, 3397.
107. Weiland, R.H., Chakravaty, T., Mather, A.E., (1993). Solubility of carbon dioxide and hydrogen sulfide in aqueous alkanolamines, *Ind. Eng. Chem. Res.*, 32, 1419 – 1430.
108. Xiao, J., Li, C.H., Li, M.H., (2000). Kinetics of absorption of carbon dioxide into aqueous solutions of 2-amino-2-methyl-1-propanol + monoethanolamine. *Chem. Eng. Sci.*, 55, 161 – 175.
109. Xu, G.W., Zhang, C.F., Qin, S.H., Wang, Y.W., (1992). Kinetics study on absorption of carbon dioxide into solutions of activated methyldiethanolamine. *Ind. Eng. Chem. Res.*, 31, 921 – 927.

110. Xu, G.W., Zhang, C.F., Qin, S.J., Zhu, B. C., (1995). Desorption of CO₂ from MDEA and activated MDEA solutions. *Ind. Eng. Chem. Res.*, 34, 874 – 880.
111. Xu, G.W., Zhang, C.H., Qin, S.J., Gao, W.H. and Liu, H.B., (1998). Gas-liquid equilibrium in a CO₂-MDEA-H₂O system and the effect of piperazine on it, *Ind. Eng. Chem. Res.*, 37, 1473 – 1477.
112. Xu, S., Wang, Y.W., Otto F.D., Mather, A.E., (1996). Kinetics of the reaction of carbon dioxide with 2-amino-2-methyl-1-propanol solutions. *Chem. Eng. Sci.*, 51, 841 – 850.
113. Xu, Z., Wang, J, Chen, W., Xu, Y., (2001). Separation and fixation of carbon dioxide using polymeric membrane contactor, *Conference Proceedings, First National Conference on Carbon Sequestration.*
114. Zhang, K. and Hawrylak, B., (2002). Thermodynamics of aqueous amines: excess molar heat capacities, volumes and expansibilities of {water + methyldiethanolamine (MDEA)} and {water + 2-amino-2-methyl-1-propanol (AMP)}, *J. Chem. Thermodynamics*, 34, 679 –710.
115. Zhang, X., Wang, J., Zhang, C.F., Yang, Y.H, Xu, J.J, (2003). Absorption rate in MDEA aqueous solution blended with piperazine under a high CO₂ partial pressure, *Ind. Chem. Eng. Res.*, 42, 118 – 122.