References

1. Florence, A.T. and Attwood, D. "Physicochemical Principles of Pharmacy," First edition Mac millan Press Ltd., London page 13-42, 1981.

2. Amidon, G.L., "Drug Derivatization as a Means of Solubilization: Physicochemical and Biochemical Strategies," in Techniques of Solubilization of Drugs. Edited by Yalkowsky, S.H., Marcel Dekker Inc., New York. page 183-211, 1981.

3. Sinkula, A. and Yalkowsky, S. "Rationale for Design of Biologically Reversible Drug Derivatives: Prodrugs," J. Pharm. Sci. 64(2): 181-210, 1975.

4. Kovach, I.M., Pitman, I.N. and Higuchi, T. "Amino Acid Esters of Phenolic Drugs as Potentially Useful Prodrugs," J. Pharm. Sci. 64(6) 1070-1071 ,1975.

5. Hussain, A, and Rytting, J.H. "Prodrug Approach to Enhancement of Rate of Dissolution of Allopurinol," J. Pharm. Sci. 63(5): 798-799, 1974.

6. Repta, A.J., Rawson, B.J., Shaffer, R.D., Sloan, K.B., Bodor, N., and Higuchi, T. "Rational Development of a Soluble Prodrug of a cytotoxic Nucleoside: Preparation and Properties of Arabinosyldenine 5'-Formate J. Pharm. Sci. 64(3): 392-396, 1975.

7. Gibaldi, M., "Biopharmaceutics," in the Theory and Practice of Industrial Pharmacy," Edited by Lachman, L., Lieberman, H.A., and Kanig, J.L. page 518, 1970.

8. Ridolfo, A.S., Thompkins, L., Bechtol, L.D. and Carmichael, R.H. "Benoxaprofen, a New Anti-Inflammatory Agent: Particle Size Effect on Dissolution Rate and Oral Absorption in Humans," J. Pharm. Sci. 68(7): 850-852, 1979.

9. Chiou, W.L. and Riegelman, S. "Pharmaceutical Applications of Solid Dispersion System," J. Pharm. Sci. 60(9): 1281-1302, 1971.

10. Carless, J.E., Shaw, T.R.D., Howard M.R. and Raymond, K. "Particle Size and Absorption of Digoxin," Lancet, ii, 209-210, 1973.

11. Khan, K.A. "Application of Techniques for Improving Efficacy of Solid Dosage Forms," Drug Development & Industrial Pharmacy 7(4), 421-438, 1981.

12. Lin, S.L., Menig, J. and Lachman, L. "Interdependence of Physiological Surfactant and Drug Particle Size on The Dissolution Behavior of Water Insoluble drug," J. Pharm. Sci. 57(2): 2143-2148, 1968.

13. Haleblian, J. and Mc. Crone, W. "Pharmaceutical Applications of Polymorphism," J. Pharm. Sci. 58(8): 911-929, 1969.

14. Mullins, J.D. and Macek, T.J. "Some Pharmaceutical Propertics of Novobiocin," J. Pharm. Sci. 49(4): 245-249, 1960.

15. Aguiar, A.J., John, K., Arlyn, W.K., and Samyn, J.C. "Effect of Polymorphism on the Absorption of Chloramphenicol from Chloramphenicol Palmitate J. Pharm. Sci. 56(7): 847-853, 1967.

16. Hamlin, W.E., Nelson, E., Ballard, B.E., and Wagner, J.G. "Loss of Sensitivity in Distinguishing Real Differences in Dissolution Rates Due to Increasing Intensity of Agitation," J. Pharm. Sci. 51(5): 432-435, 1962.

17. Tawashi, R. "Aspirin: Dissolution Rates of Two Polymarphic Forms," Science 160, 76, 1968.

18. Levy, G. "Comparison of Dissolution and Absorption Rates of Different Commercial Aspirin TABLETS," J. Pharm. Sci. 50(5): 388-392, 1961.

19. Tuladhar, M.D., Carless, J.E. and Summers, M.P., "Thermal Behavior and Dissolution Properties of Phenylbutazone Polymorphs," J. Pharm. Pharmacol. 35, 208-214, 1983.

20. Trotlier, D., Chastanig, G., Chatonier, A., Pourrat, A., Busch, N., and Luu Si Nang. "Polymorphism of The Analgesic 6-Benzoylbenzoxazolidinone (CERM 10194)," Pharm. Acta. Helv. 59(1), 293-297, 1984.

21. Aguiar, A.J., and Zelmer, J.E. "Dissolution Behavior of Polymorphs of Chloramphenicol Palmitate and Mefenamic Acid," J. Pharm. Sci. 58(8): 983-987, 1969.

22. Sekiguchi, K., and Obi, N. "Studies on Absorption of Eutectic
       Mixture. I. A Comparison of The Behavior of Eutectic
       Mixture of Sulfathiazole and that of Ordinary Sulfathiazole
       in Man," Chem. Pharm. Bull. 9, 866-872, 1961.

23. Chiou, W.L., and Riegelman, S. "Pharmaceutical Applications of
       Solid Dispersion System." J. Pharm. Sci. 60(9): 1281-1302,
       1971.

24. Goldbery, A.H., Gibaldi, M., and Kanig, J.L. "Increasing
       Dissolution Rates and Gastrointestinal Absorption of Drugs
       Via Solid Solutions and Eutectic Mixtures I," J. Pharm. Sci.
       54(8), 1145-1148, 1965.

25. Allen, L.V., Victor, A.Y., and Maness, D.D. "Dissolution Rates
       of Corticosteroids Utilizing Sugar Glass Dispersions,"
       J. Pharm. Sci. 66(4): 494-496, 1977.

26. Ghamen, A., Meshali, M. and Ibraheem, Y. "Dissolution Rates of
       Sulfamethoxazole Utilizing Sugar Glass Dispersion,"
       J. Pharm. Pharmcol. 32: 675-677, 1980.

27. Geneidi A.S., Adel, M.S., and Shehata, E. "Preparation and in-vitro
       dissolution chracteristics of various fast-release solid
       dispersion of Glibenclamide," Can. J. Pharm. Sci. 15(4):
       78-80, 1980.

28. Mayersohn, M., and Gibaldi, M. "New Method of Solid State Dispersion
       for Increasing Dissolution Rates," J. Pharm. Sci. 55(11):
       1323-1324, 1966.

29. Simonelli, A.P., Mehta, S.C. and Higuchi, W.I. "Dissolution
     Rates of High Energy Polyvinylpyrrolidone (PVP) –
     Sulfathiazole Coprecipitates." J. Pharm. Sci. 58(5):
     538–549, 1969.

30. Bates, T.R. "Dissolution Characteristics of Reserpine-Polyvinyl-
     Pyrrolidone Co-precipitates," J. Pharm. Pharmacol. 27,
     710–712, 1969.

31. Malone, M.H., Hochman H.I. and Nieforth, K.A., "Desoxycholic Acid
     Enhancement of Orally Administered Reserpine," J. Pharm. Sci.
     55(9): 972–974, 1966.

32. Wells, J.I., Rubinstein, M.H. and Walters, V. "In SITU Fusion and
     Granulation of A Chlorpropamide – urea Solid Solution for
     Compressed TABLETS," J. Pharm. Pharmacol. 27, Suppl, 56p,
     1975.

33. Chiou, W.L., and Niazi, S. "Phase Diagram and Dissolution-Rate
     Studies on Sulfathiazole-Urea Solid Dispersions,"
     J. Pharm. Sci. 60(9): 1333-1338, 1971.

34. Chiou, W.L. and Riegelman, S. "Increased Dissolution Rates of
     Water-insoluble Cardiac Glycosides and Steroids Via Solid
     Dispersions in Polyethylene Glycol 6000," J. Pharm. Sci.
     60(10): 1569-1571, 1971.

35. Summers, M.P. and Enever R.P., "Preparation and Properties of Solid
     Dispersion System Containing Citric Acid and Primidone,"
     J. Pharm. Sci. 65(11): 1613-1623, 1976.

36. Shefter, E. "Solid-State Manipulation" in Techniques of Solubilization of Drugs, Edited by Yalkowsky, S.H., Marcel Dekker Inc., New York, page 170-182, 1981.

37. Nakai, Y., Fukuoka, E., Nakajima, S. and Yamamoto, K., "Effects of Grinding on Physical and Chemical Properties of Crystalline Medicinals with Microcrystalline Cellulose. I. Some Physical Properties of Crystalline Medicinals in Ground Mixtures," Chem. Pharm. Bull. 25(12): 3340-3346, 1977.

38. Nakai, Y., Fukuoka, E., Nakajima, S. and Iida, Y. "Effect of Grinding on Physical and Chemical Properties of Crystalline Medicinals with Microcrystalline Cellulose, II. Retention of Volatile Medicinals in Ground Mixture," Chem. Pharm. Bull. 26(10): 2983-2989, 1978.

39. Nakai, Y., Nakajima, S., Yammamoto, K., Terrada, K., and Konno, T. "Effects of Grinding on Physical and Chemical Properties of Crystalline Medicinals with Microcrystalline Cellulose. III. Infrared Spectra of Medicinals in Ground Mixtures," Chem. Pharm. Bull. 26(11): 3419-3425, 1978.

40. Hersey, J.A. and Krycer, I., "Biopharmaceutical Implications of Technological Change," Int. J. of Pharm. Tech. and Prod. Manufacture 1, 18-21, 1980.

41. Yamamoto, K., Nakano, M., Arita, T., Takayama, Y., and Nakai, Y. "Dissolution Behavior and Bioavailability of Phenytoin from a Ground Mixture with Microcrystalline Cellulose," J. Pharm. Sci. 65(10): 1484-1488, 1976.

42. Yamamoto, K, Nakano, M., Arita, T., and Nakai, Y. "Dissolution Rate and Bioavailability of Griseofulvin from a Ground Mixture with Microcrystalline Cellulose," J. Pharm. and Biopharm. 2(6): 487-493, 1974.

43. Ampolsuk, C., Mauro, J.V., Nyhuis A.A., Shah, N., and Jarowski, C.I. "Influence of Dispersion Method on Dissolution Rate of Digoxin-Lactose and Hydrocortisone-Lactose Trituration. I." J. Pharm. Sci. 63(1): 117-118, 1974.

44. Shah, N., Pytelewski, R., Eisen, H., and Jarowski, C.I. "Influence of Dispersion Method on Dissolution Rate and Bioavailability of Digoxin from Triturations and Compressed TABLETS II." J. Pharm. Sci. 63(3): 339-344, 1974.

45. Monkhouse, D.C., and J.L. Lach "Use of Adsorbents in Enhancement of Drug Dissolution I," J. Pharm. Sci. 61(9): 1430-1435, 1972.

46. Monkhouse, D.C. and Lach, J.L., "Use of Adsorbents in Enhancement of Drug Dissolution II," J. Pharm. Sci. 61(9): 1435-1440, 1972.

47. Lach, J.L., and Bornstein, M., "Diffuse Reflectance Studies of Solid-Solid Interactions," J. Pharm. Sci. 54(12): 1730-1736, 1965.

48. Guillory J.K., Hwang S.C. and Lach J.L. "Interactions between Pharmaceutical Compounds by Thermal Methods," J. Pharm. Sci. 58(3): 301-308, 1969.

49. Lach, J.L., and Bighley, J.D. "Diffuse Reflectance Studies of Solid-Solid Interactions," J. Pharm. Sci. : 59(9): 1261-1264, 1970.

50. Wu, W., Chin, T., and Lach, J.L. "Interaction of Ascorbic Acid with Silicic Acid," J. Pharm. Sci. 59(8): 1122-1125, 1970.

51. Mc. Callister J.D., Chin, T., and Lach, J.L. "Diffuse Reflectance Studies of Solid-Solid Interactions. IV. : Interaction of Bishydroxycoumarin, Furosemide, and other Medicinal Agents with Various Adjuvants," J. Pharm. Sci. 59(9): 1286-1289, 1970.

52. Lerk, C.F., Lagas, M., Fell, J.T., and Nauta, P. "Effect of hydrophilization of Hydrophobic drugs on Release Rate from Capsules," J. Pharm. Sci. 67(7): 935-939, 1978.

53. Nogami H., Hasegawa, J. and Miyamoto, M. "Studies on Powdered Preparation XX. Disintegration of Aspirin TABLETS Containing Starches as Disintegrating Agent," Chem. Pharm. Bull. 15: 279, 1967.

54. Mc. Ginity J.W., Stavchansky, S.A., and Martin, A., in "Pharmaceutical Dosage Forms TABLETS," Vol.2, Edited by Liberman H.A., and Lachman, L., Marcel Dekker Inc., New York and Basel, page 338, 365-369, 1981.

55. Khalafallah, N., Gouda M.W., and Khalil S.A., "Effect of Surfactants on Absorption through Membrane IV : Effect of Dioctyl Sodium Sulfosuccinate on Absorption of a Poorly Absorbable Drug, Phenol Sulfonphthalein, in Humans, J. Pharm. Sci. 64(6): 991-994, 1975.

56. Reddy, R.K., Khalil, S.A., and Gouda M.W. "Effect of Dioctyl Sodium sulfosuccinate and Poloxamer 188 on Dissolution and Intestinal Absorption of Sulfadiazine and Sulfisoxazole in Rats," J. Pharm. Sci. 65(1): 115-118, 1976.

57. Marlowe, E., and Shangraw S.F., "Dissolution of Sodium Salicylate from Tablet Matrices Prepared by Wet Granulation and Direct Compression," J. Pharm. Sci. 56(4): 498-504, 1967.

58. Higuchi, T., and Ikeda, M. "Rapidly Dissolution Forms of Digoxin: Hydroquinone Complex," J. Pharm. Sci. 63(5): 809-811, 1974.

59. Higuchi, W.I., Mir, N.A., and Desai S.J., "Dissolution Rates of Polyphase Mixtures," J. Pharm. Sci. 54(10): 1405-1410, 1965.

60. Zoglio, M.A., Maulding JR., and Windheuser J.J., "Complexes of Ergot Alkaloids and Derivatives I : The Interaction of Caffeine with Ergotamine Tartrate in Aqueous Solution," J. Pharm. Sci. 58(2): 222-225, 1969.

61. Bettis, J.W., Lach, J.L. and Hood, J. "Effect of Complexation with Phenobarbital on the Biologic Availability of Theophylline from Three TABLET Formulation," Am. J. Hosp. Pharm. 30: 240, 1973.

62. Carsten, J.L., Kenneth, S.E., Maddrell, P., Johnson, J.B., and Newmark H.N. "Thermodynamic and Kinetic Aspects of Parenteral Benzodiazepines," Bull. Parent. Drug. Assoc., 25(4): 193-202, 1971.

63. Omray, A.K., Sharma, A.K., and chauhan P.S. "Influence of Diluents on Properties of Diazepam Tablets and In-Vitro Evaluation of Commerical Tablets." The Indian Journal of Pharmacy Jan-Feb, 8-11, 1978.

64. The United States Pharmacopeia 21st Revision, The National Formulary, 16th Edition. United States Pharmacopeial Convention Inc., Rockville, page 307, 1985.

65. Hersey, J.A. and Krycer, I., "Fine Grinding and the Production of Coarse Particulate," Chem. Eng. (Lond.) 837, Dec., 1979.
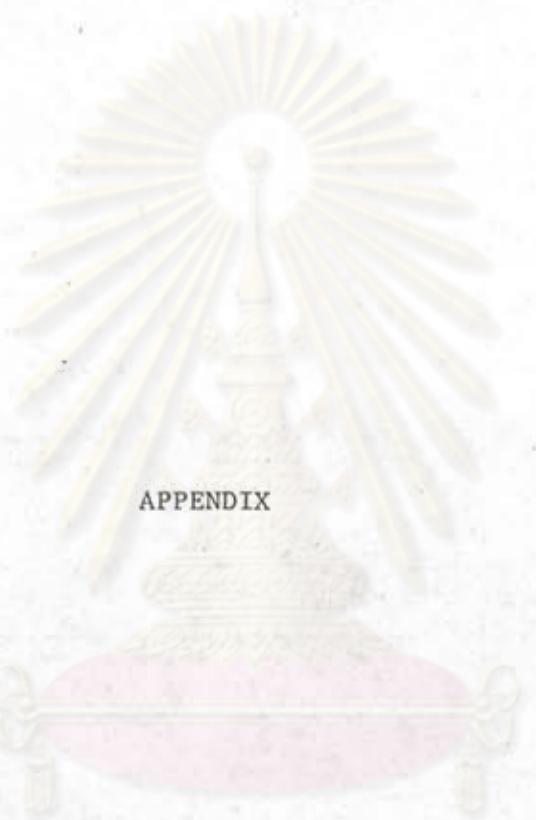
APPENDIX

Table: 20   Dissolution Rate of Diazepam Capsules

Formula 0			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.007 ± 0.001	0.009 ± 0.001	0.225
10	0.029 ± 0.003	0.243 ± 0.025	6.08
15	0.055 ± 0.011	0.522 ± 0.104	13.05
20	0.080 ± 0.009	0.792 ± 0.089	19.80
25	0.105 ± 0.005	1.061 ± 0.050	26.52
30	0.125 ± 0.002	1.277 ± 0.020	31.92
35	0.140 ± 0.009	1.440 ± 0.092	36.10
40	0.150 ± 0.013	1.549 ± 0.134	38.72
45	0.160 ± 0.003	1.656 ± 0.031	41.40
50	0.175 ± 0.010	1.817 ± 0.104	45.42
60	0.200 ± 0.005	2.085 ± 0.052	52.12

[1] time = minutes

[2] A = Absorbance

[3] C = concentration

[4] % Diss = percent drug dissolved

Table: 21   Dissolution Rate of Diazepam Capsules.

Formula 1			
time[1]	A[2] ±.S.D.	C[3] ± S.D.	% Diss[4]
5	0.022 ± 0.003	0.168 ± 0.023	4.20
10	0.058 ± 0.004	0.553 ± 0.038	13.83
15	0.084 ± 0.003	0.834 ± 0.030	20.85
20	0.113 ± 0.003	1.146 ± 0.030	28.65
25	0.150 ± 0.010	1.544 ± 0.103	38.60
30	0.175 ± 0.012	1.875 ± 0.128	46.87
35	0.211 ± 0.020	2.201 ± 0.208	55.03
40	0.242 ± 0.030	2.536 ± 0.314	63.40
45	0.270 ± 0.040	2.839 ± 0.420	70.97
50	0.288 ± 0.020	3.034 ± 0.216	75.85
60	0.315 ± 0.011	3.323 ± 0.116	83.31

Formula 2			
time	A[2] ± S.D.	c[3] ± S.D.	% Diss[4]
5	0.018 ± 0.002	0.126 ± 0.014	3.15
10	0.042 ± 0.009	0.382 ± 0.082	9.55
15	0.075 ± 0.010	0.736 ± 0.098	18.40
20	0.101 ± 0.013	1.018 ± 0.131	25.45
25	0.125 ± 0.009	1.277 ± 0.092	31.92
30	0.149 ± 0.011	1.535 ± 0.113	38.37
35	0.163 ± 0.008	1.688 ± 0.083	42.20
40	0.175 ± 0.016	1.818 ± 0.166	45.45
45	0.188 ± 0.011	1.958 ± 0.114	48.95
50	0.200 ± 0.009	2.087 ± 0.940	52.17
60	0.215 ± 0.010	2.248 ± 0.104	56.20

[1] time   = minutes

[2] A   = Absorbance

[3] C   = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Table: 22 Dissolution Rate of Diazepam Capsules.

Formula 3			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.011 ± 0.001	0.052 ± 0.005	1.30
10	0.038 ± 0.003	0.346 ± 0.027	8.65
15	0.075 ± 0.003	0.736 ± 0.029	18.40
20	0.113 ± 0.010	1.145 ± 0.101	28.62
25	0.155 ± 0.008	1.597 ± 0.082	39.92
30	0.178 ± 0.010	1.825 ± 0.102	45.62
35	0.230 ± 0.008	2.400 ± 0.083	60.00
40	0.276 ± 0.011	2.866 ± 0.114	71.65
45	0.321 ± 0.013	3.395 ± 0.137	84.62
50	0.362 ± 0.014	3.828 ± 0.148	95.70
60	0.375 ± 0.015	3.973 ± 0.159	99.32

Formula 4			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.028 ± 0.004	0.232 ± 0.033	5.80
10	0.050 ± 0.002	0.469 ± 0.019	11.75
15	0.090 ± 0.006	0.897 ± 0.060	22.42
20	0.115 ± 0.011	1.169 ± 0.112	29.22
25	0.135 ± 0.010	1.385 ± 0.102	34.62
30	0.163 ± 0.008	1.666 ± 0.082	41.65
35	0.200 ± 0.012	2.082 ± 0.125	52.05
40	0.220 ± 0.008	2.301 ± 0.084	57.52
45	0.240 ± 0.004	2.517 ± 0.042	62.92
50	0.261 ± 0.009	2.743 ± 0.094	68.58
60	0.300 ± 0.010	3.160 ± 0.105	79.00

[1]time   : minutes

[2]A   = Absorbance

[3]C   = concentration (ug/ml)

[4]% Diss = percent drug dissolved

Table: 23   Dissolution Rate of Diazepam Capsules.

Formula 5			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.063 ± 0.003	0.603 ± 0.029	15.08
10	0.205 ± 0.004	2.118 ± 0.041	52.95
15	0.273 ± 0.006	2.864 ± 0.063	71.60
20	0.298 ± 0.009	3.141 ± 0.095	78.50
25	0.310 ± 0.001	3.272 ± 0.010	81.80
30	0.328 ± 0.010	3.465 ± 0.106	86.62
35	0.345 ± 0.011	3.649 ± 0.116	91.22
40	0.350 ± 0.016	3.705 ± 0.169	92.62
45	0.355 ± 0.011	3.759 ± 0.116	93.98
50	0.360 ± 0.013	3.813 ± 0.138	95.32
60	0.360 ± 0.012	3.813 ± 0.127	95.32

Formula 6			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.040 ± 0.004	0.359 ± 0.036	8.98
10	0.086 ± 0.003	0.853 ± 0.030	21.33
15	0.135 ± 0.001	1.380 ± 0.010	34.50
20	0.165 ± 0.013	1.707 ± 0.134	42.68
25	0.208 ± 0.011	2.168 ± 0.115	54.20
30	0.230 ± 0.001	2.409 ± 0.010	60.22
35	0.248 ± 0.003	2.603 ± 0.031	65.08
40	0.260 ± 0.002	2.734 ± 0.021	68.35
45	0.272 ± 0.002	2.863 ± 0.021	71.58
50	0.280 ± 0.008	2.950 ± 0.084	73.75
60	0.290 ± 0.006	3.057 ± 0.063	76.42

[1]time   :   minutes

[2]A   =   Absorbance

[3]C   =   concentration (ug/ml)

[4]% Diss   =   percent drug dissolved

Table: 24   Dissolution Rate of Diazepam Capsules.

Formula 7			
time[1]	A^2 ± S.D.	C^3 ± S.D.	% Diss
5	0.036 ± 0.002	0.317 ± 0.018	7.92
10	0.083 ± 0.001	0.820 ± 0.001	20.50
15	0.135 ± 0.003	1.380 ± 0.031	34.50
20	0.180 ± 0.010	1.866 ± 0.104	46.65
25	0.245 ± 0.006	2.563 ± 0.063	64.08
30	0.310 ± 0.004	3.263 ± 0.042	81.58
35	0.350 ± 0.010	3.700 ± 0.106	92.50
40	0.368 ± 0.008	3.896 ± 0.085	97.40
45	0.370 ± 0.000	3.921 ± 0.000	98.02
50	0.376 ± 0.002	3.985 ± 0.021	99.62
60	0.380 ± 0.000	4.028 ± 0.000	100.70

Formula 8			
time[1]	A^2 ± S.D.	C^3 ± S.D.	% Diss
5	0.105 ± 0.007	1.050 ± 0.742	26.25
10	0.210 ± 0.003	2.179 ± 0.031	54.48
15	0.255 ± 0.013	2.674 ± 0.136	66.85
20	0.330 ± 0.008	3.477 ± 0.084	86.92
25	0.353 ± 0.003	3.734 ± 0.032	93.35
30	0.365 ± 0.005	3.865 ± 0.053	96.62
35	0.370 ± 0.006	3.920 ± 0.064	98.00
40	0.370 ± 0.005	3.921 ± 0.053	98.02
45	0.375 ± 0.007	3.974 ± 0.074	99.35
50	0.375 ± 0.016	3.975 ± 0.170	99.38
60	0.380 ± 0.014	4.028 ± 0.148	100.70

[1] time   :   minutes

[2] A   =   Absorbance

[3] C   =   concentration (ug/ml)

[4] % Diss =   percent drug dissolved

Table: 25   Dissolution Rate of Diazepam Capsules

Formula 9			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.107 ± 0.009	1.070 ± 0.090	26.75
10	0.330 ± 0.011	3.451 ± 0.115	86.28
15	0.340 ± 0.001	3.596 ± 0.010	89.90
20	0.356 ± 0.004	3.768 ± 0.042	94.20
25	0.365 ± 0.003	3.866 ± 0.032	96.65
30	0.365 ± 0.002	3.867 ± 0.021	96.68
35	0.366 ± 0.001	3.878 ± 0.010	96.95
40	0.370 ± 0.000	3.920 ± 0.000	98.00
45	0.370 ± 0.000	3.921 ± 0.000	98.02
50	0.375 ± 0.001	3.974 ± 0.010	99.35
60	0.380 ± 0.002	4.028 ± 0.021	100.70

Formula 10			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.035 ± 0.001	0.306 ± 0.009	7.65
10	0.113 ± 0.003	1.138 ± 0.030	28.45
15	0.167 ± 0.004	1.724 ± 0.041	43.10
20	0.215 ± 0.006	2.242 ± 0.062	56.05
25	2.255 ± 0.002	2.675 ± 0.021	66.88
30	0.280 ± 0.005	2.947 ± 0.053	73.68
35	0.305 ± 0.010	3.216 ± 0.105	80.40
40	0.320 ± 0.009	3.380 ± 0.095	84.50
45	0.330 ± 0.012	3.488 ± 0.127	87.20
50	0.340 ± 0.002	3.596 ± 0.021	89.90
60	0.350 ± 0.004	3.704 ± 0.042	92.60

[1] time   :   minutes

[2] A   =   Absorbance

[3] C   =   concentration (ug/ml)

[4] % Diss   =   percent drug dissolved

Table: 26 Dissolution Rate of Diazepam Capsules

time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
	Formula 11		
5	0.060 ± 0.001	0.571 ± 0.010	14.28
10	0.105 ± 0.004	1.058 ± 0.040	26.45
15	0.150 ± 0.001	1.543 ± 0.010	38.58
20	0.211 ± 0.006	2.197 ± 0.062	54.92
25	0.289 ± 0.012	3.035 ± 0.126	75.88
30	0.360 ± 0.008	3.801 ± 0.084	95.03
35	0.362 ± 0.002	3.834 ± 0.021	95.85
40	0.370 ± 0.006	3.920 ± 0.064	98.00
45	0.370 ± 0.001	3.921 ± 0.010	98.03
50	0.380 ± 0.000	4.027 ± 0.000	100.68
60	0.380 ± 0.001	4.029 ± 0.011	100.72
	Formula 12		
5	0.240 ± 0.002	2.480 ± 0.021	62.00
10	0.330 ± 0.003	3.474 ± 0.032	86.85
15	0.350 ± 0.006	3.702 ± 0.063	92.55
20	0.360 ± 0.010	3.812 ± 0.106	95.30
25	0.370 ± 0.018	3.919 ± 0.191	97.98
30	0.371 ± 0.026	3.932 ± 0.276	98.30
35	0.373 ± 0.020	3.953 ± 0.029	98.82
40	0.373 ± 0.011	3.954 ± 0.117	98.85
45	0.375 ± 0.001	3.975 ± 0.011	99.38
50	0.380 ± 0.004	4.028 ± 0.042	100.70
60	0.381 ± 0.006	4.040 ± 0.064	101.00

[1] time : minutes
[2] A = Absorbance
[3] C = concentration (ug/ml)
[4] % Diss = percent drug dissolved

Table: 27 Dissolution Rate of Diazepam Capsules

Formula 13			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.087 ± 0.010	0.858 ± 0.099	21.45
10	0.155 ± 0.005	1.592 ± 0.051	39.80
15	0.195 ± 0.010	2.028 ± 0.104	50.70
20	0.225 ± 0.015	2.353 ± 0.157	58.82
25	0.255 ± 0.021	2.677 ± 0.220	66.92
30	0.275 ± 0.022	2.894 ± 0.232	72.35
35	0.295 ± 0.008	3.109 ± 0.084	77.72
40	0.310 ± 0.010	3.272 ± 0.106	81.80
45	0.318 ± 0.012	3.359 ± 0.232	83.98
50	0.326 ± 0.001	3.446 ± 0.010	86.15
60	0.335 ± 0.002	3.542 ± 0.021	88.55

Formula 14			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.026 ± 0.002	0.211 ± 0.016	5.28
10	0.066 ± 0.001	0.638 ± 0.010	15.95
15	0.115 ± 0.016	1.165 ± 0.162	29.12
20	0.148 ± 0.012	1.523 ± 0.123	38.08
25	0.175 ± 0.014	1.815 ± 0.145	45.38
30	0.204 ± 0.016	2.127 ± 0.167	53.18
35	0.221 ± 0.011	2.312 ± 0.115	57.80
40	0.243 ± 0.003	2.549 ± 0.031	63.72
45	0.256 ± 0.006	2.690 ± 0.063	67.25
50	0.264 ± 0.006	2.775 ± 0.063	69.38
60	0.275 ± 0.002	2.895 ± 0.021	72.38

[1] time : minutes

[2] A = Absorbance

[3] C = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Time: 28 Dissolution Rate of Diazepam Capsules

		Formula 15	
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.020 ± 0.001	0.147 ± 0.007	3.68
10	0.043 ± 0.002	0.393 ± 0.018	9.82
15	0.098 ± 0.004	0.980 ± 0.040	24.50
20	0.138 ± 0.011	1.414 ± 0.113	35.35
25	0.200 ± 0.020	2.078 ± 0.208	51.95
30	0.250 ± 0.010	2.619 ± 0.105	65.48
35	0.313 ± 0.003	3.296 ± 0.032	82.40
40	0.356 ± 0.004	3.763 ± 0.042	94.08
45	0.360 ± 0.018	3.812 ± 0.191	95.30
50	0.375 ± 0.002	3.973 ± 0.021	99.32
60	0.380 ± 0.006	4.028 ± 0.064	100.70

		Formula 16	
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.063 ± 0.012	0.603 ± 0.115	15.08
10	0.113 ± 0.016	1.143 ± 0.162	28.58
15	0.155 ± 0.006	1.597 ± 0.062	39.93
20	0.194 ± 0.008	2.018 ± 0.083	50.45
25	0.225 ± 0.001	2.353 ± 0.010	58.82
30	0.268 ± 0.011	2.814 ± 0.115	70.35
35	0.280 ± 0.009	2.949 ± 0.095	73.73
40	0.299 ± 0.001	3.152 ± 0.010	78.83
45	0.310 ± 0.022	3.273 ± 0.232	81.83
50	0.318 ± 0.003	3.359 ± 0.032	83.97
60	0.338 ± 0.003	3.573 ± 0.032	89.32

[1]time : minutes
[2]A = Absorbance
[3]C = concentration (ug/ml)
[4]% Diss = percent drug dissolved

Table: 29   Dissolution Rate of Diazepam Capsules

Formula 17			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.012 ± 0.001	0.062 ± 0.005	1.55
10	0.040 ± 0.003	0.403 ± 0.030	10.08
15	0.069 ± 0.001	0.673 ± 0.010	16.82
20	0.100 ± 0.002	1.006 ± 0.020	25.15
25	0.137 ± 0.021	1.404 ± 0.215	35.10
30	0.164 ± 0.022	1.697 ± 0.228	42.42
35	0.191 ± 0.024	1.987 ± 0.250	49.68
40	0.213 ± 0.003	2.225 ± 0.031	55.62
45	0.246 ± 0.004	2.579 ± 0.042	64.48
50	0.270 ± 0.000	2.839 ± 0.000	70.98
60	0.285 ± 0.001	3.003 ± 0.010	75.08

Formula 18			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.018 ± 0.002	0.126 ± 0.014	3.15
10	0.041 ± 0.003	0.372 ± 0.027	9.30
15	0.062 ± 0.014	0.598 ± 0.135	14.95
20	0.090 ± 0.011	0.899 ± 0.110	22.48
25	0.113 ± 0.013	1.148 ± 0.132	28.70
30	0.130 ± 0.012	1.332 ± 0.123	33.30
35	0.152 ± 0.002	1.568 ± 0.021	39.20
40	0.162 ± 0.003	1.678 ± 0.031	41.95
45	0.180 ± 0.001	1.871 ± 0.010	46.78
50	0.190 ± 0.020	1.980 ± 0.208	49.50
60	0.210 ± 0.019	2.194 ± 0.198	54.85

[1]time   :   minutes

[2]A   = . Absorbance

[3]C   =   concentration (ug/ml)

[4]% Diss   =   percent drug dissolved

Table: 30   Dissolution Rate of Diazepam Capsules

| Formula 19 |
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.015 ± 0.002	0.094 ± 0.012	2.35
10	0.034 ± 0.003	0.297 ± 0.026	7.42
15	0.070 ± 0.001	0.682 ± 0.010	17.05
20	0.098 ± 0.008	0.985 ± 0.080	24.62
25	0.146 ± 0.006	1.499 ± 0.062	37.48
30	0.175 ± 0.004	1.815 ± 0.041	45.38
35	0.223 ± 0.011	2.329 ± 0.115	58.22
40	0.276 ± 0.021	2.899 ± 0.220	72.48
45	0.302 ± 0.026	3.184 ± 0.274	79.60
50	0.340 ± 0.011	3.591 ± 0.116	89.78
60	0.355 ± 0.001	3.757 ± 0.010	93.92

| Formula 20 |
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.022 ± 0.010	0.168 ± 0.076	4.21
10	0.042 ± 0.001	0.383 ± 0.009	9.58
15	0.065 ± 0.011	0.630 ± 0.107	15.76
20	0.090 ± 0.009	0.899 ± 0.090	22.48
25	0.120 ± 0.013	1.222 ± 0.132	30.55
30	0.141 ± 0.013	1.450 ± 0.134	36.25
35	0.164 ± 0.019	1.697 ± 0.197	42.43
40	0.191 ± 0.010	1.988 ± 0.104	49.70
45	0.210 ± 0.009	2.194 ± 0.094	54.85
50	0.246 ± 0.001	2.579 ± 0.010	64.48
60	0.278 ± 0.003	2.924 ± 0.032	73.10

[1]time : minutes
[2]A = Absorbance
[3]C = concentration (ug/ml)
[4]% Diss = percent drug dissolved

Table: 31 Dissolution Rate of Diazepam Capsules

Formula 21			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.070 ± 0.002	0.677 ± 0.019	16.92
10	0.190 ± 0.001	1.961 ± 0.010	49.02
15	0.260 ± 0.003	2.723 ± 0.031	68.08
20	0.280 ± 0.010	2.948 ± 0.105	73.07
25	0.289 ± 0.009	3.047 ± 0.095	76.18
30	0.303 ± 0.003	3.197 ± 0.032	79.92
35	0.325 ± 0.015	3.432 ± 0.158	85.80
40	0.337 ± 0.017	3.563 ± 0.180	89.08
45	0.347 ± 0.006	3.672 ± 0.063	91.80
50	0.350 ± 0.020	3.705 ± 0.243	92.62
60	0.363 ± 0.003	3.844 ± 0.032	96.10

Formula 22			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.025 ± 0.003	0.200 ± 0.024	5.00
10	0.067 ± 0.007	0.649 ± 0.068	16.22
15	0.111 ± 0.011	1.122 ± 0.111	28.05
20	0.160 ± 0.012	1.650 ± 0.124	41.25
25	0.198 ± 0.001	2.061 ± 0.010	51.52
30	0.221 ± 0.006	2.311 ± 0.063	57.78
35	0.238 ± 0.008	2.496 ± 0.084	62.40
40	0.251 ± 0.001	2.637 ± 0.010	65.92
45	0.263 ± 0.004	2.766 ± 0.042	69.15
50	0.269 ± 0.010	2.832 ± 0.105	70.80
60	0.275 ± 0.006	2.896 ± 0.063	72.40

[1]time   :   minutes

[2]A   =   Absorbance

[3]C   =   concentration (ug/ml)

[4]% Diss   =   percent drug dissolved

Table: **32** Dissolution Rate of Diazepam Capsules

Formula 23			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.030 ± 0.010	0.253 ± 0.084	6.32
10	0.073 ± 0.003	0.713 ± 0.029	17.82
15	0.122 ± 0.002	1.240 ± 0.020	31.00
20	0.165 ± 0.003	1.704 ± 0.031	42.60
25	0.222 ± 0.002	2.316 ± 0.021	57.90
30	0.285 ± 0.006	2.994 ± 0.063	74.85
35	0.336 ± 0.010	3.546 ± 0.105	88.65
40	0.360 ± 0.022	3.809 ± 0.233	95.22
45	0.367 ± 0.001	3.888 ± 0.010	97.20
50	0.370 ± 0.000	3.921 ± 0.000	98.02
60	0.376 ± 0.002	3.985 ± 0.021	99.62

Formula 24			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.100 ± 0.006	0.995 ± 0.060	24.88
10	0.191 ± 0.001	1.976 ± 0.010	49.40
15	0.246 ± 0.007	2.575 ± 0.073	64.38
20	0.313 ± 0.004	3.295 ± 0.042	82.38
25	0.346 ± 0.010	3.657 ± 0.106	91.42
30	0.362 ± 0.012	3.832 ± 0.127	95.80
35	0.370 ± 0.013	3.920 ± 0.138	98.00
40	0.370 ± 0.011	3.921 ± 0.116	98.02
45	0.370 ± 0.000	3.921 ± 0.000	98.02
50	0.372 ± 0.001	3.942 ± 0.010	98.55
60	0.375 ± 0.005	3.975 ± 0.053	99.38

[1]time   : minutes

[2]A   = Absorbance

[3]C   = concentration (ug/ml)

[4]% Diss = percent drug dissolved

Table: 33 Dissolution Rate of Diazepam Capsules

Formula 25			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.100 ± 0.002	0.995 ± 0.019	24.88
10	0.321 ± 0.001	3.354 ± 0.010	83.85
15	0.338 ± 0.008	3.576 ± 0.085	89.40
20	0.350 ± 0.010	3.704 ± 0.106	92.60
25	0.361 ± 0.010	3.822 ± 0.106	95.55
30	0.365 ± 0.006	3.867 ± 0.064	96.68
35	0.365 ± 0.008	3.867 ± 0.085	96.68
40	0.369 ± 0.011	3.910 ± 0.116	97.75
45	0.370 ± 0.001	3.921 ± 0.016	98.02
50	0.376 ± 0.002	3.985 ± 0.021	99.62
60	0.378 ± 0.000	4.007 ± 0.000	100.18

Formula 26			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.030 ± 0.000	0.253 ± 0.000	6.32
10	0.091 ± 0.002	0.904 ± 0.020	22.60
15	0.150 ± 0.001	1.540 ± 0.010	38.50
20	0.210 ± 0.010	2.186 ± 0.104	54.65
25	0.250 ± 0.008	2.621 ± 0.084	65.52
30	0.276 ± 0.007	2.904 ± 0.074	72.60
35	0.300 ± 0.010	3.163 ± 0.105	79.08
40	0.325 ± 0.000	3.432 ± 0.000	85.80
45	0.335 ± 0.002	3.542 ± 0.021	88.55
50	0.340 ± 0.010	3.597 ± 0.106	89.92
60	0.356 ± 0.006	3.768 ± 0.064	94.20

[1]time   :   minutes

[2]A   =   Absorbance

[3]C   =   concentration (ug/ml)

[4]% Diss   =   percent drug dissolved

Table: 34   Dissolution Rate of Diazepam Capsules.

Formula 27			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.049 ± 0.005	0.454 ± 0.046	11.35
10	0.102 ± 0.010	1.024 ± 0.100	25.60
15	0.153 ± 0.020	1.574 ± 0.206	39.35
20	0.200 ± 0.013	2.081 ± 0.135	52.02
25	0.299 ± 0.002	3.139 ± 0.021	78.48
30	0.370 ± 0.006	3.909 ± 0.063	97.72
35	0.375 ± 0.011	3.974 ± 0.116	99.35
40	0.376 ± 0.006	3.986 ± 0.064	99.65
45	0.380 ± 0.015	4.028 ± 0.159	100.70
50	0.380 ± 0.001	4.028 ± 0.011	100.70
60	0.382 ± 0.000	4.050 ± 0.000	101.25

Formula 28			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.220 ± 0.001	2.268 ± 0.010	56.70
10	0.328 ± 0.000	3.449 ± 0.000	86.22
15	0.346 ± 0.002	3.659 ± 0.021	91.48
20	0.352 ± 0.002	3.726 ± 0.021	93.15
25	0.363 ± 0.010	3.844 ± 0.106	96.10
30	0.370 ± 0.011	3.920 ± 0.116	98.00
35	0.376 ± 0.006	3.985 ± 0.064	99.62
40	0.378 ± 0.007	4.007 ± 0.074	100.18
45	0.380 ± 0.004	4.029 ± 0.042	100.72
50	0.380 ± 0.000	4.029 ± 0.000	100.72
60	0.381 ± 0.001	4.040 ± 0.011	101.00

[1] time   : minutes

[2] A   = Absorbance

[3] C   = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Table: 35   Dissolution Rate of Diazepam Capsules.

Formula 29			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.050 ± 0.010	0.465 ± 0.093	11.62
10	0.093 ± 0.003	0.929 ± 0.030	23.22
15	0.132 ± 0.004	1.350 ± 0.041	33.75
20	0.160 ± 0.006	1.653 ± 0.062	41.32
25	0.192 ± 0.010	1.997 ± 0.104	49.92
30	0.221 ± 0.015	2.310 ± 0.157	57.75
35	0.241 ± 0.020	2.528 ± 0.210	63.20
40	0.263 ± 0.004	2.764 ± 0.042	69.10
45	0.286 ± 0.006	3.012 ± 0.063	75.30
50	0.300 ± 0.015	3.164 ± 0.158	79.10
60	0.315 ± 0.020	3.326 ± 0.211	83.15

Formula 30			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.020 ± 0.003	0.147 ± 0.022	3.68
10	0.080 ± 0.006	0.786 ± 0.059	19.65
15	0.120 ± 0.007	1.220 ± 0.071	30.50
20	0.145 ± 0.010	1.492 ± 0.103	37.30
25	0.165 ± 0.021	1.709 ± 0.218	42.72
30	0.185 ± 0.005	1.924 ± 0.052	48.10
35	0.200 ± 0.006	2.087 ± 0.063	52.18
40	0.215 ± 0.010	2.248 ± 0.104	56.20
45	0.230 ± 0.020	2.410 ± 0.210	60.25
50	0.240 ± 0.015	2.519 ± 0.157	62.98
60	0.260 ± 0.001	2.732 ± 0.010	68.30

[1] time   : minutes

[2] A   = Absorbance

[3] C   = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Table: 36   Dissolution Rate of Diazepam Capsules.

Formula 31			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.018 ± 0.002	0.126 ± 0.014	3.15
10	0.039 ± 0.004	0.351 ± 0.036	8.78
15	0.098 ± 0.007	0.980 ± 0.070	24.50
20	0.132 ± 0.012	1.350 ± 0.123	33.75
25	0.188 ± 0.008	1.950 ± 0.083	48.75
30	0.240 ± 0.018	2.511 ± 0.188	62.78
35	0.301 ± 0.001	3.167 ± 0.010	79.18
40	0.347 ± 0.007	3.665 ± 0.074	91.62
45	0.350 ± 0.005	3.705 ± 0.053	92.62
50	0.360 ± 0.009	3.812 ± 0.095	95.30
60	0.370 ± 0.002	3.919 ± 0.021	97.98

Formula 32			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.040 ± 0.010	0.359 ± 0.090	8.98
10	0.081 ± 0.007	0.800 ± 0.069	20.00
15	0.124 ± 0.001	1.263 ± 0.010	31.58
20	0.152 ± 0.002	1.567 ± 0.021	39.18
25	0.181 ± 0.001	1.879 ± 0.010	46.98
30	0.213 ± 0.003	2.224 ± 0.031	55.60
35	0.232 ± 0.002	2.431 ± 0.021	60.78
40	0.263 ± 0.003	2.763 ± 0.032	69.08
45	0.280 ± 0.011	2.948 ± 0.116	73.70
50	0.291 ± 0.002	3.068 ± 0.021	76.70
60	0.320 ± 0.001	3.377 ± 0.010	84.42

[1] time : minutes

[2] A = Absorbance

[3] C = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Table: 37   Dissolution Rate of Diazepam Capsules.

	Formula 33		
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.010 ± 0.001	0.041 ± 0.004	1.02
10	0.035 ± 0.004	0.306 ± 0.035	7.65
15	0.065 ± 0.010	0.629 ± 0.097	15.72
20	0.095 ± 0.016	0.952 ± 0.160	23.80
25	0.130 ± 0.018	1.329 ± 0.184	33.22
30	0.158 ± 0.009	1.632 ± 0.093	40.80
35	0.180 ± 0.003	1.870 ± 0.031	46.75
40	0.200 ± 0.006	2.086 ± 0.062	52.15
45	0.220 ± 0.004	2.301 ± 0.042	57.52
50	0.253 ± 0.002	2.655 ± 0.021	66.38
60	0.270 ± 0.001	2.841 ± 0.010	71.02

	Formula 34		
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.010 ± 0.000	0.041 ± 0.000	1.02
10	0.030 ± 0.001	0.254 ± 0.008	6.35
15	0.053 ± 0.010	0.501 ± 0.094	12.52
20	0.075 ± 0.016	0.738 ± 0.157	18.45
25	0.100 ± 0.006	1.007 ± 0.060	25.18
30	0.118 ± 0.008	1.202 ± 0.081	30.05
35	0.141 ± 0.005	1.449 ± 0.051	36.22
40	0.152 ± 0.002	1.570 ± 0.021	39.25
45	0.169 ± 0.009	1.752 ± 0.093	43.80
50	0.188 ± 0.006	1.957 ± 0.062	48.92
60	0.210 ± 0.002	2.193 ± 0.021	54.82

[1]time   : minutes

[2]A   = Absorbance

[3]C   = concentration (ug/ml)

[4]% Diss   = percent drug dissolved

Table: 38   Dissolution Rate of Diazepam Capsules.

	Formula 35		
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.008 ± 0.001	0.020 ± 0.002	0.50
10	0.036 ± 0.002	0.317 ± 0.018	7.92
15	0.060 ± 0.000	0.576 ± 0.000	14.40
20	0.105 ± 0.004	1.058 ± 0.040	26.40
25	0.137 ± 0.002	1.388 ± 0.020	34.70
30	0.175 ± 0.006	1.813 ± 0.062	45.32
35	0.223 ± 0.001	2.329 ± 0.010	58.22
40	0.263 ± 0.003	2.761 ± 0.031	69.02
45	0.298 ± 0.001	3.139 ± 0.010	78.47
50	0.305 ± 0.000	3.219 ± 0.000	80.48
60	0.325 ± 0.003	3.433 ± 0.032	85.82

	Formula 36		
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.021 ± 0.001	0.158 ± 0.008	3.95
10	0.041 ± 0.000	0.372 ± 0.000	9.30
15	0.060 ± 0.006	0.577 ± 0.058	14.42
20	0.076 ± 0.009	0.750 ± 0.089	18.75
25	0.098 ± 0.001	0.986 ± 0.010	24.65
30	0.126 ± 0.016	1.287 ± 0.163	32.18
35	0.158 ± 0.023	1.631 ± 0.237	40.78
40	0.180 ± 0.011	1.870 ± 0.114	46.75
45	0.196 ± 0.006	2.043 ± 0.062	51.08
50	0.230 ± 0.004	2.406 ± 0.042	60.15
60	0.260 ± 0.008	2.731 ± 0.084	68.28

[1]time   :   minutes

[2]A   =   Absorbance

[3]C   =   concentration (ug/ml)

[4]% Diss   =   percent drug dissolved

Table: 39   Dissolution Rate of Diazepam Capsules.

Formula 37			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.048 ± 0.000	0.444 ± 0.000	11.10
10	0.160 ± 0.031	1.639 ± 0.318	40.98
15	0.208 ± 0.006	2.167 ± 0.062	54.18
20	0.225 ± 0.009	2.356 ± 0.094	58.90
25	0.238 ± 0.010	2.496 ± 0.105	62.40
30	0.255 ± 0.006	2.679 ± 0.063	66.98
35	0.273 ± 0.003	2.873 ± 0.032	71.82
40	0.288 ± 0.008	3.035 ± 0.084	75.88
45	0.305 ± 0.006	3.218 ± 0.063	80.45
50	0.315 ± 0.007	3.327 ± 0.074	83.18
60	0.318 ± 0.008	3.360 ± 0.084	84.00

Formula 38			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.019 ± 0.000	0.136 ± 0.000	3.40
10	0.070 ± 0.003	0.677 ± 0.029	16.92
15	0.105 ± 0.006	1.059 ± 0.060	26.48
20	0.138 ± 0.001	1.415 ± 0.010	35.38
25	0.165 ± 0.009	1.707 ± 0.093	42.68
30	0.193 ± 0.011	2.008 ± 0.114	50.20
35	0.215 ± 0.014	2.247 ± 0.146	56.18
40	0.235 ± 0.006	2.463 ± 0.063	61.58
45	0.248 ± 0.008	2.604 ± 0.084	65.10
50	0.253 ± 0.000	2.659 ± 0.000	66.48
60	0.265 ± 0.005	2.788 ± 0.053	69.70

[1] time   : minutes

[2] A   = Absorbance

[3] C   = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Table: 40 Dissolution Rate of Diazepam Capsules.

Formula 39			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.025 ± 0.000	0.200 ± 0.000	5.00
10	0.050 ± 0.002	0.468 ± 0.019	11.70
15	0.098 ± 0.008	0.982 ± 0.080	24.55
20	0.140 ± 0.020	1.435 ± 0.205	35.88
25	0.186 ± 0.022	1.930 ± 0.228	48.25
30	0.250 ± 0.026	2.617 ± 0.272	65.42
35	0.308 ± 0.008	3.243 ± 0.084	81.08
40	0.315 ± 0.004	3.327 ± 0.042	83.18
45	0.318 ± 0.006	3.360 ± 0.063	84.00
50	0.320 ± 0.005	3.382 ± 0.053	84.55
60	0.333 ± 0.005	3.520 ± 0.053	88.00

Formula 40			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.075 ± 0.005	0.730 ± 0.049	18.25
10	0.143 ± 0.011	1.463 ± 0.112	36.58
15	0.195 ± 0.013	2.026 ± 0.135	50.65
20	0.240 ± 0.021	2.512 ± 0.220	62.80
25	0.280 ± 0.008	2.944 ± 0.084	73.60
30	0.310 ± 0.010	3.269 ± 0.105	81.72
35	0.320 ± 0.000	3.381 ± 0.000	84.52
40	0.330 ± 0.006	3.488 ± 0.063	87.20
45	0.330 ± 0.008	3.490 ± 0.085	87.25
50	0.335 ± 0.005	3.543 ± 0.053	88.58
60	0.335 ± 0.000	3.544 ± 0.000	88.60

[1] time   : minutes

[2] A   = Absorbance

[3] C   = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Table: 41   Dissolution Rate of Diazepam Capsules.

time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
	Formula 41		
5	0.075 ± 0.010	0.730 ± 0.097	18.25
10	0.250 ± 0.010	2.598 ± 0.104	64.95
15	0.293 ± 0.006	3.084 ± 0.063	77.10
20	0.308 ± 0.011	3.250 ± 0.116	81.25
25	0.313 ± 0.008	3.306 ± 0.084	82.65
30	0.323 ± 0.014	3.413 ± 0.148	85.32
35	0.330 ± 0.006	3.489 ± 0.063	87.22
40	0.335 ± 0.012	3.543 ± 0.127	88.58
45	0.340 ± 0.001	3.597 ± 0.010	89.92
50	0.348 ± 0.003	3.683 ± 0.032	92.08
60	0.350 ± 0.001	3.705 ± 0.010	92.62

time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
	Formula 42		
5	0.030 ± 0.002	0.253 ± 0.017	6.32
10	0.080 ± 0.016	0.787 ± 0.157	19.68
15	0.139 ± 0.021	1.422 ± 0.215	35.55
20	0.175 ± 0.018	1.813 ± 0.186	45.32
25	0.213 ± 0.011	2.223 ± 0.115	55.58
30	0.240 ± 0.006	2.516 ± 0.063	62.90
35	0.258 ± 0.011	2.711 ± 0.116	67.78
40	0.275 ± 0.010	2.894 ± 0.105	72.35
45	0.300 ± 0.006	3.163 ± 0.063	79.08
50	0.310 ± 0.002	3.273 ± 0.021	81.82
60	0.315 ± 0.005	3.328 ± 0.053	83.20

[1]time : minutes

[2]A = Absorbance

[3]C = concentration (ug/ml)

[4]% Diss = percent drug dissolved

Table: 42   Dissolution Rate of Diazepam Capsules.

Formula 43			
time[1]	$A^2 \pm$ S.D.	$C^3 \pm$ S.D.	% Diss[4]
5	0.033 ± 0.010	0.285 ± 0.086	7.12
10	0.075 ± 0.019	0.735 ± 0.186	18.38
15	0.120 ± 0.013	1.219 ± 0.132	30.48
20	0.170 ± 0.018	1.757 ± 0.186	43.92
25	0.238 ± 0.011	2.487 ± 0.115	62.18
30	0.297 ± 0.001	3.124 ± 0.010	78.10
35	0.315 ± 0.004	3.325 ± 0.042	83.12
40	0.325 ± 0.006	3.435 ± 0.063	85.88
45	0.325 ± 0.001	3.436 ± 0.010	85.90
50	0.330 ± 0.002	3.489 ± 0.021	87.22
60	0.335 ± 0.004	3.543 ± 0.042	88.58

Formula 44			
time	$A^2 \pm$ S.D.	$C^3 \pm$ S.D.	% Diss[4]
5	0.142 ± 0.022	1.441 ± 0.223	36.02
10	0.230 ± 0.018	2.397 ± 0.188	59.92
15	0.285 ± 0.004	2.995 ± 0.042	74.88
20	0.310 ± 0.006	3.270 ± 0.063	81.75
25	0.328 ± 0.009	3.465 ± 0.095	86.62
30	0.338 ± 0.011	3.575 ± 0.116	89.38
35	0.345 ± 0.010	3.651 ± 0.106	91.28
40	0.350 ± 0.009	3.705 ± 0.095	92.63
45	0.350 ± 0.002	3.706 ± 0.021	92.65
50	0.355 ± 0.001	3.759 ± 0.010	93.98
60	0.355 ± 0.004	3.760 ± 0.042	94.00

[1] time   : minutes

[2] A   = Absorbance

[3] C   = concentration (ug/ml)

[4] % Diss   = percent drug dissolved

Table: 43   Dissolution Rate of Diazepam Capsules.

Formula 45			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.020 ± 0.003	0.147 ± 0.022	3.68
10	0.051 ± 0.004	0.478 ± 0.037	11.95
15	0.090 ± 0.007	0.897 ± 0.070	22.42
20	0.125 ± 0.004	1.275 ± 0.041	31.88
25	0.170 ± 0.001	1.758 ± 0.010	43.95
30	0.200 ± 0.005	2.083 ± 0.052	52.08
35	0.225 ± 0.005	2.354 ± 0.052	58.85
40	0.240 ± 0.000	2.518 ± 0.000	62.95
45	0.257 ± 0.006	2.700 ± 0.063	67.50
50	0.280 ± 0.005	2.947 ± 0.053	73.68
60	0.292 ± 0.005	3.079 ± 0.053	76.98

Formula 46			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.016 ± 0.000	0.105 ± 0.000	2.625
10	0.044 ± 0.004	0.403 ± 0.037	10.08
15	0.075 ± 0.005	0.737 ± 0.049	18.42
20	0.103 ± 0.006	1.039 ± 0.060	25.98
25	0.140 ± 0.002	1.436 ± 0.020	35.90
30	0.168 ± 0.005	1.739 ± 0.052	43.48
35	0.188 ± 0.011	1.929 ± 0.113	48.22
40	0.207 ± 0.006	2.162 ± 0.062	54.05
45	0.222 ± 0.000	2.324 ± 0.000	58.10
50	0.230 ± 0.010	2.411 ± 0.105	60.28
60	0.250 ± 0.006	2.625 ± 0.063	65.62

[1]time   :   minutes

[2]A   =   Absorbance

[3]C   =   concentration (ug/ml)

[4]% Diss =   percent drug dissolved

Table: 44   Dissolution Rate of Diazepam Capsules.

Formula 47			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.016 ± 0.002	0.105 ± 0.013	2.62
10	0.040 ± 0.003	0.361 ± 0.027	9.02
15	0.080 ± 0.004	0.841 ± 0.042	21.02
20	0.121 ± 0.003	1.232 ± 0.030	30.80
25	0.176 ± 0.000	1.821 ± 0.000	45.52
30	0.233 ± 0.010	2.435 ± 0.104	60.88
35	0.290 ± 0.020	3.049 ± 0.210	76.22
40	0.305 ± 0.010	3.218 ± 0.106	80.45
45	0.310 ± 0.000	3.274 ± 0.000	81.85
50	0.313 ± 0.000	3.306 ± 0.000	82.65
60	0.325 ± 0.000	3.434 ± 0.000	85.85

Formula 48			
time[1]	A[2] ± S.D.	C[3] ± S.D.	% Diss[4]
5	0.031 ± 0.003	0.264 ± 0.026	6.60
10	0.069 ± 0.001	0.671 ± 0.009	16.78
15	0.108 ± 0.006	1.080 ± 0.006	27.00
20	0.142 ± 0.007	1.458 ± 0.072	36.45
25	0.176 ± 0.009	1.825 ± 0.093	45.62
30	0.200 ± 0.010	2.085 ± 0.104	52.12
35	0.230 ± 0.002	2.407 ± 0.021	60.18
40	0.260 ± 0.004	2.731 ± 0.042	68.28
45	0.280 ± 0.000	2.948 ± 0.000	73.70
50	0.286 ± 0.010	3.015 ± 0.105	75.38
60	0.290 ± 0.005	3.058 ± 0.053	76.45

[1] time   : minutes

[2] A   = Absorbance

[3] C   = concentration (ug/ml)

[4] % Diss = percent drug dissolved

Table: 45 Dissolution time at 85 percent of the labeled
amount of Diazepam Capsules (t85%)

Formula No.	t85% (minutes)	Formual No.	t85% (minutes)
0	> 60.0	25	11.0
1	> 60.0	26	39.6
2	> 60.0	27	26.9
3	45.5	28	9.9
4	> 60.0	29	> 60.0
5	28.4	30	> 60.0
6	> 60.0	31	37.6
7	31.5	32	> 60.0
8	19.5	33	> 60.0
9	9.9	34	> 60.0
10	41.5	35	59.9
11	27.5	36	> 60.0
12	9.5	37	> 60.0
13	48.0	38	> 60.0
14	> 60.0	39	50.1
15	36.5	40	35.5
16	52.5	41	29.5
17	> 60.0	42	> 60.0
18	> 60.0	43	39.9
19	47.6	44	23.5
20	> 60.0	45	> 60.0
21	34.5	46	> 60.0
22	> 60.0	47	55.0
23	33.8	48	> 60.0
24	21.5		

Table: 46

Approximately Time Required for Milling

Diazepam - Diluent Mixture Appears to Indicate

The Amorphous Nature of Diazepam

Diazepam - Mannitol	Approximately time required
1:20 Ratio	20
1:10 Ratio	30
1:5 Ratio	60
Diazepam - Sucrose	
1:20 Ratio	20
1:10 Ratio	30
1:5 Ratio	60
Diazepam - Ca HPO$_4$	
1:20 Ratio	15
1:10 Ratio	30
1:5 Ratio	60
Diazepam - Avicel pH101	
1:20 Ratio	20
1:10 Ratio	30
1:5 Ratio	60

VITA

Mr. Nophadon Luangpirom was born on March 14, 1960. He got his degree in Bachelor of Pharmacy in 1983 from Faculty of Pharmacy, Chiengmai University.