

## Metin Çelik, Ph.D.

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### CURRICULUM VITAE

#### Current/Recent Position(s) and Affiliation(s):

9/97 - present: President, Pharmaceutical Technologies International, Inc. (PTI), Skillman, NJ.  
08/08 - present Part-time faculty member, Department of Pharmaceutical Technology, Faculty of Pharmacy, Near East University, Nicosia, Turkish Republic of Northern Cyprus

#### Fields and Areas of Specialization:

Dr. Çelik's recent areas of interests include:

- QbD and PAT;
- Development of solid dosage formulation and processing (including milling, mixing, granulation, tableting, and film coating) using SUPAC guidelines, QbD and PAT approach
- Process assessment of pharmaceutical manufacturing process for solid dosage forms
- Evaluation of novel drug delivery technologies;
- Development of artificial intelligence based pharmaceutical expert systems, excipient databases (for tableting, spray drying, film coating, and novel dosage forms), and management tools for FDA inspection preparations (PAI, API, Validation, Technology Transfer, etc)
- Utilization of compaction simulators in the product development; pharmaceutical compaction; excipient functionality;

#### Education:

B.S. (Hons.): Faculty of Pharmacy, Hacettepe University, Ankara, Turkey (1979).  
Ph.D.: Department of Pharmaceutical Technology, School of Pharmacy, De Montfort University (formerly known as Leicester Polytechnic), UK (1984).

#### Previous Positions Held:

1/04 – 08/08 Faculty, Department of Industrial & Systems Engineering, Rutgers University, Piscataway, NJ  
1/04 – 9/04 Part-time Faculty  
9/05 – 5/08 (Visiting) Research Professor of Pharmaceutical Processing  
9/1988 - 7/1997: Assistant Professor of Pharmaceutics, and Director of Pharmaceutical Compaction Research Laboratory & Information Center, College of Pharmacy, Rutgers University, Piscataway, NJ.  
6/1986 - 9/1988: Post Doctoral Scientist, Pharmaceutical Research & Technologies, SK & F Labs, Swedeland, PA.  
11/1985 - 3/1986: Military Service.  
5/1985 - 10/1985: Development Coordinator, Galenical R & D, Sandoz, Istanbul, Turkey.  
7/1984 - 5/1985: Special Trainee, Galenical R & D, Sandoz Ltd., Basel, Switzerland.

#### Professional Licensure:

Pharmacy License (Turkey)

**Honors, Awards, Promotions, and Recognitions:**

Faculty Academic Service Increment Program Award (1991, 1993, 1994)  
Who is who in science and engineering (1995)  
Commission of Science & Technology of New Jersey Award (1996).

**THE PORTFOLIO OF ACCOMPLISHMENTS****1. Publications:****Book:**

M. Çelik "Pharmaceutical Powder Compaction Technology", 2<sup>nd</sup> Edition, Informa Healthcare (2011).

**Book Chapters:**

M. Çelik\*, M. Mollan and N. Chang, "The reworkability of microcrystalline cellulose formulations" in "Tableting technology Volume 2 (Compression), Edited by J.I. Wells and M.H. Rubinstein, Ellis Horwood, Chapter 5, 44-61 (1993).

M. Çelik, "Compaction of multiparticulate oral dosage forms", in "Multiparticulate oral drug delivery" (Edited by I. Ghebre-Sellassie), Marcel Dekker, Inc., Chapter 9, 181-216 (1994).

M. Çelik\* and L. Maganti, "An overview of the compaction of microspheres" in "Minutes: 9th Int. Symposium on Microencapsulation", 157-168, Edited by S. Kañ and A.A. Hincal, Editions de Santé, Paris (1994).

M.J. Mollan, Jr. and M. Çelik\*, "Maltodextrin", in "Analytical profiles of drug substances and excipients", Edited by H.G. Brittain, Vol. 24, Chapter 8, 307-350, Academic Press (1996).

M. Çelik and S.C. Wendel "Spray drying", in "Handbook of Granulation Technology", Edited by Dilip Parikh, 2<sup>nd</sup> Edition, Taylor & Francis, Chapter 5, 129-157 (2005).

M. Çelik and S.C. Wendel "Spray drying and pharmaceutical applications", in "Handbook of Granulation Technology", Edited by Dilip Parikh, 3<sup>rd</sup> Edition, Informa Healthcare, Chapter 5, 98-126 (2009).

M. Çelik and S.C. Wendel "Expert systems and their pharmaceutical applications", in "Handbook of Granulation Technology", Edited by Dilip Parikh, 3<sup>rd</sup> Edition, Informa Healthcare, Chapter 5, 579-597 (2009).

C. Ruegger and M. Çelik, "Advanced compaction research equipment, Compaction simulators", in Pharmaceutical Powder Technology, Edited by M. Çelik, 2<sup>nd</sup> Edition, Informa Healthcare, Chapter 6, (2011).

M. Çelik, "Expert systems and their use in pharmaceutical applications", in Pharmaceutical Powder Technology, Edited by M. Çelik, 2<sup>nd</sup> Edition, Informa Healthcare, Chapter 13, (2011).

**Refereed Journal Articles:**

D.N. Travers\*, M. Çelik and T.C. Buttery, "A computer aided investigation on strain movements in compacts under constant stress within the die", Drug Dev. & Ind. Pharm., 9, 139 - 157 (1983).

- M. Çelik, D.N. Travers\* and T.C. Buttery, "Computer logged changes of strain movements in compacts of direct compression bases and granules produced by wet massing techniques", *Labo-Pharma*, 32, 22 - 27 (1984).
- M. Çelik and D.N. Travers\*, "The use of an elastic recovery index as a criterion of compactional behavior of some direct compression bases", *Drug Dev. & Ind. Pharm.*, 11, 299 - 314 (1985).
- M. Çelik and K. Marshall, "Use of a compaction simulator system in tableting research, I. Introduction to and initial experiments with the system", *Drug Dev. & Ind. Pharm.*, 15(5), 759 - 800 (1989).
- M. Çelik\* and N. G. Lordi, "The Pharmaceutical Compaction Research Laboratory & Information Center", *Pharm. Technol.*, 15(3), 112 - 116 (1991).
- M. Çelik, "Overview of compaction data analysis techniques", *Drug Dev. & Ind. Pharm.*, 18(6&7) 767 - 810 (1992).
- L. Maganti and M. Çelik\* "Compaction studies on pellets Part I: Uncoated pellets", *Int. J. Pharmaceutics*, 95, 29 - 42 (1993).
- M. Çelik\* and C.E. Driscoll, "An overview of the effects of some physico-chemical and mechanical characteristics of particulates on the compaction and post-compaction properties of compacts", *Drug Dev. & Ind. Pharm.*, 19(17-18), 2119 - 2141 (1993).
- M. Çelik\* and E. Okutgen, "A feasibility study for the development of a perspective compaction functionality testing and the establishment of a compaction data bank", *Drug Dev. & Ind. Pharm.*, 19(17-18), 2309 - 2334 (1993).
- M.J. Mollan, Jr. and M. Çelik\*, "Characterization of directly compressible maltodextrins manufactured by three different processes", *Drug Dev. & Ind. Pharm.*, 19(17-18), 2335 - 2358 (1993).
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- M.J. Mollan, Jr., and M. Çelik\*, "Tabletability of maltodextrins and acetaminophen mixtures", *Drug Dev. & Ind. Pharm.* 20(20), 3139 - 3149 (1994).
- M. Çelik\* and L. Maganti, "Formulation and compaction of microspheres", *Drug Dev. & Ind. Pharm.*, 20(20), 3151 - 3173 (1994).
- M.J. Mollan, Jr., and M. Çelik\*, "The effects of humidity and storage time on the behavior of maltodextrins for direct compression", *Int. J. Pharmaceutics*, 114(1), 23-32 (1995).
- M.J. Mollan, Jr., N. Chang and M. Çelik\*, "The effect of reworking on post-compaction properties of microcrystalline cellulose formulations", *Pharm. Technol.* 19(10), 2-14 (1995).
- M. Çelik, "The past, present and future of tableting technology", *Drug Dev. & Ind. Pharm.*, 22(1), 1-10 (1996).
- M. Çelik\* and M.E. Aulton, "The viscoelastic deformation of some tableting materials as assessed by indentation rheology", *Drug Dev. & Ind. Pharm.*, 22(1), 67-75, (1996).
- M. Çelik\*, J.T.H. Ong, Z.T. Chowhan and G.J. Samuels, "Compaction simulator studies of a new drug substance: Effect of particle size and shape, and its binary mixtures with microcrystalline cellulose", *Pharmaceutical Development & Technology*, 1(2), 119-126 (1996).

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S. A. Sharpe, H. G. Brittain\*, A. W. Newman, and M. Çelik, "Physical characterization of the polymorphic variations of magnesium stearate and magnesium palmitate species". Structural Chemistry, 8, 73-84 (1997).

S.C. Wendel & M. Çelik\*, "An overview of spray drying applications", Pharm. Technol., 21(10), 124-156 (1997).

C. E. Ruegger & M. Çelik\*, "The effect of compression and decompression speed on the mechanical strength of the compacts", Pharmaceutical Development & Technology, 5(4), 485-494 (2000).

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R. Sirihorachai, S.C. Wendel & M. Çelik\*, "Evaluation of a novel portable instrumented punch system", stp Pharma Pratiques, (10) 27-31, 2000

M. Çelik, "Catching up with Expert Systems", Pharm. Technol., 25(7), 122-124 (2001)

M. Çelik, "Excipient selection: Practical advice on using SUPAC", Tablets & Capsules, 6(6), PP. , 2008

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#### **Non-Refereed Journal Articles:**

M. Çelik, "A new method for characterizing the compression process", IPP (Information for Pharmaceutical Production), 2(March), 23 - 29 (1985).

#### **Book Reviews:**

M. Çelik, "Excipient and delivery systems for pharmaceutical formulations", Journal of American Chemical Society, 118(21), 5160 (1996).

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M. Çelik, A.W. Newman, R. Mueller, C. Kiesnowski, I. Vitez, S.A. Sharpe, R.C. Moreton, "Pre-compaction and lubrication properties of Pruv", Pharm. Research, 13(9), S200 (1996).

M. Çelik, R.C. Moreton, B.E. Sherwood, J.D. Cobb, D.J. Schaible, and J.A. Zeleznik, "The effects of moisture content and particle size on the functional properties of microcrystalline cellulose for use in direct compression", Pharm. Research, 13(9), S209 (1996).

C. Driscoll-Ruegger, M. Çelik and S.D. Bateman, "Simulation of an instrumented manesty betapress using an integrated compaction research system", Pharm. Research, 13(9), S209 (1996).

M. Çelik and R.L. Schmitt, "A Study on the compaction properties of three water soluble polymers", Pharm. Research, 14(11), 1 (1997).

S. Wendel and M. Çelik, "Limitations of applying artificial neural networks to a small spray drying data set and methods for overcoming limitations", Pharm. Research, 14(11), 88 (1997).

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