

European Continuing Education College

Principles of Tablet and Capsule Formulation

Three Day Intensive Course for Scientists, Managers and Technicians

Holiday Inn Hotel, Oxford Circus, London, UK

19th, 20th and 21st September 2011

Course Background

Tablets and capsules are the major dosage forms produced by the pharmaceutical industry. The formulation and evaluation of tablets and capsules is therefore an important area for many scientists and technicians working in the industry. The preparation of these solid dosage forms involves both a knowledge of the machinery on which they are made and an awareness of the physico-chemical and mechanical properties of the excipients which are available to formulators. In recent years, research into tableting and capsule filling has led to a much greater understanding of the behaviour of materials during processing. Empirical formulation techniques can thus be supplemented with a more rational approach based on documented scientific evidence.

Course Objectives

The purpose of the Course is to provide a sound background to understanding the choices open to the formulator in designing tablet and capsule formulations. To achieve this, the course is taught by experienced practitioners to provide a blend of theory and practice.

Who Should Attend

The Course is designed as an introduction to the formulation of solid dosage forms. It is therefore intended for those who are new to the industry, whether in research, development, production or registration or those who have not previously been involved with solid dosage forms. The Course will also act as a useful 'refresher' for those returning to the subject.

Course Outline

Basic Powder Technology

An introduction to powder technology relevant to solid dosage forms. Particle size, flow, forces between particles.

Preformulation Studies

Preformulation studies (physico-mechanical, physico-chemical, biopharmaceutical) of solid dosage forms and application of such data in formulation development.

Granulation and Drying

Theory of granulation, fluid-bed granulators, high speed mixer granulators, comparison of methods, control of the process, granule properties. Drying theory, drying equipment, factors affecting drying.

Compaction of Powders

Theoretical and practical background to tablet production. The physics of tablet compression. Capping, lubrication and methods of assessing tableting parameters.

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Course Outline

Mixing

Theory and practice of mixing as an essential step in the production of tablets and capsules.

Excipients

Review of the excipients available, their properties and the rationale for selection. Current trends in excipients and formulation. Acceptability and registration problems, international harmonisation.

Coating

Coating processes, equipment, materials, solvents.

Evaluation of Solid Dosage Forms

Weight variation, content uniformity, disintegration, mechanical strength. Dissolution testing and its relevance in quality assurance and bioavailability.

Quality by Design

Current approaches to formulation strategy.

Hard Gelatin Capsules

Manufacture of capsule shells, filling machines, excipients, formulation. "Liquid" filled capsules. Drug release.

Soft Gelatin Capsules

Production, materials for filling, formulation, stability, bioavailability.

Scale Up and Post Approval Changes (SUPAC)

Sources of Information

Case Studies

Group discussions on specific problem cases arising in tablet and capsule formulations.

Lecturers

CHRIS MORETON B.Pharm., M.Sc., M.R.Pharm.S., Inst. Pkg (Dip)., Ph.D.
(Course Director)

Dr Moreton is an independent consultant and until recently was Vice President, Pharmaceutical Sciences at Idenix Pharmaceuticals, Cambridge, U.S.A. and was responsible for all formulation activities from preclinical safety studies through preformulation, formulation design and development, scale-up, clinical supply manufacture and technology transfer to the commercial manufacturing sites. Dr Moreton has over 25 years industrial experience at Pfizer Central Research, Sterling Winthrop R & D, ACO in Sweden and Genpharm in Canada. He also worked at Penwest (now JRS Pharma) both in the U.K. and the U.S.A. At Penwest Pharmaceuticals he worked with excipients covering technical service and support, R & D and QA/QC for the drug delivery business. Dr Moreton is a member of the USP Excipient Monograph Content 2 Expert Working Group. He is a past Chairman of the IPEC-Americas (International Pharmaceutical Excipients Council of the Americas) and a member of the Drug Product Technical Committee (DPTC) of the Product Quality Research Institute (PQRI). Dr Moreton has special expertise in the formulation of solid dosage forms.

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Lecturers

BRIAN E. JONES M.Pharm., F.R.Pharm.S.

Mr Jones has had over 35 years experience in all aspects of hard capsule production and encapsulation. He has developed an intimate knowledge of capsule formulation technology and has both technical and research interests in all aspects of the subject. He worked for Eli Lilly & Co. Ltd. for 29 years and assisted in the transfer of their capsule business to Shinogi Qualicaps. He is currently scientific advisor for Shinogi Qualicaps, S.A. in Alcobendas, Spain and amongst his other activities, he is honorary lecturer at the Welsh School of Pharmacy, Cardiff University.

GEORGE SMITH MSc., BSc., M.R.Pharm.S

Mr Smith is Technical Sales Manager at Evonik Degussa and was previously Head of Process and Validation at Manesty. Prior to that he worked for R.P. Scherer and GlaxoSmithKline in solid dosage manufacture and development. He also worked for Colorcon in the design of film coating materials and equipment. In his position at Manesty he lead a team involved in equipment development, running customer trials, customer training, process research troubleshooting and optimization of the coating and compression processes on customer equipment. He has recently been awarded a master's degree at Manchester University investigating some of the factors involved in tablet film coating.

PAUL BURTON C.Chem, M.R.S.C.

Mr Burton has had extensive experience as a Formulation and Process Development Scientist with Beecham Products, Cyanamid UK and SmithKline Beecham Pharmaceuticals. He has been involved in new product introduction, scale-up of solid dosage forms and process validation. Currently he is Process Technology Manager for Glatt Protech where he has responsibility for applications of fluidised bed technology, high shear granulation and tablet coating technologies.

ROYA PARKER Ph.D., B.Pharm., MRPharmS

Dr Parker is currently working as a pharmaceutical development consultant. She was recently a Formulation Manager at Cardinal Health and has over 15 years experience of development and manufacture of novel NCE, RX and OTC softgelatin capsule products. She is the British Pharmacopoeia nominated UK member of the gelatin working party at the European Pharmacopoeia Commission.

FRIDRUM PODCZECK PhD, Dr Sc. Nat.Habil

Professor Podczek's research interests are in pharmaceutical engineering, particularly powder technology, oral solid dosage forms, fracture mechanics and the measurement and assessment of the role of inter-particulate forces of adhesion and friction in the performance of dosage forms such as dry powder inhalations, capsules, pellets and tablets. Professor Podczek published her research in more than 150 peer-reviewed journal articles and she is the author of a book (Particle-particle Adhesion in Pharmaceutical Powder Handling, Imperial College Press, London, 1998), editor of a book (Pharmaceutical Capsules, Pharmaceutical Press, London, 2004 and several book chapters. Professor Podczek is a member of the Editorial Board of the "European Journal of Pharmaceutical Sciences", the "International Journal of Pharmaceutics", the "Journal of Pharmacy and Pharmacology", "Pharmaceutical Technology Europe" and "Open Drug Delivery Journals (TODDJ, ODDR & ODDL)." Her work in the area of Powder Technology won several prizes over the years, and in November 2004 she was awarded a Fellowship of the American Association of Pharmaceutical Scientists as a "distinguished contributor and acknowledged leader in the advancement of the pharmaceutical sciences." In June 2006 Prof Podczek was made an honorary member of the Royal Pharmaceutical Society of Great Britain in recognition of her work.

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Fees and Registration

The participation fee is £1495.00 (exclusive of VAT). Places are strictly limited and therefore applications will be accepted on a first come basis. Under UK law all applications are subject to Value Added Tax (VAT) irrespective of the country of origin of participants. Most VAT registered companies/organisations can reclaim this tax. The fee includes full personal participation, extensive bound course notes, luncheons and light refreshments, on all days of the Course. Dinner at night is not included. Cancellations cannot be accepted less than 14 days prior to the start of the Course, but substitutions may be made at any time. The Course language will be English. An approved Certificate of Attendance will be given to each participant at the end of the Course.

Timing of The Course

Registration will be at 8.45am on Monday 19th September and the Course will commence promptly at 9.00am. The Course will finish at about 17.00 on Wednesday 21st September. The Course will end at about 18.00 on each of the first two days.

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ECEC - Registration Form

Course - Principles of Tablet and Capsule Formulation

Please fill in the following details to apply for a place. No payment is necessary now. When filling in the form, fields marked with an asterisk (*) are compulsory. Your form will not be submitted if they are left blank.

Personal Details

First name: *	<input type="text"/>
Surname: *	<input type="text"/>
Organisation:	<input type="text"/>
Job title:	<input type="text"/>
Address: *	<input type="text"/>
Post/zip code: *	<input type="text"/>
Telephone no:	<input type="text"/>
Extension:	<input type="text"/>
Fax no:	<input type="text"/>
Email address: *	<input type="text"/>

I wish/do not wish to receive future mailings from ECEC about forthcoming courses. (Please note, we do not disclose your email address to any third party)

Accommodation

Accommodation will be at the: Holiday Inn Hotel, Oxford Circus, London, UK
Room Rates: Single Room - Bed & Breakfast per person, per night £159.00
Twin Room - Bed & Breakfast per person, per night £189.00
Double Room - Bed & Breakfast per person, per night £189.00

Choose accommodation Type:

- I don't want accommodation
- I would like a Single Room - Bed & Breakfast
- I would like a Twin Room - Bed & Breakfast
- I would like a Double Room - Bed & Breakfast

Choose which days:

- Sunday 18th September 2011
- Monday 19th September 2011
- Tuesday 20th September 2011
- Wednesday 21st September 2011

Other nights (please specify): _____

* Please note: Under UK law all applications are subject to Value Added Tax (VAT), irrespective of the country of origin of the Participant

PLEASE FAX THIS COMPLETED FORM TO +44 (0)151 724 6343