

Understanding Polymorphism & Crystallisation Issues in the Pharmaceutical Industry

3-5 OCTOBER 2017



Edinburgh, UK
The Principal
Edinburgh

A 2½ day course given by
Dr Terry Threlfall and Dr John Knight

Professional Development Training

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3 - 5 October 2017 The Principal Edinburgh, Edinburgh, UK

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INTRODUCTION

Crystallisation has been described as one of the most difficult unit operations to control. This is partly because the primary nucleation event, particularly in batch crystallisers, is difficult to control reproducibility without seeding, partly because secondary nucleation processes which result are highly scale and process dependent and partly because of the delicate balance between thermodynamic and kinetic factors in crystallisation processes which operate far from equilibrium.

The consequence of these features can be poor reproducibility of purity, particle size distribution, morphology and crystal structure. The latter phenomenon, known as polymorphism, is a subject which has been and remains an important issue across the pharmaceutical, pigment, agrochemical, explosive and fine chemical industries, where the physical form of the product affects the properties (stability, colour, dissolution rate etc) of the finished product.

It is important, therefore, for chemists who are developing crystallisation operations to understand in detail the key physical processes which occur and which need to be under control – irrespective of whether the process utilises cooling, evaporative, or down-out crystallisation. This course will teach chemists and engineers some fundamental aspects of crystal chemistry, nucleation and crystal growth, the operation of batch crystallisers and methodologies of characterisations. Because polymorphism is such an important issue the course will cover this in some detail, particularly addressing the case of disappearing (or appearing) polymorphs, when a new form of a product in development (or even worse, in manufacture) suddenly appears. Case studies will be used to illustrate important issues.

COURSE OUTLINE

Day One

- > Registration
- > Introduction to Crystallisation and Polymorphism
- > What is Polymorphism?
- > Solvates and Hydrates
- > Principles of Crystallisation
- > Analytical Principles
- > Industrial Case Studies
- > Identifying Polymorphs – Spectroscopic methods
- > Identifying Polymorphs – Thermal and Thermodynamic Methods
- > Screening for Polymorphs

Day Two

- > Directing Polymorphic Form
- > Crystallisation Methods
- > Monitoring Crystallisation Processes
- > Scale Up of Crystallisation Processes
- > Identifying Polymorphs – Crystallographic Methods
- > Industrial Case Studies
- > Disappearing Polymorphs
- > Polymorphs and Patents

Day Three

- > Amorphous Forms
- > Crystallisation of Chiral Compounds
- > Determining Stability/ Construction of Phase Diagrams
- > Industrial Case Studies
- > Salts and Cocrystals
- > Case Studies

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Medichem Manufacturing Ltd

WHO SHOULD ATTEND?

- Organic Chemists – working in the pharmaceutical, pigment, agrochemical, explosives or fine chemicals industries
- Development and Production Chemists
- Chemical Engineers and Analysts

Start 8.45am - Tuesday 3 October
Finish 2.00pm - Thursday 5 October
Course dinner 7.30pm - Tuesday 3 October

Course Fee: £1,395 + VAT
Which includes comprehensive course manual,
refreshments throughout the day, lunch and one
course dinner.

Course Fee: £1,395 + VAT

COURSE TUTORS

Dr Terry Threlfall

University of Southampton

Terry Threlfall obtained his Chemistry Degrees and Law degree at London University. He has a synthetic organic chemistry background (post doctoral studies with Professor Eschenmoser in Zurich) and 30 years in the pharmaceutical industry (May & Baker Ltd.) successively as Section Head Spectroscopy, then Pigment Research, Head of Department Physical Chemistry, Process Research Manager, Principal Scientist with responsibility for patent maintenance world-wide against infringement. He became Industrial Liaison Executive in the Chemistry Department at the University of York in 1991 where he subsequently was a Research Fellow. He is currently at the University of Southampton. His current research interests include relating molecular structure to crystal structure, exploring the mechanism of seeding and crystallisation processes and application of spectroscopic and thermal methods to polymorph crystallisation and solid-state transitions.



Dr John Knight

Consultant,
JKonsult Ltd

John first started his industrial career at the age of 16 as a technician with ICI. Following several years' laboratory experience he went on to study at the University of Southampton for a degree in chemistry, staying on to complete his PhD with Phil Parsons. John then took up a NATO-funded post-doctoral position with Gilbert Stork before returning to the UK to work for Glaxo, initially in medicinal chemistry before transferring to chemical development. John then moved to work for a small contract research organisation which, after significant growth, is now part of Aptuit. John left Aptuit at the end of 2007, following 14 years in the CRO arena, to join Scientific Update LLP where he provided training and consultancy services. In January 2015 John established his own consultancy business while continuing to work very closely with Scientific Update.

John's main professional focus is in working with early stage chemical development projects and transfer to plant, often working with small pharma companies where he helps with CMC issues and securing material supplies to toxicological studies and Phase I and II clinical trials.



The tutors have **OVER 70 YEARS'** combined experience of industrial chemistry!

VENUE

The Principal Edinburgh, 19-21 George St, Edinburgh, EH2 2PB UK



Housed in a 1780s building, this upscale hotel is set among the shops of George Street and is an 8-minute walk from both Edinburgh Waverley train station and Edinburgh Castle.

A limited number of rooms have been reserved at the special rate of £189 including VAT per room per night, bed and breakfast. Please use the hotel booking form, which will be sent when you register.

REGISTRATION

You can either use our fast online booking system or mail or fax the attached registration form to:

Scientific Update
Maycroft Place, Stone Cross, Mayfield,
East Sussex, TN20 6EW, UK
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How to Pay

When you register online, you can have the option to pay via credit card (Amex, Mastercard or Visa) For email payments please include course title, card number, expiry date and security code. A receipted invoice will be automatically generated once paid and sent via email. Should your company wish to pay by cheque or bank transfer bank details will be supplied with an invoice.

Bank Transfer or Cheque

Should your company wish to pay by cheque or bank transfer, on booking you can choose between paying in either £ or €. All bank details will be supplied with an invoice.

Group Discounts

Group discounts are available on multiples of 2 or more attendees – see registration form. This offer only applies if bookings are made simultaneously and from the same billing address.

Confirmation of your registration

Confirmation and your invoice will be sent via email.

Late Applications

For late applications, please register on-line or fax the completed registration form, including credit card payment information.

Cancellations/Refunds

Should you be unable to attend and cancel in writing no later than 1 month before the start of the course, Scientific Update will refund your registration less £300 processing fee. Unfortunately refunds are not possible after that date. Substitutions can be made at any time.

Course:

Dates:

Location:

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No. of attendees

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