

Safety and Selectivity in the Scale-Up of Chemical Reactions

7 - 8 November 2012
The Buxted Park Hotel, Buxted, UK



PROFESSIONAL DEVELOPMENT TRAINING

Scientific Update provides training courses for industrial chemists and chemical engineers in chemical development and scale-up and many other specialist topics in organic and process chemistry.

Our short intensive training courses enable scientists to learn about highly relevant topics, to broaden their knowledge and to keep abreast of new science, new technology and new techniques.

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We've Got Chemistry

Safety and Selectivity in the Scale-Up of Chemical Reactions

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Introduction

The aim of the course is to give lab chemists an understanding of the issues that need to be considered during the early stages of scale up to large laboratory scale equipment (10–20 litre vessels) / kilo lab.

The course will concentrate on chemical safety and selectivity issues and include information on what safety testing equipment is available and the uses and limitations of this equipment.

Attendees will learn how to identify potential problems whether they be thermal hazards or selectivity issues.

Methods used by other companies for handling hazardous reagents and reactions will be described as well as alternative chemistry to circumvent these reactions and/or reagents.

Fee & General Information

£1075.00 +VAT

The course begins with registration at 8.45 am on Wednesday 7 November and finishes at approximately 4.30pm on Thursday 8 November.

The course fee includes lunch, teas, coffees on each day and dinner on Wednesday 7 November, plus the comprehensive course manual.

Course Outline

Introduction

The safety literature
Functional groups which can cause problems on scale up

Improving safety and selectivity in chemical reactions

Inherent safety, choosing the right synthetic route
Reaction criticality classes (Stoessel diagrams)
Solvent selection
Choosing the right reagent
Catalysis – the plusses and minuses
Choosing the right reaction conditions, the effect of concentration

Thermal Hazard Testing and Runaway Reactions

Introduction and overview of safety issues in the chemical industry
Heat loss considerations
Desk screening – unstable groups, Oxygen balance equation etc
Principles of hazard testing – equipment and uses
Effect of changes to reaction variables

Solvent Selection and Solvent Effects

Reasons for choosing a solvent
The effect of solvents on chemical reactions
Useful solvent parameters
Phase transfer catalysis
Water as a solvent
Solvent free reactions
Alternative solvents – supercritical fluids, ionic liquids, fluorinated solvents

Oxidation and reduction

Choice of reagent(s)
Stoichiometric versus catalytic
Reagent stability
Safety issues

Hazardous Reactions and Reagents

Azides
Making triazoles and tetrazoles
Diazo compounds, including diazomethane
Petasis methylation
Grignard Reagents and Organolithiums
Use of cyanide

Work Up

Quenching reactions / reagents
Minimising work up – Telescoping
Catalyst removal
Product isolation

Scaling up chemical reactions

What can go wrong – it's not what you do but the way that you do it
Heat transfer areas
Importance of dose control and in process analysis
Reactions with initiation periods
Simple do's and don't's
Flammability issues

Case studies

Grignard reaction
Azide chemistry
Oxidation and reduction

Register for this course by using the form overleaf or call:

Course Tutors



Dr. Will Watson gained his PhD in Organic Chemistry from the University of Leeds in 1980. He joined the BP Research Centre at Sunbury-on-Thames and spent five and a half years working as a research chemist on a variety of topics including catalytic dewaxing, residue upgrading, synthesis of novel oxygenates for use as gasoline supplements, surfactants for use as gasoline detergent additives and non-linear optical compounds. In 1986 he joined Lancaster Synthesis and during the next 7 years he was responsible for laboratory scale production and process research and development to support Lancaster's catalogue, semi-bulk and custom synthesis businesses. In 1993 he was appointed to the position of Technical Director, responsible for all Production (Laboratory and Pilot Plant scale), Process Research and Development, Engineering and Quality Control. He helped set up and run the Lancaster Laboratories near Chennai, India and had technical responsibility for the former PCR laboratories at Gainesville, Florida. He joined Scientific Update as Technical Director in May 2000. He has revised and rewritten the "Chemical Development and Scale Up in the Fine Chemical Industry" course and gives this course regularly around the world. He has been instrumental in setting up and developing new courses such as "Interfacing Chemistry with Patents" and "Making and Using Fluoroorganic Molecules". He is also involved in an advisory capacity in setting up conferences and in the running of the events. He is active in the consultancy side of the business and sits on the Scientific Advisory Boards of various companies. Will Watson can be contacted by email at: will@scientificupdate.co.uk

About the Organisers

Scientific Update, established in 1989 by Dr. Trevor Laird, organises conferences and training courses for industrial chemists and chemical engineers in chemical development and scale-up and many other specialist topics in organic chemistry. We also provide extensive consultancy services in these fields and edit the international scientific journal entitled Organic Process Research and Development (OPRD).

Our short intensive training courses enable scientists to learn about highly relevant topics, to broaden their knowledge and to keep abreast of new science, new technology and new techniques. A complete list of the scheduled training courses currently available can be viewed in the training section. Many of these are also available for in-house training.

Our aim is to provide you with the very best, up-to-date chemistry and superb locations. At every event, Scientific Update provide the highest quality organisation and friendly support from all our team. We look forward to welcoming you to one of our events soon.

Who Should Attend?

- **Any laboratory chemist** involved in the scale-up to large scale equipment/kilo lab

Venue

Buxted Park Hotel

Buxted, Uckfield
East Sussex
TN22 4AY

Tel: +44 (0)845 072 7412 or
+44 (0)1825 733333
Fax: +44 (0)845 072 7413

Buxted Park estate dates back to 1199, and the present Georgian mansion house was built in 1725. Set in over 300 acres of fine Sussex parkland, all the rooms overlook the extensive gardens, in which guests can walk and relax.

All the meeting rooms are naturally light, airy and spacious and have wonderful views over the estate and garden.

Free wireless internet access is available in meeting rooms and public areas, and wired high speed broadband access in all bedrooms. A gym is available for guests, as well as games such as billiards or croquet. In addition, mountain bikes or equipment for fishing on the hotel's lakes may be hired.

Accommodation has been reserved at the special Bed & Breakfast rate of £100 inc VAT for single occupancy. Please use the hotel booking form, which will be sent when you register.



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Please register attendee(s) @ £1290.00

First Attendee Name

Company	
Title (Dr/Prof/Mr/Mrs/Ms)	
Job Title	
Name	
Surname	
Address	
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Postcode/ZIP	
Country	
Telephone	
Fax	Mobile
Email	
Special Diet	

Second Attendee Name **SAVE 5%**

Title (Dr/Prof/Mr/Mrs/Ms)	
Job Title	
Name	
Surname	
Address	
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Postcode/ZIP	
Country	
Telephone	
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Special Diet	

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Promotional Code

Terms and Conditions of Business

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Discounts* Complete the details for either two or three delegates and your discount will automatically be applied. This offer only applies where all delegates are booked simultaneously and at the same billing address. Attendee names can be substituted at any time prior to the event date, but please notify us as soon as possible.

Promotional Code (from an advertisement or email) please enter the reference in Promotional Code box above.

Security Number*** This is the last three digits of the number on the signature strip on the BACK of the credit card. For American Express customers, this is the four digit number printed to the right of the main card number on the FRONT of the card.

Substitutions/Cancellations Should you be unable to attend and cancel in writing no later than 28 days prior to each event date, Scientific Update will refund your registration less £300 processing fee. It is regretted that after this date refunds are not possible. Substitutions can be made at any time.

For late applications please register on line at www.scientificupdate.co.uk or fax the completed registration form, including credit card payment information.

Venue/Accommodation You will be sent details of how to reserve your accommodation with your event confirmation details.

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