

Scientific Update | Training Courses 2010



Safety and Selectivity in the Scale-Up of Chemical Reactions

A Two Day Course



16 & 17 November 2010
The Grand Hotel Baglioni
Florence, Italy

SCIENTIFIC

UPDATE
We've Got Chemistry

www.scientificupdate.co.uk | info@scientificupdate.co.uk

Safety and Selectivity in the Scale-Up of Chemical Reactions

A Two Day Course

16 & 17 November 2010 | The Grand Hotel Baglioni, Florence, Italy

Fee

£1050.00, which includes lunches, refreshments and course dinner on Tuesday 16 November, plus the comprehensive course manual.

Course 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.

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 methylenation
- 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

“I very much enjoyed the course. Thanks!”
AstraZeneca

Tutor



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 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. He can be contacted by email at: will@scientificupdate.co.uk

Who Should Attend?

Any Laboratory Chemist involved in the scale-up to large scale equipment/kilo lab.

Venue



The Grand Hotel Baglioni
Piazza Unità Italiana
50123 Firenze
Italy

Tel: +39 055 23580 Fax: +39 055 2358 8895

The Grand Hotel Baglioni is situated in the heart of Florence, 300 metres from the Santa Maria Novella Station, just a few minutes' walk away from Centro Espositivo (Exhibition Hall). From the Palazzo dei Congressi (Congress Centre) and from the most important museums. The 19th century building, once the residence of Carrega Bertolini princes, is typical of Tuscan architecture.

Whilst still retaining Florentine charm and good taste, the hotel offers all modern comforts and facilities, including air conditioning.

Florence Airport is approximately 15 minutes by taxi to the hotel . Pisa Airport is approximately 55 minutes away by Airport train.

Accommodation has been reserved at the hotel for the special rate of €143 per night for single occupancy. This price includes breakfast and taxes. You will need to make your own arrangements and a hotel booking form will be sent when you register.

General Information

The course begins with registration at 8.45am on Tuesday 16 November and finishes at approximately 4.30pm on Wednesday 17 November.

The organisers reserve the right to change the published programme of events and course content as circumstances dictate.

Safety and Selectivity in the Scale-Up of Chemical Reactions

16 & 17 November 2010 | The Grand Hotel Baglioni, Florence, Italy

Register 2 attendees and **SAVE 5%**
Register 3 or more attendees and **SAVE 15%**

First Delegate Name

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

I would like to receive your FREE bimonthly e-Newsletter

Second Delegate Name **SAVE 5%**

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

I would like to receive your FREE bimonthly e-Newsletter

Third Delegate Name **SAVE 15%**

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

I would like to receive your FREE bimonthly e-Newsletter



Scientific Update LLP
Maycroft Place,
Stone Cross, Mayfield,
E. Sussex TN20 6EW, UK
Tel: +44 (0) 1435 873062
Fax: +44 (0) 1435 872734
sciup@scientificupdate.co.uk

Attendees

@ £1050.00 (Please copy this form for additional delegates)

Purchase Order Number

Payment Method

I would like to charge the fee(s) to my credit card.



Cardholder
Card No
Expiry Date
Security No****
Address (if different from first delegate name)

Signature
Date

Please invoice my company

Invoice Address

Name
Company
Address
Postcode/ZIP
Country
Telephone
Fax
Mobile
Email

Payment will be made by: cheque bank transfer

Promotional Code

Terms and Conditions of Business

Payments ALL PAYMENTS MUST BE RECEIVED BEFORE THE EVENT DATE. Confirmation of your registration will be supplied by fax or e-mail and your invoice will be sent to you by post.

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. If you have a Promotional Code (from an advertisement or email) please enter it here.

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.

Change of Details If the details on the envelope are incorrect or if you do not wish to receive any further information from us, please contact us on +44 (0) 1435 873062. As all literature is mailed at least three months in advance, you may experience a delay in the changing of your details.

Data Protection The personal information on this form may be used by Scientific Update for marketing purposes. If you do NOT wish this information to be disclosed to any third parties, please tick this box.