



SCIENTIFIC UPDATE

We've got chemistry

THE DESIGN, DEVELOPMENT AND SCALE-UP OF SAFE CHEMICAL PROCESSES AND OPERATIONS

Principles and Practice

12-14 JUNE 2018

Winchester, UK
The Winchester Hotel

"It is very useful
to chemists and
chemical engineers to
do their jobs safely."

Cambrex

Course Participants, who should attend?

Process R&D Chemists, Production Chemists, Chemical Engineers and anyone whose responsibilities include safety or risk assessment of chemical processes or building safety into chemical process scale-up.



A 3 day course for
chemists and engineers
given by

DEKRA

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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THE DESIGN, DEVELOPMENT AND SCALE-UP OF SAFE CHEMICAL PROCESSES AND OPERATIONS

A 3 day course for chemists and engineers given by DEKRA

12-14 June 2018 Winchester, UK, The Winchester Hotel

Multiple attendees discounts
UP TO 15% available

INTRODUCTION

Developing safe processes is of paramount importance to any chemical company. Exothermic chemical reactions in batch and semi- batch processes can result in serious injury to people and plant if they get out of control. Results of thermal runaways include violent loss of containment, possibly explosion and the release of flammable or toxic materials to the environment.

Employers are bound by Health & Safety legislation to ensure the safety of their employees and those outside their employment who might be affected by their activities. Chemical manufacturers must therefore be aware of all potential dangers in their processes and take steps to eliminate them. The best approach is to design safety into the process from the start.

Often, the first sign of loss of control over a reaction is a reduction in yield or in the quality of the product. Thus safety, quality and profitability are all interlinked.

This seminar is designed to enhance the awareness of chemists and engineers regarding hazard issues. Utilizing the expertise of the chemists and chemical engineers at DEKRA and Scientific Update, it will consider hazard control of new chemical processes throughout their development cycle: from early development through to full-scale production. Hazards can often be eliminated by appropriate choice of reagent or synthetic route at the R&D stage. Where this is not possible, techniques exist to quantify the hazards so that robust engineering solutions can be applied in production.

COURSE OUTLINE

Tuesday 12 June

- Registration
- Introduction
- The Process Lifecycle
- Where hazards arise – a review of reported incidents involving runaway reactions and current legislation
- Break
- Techniques for safe process design and optimization
- Lunch
- Chemical hazards assessment strategy
- Fundamental principles of scale-up and reaction runaway
- Workshop problems
- Break
- Identification of highly energetic materials
- Small scale screening tests for liquids, mixtures and powders
- Reaction characterization through calorimetry
- Discussion and Close of Day 1
- Dinner

Wednesday 13 June

- Reprise of Day 1
- Characterization of runaway reactions using adiabatic calorimetry
- Case studies
- Break
- Flammability issues associated with chemical manufacture (including a brief discussion of electrostatic hazards)
- Lunch
- Depart for tour of DEKRA Laboratories
- Depart DEKRA

Thursday 14 June

- Reprise of Day 2
- Selection of Safety Measures and Case Study
- Break
- Emergency relief venting methodology
- Lunch
- Emergency relief venting methodology - continued
- Relief system case studies
- Break
- Process control considerations (safety critical systems, Safety Instrumented Systems, ISA S84.01/IEC 61508/11, equipment reliability and maintenance)
- Summary and conclusions
- Finish

COURSE OBJECTIVES

- To train chemists and engineers in efficient methods for developing safe, low cost, robust processes for the manufacturer of fine organic chemicals in the minimum amount of time
- To improve the awareness of chemists on the principles of scale-up and development, in

chemical engineering concepts relating to safe plant operation and in the latest techniques for the optimization of processes

- To learn from the experience (and mistakes) of others by examining case studies from industry



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Start 9.00am - Tuesday 12 June
Finish 3.30pm - Thursday 14 June
Course dinner 6.30pm - Tuesday 12 June

Course Fee: £1,425 + VAT
Which includes comprehensive course manual, refreshments throughout the day, lunch and one course dinner.

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COURSE TUTORS



Mr Michael Merritt
DEKRA



Mr Keith Middle
DEKRA



Dr Stephen Rowe
DEKRA



Dr Will Watson
Scientific Update

Full Tutor biographies on our website.

What will attendees gain from the course?

- The ability to identify any significant sources of hazard in existing processes or development plans
- An understanding of the latest techniques for assessing risk, and measuring and quantifying chemical process hazards in the work place
- An understanding of the established best practice to reduce the hazard resulting from exothermic reaction systems with a particular emphasis on emergency relief design

VENUE

The Winchester Hotel,
Worthy Lane, Winchester,
Hampshire, SO23 7AB

Tel: **+44 1962 709988**
www.thewinchesterhotel.co.uk

The hotel is located in the heart of the ancient city of Winchester.

The nearest Airport is at Southampton International, which is 11 miles away. Alternatively, Heathrow Airport is 57 miles away. Taxis from Heathrow will cost approximately £74, and approximately £25 from Southampton airport. National Express coach service from Heathrow to Winchester

costs approximately £28 for a return journey (and the hotel is situated in very close proximity to the main coach station).

Winchester main line station is less than 5 minutes walk away from the hotel.

Accommodation:

A limited number of rooms have been reserved at the hotel at the special rate of £115 per night including breakfast and VAT. Further information about reserving your room will be sent to you 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
Fax Number +44 1435 872734

How to Pay

When you register online, you can have the option to pay via credit card (Mastercard or Visa). 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.

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Confirmation of your registration
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Late Applications

For late applications, please register online 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 (or equivalent in €/\$) processing fee. Unfortunately refunds are not possible after that date. Substitutions can be made at any time.

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12-14 June 2018 Winchester, UK



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