

Faculty of Engineering



UNIVERSITY OF LEEDS

Spray Drying and Atomisation of Formulations

Tuesday 24 - Wednesday 25 March 2015

Supported by:



Spray Drying and Atomisation of Formulations

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About the course

A practical course involving demonstrations, theory and real industrial case studies.

Day 1: Spray Drying and Atomisation Basics: Industry and academic experts provide the essential scientific background as well as practical hands-on laboratory demonstrations.

Day 2: Industrial Formulation Case Studies: Experienced specialists will show how the science of spray drying has been applied to influence the properties of real formulated products.

Intended audience

- R&D scientists in industries such as pharmaceuticals, detergents, foods, agrochemicals and pigments who are working in product formulation and who need a broad overview to the subject of spray drying and atomisation.
- Scientists and chemical engineers who would value a deeper understanding of how science can be applied to real spray-drying problems.
- Process technologists, plant managers, R&D and process technicians who need a thorough practical grounding in the subject of spray drying and how it can influence the properties of formulated products.
- Plant and process engineers from contract manufacturers who are seeking process improvements and efficiencies.
- University researchers who require a deeper insight into real industrial problems, unmet needs and potential new research themes.

Expected outcomes

- Apply an understanding of how fluid properties, rheology and atomisation performance can have an influence on spray drying.
- Learn how to manipulate drying parameters to influence product microstructure, materials properties and quality parameters.
- Gain an appreciation of the hazards involved in spray drying and how to ensure safe operation.
- Learn how spray drying processes can be scaled up and appreciate the possible pitfalls on scaling up.
- Understand how spray drying principles can be applied to the manufacture of real industrial formulated products for economic and better performing processes as well as improved product performance and quality.
- Gain an insight into how challenges are tackled across different industries.
- Learn how to choose and design appropriate equipment such as atomisers and towers for laboratory, pilot and production-scale spray-drying.

“An excellent overview of the issues and challenges posed by spray drying in its key applications areas”



“100% of respondents rated the course as excellent, very good or good”

Programme

TUESDAY 24 MARCH 2015

Spray Drying and Atomisation Basics

09:00	Registration and Coffee
09:30	Welcome and Group Introduction What do delegates want to get from the course? Dr Jim Bullock, iFormulate Ltd
09:50	Introduction to Spray Drying of Formulations Professor David York, University of Leeds (formerly of Procter and Gamble)
10:20	Fluid Properties and Rheology Professor Andrew Bayly, University of Leeds (formerly of Procter and Gamble)
10:50	Atomisation Dr Phil Threlfall-Holmes, TH Collaborative Innovation (formerly of AkzoNobel)
11:20	Coffee
11:40	Spray Drying Process Technology: An Instant Drying Process to Engineer a Particle Filip Van der Gucht, ProCept
12:10	Spray Drying Hazards and Safe Operation Mike Halliday, Halliday Stack and Dewhirst Ltd, Loss Prevention Consultants
12:40	Lunch
13:25	Hands-on Laboratory Demonstration Sessions Fluid Rheology Professor Andrew Bayly, University of Leeds Atomisation: Dr Phil Threlfall-Holmes, TH Collaborative Innovation (formerly of AkzoNobel) Drying Parameters: Filip Van der Gucht, ProCept Demonstration 4: TBC
15:25	Tea
15:40	Spray Drying: Basic Models, Energy Balance Professor Andrew Bayly, University of Leeds
16:10	Scale up of Spray Drying Processes Henrik Schwartzbach, GEA Niro
16:40	Day 1 Reflections Professor David York, University of Leeds
17:00	What do delegates still need to know? Dr Jim Bullock, iFormulate Ltd
17:10	Panel Discussion (all speakers): Future Needs and Opportunities
17:30	End of day one
19:00	Course Dinner

WEDNESDAY 25 MARCH 2015

Industrial Formulation Case Studies

08:30	Registration and Coffee
09:00	Welcome Dr Jim Bullock, iFormulate Ltd
09:10	Phase changes in Spray Drying Professor David York, University of Leeds
09:45	Modelling of the effect of Atomisation on scale-up of Spray Dryers Ian Kemp, GSK
10:20	Coffee
10:40	Agglomeration, Build-up and the Potential for Charring in the Spray Drying Tower Luis Martin de Juan, Procter and Gamble
11:15	Managing Moisture Constantijn Sanders, Nestle Konolfingen
11:50	Spray Drying of Pharmaceuticals Nikki Whitfield, Quotient
12:25	Lunch
13:25	Single Drop Drying and Particle Morphology Andrew Parker, Molecular Profiles
14:00	Spray Drying Biomolecules at the Bench-Top Scale Geoffrey Lee, Erlangen University
14:35	Modelling of the Spray Drying Process using Empirical Inputs Henrik Schwartzbach, GEA Niro
15:10	Tea
15:30	Improving Product Recovery in Spray Drying Processes Professor Romualdo Salcedo, Advanced Cyclone Systems, Porto
16:05	Integration of Spray Drying into Downstream Unit Operations Henning Falck, Neuhaus Neotec
16:40	Panel Discussion (all speakers): Future Challenges and Opportunities
17:00	Wrap-up: What would delegates like to see covered in future courses? End of day two and course

Please note that, although the organisers remain devoted to the programme specified, they reserve the right to vary the programme in detail if required to do so by factors beyond their control.

“Gained a good understanding of spray drying with a good mix of people from various industries”

The full course details and online booking are now available from the course web page:
www.engineering.leeds.ac.uk/short-courses



Administration Details

Venue

The course venue will be the School of Chemical and Process Engineering at the University of Leeds.

The University is located in city centre, in walking distance from the train station, with easy access to both the M1 and M62 and Leeds Bradford airport is approximately 7 miles away from the University, so easily commutable by taxi.

Course Fees

The following course fees include the cost of tuition, course materials, lunches, light refreshments and the course dinner.

Bookings made on or before 13 February 2015:

Full two days **£750** + VAT

Bookings made after 13 February 2015:

Full two days **£800** + VAT

Accommodation

Delegates are responsible for their own accommodation (if required). A list of hotels close to the University will be sent out with the delegate joining instructions.

Course Dinner

The course dinner will be held at a Leeds city centre restaurant and is included in the course fee. This will take place on Tuesday evening. The dress code will be smart casual.

Special Requirements

Potential delegates who have any special requirements should contact the course coordinator as soon as possible.

How to Book

Booking for this course should be completed through our secure Online Store. To complete your booking please follow the instructions below:

1. Log on to our Online Store at: **<https://store.leeds.ac.uk/>**
2. Select Conferences and Events in the left-hand navigation bar
3. Select CPD Faculty of Engineering.
4. Select the course or event for which you wish to register and click on 'Book'
5. If you are a new user, please follow the instructions to register.
If you already have an account log in as instructed
6. Complete the application process as directed by the booking system

You will receive an automatic confirmation email within 24 hours of your booking.

For online booking queries and for all other enquiries please contact:

Liz Mylod / Jo Robinson

CPD, Conference & Events Coordinator

CPD, Conference & Events Unit

Engineering Research & Innovation Service

Faculty of Engineering

School of Chemical and Process Engineering, 3.47

University of Leeds

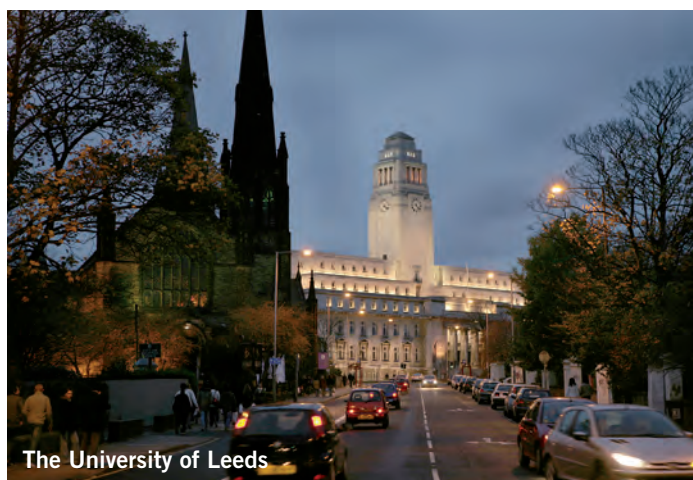
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W: www.engineering.leeds.ac.uk/short-courses/



Terms and conditions for booking

Payment in full should accompany your booking. The course fee is exempt from VAT. Fees must be paid in full no later than 15 working days before the course commences. Failure to pay may result in attendance being refused.

Registrations are accepted on the understanding that the printed programme is given in good faith but may have to be re-scheduled or the speakers changed for reasons outside our control. The University of Leeds reserves the right to cancel or postpone the course, in which case fees will be refunded in full. In the event of cancellation, the University will not be held liable for delegates travel or accommodation expenses.

Delegates will receive a full refund for cancellations made within 7 days of online booking, except where the booking has been made for an event commencing within the next 7 days. Where a delegate wishes to cancel a registration after this 7 day period, written cancellations received up to 15 working days before the course will be subject to an administrative charge of 20% of the total remittance. After this date the full fee is chargeable and no refunds will be made, this also applies for non-attendance but copies of the course documents will be sent. Substitutions may be made at any time.

If you are unable to complete your registration using the online booking system please contact the CPD, Conference & Events Unit to discuss alternative arrangements.