



## Provisional Programme

### Spray Drying and Atomisation of Formulations

Tuesday 2 – Thursday 4 April 2019

#### Tuesday 2 April 2019

##### 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

09:40 **Introduction to spray drying, how does it compare with other drying techniques, mechanisms and impact of the formulation on process and plant design**

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)

11:00 *Coffee*

11:20 **Atomisation**

Professor Phil Threlfall-Holmes, TH Collaborative Innovation & Visiting Professor at the University of Leeds, (formerly of AkzoNobel)

12:00 **Drying the particle**

Filip Van der Gucht, ProCept

12:30 **Modern approaches towards explosion safety in spray dryers**

Dr Ing. Johannes Lottermann, REMBE

13:00 *Lunch*

13:45 **Hands-on laboratory demonstration sessions**

**(a) Feedstock/rheology:** Soyeb Manga, University of Leeds

**(b) Particle sizing:** Umair Zafar, University of Leeds

**(c) Drying parameters:** Filip Van der Gucht, ProCept

**(d) Atomisation:** Dr Phil Threlfall-Holmes, TH Collaborative Innovation & Visiting Professor, University of Leeds, (formerly of AkzoNobel)

**(e) Characterisation of spray dried powders:** Professor David York

**(f) Single droplet:** Professor Andrew Bayly, University of Leeds

15:35 *Tea*

15:55 **Spray drying: basic models, energy balance**

Professor Andrew Bayly, University of Leeds

16:20 **Scale up of spray drying processes**

Henrik Schwartzbach, GEA

16:50 **Water in our World, Water in our Materials**

Dr Daryl Williams, Imperial College London

17:25 *End of day one*

19:00 *Course Dinner*

#### Wednesday 3 April 2019

##### Industrial Formulation Case Studies

08:45 *Coffee*

09:00 **Welcome**

Dr Jim Bullock, iFormulate Ltd

09:10 **Phase changes in spray drying**

- Professor David York, University of Leeds
- 09:35 **Spray drying with two-fluid nozzles; atomisation, scale-up and modelling**  
Ian Kemp, GSK
- 10:20 *Coffee*
- 10:40 **Engineering particle structure**  
Professor Andrew Bayly, University of Leeds (formerly of Procter and Gamble)
- 11:15 **Spray drying of pharmaceuticals**  
Dr. Andrew Naylor, Upperton
- 11:50 **Application of spray dried materials in the pharmaceutical industry – what, where and how much?**  
Andrew Parker, Catalent Pharma Solutions
- 12:25 **Modelling of the spray drying process using empirical inputs**  
Henrik Schwartzbach, GEA
- 13.00 *Lunch*
- 13:45 **Hands-on laboratory demonstration sessions**
- (a) **Feedstock/rheology:** Soyeb Manga, University of Leeds
  - (b) **Particle sizing:** Umair Zafar, University of Leeds
  - (c) **Drying parameters:** Filip Van der Gucht, ProCept
  - (d) **Atomisation:** Dr Phil Threlfall-Holmes, TH Collaborative Innovation & Visiting Professor, University of Leeds, (formerly of AkzoNobel)
  - (e) **Characterisation of spray dried powders:** Professor David York
  - (f) **Single droplet:** Professor Andrew Bayly, University of Leeds
- 15:35 *Tea*
- 15:55 **Processing science in an infant milk formulae factory**  
Dr Ing. Jewe Schroeder, Danone
- 16:30 **Spray drying for encapsulation and congealing**  
Filip van der Gucht, ProCept
- 17:00 **Panel Discussion (all speakers): future challenges and opportunities**
- 17.10 *Wrap-up: what would delegates still like covering?*
- 17.20 *Trouble shooting forum/expert consultation session followed by networking drinks reception, nibbles and poster session*
- 18.50 *End of day two*

#### **Thursday 4 April 2019**

#### **Powder finishing, modelling and future developments**

- 08.45 *Coffee*
- 09.05 **Welcome**  
Dr Jim Bullock, iFormulate Ltd
- 09.15 **Agglomeration, build-up and the potential for charring in the spray drying tower**  
Stefan Egan, Procter and Gamble
- 09.45 **Managing moisture in practice**  
Sophie Samain, Nestle Switzerland
- 10.20 **Product design by fluid bed systems as downstream units of spray dryers**  
Henning Falck, Neuhaus Neotec
- 10.50 *Coffee*
- 11.10 **Modelling and scale up of spray drying**  
Dr Pedro Valente, Hovione
- 11.40 **Future directions in atomisation technologies for pharmaceutical applications**  
Dr Pedro Valente, Hovione
- 12.15 **Mechanistic model enhanced digital design and digital operation of spray drying processes**  
Dr David Slade, Process Systems Enterprise Ltd (PSE)
- 12.45 *Lunch*
- 13.30 **Innovative electrostatic spray dryer**  
Audrey Maudhuit, Spraying Systems Co./Fluid Air
- 14.05 **Dryer operation and operational challenges**  
George Svonja, Dedert
- 14.35 **Particle separation; cyclones, filters etc**  
Professor David York, University of Leeds
- 15.10 *Coffee and close*