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**Spray Drying and Atomisation of Formulations**

**Tuesday 14 – Thursday 16 June 2022**

**Provisional Programme**

**Tuesday 14 June 2022**

**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**

Visiting 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**

Gerrit Fikse, REMBE

13:00 *Lunch*

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

D1 - Feedstock/rheology: Professor Andrew Bayly

D2 - Atomisation: Dr Phil Threlfall-Holmes

D3 - Characterisation of spray dried powders: Professor David York

D4 - Particle sizing: Ben Douglas, University of Leeds

D5 - Drying parameters: Filip Van der Gucht, ProCept

D6 - 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 Process Engineering A/S

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

Dr Daryl Williams, Imperial College London

17:25 *End of day one*

## Wednesday 15 June 2022

### Industrial Formulation Case Studies

08:45 *Coffee*

#### 09:00 **Welcome**

Dr Jim Bullock, iFormulate Ltd

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

Visiting Professor David York, University of Leeds

#### 09:35 **Spray drying with two-fluid nozzles; atomisation, scale-up and modelling**

Ian Kemp, Consultant, previously GSK

10:20 *Coffee*

#### 10:40 **Engineering particle structure**

Professor Andrew Bayly, University of Leeds (formerly of Procter and Gamble)

#### 11:15 **Beyond freeze drying: insights into the development of protein pharmaceuticals via spray-drying**

Joana Pinto, RCPE GmbH

#### 11:45 **Spray Drying an Alternative to Freeze Drying**

Dr Sune Klint Andersen, Janssen Pharmaceuticals

#### 12:25 **Modelling of the spray drying process using empirical inputs**

Henrik Schwartzbach, GEA Process Engineering A/S

13:00 *Lunch*

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

D1 - Feedstock/rheology: Professor Andrew Bayly

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D6 - Single droplet: Professor Andrew Bayly, University of Leeds

15:35 *Tea*

#### 15:55 **Processing science in an infant milk formulae factory**

Dr Arend Dubbelboer, Danone

#### 16:30 **Spray drying for encapsulation and congealing**

Filip van der Gucht, ProCept

#### 17:00 **Trouble shooting forum/expert consultation session**

17:30 *End of day two*

## Thursday 16 June 2022

### Powder finishing, modelling and future developments

08.45 *Coffee*

#### 09:00 **Welcome**

Dr Jim Bullock, iFormulate Ltd

#### 09:10 **Agglomeration and build-up in the spray drying tower**

Victor Francia, Heriot Watt University

#### 09:40 **Managing moisture in practice**

Sophie Samain, Nestlé Switzerland

#### 10:10 **Product design by fluid bed systems as downstream units of spray dryers**

Henning Falck, Neuhaus Neotec

10:40 *Coffee*

#### 11:00 **Dryer operation and operational challenges**

George Svonja/Deon Pistorius, Dedert

#### 11:30 **Modelling and scale up of spray drying**

Dr Pedro Valente, Hovione

#### 12:00 **Process Analytical technologies in Spray Drying**

Dr Pedro Valente, Hovione

12:35 *Lunch*

#### 13:15 **Online digital modelling, monitoring & control**

Dr David Slade, Applied Materials

#### 13:45 **Particle separation; cyclones, filters etc**

Visiting Professor David York, University of Leeds

14:20 *Tea and close*