Microencapsulation
Monday 2 – Wednesday 4 July 2018

PROGRAMME

Monday

Basic science and key points around microencapsulation - what you need to know to get started

09:00 Registration
09:30 Introduction to the course
09:40 Map to guide you through the course: microencapsulation methods vs product requirements
Professor David York, University of Leeds
10:20 Important properties of system to encapsulate (Hansen solubility parameter)
Beverley Fricker, VLCI, Amsterdam
11:00 Coffee
11:20 Important properties of microcapsules (type, shape, size, release characteristics, strength)
Dr Olivier Cayre, University of Leeds

Spray drying

12:00 Structure of liquid/importance of fluid properties
Professor Andrew Bayly, University of Leeds
12:40 Lunch
13:40 Droplets and sprays in encapsulation: background in forming droplets from nozzles and common process units
Professor Nik Kapur, University of Leeds
14:20 Demonstration session 1
- Spray drying
  Professor David York and Amin Farshchi, University of Leeds
- Production of Alginate beads and Evidencing release from alginate-based microcapsules
  Nicolai Suter, Nisco Engineering AG
- Metal shell capsules preparation – achieving retention and triggered release of small volatile actives
  James Hitchcock, University of Leeds
- Manufacturing monodisperse droplet templates via membrane emulsification
  Soyeb Manga, University of Leeds
15:35 Tea
15:55 Industry Presentation - gel encapsulation, advantages and limitations
Nicolai Suter, Nisco Engineering AG

Coating of particles

16:35 Coating of solid particles
Professor Nik Kapur, University of Leeds
17.15 End of day one
19.00 Course dinner
Tuesday

Coating of particles cont...

09.00  Process – fluid bed coaters, pan coaters  
Professor David York, University of Leeds
09.40  Industry presentation on coating of solid particles using fluid beds  
Dr. Stephan Sternowsky, Neuhaus Neotec
10.30  Coffee

Emulsion-based methods

10.50  How to decide on an affordable microencapsulation method – economics behind encapsulation  
Professor David York, University of Leeds
11.30  Introduction on what the rest of the course will focus on regarding these methods – focus on emulsion-based encapsulation methods  
Dr Oliver Cayre, University of Leeds
12.00  Lunch
13.00  Emulsion theory, importance of miscibility/cLogP, how useful is HLB of surfactants, Pickering emulsions/colloidosomes  
Professor Brent Murray, University of Leeds
13.40  Demonstration session 2  
- Spray drying  
  Professor David York and Amin Farshchi, University of Leeds   
- Production of Alginate beads and Evidencing release from alginate-based microcapsules  
  Nicolai Suter, Nisco Engineering AG
- Metal shell capsules preparation – achieving retention and triggered release of small volatile actives  
  James Hitchcock, University of Leeds
- Manufacturing monodisperse droplet templates via membrane emulsification  
  Soyeb Manga, University of Leeds
14.55  Tea
15.15  Droplet size control theory, importance of surface energy, viscosity and size of molecules  
Dr Olivier Cayre on behalf of Professor Malcolm Povey, University of Leeds
15:55  Industry presentation – Application of emulsion based methods  
Susana Fernandez Prieto, P&G Brussels
16:35  Poster/wine reception followed by end of day two

Wednesday

Emulsion-based methods: Turning emulsions into core-shell microcapsules

09:00  Forming barriers on droplet and particle surfaces  
Dr Olivier Cayre, University of Leeds
09.40  Interfacial polymerisation: traditional vs potential of living radical polymerisation methods  
Soyeb Manga, University of Leeds
10.20  Coffee
10.40  Colloidosomes: from Pickering emulsions to particle-shell microcapsules  
Dr Kate Thompson, University of Manchester
11.40  Self-Assembly Leading to the Formation of Particles Encapsulating Food Actives  
Professor Michael Rappolt, University of Leeds
12.20  Lunch
13.20  From oil droplets to self-assemblies for creating new food functionalities  
Laurent Sagalowicz, Nestlé
14.00  Key properties and evaluation I  
Dr Nicole Hondow, University of Leeds
14.30  Key properties and evaluation II  
James Hitchcock, University of Leeds
15.00  Evaluating mechanical properties and release rates – techniques, challenges and watch outs  
Professor David York/Dr Olivier Cayre, University of Leeds
15.40  Tea
15.55  Optional lab tour
16.45  End of day three and course