5th International Granulation Workshop

Granulation Conference
Lausanne, Switzerland, 20-22 June 2011

Granulation Course
Sheffield, UK, 21-22 July 2011
5th International Granulation Workshop
Granulation Conference in Lausanne, Switzerland: 20-22 June 2011
Granulation Course in Sheffield, UK: 21-22 July 2011

Granulation and agglomeration technology is a popular topic and of growing interest for industry – and therefore academia – as it is such an important process in the manufacturing of many solid products.

This International event is split up into two parts, a three-day conference which will be hosted by Nestle in the Conference Centre and the Nestle Research Center in Lausanne, Switzerland and a two-day course which will be hosted by Sheffield University, England.

The three-day granulation conference will give an opportunity to gain a complete overview of how the field of granulation stands at present with the presentation of a range of papers from both industry and academia. The idea of the conference is to unify the research conducted all over the world from a wide range of institutions in order to improve understanding and subsequent implementation into industrial processes.

The two-day granulation course is specifically designed to give you a hands-on granulation experience with knowledgeable experts from all over the world.

Both these events are co-organised by The Nestle Research Center in Lausanne and The Chemical and Biological Engineering Department at Sheffield University. From both we welcome you to join us and look forward to meeting you.

Prof. Stefan Palzer
Prof. Agba Salman
Prof. Mike Hounslow

Plenary Speakers
Prof Jim Litster: Compartmental and multiscale design models for granulation processes. Purdue University, USA

Prof Mike Hounslow: Granulation – Can we predict anything? Fluidised bed melt granulation. University of Sheffield, UK

Prof Stefan Palzer: The future of food agglomeration – Needs, trends and technological solutions. Nestlé Product Technology Centre for Confectionary, York, UK

Prof Stefan Heinrich: The ultimate goal of granulation systems modelling – Simulation of system and plant performance. Hamburg University of Technology, Germany

Granulation Course
21 - 22 July 2011

Following the Symposium and Workshop will be a 2 day Granulation Course. Led by experts from the Food, Detergent and Pharmaceutical Industries, this course is designed for you if you are a PhD student or work in industrial granulation. At the course you will get hands-on granulation experience and knowledge from renowned experts in the field.

Course Content - Day 1

1. Elements of granulation technology - key technological issues, particle size distributions, properties of wet and dry assemblies of particles.

2. Equipment for granulation: low and high shear mixers - types of tumbling and impeller mixers, mechanics of powder mixing, design and scale-up issues.

3. Understanding granule formation:
   b. Mechanisms in fluidised bed agglomeration - effects of liquid distribution and atomisation, effects of binder properties, control of granule size.

4. The complete process - flow sheet for the process, drying/cooling, classification and recycle, sensors for control of the process, case studies.

Day 2

1. The challenges of scale up. Understanding the challenge of scale through hands-on use of agglomerators which work at a variety of different scales.

2. Fluid Bed agglomeration. Practical experience of different fluid bed agglomerators.

3. Roller Compaction. Hands-on training on conducting trials using roller compaction process. Use of simple tools to simulate roller compaction process.

4. Extrusion and Spheronisation. Hands-on experience with a range of development scale extrusion and spheronisation equipment to produce spheroids of different compositions.

5. Tabletting. You will make use of a number of practical tools to investigate the importance of material characteristics and force on tablet properties.

6. Finished product characterisation. Key finished particle properties will be investigated. You will learn how they influence performance and hence how they determine the process and conditions used and the raw material properties needed to make the desired quality.

7. Scaling up processes. A concluding lecture on the challenges of scale up and practical considerations.
Workshop Themes

**The Macro Scale I: Processing for Granulation**
- High Shear Granulation
- Drum Granulation
- Fluidized Bed Granulation
- Twin Screw Extruder
- Roller Compaction
- Spheronisation
- Fluidized Bed Spray
- Spouted Fluidized Bed
- Extrusion
- Coating and Encapsulation
- Continuous Granulation
- Scale-up
- Online Monitoring
- Process Control and PAT
- Process Concept Design/Optimization and Control

**The Macro Scale II: Applications**
- Pharmaceutical Granulation and Tabletting
- Food Material Science
- Detergent and Personal Care Products
- Agglomeration for Controlled Release
- Agglomeration Atomic Energy
- Nano-granulation
- Agglomeration in Suspension Flocculation
- Agglomeration in Metallurgical Industry
- Agglomeration in Environmental Industry
- Agglomeration in other Processes

**The Meso Scale: Mechanistic Description**
- Fundamental Aspects of Granulation
- Wetting Nucleation and Granulation
- Breakage in Granulation
- Granule and Tablet Strength
- Modelling of Granulation (CFD, DEM, Population Balance etc.)
- Mixing/Segregation
- Energy Consideration in Agglomeration

**The Micro Scale: Granules and Smaller**
- Granule Structure Characterisation
- Interparticle Forces
- Influence of Materials and Processes on Granule Properties
- Powder Processing/Compaction
- Granule Growth Kinetics
- New Techniques/New Equipment

How to Register

To register for the Granulation Conference in Lausanne please visit
http://www.shef.ac.uk/agglom2011/registrationparticipants.html

To register for the Granulation Course in Sheffield please visit
http://www.shef.ac.uk/agglom2011/course

Scientific Committee

- Prof. Hans Kuipers, Technical University of Eindhoven, The Netherlands
- Prof. Jean Paul Remon, Ghent University, Belgium
- Prof. Judith Bonsall, Unilever Research Port Sunlight, UK
- Dr. Gabrie M.H. Meesters, DSM, The Netherlands
- Prof. Jonathan Seville, University of Warwick, UK
- Prof. Anne Juppo, University of Helsinki, Finland
- Prof. Mike Adams, University of Birmingham, UK
- Prof. Peter Kleinebudde, Heinrich-Heine-University Duesseldorf, Germany
- Dr. Tibor Attila Nagy, Gedeon Richter Ltd., Hungary
- Prof. Evangelos Tsotas, Otto-von-Guericke-University Magdeburg, Germany
- Prof. Stefano Falter, Nestlé, Switzerland
- Prof. David York, Procter & Gamble Co, UK
- Dr. Gavin Reynolds, AstraZeneca, UK
- Dr. Hermann Feise, BASF, Germany
- Dr. Renee Boerefijn, Purac, The Netherlands
- Prof. Mojtaba Ghadiri, University of Leeds, UK
- Prof. Khosayar Salah, Université de Technologie de Compiègne, France
- Mr. James Cartwright, GSK, UK
- Dr. Inge N. Björn, Astra Zeneca, Sweden
- Prof. Göran Alderborn, Uppsala University, Sweden
- Dr. Kaspar van den Dries, Schering-Plough, The Netherlands
- Dr. Karen Hatgood, Monash University, Australia
- Prof. Christian Seiler, MSD, UK
- Prof. Stefan Heinrich, Technical University Hamburg-Harburg, Germany
- Prof. Jan Listter, Purdue University, USA
- Prof. Satoru Watano, Osaka Prefecture University, Japan
- Prof. Yoshinobu Fukumori, Kobe Gakuin University, Japan
- Dr. Paul Mort, Procter & Gamble Co, USA
- Dr. Gavin Walker, Queen’s University Belfast, UK
- Prof. Elisabeth Dumoulin, AgroParTec, France
- Mr. Klaus Eichler, Technology Training Center, Germany
- Dr. Gerhard Niederreiter, Nestlé, Switzerland
- Prof. Mike Houlsow, University of Sheffield, UK
- Prof. Agba Salman, University of Sheffield, UK

Organisation Committee

- Prof. Agba D Salman
- Dr. Tibor Attila Nagy
- Dr. Hong Sing Tan
- Dr. Bindhu Gururajan
- Dr. Paul Avontuur
- Mr. Nigel Sommerville Robert
- Dr. Waleed Al Nasser
- Dr. Gerhard Niederreiter
- Dr. Kate Pitt
- Dr. Laurent Forny
- Dr. Csaba Sinka
- Dr. Ali Hassanpour Rudhari
- Dr. Robert Sochin
- Mr. James Osborne

Poster Competitions

We are still accepting abstracts for poster papers.

There will be a number of poster competitions at the conference in Lausanne, sponsored by Unilever, TTC and GSK. For each competition 3 prizes will be awarded: £300 first prize, £150 second prize and £50 third prize.

For more information about the poster competitions please see: www.sheffield.ac.uk/agglom2011/postercompetition.html

To enter a poster, please submit an abstract to GranulationWorkshop2011@nestle.com
Sponsors

Further Information

Granulation Conference in Lausanne, Switzerland:
20-22 June 2011
GranulationWorkshop2011@nestle.com

Granulation Course in Sheffield, UK: 21-22 July 2011
Dr Kate Pitt
Chemical and Biological Engineering,
University of Sheffield
Mappin Street, Sheffield, S1 3JD, UK.
Tel: +44 (0)114 222 7549
Fax: +44 (0)114 222 7501
k.pitt@sheffield.ac.uk