



The
University
Of
Sheffield.

9th International
Symposium on
Agglomeration and
4th International
Granulation Workshop

Sheffield, 22-26 June 2009

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Academic and industrial interest in granulation and agglomeration technology continues to grow. This is because understanding of these is vital in the formulation and manufacture of many important solid products.

This Symposium and Workshop consists of a two-day granulation course and a three-day symposium and workshop. The theme of the week is "Learning from the past to help focus on the future".

The two-day granulation course from 22-23 June 2009 will give you hands-on granulation experience and knowledge from renowned experts in the field.

The three-day Symposium and Workshop from 24-26 June 2009 will see a range of papers presented that cover both industrially and academically relevant areas of the discipline in order to provide a complete overview of the field. A feature of this Symposium is to bring together and codify learning on agglomeration from a wide range of researchers, and to look as to where the future of the discipline is best focused for maximum impact on academia and industry. Selected papers will be considered for a special issue of Powder Technology.

The Symposium and Workshop is organised by the department of Chemical & Process Engineering at The University of Sheffield with support from the European Federation of Chemical Engineering (EFCE) Working Party on Agglomeration. We look forward to welcoming you to Sheffield.

Prof. Agba Salman

Prof. David York

Prof. Mike Hounslow

Plenary Speakers

Prof David York: General overview and list of challenges, Procter & Gamble Co, UK

Prof Hans-Jürgen Butt: Structure and dynamics of granular materials depend on the force between the individual particles, Max Planck Institute for Polymer Research, Germany

Prof Mike Hounslow: Importance of structure to granule properties and choice of process, University of Sheffield, UK

Dr Stefan Palzer: Similarities in the agglomeration of pharmaceuticals, detergents, chemicals and food powders; Nestlé Research Centre, Switzerland

Prof Peter Kleinbudde: End product property needs and how they influence the choice of materials and process, Heinrich-Heine-University, Germany

Prof Jim Litster: What of the future, Purdue University, USA.

Granulation Course

22 - 23 June 2009

Preceding 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:
 - a. Mechanisms in mixer agglomeration - mechanisms of size enlargement, effects of liquid distribution, binder selection, control of granule size.
 - 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 and Extrusion. Use of simple tools to simulate roller compaction and extrusion processes.
4. Tableting. You will make use of a number of practical tools to investigate the importance of material characteristics and force on tablet properties.
5. 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.
6. Scaling up processes. A concluding lecture on the challenges of scale up and practical considerations.

Call For Papers

We would welcome your abstracts for oral presentations or posters in the themes to the right. Some papers will be considered for publication in either a special issue of the Journal of Powder Technology or a special issue of Chemical Engineering Research and Design.

Please email your abstract to Prof Agba Salman: a.d.salman@sheffield.ac.uk

Abstract Guidelines

- Abstracts should be between 300 - 500 word
- Abstracts should be submitted no later than 1st October 2008
- Date for paper acceptance is 3rd November 2008
- Final Paper is required by 2nd February 2009

Further information and an example abstract can be found on our website:

www.sheffield.ac.uk/agglom2009/papers.html

Poster Competitions

Sponsored by Unilever, TTC, IChemE Particle Technology Subject Group and GSK, there will be a variety of poster competitions at the Symposium and Workshop.

To enter a poster please submit an abstract to Prof Agba Salman: a.d.salman@sheffield.ac.uk. Abstracts should be 1 A4 page maximum in length. The closing date for poster abstracts is 2nd February 2009.

For more information about the poster competitions please see: www.sheffield.ac.uk/agglom2009/poster.html

When you register indicate that you will be entering a poster.

Paper Themes

The Macro Scale I: Processing for Granulation

- High Shear Granulation
- Fluidized Bed Spray Granulation
- Extrusion-Spheronisation and Pelletization
- Roll Pressing
- Dry Granulation
- Coating and Encapsulation
- Continuous Granulation
- Scale-Up
- Agglomeration for Product Performance
- Overall Process Concepts & Design
- Online Monitoring
- Process Control and PAT

The Macro Scale II: Applications

- Pharmaceutical Granulation and Tableting
- Food Materials Science
- Detergent and Personal Care Products
- Nano-Granulation
- Green Granulation - Innovative Processes
- Agglomeration in Suspension-Flocculation
- Agglomeration in Metallurgical Industry
- Agglomeration in other Processes

The Meso Scale: Mechanistic Description

- Fundamental Aspects
- Wetting and Nucleation, and Growth and Consolidation
- Granulation Rate Processes
- Breakage in Granulation
- Modelling of Granulation
- Characterisation of Material Properties and their Influence on Granulation

The Micro Scale: Granules and Smaller

- Granule Structure
- Interparticle Forces

Scientific Committee

- Prof. Hans Kuipers, University of Twente, The Netherlands
- Prof. Jean Paul Remon, Ghent University, Belgium
- Prof. Stefaan Simons, University College London, UK
- Prof. John Dodds, Ecole des Mines d'Albi, France
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- Prof. Hans Leuenberger, University of Geneva, Switzerland
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- Prof. Jonathan Seville, University of Warwick, UK
- Prof. Anne Juppo, University of Helsinki, Finland
- Prof. Mike Adams, University of Birmingham, UK
- Dr. Tibor Attila Nagy, Gedeon Richter Ltd., Hungary
- Dr. Stefan Palzer, Nestlé, Switzerland
- Prof. David York, Procter & Gamble Co, UK
- Dr. Gavin Reynolds, AstraZeneca, UK
- Dr. James N. Michaels, Merck and Co. Inc, USA
- Dr. Hermann Feise, BASF, Germany
- Prof. Ampol Mitrevej, Mahidol University, Thailand
- Dr. Renee Boerefijn, Purac, The Netherlands
- Prof. Mojtaba Ghadiri, University of Leeds, UK
- Mr. Klaus Eichler, Technology Training Center, Germany
- Prof. Pierre Guigon, Université de Technologie de Compiègne, France
- Mr James Cartwright, GSK, UK
- Dr. Chris M Gilmour, GSK, UK
- Dr. Kaspar van den Dries, Schering-Plough, The Netherlands

- Dr. Ingela Niklasson Björn, AstraZeneca, Sweden
- Dr. Karen Hapgood, Monash University, Australia
- Prof. Gabriel I. Tardos, The City College of the City University of New York, USA
- Prof. Stefan Heinrich, Technical University Hamburg-Harburg, Germany
- Prof. Jim Litster, Purdue University, USA
- Prof. Peter Kleinebudde, Heinrich-Heine-University, Germany
- Prof. Göran Alderborn, Uppsala University, Sweden
- Prof. Piet Lens, Wageningen University, The Netherlands
- Prof. Mike Hounslow, University of Sheffield, UK
- Prof. Agba Salman, University of Sheffield, UK

Organisation Committee

- Prof Agba D Salman
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- Dr Andrew Bayly
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- Dr Markus Hartmann
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- Dr Csaba Sinka

Further Information

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Sponsors



Registration Form

To register for the Symposium and Workshop or for the Granulation Course please fill in your details below.

Title: _____ First name: _____ Surname: _____

Company/institute: _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

Please indicate if you have any special needs or dietary requirements:

Please choose registration rate for the Symposium and Workshop and whether you want to attend the course. Symposium and Workshop rates include attendance of the Symposium and Workshop, lunch and light refreshments for each day. Course rate includes attendance on the course, lunch and light refreshments. Accommodation is not included in any of these rates.

- Registration for Symposium (24-26 June 2009) - £500
- Student registration for the Symposium (24-26 June 2009) - £400
- Registration for Granulation Course (22-23 June 2009) - £250

- Tick here if you intend to submit a paper.
- Tick here if you intend to enter a Poster Competition.
- Tick here if you would like to exhibit at the symposium and workshop.

You will only receive final confirmation of your registration once your payment has been received by us. Instructions for how to pay by credit or debit card will be emailed to you.

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Please note that fees must be paid in advance and are non-refundable after 1 April 2009. Fees are payable to **The University of Sheffield**.

Please send this form with payment to the following address:

Mr Matthew Butcher, Chemical and Process Engineering,
The University of Sheffield, Mappin Street, Sheffield, S1 3JD, UK.

Tel: +44 (0) 114 222 7515 Fax: +44 (0) 114 222 7501 E-mail: m.butcher@sheffield.ac.uk

For a list of hotels near to the venue of the Symposium and Workshop please see: www.shef.ac.uk/agglom2009/accommodation.html