Throughout the process industries, two recurring themes are:

- how can I formulate a new or better product?
- how can I use knowledge at one length scale to understand the behaviour at another?

This workshop will address these two issues in one of the fastest moving areas of process science — granulation. This technique of taking small particles and arranging them together opens up many formulation possibilities for the chemicals, food and pharmaceutical industries.

The event is organised by the Department of Chemical and Process Engineering at the University of Sheffield, on behalf of the IChemE Particle Technology Subject Group and the EFCE Working Party on Agglomeration. The workshop will consist of:

- a 2-day course (22-23 June)
- a 2-day meeting (24-25 June)

The 2-day course on granulation is suitable for PhD students and will also be of benefit to those involved in research in an industrial context. It is organised by Dr David York (P&G) and Professor Jonathan Seville (University of Birmingham).

The 2-day meeting consists of presentations by leading international speakers from industry and academia who will give examples of how formulation and science can be combined.

Papers are organised to reflect both granulation as a process and granules as products. In this way researchers, formulators and operators can all expect to find information of relevance to their interests. Selected papers presented at the meeting will be published in a special issue of Chemical Engineering Science.

Dr Agba Salman
Professor Mike Hounslow
Particle Products Group
Course on Granulation
Sheffield, 22-23 June 2004

This two-day course on Granulation is organised by Dr David York (Procter & Gamble) and Professor Jonathan Seville (University of Birmingham).

- Welcome and Introduction
- Basic reasons for agglomerating: desired and undesired
- Key transformations that occur in typical agglomeration units
- Agglomeration regime map
- Practical training on agglomeration
- Influence of raw material properties — liquids and powders
- Practical training on above
- Typical unit operation equipment for agglomeration: batch vs continuous, high vs low shear, mechanical vs air fluidisation
- Typical plant design aspects: feed control, recycle loops, stability and control
- Basic characterisation of agglomerates

Scientific Committee

Prof Karl Sommer, TU München, Germany
Prof John Dodds, Centre de Recherche Poudres et Procedes, France
Prof Hans Kuipers, Twente University of Technology, The Netherlands
Prof Michael Adams, University of Birmingham, UK
Dr David York, Procter & Gamble, UK
Prof Jonathan Seville, University of Birmingham, UK
Prof Stefan Simons, UCL, UK
Dr Tibor Nagy, Gedeon Richter Ltd, Hungary
Dr James N. Michaels, Merck and Co. Inc., USA
Prof Mojtaba Ghadiri, University of Leeds, UK
Prof Hans Leuenberger, University of Basel, Switzerland
Prof Jim Litster, University of Queensland, Australia
Prof Brian Scarlett, University of Florida, USA
Dr Craig Bentham, Pfizer, UK
Prof Masayuki Horio, Tokyo University of Agriculture and Technology, Japan
Mr Klaus Eichler, TTC, Germany
Dr Judith Bonsall, Unilever, UK
Prof Mike Hounslow, University of Sheffield, UK
Dr Agba Salman, University of Sheffield, UK

www.sheffield.ac.uk/granulation
Preliminary DEM Simulations of Fluidized Bed Granulation
C. Thornton and D. Kafui, University of Birmingham

Validation of a Multi Fluid Model with a Discrete Particle Model and Well-Defined Experiments
G.A. Bokkers, M. van Sint Annaland and J.A.M. Kuipers
University of Twente, The Netherlands

Breakage Kinetics During Fluidised Bed Granulation
H.S. Tan, A.D. Salman and M.J. Hounslow, University of Sheffield

Friday 25th June

Session III: Compaction Processes

Introduction
Jonathan Seville, University of Birmingham

Dry Granulation of Organic Powders: Dependence of Pressure 2D — Distribution on Different Process Parameters
T. Lecompte1, P. Doremus1, J. Le Thiesse2, J. Masteau2, L. Perier-Camby2 and G. Thomas2
1- INPG 2- Rhodia 3- Ecole Nationale Supérieure des Mines de St Etienne, France

Compression Behaviour of Agglomerates and the Evolution in Tablet Structure
G. Alderborn, Uppsala University, Sweden

Effect of Process Parameters on Melt Granulation and Tablet Pressing of Pharmaceutical Materials
G. Walker, Queen’s University Belfast

Particle Properties and Adhesive Forces as Parameter of Agglomeration
K. Sommer, TU München, Germany

Session IV: Granule Properties

Introduction
Mike Hounslow, University of Sheffield

The Relationship Between Surface Properties and Binder Performance in Granulation
S.J.R. Simons1, D. Rossetti1, P. Pagliai1, R. Ward2 and S. Fitzpatrick3
1- University College London 2- Merck Sharp & Dohme, UK

Behavior of Dry Binderless Granules Under Impact and Diamicetric Compression
Y.S. Cheong1, A.D. Salman1, A.F. Routh1, M.J. Adams2, C. Thornton2, D.K. Kafui3 and M.J. Hounslow3
1- University of Sheffield 2- University of Birmingham

Characterising the Strength of Granules
O. Zhupanska and B. Scarlett, University of Florida, USA

An Experimental Study of the Impact Breakage of Single Wet Granules
J.S. Fu1, A.D. Salman1, G.K. Reynolds1, M.J. Adams2 and M.J. Hounslow1
1- University of Sheffield 2- University of Birmingham

Abstracts are online at: www.sheffield.ac.uk/granulation

This meeting is sponsored by:

Any company or organisation interested in sponsoring or exhibiting at the meeting please contact the organiser.

Further details can be obtained from:
Dr Agba Salman
Department of Chemical and Process Engineering
The University of Sheffield
Mappin Street
Sheffield
S1 3JD
Tel: +44 (0)114 222 7560
Fax: +44 (0)114 222 7501
E-mail: a.d.salman@sheffield.ac.uk
second international workshop on granulation
Sheffield, 22-25 June 2004
Halifax Hall of Residence, The University of Sheffield, Endcliffe Vale Road, Sheffield, S10 3ER

Registration Form
Please complete your details:

Title: __________   First Name: _______________________________    Surname: _________________________________
Company/Institute: __________________________________________________________________________________
Address: __________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________
Telephone: __________________________________________________________________________________
Fax: __________________________________________________________________________________
Email: __________________________________________________________________________________

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

Workshop Fees

**Course on Granulation (22-23 June):**

- £200  Course fee excluding accommodation

**Granulation Meeting (24-25 June):**

- £200  Non-members of the IChemE Particle Technology Subject Group
- £190  Members of the IChemE Particle Technology Subject Group
- £120  Students
- £35  Advance order of Special Issue of Chemical Engineering Science containing papers from this meeting (special rate for delegates)

- I wish to attend the Meeting Dinner on 24 June (no additional charge)

**Accommodation:**

The meeting registration fee includes accommodation for the night of 24 June.

I require additional accommodation on (£50/night):
- 21 June
- 22 June
- 23 June
- 25 June

Please note that fees must be paid in advance and are non-refundable after 1 May 2004. Fees are payable to The University of Sheffield. Early registration (before 1 May 2004) qualifies for a discount of £20.

I enclose a total payment of: _________________________

Please send this form with payment to the following address:
Ms Nynke Wierda, Department of Chemical and Process Engineering, The University of Sheffield, Mappin Street, Sheffield, S1 3JD.    Tel: +44 (0)114 222 7557    Fax: +44 (0)114 222 7566    E-mail: n.m.wierda@sheffield.ac.uk

www.sheffield.ac.uk/granulation