

Day 1- 24th June 2009

Presentations Last 25 minutes in total (20 min presentation + 5 min discussion)

Paper no.	Time	Topic	Speaker	Group
	09.00-09.05	Welcome	Prof Mike Hounslow	The University of Sheffield, UK
	09.05-10.00	Plenary lecture General overview and list of challenges	Prof David York Introduced by Prof Agba Salman	P & G, UK
	10.00-10.30	Coffee Break		
Session 1 High Shear Granulation - Chaired by Khashayar Saleh				
1	10.30-10.55	Improving liquid distribution by reducing dimensionless spray flux in wet granulation – a pharmaceutical manufacturing case study	Karen P. Hapgood ¹ , Ria Amelia ¹ , M. Bada Zaman ¹ , Bryan K. Merrett ² , Phillip Leslie ²	¹ Monash University, Australia ² GlaxoSmithKline Australia, Australia
2	10.55-11.20	Dynamic binder liquid distribution in a high shear mixer granulation process	N. Smirani, V. Falk, N. Bardin-Monnier, L. Marchal-Heussler	Laboratoire des Sciences du Génie Chimique, Nancy-Université, France
3	11.20-11.45	The microscopic study of granulation mechanisms and their affect on granule properties	Paul Avontuur ¹ , Phung K.Le ² , Michael J.Hounslow ² , Agba D.Salman ²	¹ GlaxoSmithKline, UK ² The University of Sheffield, UK
Session 2 Fluidised Bed Spray Dryer - Chaired by Stefan Heinrich				
4	10.30-10.55	Effect of nucleation mechanism on granule properties in fluidised hot melt granulation	L. Shu, H.Zhai, G. Andrews, D. Jones G. Walker	Queen's University Belfast, UK
5	10.55-11.20	Study of fluidised bed spray agglomeration focussing on the moisture content of the solids	R. Hampel, M. Peglow, M. Dervedde, E. Tsotsas	Otto-von-Guericke-University Magdeburg, Germany
6	11.20-11.45	Innovative fluid bed pelletising technologies for matrixpellets and micropellets	N. Pöllinger ¹ , A. Prasch ² B. Schlütermann ²	¹ Glatt GmbH, Germany ² ADD Technologies, Switzerland
Session 3 Fundamental Aspect of Granulation - Chaired by Ingela Niklasson Björn				
7	10.30-10.55	Granule Nucleation and Growth: Competing Drop Spreading and Infiltration Processes	H. Charles-Williams ¹ , R. Wengeler ² , K. Flore ² , H. Feise ² , M.J. Hounslow ¹ , A.D. Salman ¹	¹ The University of Sheffield, UK ² BASF SE, Germany
8	10.55-	Mixing of a wet granular medium: Particle size	R. Collet ¹ , D. Oulahna ¹ , P.	¹ RAPSODEE, École

	11.20	and liquid effects	H. Jezequel ² , A. De Ryck ¹ , M. Martin ²	des Mines d'Albi, France. ² Lafarge Centre de Recherche, France
9	11.20 -11.45	Rewetting effects and droplet motion in wet granulation	T.H. Nguyen, K. Hapgood W. Shen	
	11.45- 12.45	Lunch		
	12.45- 13.45	Plenary Lecture: Structure and dynamics of granular materials depend on the force between the individual particles	Prof Hans-Jürgen Butt Introduced by Prof Stefan Palzer	Max Planck Institute for Polymer Research, Germany
	13.45- 14.15	Coffee break		
Session 4 Extrusion - Chaired by Göran Alderborn				
10	14.15- 14.40	Twin screw extrusion: Granule properties	J. Cartwright ¹ , D. Doughty ¹ , R Dhenge ² , R. Fyles ² , M. J.Hounslow ² , A. D. Salman ²	¹ GlaxoSmithKline, UK ² The University of Sheffield, U.K
11	14.40- 15.05	Dynamic torque measurement in twin screw extrusion process	M. Köster, M. Thommes	Heinrich-Heine- University Duesseldorf, Germany
12	15.05- 15.30	Scale-up and interchangeability of twin-screw granulators used for a continuous wet granulation process.	B. Van Melkebeke, C. Vervaet, J. P. Remon	Ghent University, Belgium
Session 5 Drying and Spray Dryer Process - Chaired by Gavin Walker				
13	16.00- 16.25	Conceptual design of a pseudo-continuous granulator-dryer	Davide Manca ¹ , Guia Bertuzzi ² , Leonardo Rabaglia ³ , Francesco Nucci ⁴	¹ Politecnico di Milano, Italy ² IMA S.P.A. Active Division, Italy ³ IMA S.p.A. Innovation, Research & New Technologies, Italy ⁴ Zanchetta Srl, Italy
14	16.25- 16.50	Modeling of agglomerate growth in fluidized bed spray drying	K. Terrazas-Velarde, M. Peglow, E. Tsotsas	Thermal Process Engineering, Otto-von- Guericke-University Magdeburg, Germany
15	16.50- 17.15	An experimental study of agglomeration in spray driers	A. M. Williams ¹ , J. R. Jones ² , A.H.J. Paterson ² , D.L. Pearce ¹	¹ Fonterra Research Centre, New Zealand ² School of Technology and Advanced Engineering, Massey University, New Zealand

Session 6 Coating - Chaired by Klaus Eichler				
16	14.15-14.40	Identification of defluidization in fluidized bed coating	M.R. Parise, C.A.M., Silva, M. J., Ramazini O.P. Taranto	University of Campinas (UNICAMP), Brazil
17	14.40-15.05	Nanosuspension spray-coating system for improving dissolution properties of a poorly water-soluble drug	H. Ichikawa, M. Takada Y. Fukumori	Kobe Gakuin University, Japan
18	15.05-15.30	Surface modification of talc particles by dry coating: influence on the Wettability and the dispensability in aqueous solutions.	G. Lefebvre, L. Galet A. Chamayou	Ecole Nationale Supérieure des Techniques Industrielles et des Mines d'Albi-Carmaux, Centre RAPSODEE, France
	15.30-16.00	Coffee Break		
Section 7 Contact Mechanics - Chaired by Ali Hassanpour Rudbari				
19	16.00-16.25	On the capillary force/viscous force transition in pendular liquid bridges	James Bowen, David Cheneler, Zhibing Zhang, Michael C.L. Ward Michael J. Adams,	University of Birmingham, , UK
20	16.25-16.50	Micromechanics of fine particle adhesion: contact models and energy absorption	J. Tomas	Otto-von-Guericke-University, Germany
21	16.50-17.15	Effect of the liquid layer on the impact behaviour of particles	S. Antonyuk ¹ , S. Heinrich ¹ , M. Dosta ¹ , M.S. van Buijtenen ² , N.G. Deen ² J.A.M. Kuipers ²	¹ Hamburg University of Technology, Germany ² University of Twente, The Netherlands
Section 8 Spout Fluidized Bed - Chaired by Hongsing Tan				
22	16.00-16.25	An experimental study of the effect of collision properties on spout fluidized bed dynamics	Maureen S. van Buijtenen ¹ , Matthias Börner ² , Niels G. Deen ¹ , Stefan Heinrich ^{2,3} , Sergiy Antonyuk ^{2,3} J.A.M. Kuipers ¹	¹ University of Twente, The Netherlands ² Otto-von-Guericke-University Magdeburg, Germany ³ Hamburg University of Technology, Germany
23	16.25-16.50	Analysis of the fluidization behaviour and application of a novel spouted bed apparatus for spray granulation and coating	O. Gryczka ¹ , S. Heinrich ¹ , N.G. Deen ² , J.A.M. Kuipers ² , M. Jacob ³	¹ Hamburg University of Technology, Germany ² University of Twente, The Netherlands ³ Glatt Ingenieurtechnik GmbH Weimar, Germany
24	16.50-17.15	Non-crosslinked chitosan nanoparticles as a novel biodegradable coating agent for prolonged-release microencapsulation of protein drugs by spouted-bed spray-coating	H. Ichikawa ^{1,3} , M. Morinaga ¹ , H. Abe ^{2,3} , M. Naito ^{2,3} , Y. Fukumori ^{1,3}	¹ Kobe Gakuin University, Japan ² Osaka University, Japan ³ Kobe Gakuin University, Japan
Session 9 Solid Flow - Chaired by Paul Avontuur				

25	14.15-14.40	Numerical investigation of effects of agglomerate property and flow condition on the powder dispersion in a simple inhaler	Z.B. Tong ¹ , R.Y. Yang ¹ , A.B. Yu ¹ , S. Adi ² , H.K. Chan ²	¹ University of New South Wales, Australia ² University of Sydney, Australia
26	14.40-15.05	Effect of liquid binder on solids flow pattern in a conical high shear mixer	Xianfeng Fan ¹ , David J. Parker ² , Zufang Yang ² , Boonho Ng ³ , Yulong Ding ³ , Mojtaba Ghadiri ³	¹ London South Bank University, London UK ² University of Birmingham, Birmingham, UK ³ University of Leeds, UK
27	15.05-15.30	The aerodynamic dispersion of cohesive loose powder aggregates: the effect of interparticle cohesion on dispersion performance	G. Calvert, A. Hassanpour M. Ghadiri	University of Leeds, UK

Day 2- 25th June 2009

Paper no.	Time	Topic	Speaker	Group
	09.00-10.00	Plenary Lecture: Importance of structure to granule properties and choice of process	Prof Mike Hounslow Introduced by Prof David York	University of Sheffield, UK
	10.00-10.30	Coffee Break		
Session 1 High Shear Granulation - Chaired by Christian Seiler				
28	10.30-10.55	Seeded Granulation	N. Rahmanian, A. Najj, M. Ghadiri	University of Leeds, UK
29	10.55-11.20	Product driven process synthesis of granulation processes	S. Gupta, P. Bongers	Unilever R&D, The Netherlands
30	11.20 - 11.45	Single foam in high shear granulator	Melvin X.L. Tan Karen P. Hapgood	Monash University, Australia
Session 2 Numerical Simulation - Chaired by Gavin Reynolds				
31	10.30-10.55	Fluid dynamics simulation of the high shear mixing process	A. Darelus ¹ , J. Rempelgas ¹ , A. Rasmuson ¹ , B. van Wachem ² , I. Niklasson Björn ³	¹ Chalmers University of Technology, Sweden ² Imperial College, UK ³ AstraZeneca, Sweden
32	10.55-11.20	Theory and numerical simulation of two-component granulation.	Themis Matsoukas ¹ , Pavol Rajniak ² , Carl Marshall ¹	¹ Pennsylvania State University, USA ² Merck & Co., Inc., USA
33	11.20 - 11.45	Coupling of CIP and DEM: Particle-liquid interaction	K. Washino ¹ , H.S. Tan ² , M.J. Hounslow ¹ , A.D. Salman ¹	¹ The University of Sheffield, UK ² P&G Technical Centres Ltd, UK
Session 3 Mechanical Characterisation of Granules - Chaired by Juergen Tomas				

34	10.30-10.55	The restitution coefficient of three types of wet granules	P. Mueller ¹ , S. Antonyuk ² , J. Tomas ¹ , S. Heinrich ²	¹ Otto-von-Guericke University, Germany ² Technical University Hamburg-Harburg, Germany
35	10.55-11.20	Investigations of the correlations between granule microstructure and deformation behaviour	Dr. M. Nebelung S. Eckhard	Fraunhofer-Institut Keramische Technologien und Systeme, Germany
36	11.20 - 11.45	Characterization of coating formulation and process manufacturing understanding as tool for determination of coating's strength	G. Perfetti ¹ , C. Van der Meer ² , T. Aubert ¹ , H. Wildeboer ³ , G. Meesters ³	¹ Delft University of Technology ² INHOLLAND College, The Netherlands ³ DSM Food Specialties, The Netherlands
	11.45-12.45	Lunch		
37	12.45-13.45	Plenary Lecture: Similarities in the agglomeration of pharmaceuticals, detergents, chemicals and food powders	Prof Stefan Palzer Introduced by Prof. Gabriele Meesters	Nestlé Research Centre, Switzerland
	13.45-14.15	Coffee Break		
Session 4 Process Analytical Technique (PAT) - Chaired by James Cartwright				
38	14.15-14.40	Lab scale fluidized bed granulator instrumented with non-invasive process monitoring devices	Jari Leskinen ^{1,2} Sami Poutiainen ¹ , Matti Okkonen ³ , Jyrki Savela ³ , Mari Tenhunen ³ , Reijo Lappalainen ² , Jarkko Ketolainen ¹ , Kristiina Järvinen ¹	¹ University of Kuopio, Finland ² University of Kuopio, Finland ³ VTT Technical Research Centre of Finland, Finland
39	14.40-15.05	Quantitative analysis of structure and transport processes in anaerobic methanogenic granules using Magnetic Resonance Imaging	Jan Bartacek ^{1,3} , Frank Vergeldt ² , Edo Gerkema ² , Henk Van As ² , Piet Lens ^{1,3}	¹ Wageningen University, The Netherlands ² Wageningen University, The Netherlands ³ UNESCO-IHE, The Netherlands
40	15.05-15.30	Formulation design for optimal high-shear wet granulation using on-line torque measurements	M. Cavinato ¹ , M. Bresciani ² , M. Machin ² , F. Cappitelli ² , P. Canu ¹ , A. Santomaso ¹	¹ Università di Padova, Italy ² GlaxoSmithKline, Italy
Session 5 Mixer - Chaired by Renee Boerefijn				
41	14.15-14.40	Analysis of particle mixing in a paddle mixer	A. Hassanpour ¹ , H. Tan ² , A. Bayly ² , M. Ghadiri ¹	¹ University of Leeds, UK ² P&G Technical Centre Ltd., UK
42	14.40-	Analysis of granule breakage in a rotary	H. Ahmadian,	University of Leeds, UK

	15.05	mixing drum: experimental study and Distinct Element Method analysis	M. Eggert, A. Hassanpour M. Ghadiri	
43	15.05-15.30	Fractal morphogenesis description of agglomeration in low shear mixer	E. Rondet ¹ , M. Delalonde ² , T. Ruiz ¹ , J.P. Desfours ¹	¹ Université Montpellier, France ² Université Montpellier, France
Session 6 Encapsulation / Foam - Chaired by Steve Keningley				
44	14.15-14.40	Dry water: from physico-chemical aspects to process related parameters	Laurent Forny, Isabelle Pezron, Khashayar Saleh	Université de Technologie de Compiègne, Transformation Intégrée de la Matière Renouvelable, France
45	14.40-15.05	Product and process optimization using artificial neural networks – an encapsulation case study	M. Jacob	Glatt Ingenieurtechnik GmbH Weimar, Germany
46	15.05-15.30	Granulation of gelling polymers with foamed binder solutions	K.Walter ¹ , P. Luukkonen ¹ , S. Abrahmsén Alami ² and Martin Wikberg ¹	¹ AstraZeneca, Product Development, Mölndal, Sweden ² AstraZeneca, Product Development, Lund, Sweden
	15.30-16.00	Coffee Break		
Session 7 Scale-Up - Chaired by Jin Shing Fu				
47	16.00-16.25	Batch top-spray fluid bed coating: scale-up insight using dynamic heat- and mass-transfer modelling	P.D. Hede ¹ , P.Bach. ¹ A.D. Jensen ²	¹ Novozymes A/S, Denmark ² Technical University of Denmark, Denmark
48	16.25-16.50	Wet granulation in laboratory high shear mixers: Effect of physico-chemical properties	T.-M. Chitu ¹ , D. Oulahna ¹ , M. Hemati ² , M. Benali ²	¹ RAPSODEE, France ² Laboratoires de Génie Chimique, France
49	16.50-17.15	Foam-granulation technology (FGT): scalability in high shear granulation equipment	P. Sheskey, C. Keary, K. Balwinski	The Dow Chemical Company, USA
Session 8 Compaction and Milling - Chaired by Mojtaba Ghadiri				
50	16.00-16.25	Diametrical compression of wet granular materials	R.M. Smith ¹ , J.D. Litster ¹ , N.W. Page ²	¹ The University of Queensland, Australia ² The University of Newcastle, Australia
51	16.25-16.50	Experimental and numerical analysis of homogeneity over strip width in roll compaction	A. Michrafy, H. Diarra, J. A. Dodds	Ecole des Mines d'Albi, France
52	16.50-17.15	Modelling and control of pharmaceutical granule milling in a conical screening	G.K. Reynolds	AstraZeneca, UK

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Session 9	Mechanical Characterisation of Granules - Chaired by Mike Adams			
53	16.00-16.25	Assessment of granule strength via surface energy and densification approaches	K. A. Macias, A. Otte M.T. Carvajal	Purdue University, USA
54	16.25-16.50	Relationship between mechanical properties and shape descriptors of wet granules	D. Tellez-Medina, Edmond Byrne, John Fitzpatrick, Muammer Catak , K. Cronin	University College Cork, Ireland
55	16.50-17.15	Effect of batch size on mechanical properties of granules in high shear granulation	C. Mangwandi ¹ , M.J. Adams ² , M.J. Hounslow ¹ , A.D. Salman ¹	¹ The University of Sheffield, UK ² University of Birmingham, UK

Day 3- 26th June 2009

Paper No.	Time	Topic	Speaker	Group
	09.00-10.00	Plenary Lecture: End product property needs and how they influence the choice of materials and process	Prof Peter Kleinbudde Introduced by Dr T. A. Nagy	Gedeon Richter Plc., Hungary
	10.00-10.30	Break coffee		
Session 1 Fluidised Bed Granulation - Chaired by Markus Hartmann				
56	10.30-10.55	Moisture balance calculation– what is it good for? Theory and industrial praxis	T. A. Nagy	Gedeon Richter Plc., Hungary
57	10.55-11.20	Analysis of the product granulometry, temperature and mass flow of an industrial multichamber fluidized bed urea granulator operating at unsteady state conditions	D. Bertin, I. Cotabarren, V. Bucalá, J. Piña	Universidad Nacional del Sur, Argentina.
58	11.20 - 11.45	Markov chain modelling of fluidised bed granulation	M.Çatak, N. Baş, D. Tellez-Medina, E. Byrne, J. Fitzpatrick K.Cronin	University College Cork, Ireland
Session 2 Other Granulation Techniques - Chaired by Karen Hapgood				
59	10.30-10.55	A first order numerical study of the spheronisation process	L.A. Mills ¹ , I.C. Sinka ¹ , H.V. Atkinson ¹ B.Gururajan ²	¹ University of Leicester, UK ² AstraZeneca R&D Charnwood UK
60	10.55-11.20	The enzymatic role in phthalate degradation by phthalic acid aerobic granule in sequencing batch reactor	P. Zeng ¹ , Y.H. Song ¹ , J.H. Tay ²	¹ Chinese Research Academy of Environmental Sciences, China ² Nanyang Technological University, Singapore
61	11.20 - 11.45	Gibbsite particles interactions and agglomeration during crystallization from Bayer liquors	Jonas Addai-Mensah	University of South Australia, Australia
Session 3 Fundamental Aspect of Granulation - Chaired by Nigel Sommers				
62	10.30-10.55	Breakage of drop nucleated granules in a breakage only high shear mixer	R.M. Smith, J.D. Litster	The University of Queensland, Australia
63	10.55-11.20	Producing hollow granules from hydrophobic powders in high-shear mixer granulators	Nicky Eshtiagh ¹ , Benedicta Arhatari ² ,	¹ Monash University, Australia ² La Trobe University, Australia

			Karen P. Hapgood ¹	
64	11.20 - 11.45	Wetting, disintegration and dissolution of agglomerated water soluble powders	L. Forny, A. Marabi S. Palzer	Nestlé Research Centre, Switzerland
	11.45-12.45	Lunch		
	12.45-13.15	Plenary Lecture: What of the future?	Prof Jim Litster Introduced by Prof Mike Hounslow	Purdue University, USA.
	13.15-14.15	Coffee Break		
Session 4 Food Granulation - Chaired by Philip Moore				
65	14.15-14.40	Caking of amorphous powders - material aspects, modelling and applications	M. Hartmann ¹ , S. Palzer ²	¹ Nestlé Product Technology Centre, Germany ² Nestlé Research Center, Switzerland
66	14.40-15.05	Morphological characterization with image analysis of cocoa beverage powder agglomerated with steam	F.Z.Vissotto ¹ , G.C. Dacanal ² , G.B.Q. Cardozo ¹ , M.I.Rodrigues ² , F.C.Menegalli ²	¹ Food Technology Institute, Campinas, Brazil ² University of Campinas, Brazil
67	15.05-15.30	Granulation of food powders: unsteady granular velocities	S.K. Dorvlo ¹ , S. Palzer ² , M. Hartmann ³ , M.J. Hounslow ¹ , A.D. Salman ¹	¹ The University of Sheffield, UK ² Nestlé Research Centre, Switzerland ³ Nestlé Product Technology Centre, Germany
68	15.30-15.55	Effect of high shear granulation parameters on the production of a granola cereal aggregate	P. B. Pathare, N. Baş, J.J. Fitzpatrick, K. Cronin E. P. Byrne	University College Cork, Ireland
Session 5 Roller Compaction - Chaired by Bindhu Gururajan				
69	14.15-14.40	Roller compaction process modelling: prediction of operating space	G.K. Reynolds, B. Gururajan, R. Ingale, R. Roberts, N.Sandler, D. Simpson	AstraZeneca R&D
70	14.40-15.05	A comparative study of powder compression behaviour during roller compaction and uniaxial compaction	B. A. Patel ¹ , C. Wu ¹ , M.J. Adams ¹ , N. Turnbull ²	¹ University of Birmingham, UK ² Pfizer Ltd, UK
71	15.05-15.30	Roller compaction of moist powders	C.-Y. Wu ¹ , A.M. Miguélez-Morán ^{1,2} , W.-L.Hung ¹ J.P.K. Seville ³	¹ University of Birmingham, UK ² University of Heidelberg, Germany ³ University of Warwick, UK
72	15.30-	New challenges for press agglomeration using roller compaction	H. Stahl	Hosokawa Bepex GmbH, Germany

	15.55			
Session 6	Tableting Process - Chaired by Csaba Sinka			
73	14.15-14.40	Numerical analysis of density-induced segregation during die filling in air	Y. Guo, C.-Y. Wu, K.D. Kafui, C. Thornton	University of Birmingham, UK
74	14.40-15.05	Numerical determination of the stress distribution during die compaction processes	J.D. Prigge, K. Sommer	Universität München, Germany
75	15.05-15.30	Compaction of re-crystallised ibuprofen	L. Seton, M. Roberts, F. Ur-Rehman	Liverpool John Moores University, UK
76	15.30-15.55	Effect of internal lubricant on granule and tablet properties	V. Chouk ¹ , B. Gururajan ² , G. Reynolds ³ , M. Hounslow ¹ , A. Salman ¹	¹ University of Sheffield, U.K. ² AstraZeneca, Loughborough, U. K. ³ AstraZeneca, Macclesfield, U.K
	16.00-16.30	Closing Remarks		