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CONFERENCE & EXPOSITION

MAY 4-6, 2010

Donald E. Stephens Convention Center
Rosemont, IL (adjacent to O'Hare Airport)

ProcessTechExpo.com

The Complete Source for the Latest Processing Solutions

The World renowned International Powder & Bulk Solids Conference will once again provide leading educational sessions structured with extensive input from leading powder and processing experts. The 2010 Conference will once again bring processing professional from all over the World face-to-face with the industry experts presenting their knowledge and experiences to help you enhance your process, increase efficiencies and provide practical high-value information you can immediately apply to your current job responsibilities.

Group, government, and student discounts available. Contact us at +1 310-996-9431 or conference@cancom.com for inquiries.

Conference Program—Tuesday, May 4

9:00 A.M. - 12:00 P.M.

100A Fundamentals of Powder Flow Technology	101A Pneumatic Conveying: Current Principles and Practice	102A Electrostatic Hazards Associated with Liquid and Powder Processing	103A Basics and Applications of Particle Characterization	104A Performance Characteristics and Selection Criteria for Conveyors Used in the Process Industries
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2:00 P.M. - 4:00 P.M.

100B Step-by-Step Process for Designing a Bulk Solid Storage Vessel	101B Pneumatic Conveying: Current Principles and Practice, continued	102B Assessment and Control of Dust Explosion Hazards	103B Basics and Applications of Particle Characterization, continued	104B Instrumentation Systems for Bulk Solids Handling Plant - Getting the right equipment
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Conference Program—Wednesday, May 5

9:00 A.M. - 12:00 P.M.

200A Preventing Harmful Particle Segregation	201A Predicting Performance and Problem Solving in Pneumatic Conveying	202A Specifying a Weighing System	203A Minimizing Fugitive Dust Accumulations in the Workplace	204A Risk Analysis for Dust Explosion Hazards	205A How to retrofit existing troublesome bins and hoppers
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2:00 P.M. - 4:00 P.M.

200B Mixing, Blending and Sampling of Bulk Solids	201B Predicting Performance and Problem Solving in Pneumatic Conveying	202B Instrumentation and On-Site Troubleshooting of Pneumatic Conveying Systems	203B OSHA Combustible Dust Regulatory Update	204B Laboratory Testing to Assess Explosion Characteristics of Dust Clouds	205B How to retrofit existing troublesome bins and hoppers, continued
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Conference Program–Wednesday, May 5					
9:00 A.M. - 12:00 P.M.					
300A Selecting or Troubleshooting Screws, Belts, and Rotary Valves To Ensure reliable flow	301A Small Operations - Equipment and Selection	302A Feeding, Transfer and Conveying of Bulk Solids	303A Use flow aids when gravity alone will not work	304A Dust Control: Guidelines on Compliance with New Federal Directive	305A Segregation and Blending
2:00 P.M. - 4:00 P.M.					
300B Preventing Particle Caking and Attrition	301B Small Operations - Equipment and Selection, continued	302B Feeding, Transfer and Conveying of Bulk Solids, continued	303B Practical Pneumatic Conveying	304B Practical Dust Collection System Maintenance	305B Segregation and Blending, continued

Conference Program Registration Includes:

- Session materials for registered session(s) each day and electronic access to presentations for registered day(s)
- Networking lunch on registered day(s)
- Coffee and refreshments during the session breaks
- Complimentary admission to all co-located expositions

Conference Fees		
	Early Bird Rate (before April 9)	After April 9 & On-Site Rate
One Day	\$395	\$495
Full Conference	\$795	\$895

Group, government, and student discounts available. Contact us at +1 310-996-9431 or conference@cancom.com for inquiries.



Tuesday, May 4

Each session ending with "A" runs from 9:00 am - 12:00 pm (3 hours)
Each session ending with "B" runs from 2:00 pm - 4:00 pm (2 hours)

<p>100A Fundamentals of Powder Flow Technology <i>Speaker: Eric P. Maynard Senior Consultant, Jenike & Johanson</i></p> <ul style="list-style-type: none"> • Typical bulk solids flow problems in silos, bins, and hoppers • Results of flow problems • Flow patterns and different hopper designs • Ways to characterize flow properties (common tests and resulting data) • Attendees' questions 	<p>101A Pneumatic Conveying: Current Principles and Practice <i>Speakers: Professor Mark Jones, Professor David Mills and Dr Don McGlinchey</i></p> <p>The morning session will provide an introduction to pneumatic conveying including basic modes of flow and the various types of generic system used in industry. The session will go on to explain the importance of the material to be conveyed and illustrate the typical conveying characteristics for the major modes of pneumatic conveying.</p>	<p>102A Electrostatic Hazards Associated with Liquid and Powder Processing <i>Speaker: Vahid Ebadat, Ph.D., Chilworth Technology, Inc.</i></p> <p>We will discuss the condition under which electrostatic charges can generate, accumulate, and cause incendive discharges during liquid and powder processing/handling operations.</p> <p>This presentation will include practical techniques for:</p> <ul style="list-style-type: none"> • identifying • quantifying • eliminating/controlling electrostatic ignition hazards 	<p>103A Basics and Applications of Particle Characterization <i>Instructors: Remi Trottier and Stewart Wood, Dow Chemical</i></p> <p>The following topics will be covered:</p> <ul style="list-style-type: none"> • Basic concepts <ul style="list-style-type: none"> o Data representation o Number, Surface Area, Volume Distributions o Averages o Sampling • Technologies & Data Interpretation <ul style="list-style-type: none"> o Ensemble Techniques • Fractionation Techniques <ul style="list-style-type: none"> o Sedimentation o Hydrodynamic Chromatography • Single Particle Counting Techniques <ul style="list-style-type: none"> o Dynamic Image Analysis o Optical Particle Counters o Electrozone Particle Counters • General Approach to Particle Size Problem Solving, Method Development and Validation 	<p>104A Performance Characteristics and Selection Criteria for Conveyors Used in the Process Industries <i>Speakers: Mark Jones PhD and Alan Roberts PhD Centre for Bulk Solids and Particulate Technologies The University of Newcastle, Australia</i></p> <p>When selecting conveying and handling equipment for specific tasks in process operations, there are many options available. Much depends on the specific process requirements, the method of feeding and transfer, the need to prevent attrition and segregation as well as the need for dust control. The economics of the various solutions will play a major role in the final decision. Of paramount importance is the characterization of the flow and handling properties of the powder to be conveyed. The workshop will discuss the various issues regarding the performance and selection of conveyors, illustrating this by way of case study examples.</p>
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Tuesday, May 4

Each session ending with "A" runs from 9:00 am - 12:00 pm (3 hours)
Each session ending with "B" runs from 2:00 pm - 4:00 pm (2 hours)

<p>100B Step-by-Step Process for Designing a Bulk Solid Storage Vessel <i>Speaker: Eric P. Maynard Senior Consultant, Jenike & Johanson</i></p> <ul style="list-style-type: none"> • Basic review of material characterization report • Review of silo design requirements (capacity, flow rate, physical layout, etc.) • Selection of flow (discharge) pattern • Design of the silo hopper and feeder • Review of multiple silo design options • Attendees' questions 	<p>101B Pneumatic Conveying: Current Principles and Practice, continued</p> <p>The afternoon session will cover the scaling rules for pneumatic conveying systems and conclude with a brief overview of the common operating problems that face pneumatic conveying systems and how these might be minimized.</p>	<p>102B Assessment and Control of Dust Explosion Hazards - Including OSHA Combustible Dust National Emphasis Program <i>Speaker: Vahid Ebadat, Ph.D. Chilworth Technology, Inc.</i></p> <ul style="list-style-type: none"> • Employee exposure to combustible dust hazards. • Compliance with recognized and applicable codes and standards such as those cited by the OSHA Combustible Dust National Emphasis Program • Powder and dust property information regarding the flammability, ignition sensitivity, explosion severity, electrostatic properties, and thermal stability of the raw materials, dust deposits, intermediates and final products of the operation. • Practical measures to eliminate/control potential dust explosion hazards according to applicable codes and standards 	<p>103B Basics and Applications of Particle Characterization, continued <i>Instructors: Remi Trottier and Stewart Wood, Dow Chemical</i></p> <p>The following topics will be covered:</p> <ul style="list-style-type: none"> • Basic concepts <ul style="list-style-type: none"> ◦ Data representation ◦ Number, Surface Area, Volume Distributions ◦ Averages ◦ Sampling • Technologies & Data Interpretation <ul style="list-style-type: none"> ◦ Ensemble Techniques • Fractionation Techniques <ul style="list-style-type: none"> ◦ Sedimentation ◦ Hydrodynamic Chromatography • Single Particle Counting Techniques <ul style="list-style-type: none"> ◦ Dynamic Image Analysis ◦ Optical Particle Counters ◦ Electrozone Particle Counters <p>General Approach to Particle Size Problem Solving, Method Development and Validation</p>	<p>104B Instrumentation Systems for Bulk Solids Handling Plant - Getting the right equipment <i>Speakers: E.A. Knight and J.R. Pugh, Glasgow Caledonian University</i></p> <p>Incorporating the correct instrumentation to measure variables such as temperature, pressure, level and flow brings considerable benefit to the efficient operation of the process.</p> <p>This workshop will outline the operation of instrumentation systems and place particular emphasis on the importance of understanding the key issues in specifying such systems.</p>
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Wednesday, May 5

Each session ending with "A" runs from 9:00 am - 12:00 pm (3 hours)
Each session ending with "B" runs from 2:00 pm - 4:00 pm (2 hours)

<p>200A Preventing Harmful Particle Segregation <i>Speaker: Eric P. Maynard Senior Consultant, Jenike & Johanson</i></p> <ul style="list-style-type: none"> • Common mechanisms of particle segregation • Methods to quantify segregation tendencies (ASTM standardized segregation testers) • How flow patterns affect segregation • How to modify/ design solids handling equipment to minimize segregation • Attendees' questions 	<p>201A Predicting Performance and Problem Solving in Pneumatic Conveying <i>Speakers: Mark Jones, PhD, Director, Centre for Bulk Solids and Particulate Technologies, The University of Newcastle, Australia David Mills, PhD, Pneumatic Conveying Consultant, UK</i></p> <p>The workshop will provide practical tools for use in estimating the major design parameters which can be used either to specify new systems or to optimize existing systems. Practical examples will be used to illustrate how these methods can be applied to real industrial situations.</p>	<p>202A Specifying a Weighing System <i>Speakers: J.R. Pugh and E.A. Knight, Glasgow Caledonian University</i></p> <p>This workshop is aimed at users who wish to procure a weighing system for use in their plant operations and for suppliers who are keen that the customer procures the correct system for their application.</p>	<p>204A Risk Analysis for Dust Explosion Hazards <i>Speaker: William Stevenson, V.P. Engineering, CV Technology, Inc.</i></p> <p>Topics include:</p> <ul style="list-style-type: none"> • The prerequisites for an explosion • Is there dust in the process? • Is the dust explosive? • What dust testing is required and why? • Where can the elements for a dust explosion occur in the process? • What are the predictable consequences if there were an event? • Can propagation occur? • What is the level of plant cleanliness? • What is the proximity of electrical equipment? • Is all equipment bonded and grounded? • Is there any equipment in the process that adds energy to the dust? 	<p>205A How to retrofit existing troublesome bins and hoppers <i>Instructor: Joe Marinelli, Solids Handling Technologies, Inc.</i></p> <ul style="list-style-type: none"> • Bin flow problems such as arching and ratholing • Flow patterns – funnel flow, mass flow, expanded flow • Flow properties testing – cohesive and wall friction properties • Design principles for reliable flow using cones and especially wedges • Calculation of critical bin dimensions, opening sizes, wall angles, etc. • How to interpret a Flow Report and adapt data to a retrofit • Proper feeder design as a means to retrofit a system • Liners and coatings to improve material flow • Inserts and cone-in-cone design concept • Flow aids and chutes • Attendees problems
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Wednesday, May 5

Each session ending with "A" runs from 9:00 am - 12:00 pm (3 hours)
Each session ending with "B" runs from 2:00 pm - 4:00 pm (2 hours)

<p>200B Mixing, Blending and Sampling of Bulk Solids <i>Speaker: Eric P. Maynard Senior Consultant, Jenike & Johanson</i></p> <ul style="list-style-type: none"> • Analysis of blend uniformity • Sample collection, splitting, and analysis • Flow patterns within a bin or blender and their effects on particle segregation • Blending mechanisms • Types of blenders (ribbons, paddles, tumblers, rotary, contact-bed, tube blenders) • Sampling techniques (thief vs. discharge sampling) • Attendees' questions 	<p>201B Predicting Performance and Problem Solving in Pneumatic Conveying <i>Speakers: Mark Jones PhD and Alan Roberts PhD Centre for Bulk Solids and Particulate Technologies, The University of Newcastle, Australia</i></p> <p>The workshop will go on to outline the four major groups of problems that affect pneumatic conveying systems; systems not achieving rate, pipeline blockage and unreliability, erosive wear and product attrition/degradation. These problems will be related back to key design parameters and approaches to solving these issues will be presented. These approaches will be illustrated using practical industrial case studies.</p>	<p>202B Instrumentation and On-Site Troubleshooting of Pneumatic Conveying Systems <i>Speakers: Dr Don McGlinchey and Liz Knight</i></p> <p>This workshop will:</p> <ul style="list-style-type: none"> • Explore the reasons for many of the problems associated with pneumatic conveying systems. • Explain how to troubleshoot effectively by identifying the key parameters to be measured. • Describe the selection of appropriate instrumentation systems and portable data acquisition hardware and software. • Demonstrate through case studies the value of these measurements in problem solving, for example increasing product throughput by approximately 40%. 	<p>204B Laboratory Testing to Assess Explosion Characteristics of Dust Clouds <i>Speaker: Vahid Ebadat, Ph.D. Chilworth Technology, Inc.</i></p> <ul style="list-style-type: none"> • A testing protocol for classifying powders as to their suitability for particular handling/processing operations • The laboratory tests that are most commonly used to determine the ignition sensitivity and explosion severity of dusts • Factors affecting the ignition sensitivity and explosion severity characteristics of dust clouds • Inclusion of combustible dust hazards properties in Material Safety Data Sheets (MSDS) • OSHA Combustible Dusts National Emphasis Program (NEP) 	<p>205B How to retrofit existing troublesome bins and hoppers, continued</p> <ul style="list-style-type: none"> • Bin flow problems such as arching and ratholing • Flow patterns – funnel flow, mass flow, expanded flow • Flow properties testing – cohesive and wall friction properties • Design principles for reliable flow using cones and especially wedges • Calculation of critical bin dimensions, opening sizes, wall angles, etc. • How to interpret a Flow Report and adapt data to a retrofit • Proper feeder design as a means to retrofit a system • Liners and coatings to improve material flow • Inserts and cone-in-cone design concept • Flow aids and chutes • Attendees problems
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Thursday, May 6

Each session ending with "A" runs from 9:00 am - 12:00 pm (3 hours)
Each session ending with "B" runs from 2:00 pm - 4:00 pm (2 hours)

300A

Selecting or Troubleshooting Screws, Belts, and Rotary Valves To Ensure reliable flow

Speaker: Eric P. Maynard
Senior Consultant, Jenike & Johanson

- Advantages and disadvantages of various types of bin flow patterns
- Difference between a feeder and a conveyor
- Design techniques for screw feeders under elongated outlets
- Single vs. multiple screws and U-trough vs. Vee-trough
- Screws used for sealing against gas pressure gradients
- Design techniques for belt feeders under elongated outlets
- Comparison of screw, belt and rotary valve feeders
- Feeders for special applications
- When to use a gravimetric feeder
- Attendees' questions

301A

Small Operations - Equipment and Selection

Speakers: Mr Andrew Cowell and Dr Don McGlinchey

This workshop is aimed at the small operator, but will also benefit the large operator with small batch applications. The equipment covered includes:

- Aeromechanical Conveyors
- Bag Dump Stations
- Bulk Bag Dischargers
- Bulk Bag Fillers
- Drum Dumpers
- Flexible Screw Conveyors
- Sack Fillers
- Small Volume Batch Conveyors

For each of the equipment types, most of the following areas will be covered:

- Principles of Operation
- Advantages and Disadvantages, including troubleshooting
- Sizing/Selection
- Special Features (where applicable)
- Typical Applications

302A

Feeding, Transfer and Conveying of Bulk Solids

Speakers: Alan Roberts, PhD and Craig Wheeler, PhD
Centre for Bulk Solids and Particulate Technologies
The University of Newcastle, Australia

CASE STUDIES

This session will present a series of industrial case study examples to illustrate the importance of feeder interfacing, load and power control and trouble free transfer of bulk solids in feeding operations.



Thursday, May 6

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Each session ending with "B" runs from 2:00 pm - 4:00 pm (2 hours)

<p>303A Use flow aids when gravity alone will not work <i>Instructor: Joe Marinelli, Solids Handling Technologies, Inc.</i></p> <p>Topics include:</p> <ul style="list-style-type: none"> • Bin flow problems such as arching and ratholing • Flow patterns – funnel flow, mass flow, expanded flow • Flow properties testing – cohesive and wall friction properties • Design principles for reliable flow using cones and wedges • Using a Flow Report to provide input for flow aid usage • Vibratory devices • Agitation and forced extraction type devices • Aeration and flow aid materials and chemicals 	<p>304A Dust Control: Guidelines on Compliance with New Federal Directive <i>Speakers: Geoff Brazier and Clive Nixon, BS&B Safety Systems</i></p> <p>Combustible Dusts & Bucket Elevators: Towards an Explosion Protection Standard</p> <p>The presentation focuses on two core aspects of bucket elevator protection:</p> <ul style="list-style-type: none"> • the prevention of destructive pressure as a consequence of a dust explosion • the control of flame to limit propagation of combustion to connected equipment. <p>This insight into bucket elevator:</p> <ol style="list-style-type: none"> 1. Combustible Dust Risk 2. Dust Explosion Prevention & Protection Options 3. Dust Explosion Safety Implementation. <p>NEED CLIVES ABSTRACT</p>	<p>305A Segregation and Blending <i>Instructor: Dr. Kerry Johanson, Material Flow Solutions Inc.</i></p> <p>Attendees will learn about basic flow properties that influence segregation and the role they play in processing and blender selection and design. Discussion will also be focused on product design to prevent segregation from occurring as well as process design to minimize its effects.</p>
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Thursday, May 6

Each session ending with "A" runs from 9:00 am - 12:00 pm (3 hours)
Each session ending with "B" runs from 2:00 pm - 4:00 pm (2 hours)

300B

Preventing Particle Caking and Attrition

Speaker: *Eric P. Maynard*
Senior Consultant, *Jenike & Johanson*

- Common mechanisms of caking
- Review of caking testing techniques
- Review of external factors affecting caking
- Discussion of caking problems and their solutions
- Common mechanisms of particle attrition
- Review of attrition testing techniques, discussion of factors that affect attrition behavior
- Discussion of particle attrition problems and their solutions
- General recommendations to prevent or minimize damage to particles

301B

Small Operations - Equipment and Selection, continued

Speakers: *Mr Andrew Cowell and Dr Don McGlinchey*

This workshop is aimed at the small operator, but will also benefit the large operator with small batch applications. The equipment covered includes:

- Aeromechanical Conveyors
- Bag Dump Stations
- Bulk Bag Dischargers
- Bulk Bag Fillers
- Drum Dumpers
- Flexible Screw Conveyors
- Sack Fillers
- Small Volume Batch Conveyors

For each of the equipment types, most of the following areas will be covered:

- Principles of Operation
- Advantages and Disadvantages, including troubleshooting
- Sizing/Selection
- Special Features (where applicable)
- Typical Applications

302B

Feeding, Transfer and Conveying of Bulk Solids, continued

Speakers: *Alan Roberts, PhD and Craig Wheeler, PhD*
Centre for Bulk Solids and Particulate Technologies
The University of Newcastle, Australia

TECHNOLOGICAL DEVELOPMENTS IN BELT CONVEYING

This workshop will cover:
Bulk solids/conveyor belt interaction

- Selection of belt width and operating speed
- Design procedures
- Belt monitoring
- Rolling resistance
- Special belt conveyors



Thursday, May 6

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303B

Practical Pneumatic Conveying

Instructor: Paul Solt, Pneumatic Conveying Consultants

- New Systems
 - o Material variations
 - o Conveying line configurations
 - o Air Material Ratio
 - o Air velocity at feed point
- Systems that previously worked
 - o Changed material
 - o Worn air supply
 - o Leakage
- Simple analysis of system problems

This session will combine lecture presentation with questions and discussions with the attendees. Submission of questions prior to the presentation will guide in the material selection. The most common problems with pneumatic conveying systems will be presented initially, followed by unusual problems that have been encountered by the presenter's personal experiences of the past 59 years. Bring your detailed problems or confusion, and discuss them openly with the attendees and presenter.

304B

Practical Dust Collection System Maintenance

Speaker: Gary Q. Johnson

Dust collection systems are prevalent throughout the powders handling industry. Successful system performance keeps product in the system so it can be sold rather than discarded. They also provide protection for controlling worker exposures to a variety of hazardous materials, including combustible dusts. This workshop reviews how dust collection systems work, the more common failure modes, and troubleshooting techniques to bring them back to baseline performance.

305B

Segregation and Blending, continued

Instructor: Dr. Kerry Johanson, Material Flow Solutions Inc.

Attendees will learn about basic flow properties that influence segregation and the role they play in processing and blender selection and design. Discussion will also be focused on product design to prevent segregation from occurring as well as process design to minimize its effects.

