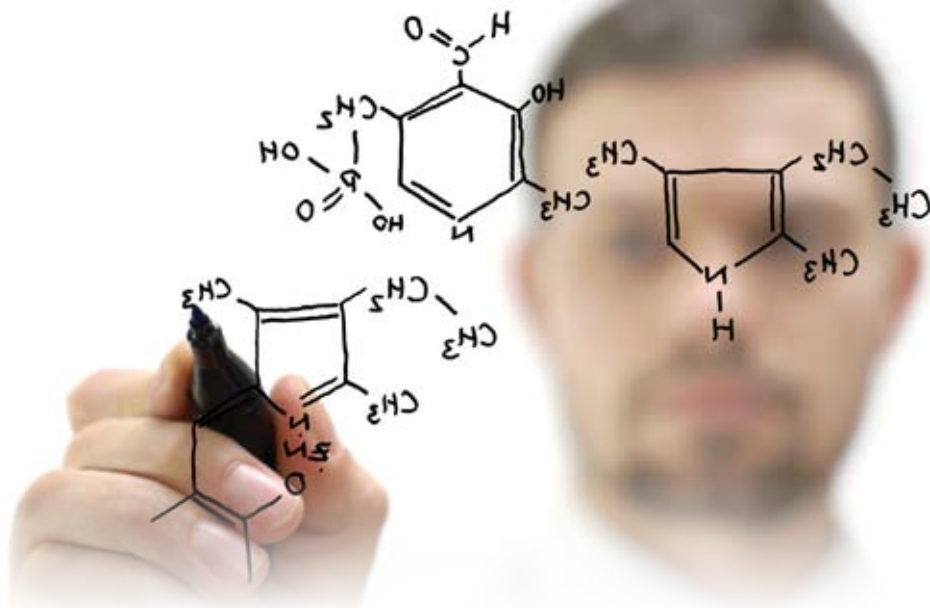




**SAVE THE DATE:**  
**DECEMBER 8-10, 2010**



Mixing Consultants, Inc. Presents:

## **ADVANCES IN PHARMACEUTICAL PROCESS DESIGN**

by Academic Experts from Rutgers University, NJ and Recognized Industry Leaders  
*Sponsored by Freeman Technology, Gericke, Glatt Air Techniques and K-Tron Process Group*

**DECEMBER 8-10, 2010: HELSINKI, FINLAND**

### **POWDER PROCESSING FUNDAMENTALS**

Overview of solid dose and inhalable products. Design of sampling methods. Thief sampling. Thief errors. NIR spectroscopy and other PAT methods for blending. Batch blending fundamentals. Critical variables in batch blending. Types of equipment. Failure modes. Segregation, segregation testing. Design of the lubrication step. Blend overlubrication. API agglomeration, causes and diagnosis. Failure modes.

### **QBD METHODOLOGIES**

Statistical methods for characterization of products and processes. Critical material properties: cohesion, density, hydrophobicity, electrostatics. Critical process parameters: shear, strain, compression force and speed. Effects on product quality attributes: dissolution, content uniformity, weight uniformity. Characterization of powder flow properties and their effects on process and product performance.

### **CONTINUOUS MANUFACTURING**

Design fundamentals. Feeders. Continuous mixers. Roller compaction. Tableting. Capsule filling. Equipment, critical variables.

### **ABOUT MIXING CONSULTANTS, INC.**

Mixing Consultants, Inc. provides technical services, supporting research and development and technology transfer in all areas regarding characterization, design, optimization and control of mixing processes for powders, liquids and suspensions. Our focus are pharmaceutical, food, chemical and energy industries. Our mission is to support and educate industry in the application of technical knowledge and modern methods to achieve excellence in product and process design, manufacturing, scale-up, technology transfer and control.

*Additional information and inquiries by e-mail to [info@mixingconsultants.com](mailto:info@mixingconsultants.com)  
or phone +1 (954) 727-3120.*

**Visit us at [www.mixingconsultants.com](http://www.mixingconsultants.com)**

## PROGRAM

Lectures will be presented by Professor Muzzio unless otherwise indicated.

### Day 1: Powder Processing Fundamentals

- 7:30 - 8:30 Registration and Breakfast
- 8:30 - 9:30 Overview of Powder-Based Products: Tablets, Capsules, and Aerosol Products
- 9:30 - 10:30 Powder Sampling, NIR Spectroscopy, and Other PAT Methods
- 10:30 - 12:00 Fundamentals of Batch Powder Mixing
- 12:00 - 1:00 Lunch (one-on-one consultation available)
- 1:00 - 2:30 Powder Segregation and Agglomeration
- 2:30 - 4:00 Powder Lubrication and Overlubrication
- 4:00 - 5:00 New Technical Solutions for Automated NIR Applications for Powder Blending  
*Mr. Ralf Kretzschmar, Glatt*

### Day 2: QbD Methodologies

- 7:30 - 8:30 Registration and Breakfast
- 8:30 - 10:30 Statistical Characterization of Materials, Products, and Processes
- 10:00 - 12:00 Critical Material Properties: Cohesion, Density, Hydrophobicity, Electrostatics
- 12:00 - 1:00 Lunch (one-on-one consultation available upon request)
- 1:00 - 2:00 Fundamental Process Parameters: Shear, Strain, Compression Force and Speed
- 2:00 - 3:30 Effect of Material Properties on Product Performance: A QbD Approach to Tablet Dissolution, Hardness, CU
- 3:30 - 5:00 Measuring and Understanding Powder Flow  
*Mr. Tim Freeman, Freeman Technology*

### Day 3: Continuous Manufacturing

- 7:30 - 8:30 Registration and Breakfast
- 8:30 - 9:30 Theoretical Aspects and Main Design Principles of Continuous Mixing Processes  
*Dr. Ralf Weinekötter, Gericke*
- 9:30 - 10:30 Operational Principles of Loss in Weight Feeders and their Refill in Continuous Operations  
*Ms. Sharon Nowak, K-Tron*
- 10:30 - 12:00 Loss in Weight Feeders and Continuous Mixers – Case Studies
- 12:00 - 1:00 Lunch (one-on-one consultation available upon request)
- 1:00 - 2:00 Roller Compaction
- 2:00 - 3:30 Tableting and Encapsulation
- 3:30 - 5:00 General Design Principles of a Continuous Manufacturing Operation

## MEET THE EXPERTS

**Dr. Fernando Muzzio, PhD.** Professor, Rutgers University. Director, Engineering Research Center on Structured Organic Particulate Systems. He is one of the world's leading experts on Pharmaceutical Powder Processing.

**Mr. Tim Freeman.** Director of Operations, Freeman Technology. He is a recognized expert in powder flow ability in relation to processing and formulation development.

**Mr. Ralf Kretzschmar.** President, Glatt Systemtechnik GmbH. He is a recognized expert in Pharmaceutical Manufacturing, with special focus in powder handling.

**Ms. Sharon Nowak.** Global Business Development Manager, K-Tron Process Group. She is a recognized leading expert in the fields of macro/micro feeding and conveying of pharmaceuticals, and in pharmaceutical process engineering/equipment design.

**Dr. Ralf Weinekötter.** General Manager, Gericke AG. He is one of the world's leading experts in the design and implementation of continuous powder handling, feeding, and mixing systems.

## ENJOY THE LOCATION!



### HELSINKI, FINLAND

Experience the excitement of the country's capital. Straddling islands and lapped by the Baltic sea, Helsinki is a uniquely attractive and interesting city to visit. Enjoy walks along the seaside and views along the world known Lapinlahti Bay. Visit museums and enjoy and exciting nightlife.

**Registration Fees (per attendee):** 1-2 days: €550 per day; 3 days: €1,300 ♦ Early registration: 1-2 days: €500 per day; 3 days: €1,200  
Early registration expires on November 5, 2010 ♦ On-site registration: €600 per attendee per day ♦ Multiple registrations: Special fees are available for companies registering 5 or more full time participants.

### Registration:

Complete the following information and fax it to Mixing Consultants, Inc. at +1 (954) 880-0228 or e-mail a signed scanned copy to [info@mixingconsultants.com](mailto:info@mixingconsultants.com).

Please register me for the **December 8-10, 2010** ~ Helsinki, Finland (Venue yet to be determined and informed later in the year)

Last Name \_\_\_\_\_ Name on badge \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Country \_\_\_\_\_

Phone: \_\_\_\_\_ Ext. \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Day 1: Powder Processing Fundamentals     Day 2: QbD Methodologies     Day 3: Continuous Manufacturing

I agree to pay \_\_\_\_\_ regardless if I attend.

Total days registered: \_\_\_\_\_ Total cost: \_\_\_\_\_ Signature: \_\_\_\_\_

How did you hear about this seminar:  Freeman Technology     Gericke     Glatt Air Techniques     K-Tron Process Group

Mixing Consultants, Inc.     Colleagues, word of mouth, etc. \_\_\_\_\_

**Payment method:** Major credit cards or check to Mixing Consultants, Inc., 5093 SW 153<sup>rd</sup> Terrace, Davie, FL 33331 USA

**Cancellation policy:** Cancellations will be assessed a non-reimbursable fee of €150 per attendee per day. Cancellations made after November 5, 2010 will not be reimbursable and will require full payment. Attendee replacements within the same company are welcome with prior express agreement by Mixing Consultants, Inc.

**Mixing Consultants, Inc. reserves the right to change the location, dates, and speakers of the event.**

Discounted hotel rates are available but limited. Contact us for reservations.

Additional information and inquiries by e-mail to [info@mixingconsultants.com](mailto:info@mixingconsultants.com) or call +1 (954) 727-3120.



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