JENIKE & JOHANSON

Bulk Solids: Science/Engineering/Design

Food E-Newsletter Spring 2009

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Upcoming Training Courses:

PBE
April 29-30 Atlanta

Additional 2009 ASME Courses
May 20-22 San Diego
Oct 14-16 Chicago
Dec 9-11 Atlanta

Flow of Solids In Bins, Hoppers & Feeders
June 1 Palm Springs
IEEE-IAS/PCA

Solids Handling: Lab, Lecture & Lunch
July 23
Tyngsboro, MA

Learn more about courses

Quick Links

Greetings!

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Welcome to the Spring 2009 issue of Jenike & Johanson's Food e-Newsletter.

Solids handling is an integral part of many food manufacturing processes. Whether your end product is solid or in liquid form, chances are good that you are handling powdered or granular materials at some point in your process. Unfortunately, chances are also good that this part of your process does not operate as well as you would like. Jenike & Johanson can help you avoid solids handling problems when developing a new process, or we can help you eliminate existing problems that may be impacting product quality, hindering system capacity, or increasing production costs.

This e-newsletter is intended to help you understand common solids handling challenges and give you a dependable approach to corrective actions that can be used in your plant.

Are You Concerned About Product Degradation?

Solids handling problems in food manufacturing can take on many forms. The classic solids handling problems that may first come to mind are those that prevent controlled discharge: arching, ratholing and flooding.

However, other solids handling problems can have a significant impact on product quality. One such problem is broadly described as product degradation.

Degradation is the undesirable change of a product or ingredient. It can take many forms in food products, including moisture absorption, caking, microbial growth, or

breakage. These undesirable changes often lead to non-uniformity, resulting in lost revenue caused by rework, scrapped product, or downgrading of products. They can also lead to customer complaints and loss of market share.

Jenike & Johanson can test your ingredients and products and recommend appropriate solutions to eliminate product degradation.

Read the complete article now.

Do You Have a Blending or Segregation Problem?

When the uniformity of a blended product is called into question, it can be challenging to evaluate the magnitude of the problem and to determine the root cause. As a starting point, you may ask:

- How should blend quality be measured?
- What size samples should be collected?
- How many samples should be collected?
- From what points in the process or locations within the blender should the samples be collected?
- Is the problem occurring in the blender or after the product leaves the blender?
- Is the final package uniformity within specification?
- Is the final package specification achievable and meaningful?
- Is the correct type of blender being used?
- Has the blender operation been optimized (fill level, blend time, speed)?
- What happens after the blender that may contribute to or even cause the problem?

A discussion on product uniformity must encompass three topics: blending, post blend segregation, and a sampling plan. These will develop a meaningful understanding of the observed blend quality and how the blend quality changes through your process.

Jenike & Johanson engineers have worked on numerous projects diagnosing and solving product uniformity problems in many industrial processes. Our typical project approach includes material characterization in which the results are used as the basis for analysis leading to the most practical solution as efficiently as possible.

Course Offering - Flow of Solids in Bins, Hoppers, Chutes & Feeders

Jenike & Johanson engineers will present their popular powder and bulk solids handling courses for ASME/AIChE (American Society of Mechanical Engineers and American Institute of Chemical Engineers) in San Diego in May, Chicago in October and Atlanta in December.

Additional courses will be presented at PBE East in Atlanta in April, at IEEE-IAS/PCA Cement course in Palm Springs in June, and at our lab in Tyngsboro, MA in July.

Additional courses will be posted on our web site as they are scheduled. We can also offer courses at your facility, which allows the content to be tailored to your specific needs.

These courses are intended for plant managers, plant design engineers, process engineers, product development and R&D personnel, food scientists, and others concerned about the proper flow of bulk materials in a food processing environment. These courses have been presented to thousands of attendees representing dozens of food manufacturing companies.

Proper training of personnel involved in design, optimization and operation of bulk solids handling systems is essential to operating an efficient and reliable food processing plant. Since the theory of bulk solids handling is seldom a part of formal engineering training, many in industry lack an understanding of why solids handling problems occur and what practical steps can be taken to diagnose, alleviate, or prevent them. Training helps to foster greater awareness of operating efficiency, safety, and process improvement, along with an understanding of the reasoning behind required equipment modifications or upgrades.

Recent Food Publications

For more information on the following publications, please contact our librarian directly via email or telephone at 978-649-3300.
Learn some great tips for your own food processing applications.

- **"Prevent Caking and Unintended Agglomeration"**, Greg Mehos Ph.D. and Scott Clement , Chemical Engineering, August 2008
- **"Preventing Solids Flow Problems at Breweries"**, Roger A. Barnum, Master Brewers Association of the Americas, Technical Quarterly and The MBAA Communicator

- **"Tips for Handling Dry Bulk Ingredients in Confectionery Processes"**, Scott Clement and Eric Maynard, presented at Pennsylvania Manufacturing Confectioners' Association's Annual Production Conference, May 2006
- **"Customizing Silo Storage and Feeding for Sodium Bicarbonate Using Bulk Solids Flow Principles"**, David Craig, Ph.D. of Jenike & Johanson, Inc. and Naleen A. Mayberry of Wright-Pierce, The Journal of the New England Water Works Association
- **"Blending, Segregation, and Sampling"**, Scott Clement, James K. Prescott, Encapsulated and Powdered Foods, C. Onwulata, Ed. (Taylor & Francis Group, NY), Food Sciences and Technology Series

Background of Jenike & Johanson

Jenike & Johanson is a consulting engineering firm specializing in the science and technology of bulk solids handling. In our four laboratories in the United States, Canada, and Chile, we have tested more than 10,000 bulk solids and used the results to design accurate, cost-effective solutions to flow-related problems for more than 3,000 companies around the world in such industries as food, pharmaceuticals, consumer goods, glass manufacturing, cement, chemicals, energy, mining, and more.

We have over forty years experience applying practical, science-based technologies to solve difficult challenges others cannot resolve.

Learn more about Jenike & Johanson's role in the food industry.

We look forward to providing you with practical, cost-effective solutions to your bulk solids handling problems.

Sincerely,

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