



HOSOKAWA MICRON POWDER SYSTEMS

2nd International Hosokawa Powder Technology Symposium Free Educational Event - October 4th, 2017 – Summit, NJ

Challenges & Opportunities in Particle Characterization & Processing

The development of particle processing technology is closely related to the new economy, which made use of more high-tech products towards the beginning of the 21st century. Applying ultrafine powders and nanoparticles to create new materials has caught the imaginations of researchers around the world. Although particle processing technology has gained significant progress in recent years, learning to use the processing technologies via particle characterization to achieve new product functionalities while meeting with the environmental and safety requirements is still challenging, but full of opportunities.

The Hosokawa Powder Technology Symposium deals with these technologies, future trends and offers academic/industrial presentations by well-known experts with the opportunity to get acquainted with other particle/powder processing professionals. The Symposium will be hosted at the Hosokawa Micron Powder Systems in Summit, New Jersey on October 4, 2017 from 10:00 AM to 3:00 PM.

Symposium Agenda

- **Leveraging Particle and Nano Bio Technologies for Product and Process Innovations**
Dr. Brij M. Moudgil - Center for Particulate and Surfactant Systems (CPaSS), University of Florida
- **Size Reduction Technologies for Efficient Powder Processing Systems**
Mr. Bill Brown – Hosokawa Micron Powder Systems
- **Laboratory & Process Equipment Exhibition**
Hosokawa Micron Powder Systems
- **Particle Shape Analysis – Sometimes It's Very Important**
Dr. Raymond S. Farinato - Solvay Technology Solutions
- **Particle Technology for Dry Powder Inhalers**
Dr. Anthony J. Hickey - RTI International, Research Triangle Park

The Symposium was originally started by the Hosokawa Micron Corporation in 1968 to promote powder science and technology, which was closely related to the processing of numerous kinds of materials, from daily commodities to advanced functional materials.

The first International Hosokawa Powder Technology Symposium was held in Germany in 2014 as part of a special event for the 20th anniversary of the establishment of the Hosokawa Powder Technology Foundation. We are excited to announce that the second symposium will be held in New Jersey this year. For the Symposium, specialists in the area are invited as lecturers from both the academic and industrial fields. Various topics concerning powder science and technology will be discussed during the lectures.

Check-in opens at 9:00 AM with a light breakfast and presentations start at 10:00 AM. Lunch will be included and the presentations conclude at 3:00 PM. Although the event is free to attend, registration is required. Register early – only 150 tickets are available.

Register at www.HosokawaSymposium.com or call (908) 273-6360

Hosokawa Micron Powder Systems · 10 Chatham Road · Summit, New Jersey 07901, USA
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Leveraging Particle and Nano Bio Technologies for Product and Process Innovations

Dr. Brij M. Moudgil - Center for Particulate and Surfactant Systems (CPaSS)

Conventional particle processing techniques have contributed significantly to particles and product development efforts over the years. Industrial practitioners and university researchers continue to make progress in achieving new functionalities especially with greener reagent schemes. On the other hand, adapting/hybridizing new processing technologies can produce a quantum leap in the types, quality, and economics of the industrial particle products and processes. For example, nanotechnology derived concepts may be used in producing value added products from existing industrial minerals or waste particle streams.

In this regard, researchers at the Center for Particulate and Surfactant Systems (CPaSS) at the University of Florida have been investigating technologies that can lead to the development of functionalities that can lead to new products/processes. Specific efforts are being made to cross fertilize products and process innovations across a spectrum of industries - from mining to microelectronics to bio technologies. In this presentation, select project developments will be discussed, and challenges and opportunities for developing greener and more sustainable industrial particle processes and products will be outlined.

Size Reduction Technologies for Efficient Powder Processing Systems

Bill Brown – Hosokawa Micron Powder Systems

Many process engineers know the material characteristics they want but are unfamiliar with the specific size-reduction technology they may require. As products and technologies become more advanced in today's markets, the need for materials with specific properties for special applications becomes more important. With the broad range of requirements, it's not practical to think that one type of milling technology will satisfy all needs. This presentation will give you an overview of five product-specific milling technologies used in many industrial applications today.

The most important aspect of selecting a size-reduction technology is to know some basic information about the product you want to process: feed particle size material characteristics, required particle size, and desired particle size distribution. It is important to note that based on product characteristics only certain milling technologies may be suitable for a given application. Starting a project understanding these basic requirements will result in an economical and trouble-free milling system solution.

There are four basic techniques utilized in size-reduction of dry powders. They include impact, shear, attrition and compression forces. In some cases a combination of these may be found in any single mill type. Impact and attrition size-reduction methods include air classifying mills, pin mills, hammer mills and jet mills. Shear, impact and compression methods are used in media or ball mills. We chose to discuss these five types of milling technologies because they cover more than 90-percent of size-reduction applications in major chemical, food, pharmaceutical, cosmetics and mineral industries.

Particle Shape Analysis – Sometimes It's Very Important

Raymond S. Farinato - Solvay Technology Solutions

The importance of particle shape on the material properties of suspensions is especially evident at particle concentrations where particle-particle interactions and networking begins to become important. Critical particle concentrations where these effects manifest depend on particle shape distribution as well as particle size distribution. Analysis of shape distributions then becomes an important tool for deconvoluting the effects of shape and size on suspension behavior. Two examples, one based on suspension rheology in confined geometries and one based on filtration, are used to illustrate these issues.

Particle Technology for Dry Powder Inhalers

Anthony J. Hickey - RTI International

The performance of dry powder inhalers (DPIs) depends on the formulation and its interaction with the device. DPIs have been used for 50 years in the treatment of asthma and more recently for the treatment of chronic obstructive lung disease. These disease states require low doses and it is sufficient to use micronized drug in blends with lactose, a large particle carrier. Micronized drug formulations require a thorough understanding of the forces of interaction and methods of overcoming them. More recently high dose antimicrobial therapies for lung infections have been developed which require that readily dispersible drug particles are prepared notably by spray drying. The type of inhaler employed and its suitability for developing world applications in terms of simplicity and low cost must be considered. Since a range of inhalers are available for each formulation it would be helpful to adopt a standardized method for evaluating the formulation independent of the inhaler to define desirable operating characteristics, e.g. pressure drop across the device, which could be incorporated into the design specification.

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