

Mechanical Engineering
Fall 2008 Seminar
Wednesday, November 5, 2008
1:00pm – 2:30pm
ROOM: 224 MEC

Dr. Marty Kashef
Technical Director, Chilworth Technology

“Electrostatic Problems and Hazards in Industrial Processes”

Surface contact, separation, and movement are essential features of powder handling and processing operations. Furthermore, the majority of powders are not good conductors of electricity. Powder processing and handling operations, therefore, contain all the necessary factors for electrostatic charge generation and retention. Such electrostatic charging is commonly considered to be the product of frictional contact between two contacting materials. However, the use of the terms contact and separation may more accurately explain how static electricity is generated. When two materials make contact with each other, the balance of the surface electrons tend to be come disturbed. If the two materials are separated quickly, the displaced electrons may not be able to return to normal balance. This would leave one of the materials positively (+) charged and the other negatively (-) charged. The magnitude of the resulting electrostatic charge generation depends, amongst other factors, on the true contact area and the resistivity (conductivity) of the contacting surfaces.

The seminar will discuss electrostatic conditions that give rise to charge generation and retention, and the problems it can cause in industrial processes. Technologies for measurement and control of these problems will be discussed.

Marty Kashef, Ph.D. E.E.

Dr. Kashef is Technical Director at **Chilworth Technology, Inc.** and has been responsible for technical operation since December 2003. Before joining Chilworth Technology he was senior director of Technology Development at Delsys Pharmaceutical Division of Elan Pharmaceutical. He was responsible for the development of Accudep technology, which utilized electrostatics for the manufacturing of novel oral dosage forms. Under his direction the technology advanced from concept to a functional system capable of producing oral dosage forms from micrograms to several milligrams without excipients.

Prior to Elan Dr. Kashef was with Xerox Corp. for more than 13 years in management and senior management positions in manufacturing engineering, quality control, product development, research, and advanced research. This division of Xerox (Delphax Systems) utilized their patented electronic beam imaging (EBI) technology to design and manufacture high speed electronic printers. Electrostatic application was the underlying principle of EBI technology, which produced the highest speed electronic printers in the world.

Dr. Kashef received his M.S. and Ph.D. degrees from Stanford University and B.S. degree from Lafayette College, all in electrical engineering. He is an active member of IEEE and Electrostatic Society of America.

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