
Bin, Hopper, and Feeder Design for Reliable Flow Tutorial - Seminar

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What you will learn:

Often an engineer is asked to design a powder handling process to accomplish one of four main goals: prevent hang-ups and flow stoppages, control process flow rates, prevent segregation of key components, or provide blending during processing. Each of these process flow behaviors depends on key material properties, process geometry, and operation parameters. Understanding the relationship between these variables gives the engineer the tools he/she needs to design trouble free processes that handle powders and bulk materials. Seminar attendees will learn the relationship between flow in process vessels and the material properties that control process behavior. We will discuss the advantages of using the myriad of hoppers and other handling equipment available from vendors anxious to sell you their top-of-the-line machine. We will provide you with guidance to determine which solutions will work for your particular material, and which should be avoided. Feeders are also an integral part of successful process operation. An engineer can design receiving and/or transport vessels perfectly and the process may still not produce at the desired capacity, quality, or with the desired control. In such a case the problem often lies with the interface to feeders or the selection of a particular feeder to accomplish the task at hand. We look at all general types of feeders (belt, screw, rotary valve, apron, valves, loss-in-weight, vibratory, and table feeders) and provide guidance for design and/or selection of the proper feeder for a given particular process. It is important to know the flow pattern produced by the interface of a feeder with your equipment. The discussion will be based on sound scientific principles with practical applications to aid the practicing engineer.