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## Milling Operations Tutorial - Seminar

By Dr. Kerry Johanson  
Material Flow Solutions, Inc.

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### What you will learn:

Milling, as a unit operation, is thousands of years old. The basic premise of modern milling has not changed significantly. Nevertheless, our understanding and the ability to predict milling of any given material is still elusive. The difficulty arises from the fact that the mill operation parameters – particle scale properties, bulk properties, and mill geometry – are intimately connected to each other in any given mill unit operation. A true understanding of milling comes from our ability to separate the effects of each of these parameters. This tutorial examines the relationship between particle scale properties, bulk properties, mill operation and mill geometry on the size reduction of particles. Traditional particle size energy relationships will be discussed, and seminar attendees will gain an understanding of the mechanistic size reduction obtained by population balance models. Additional discussion topics will include how to use a simple index test to estimate milling behavior and how material properties affect milling behavior. The discussion will be based on sound scientific principles with practical applications to aid the practicing engineer.