

How Do THOSE POTATO CHIPS TASTE?

Flavorings of every imaginable taste have taken over the chips market. (See Figure 1) Once upon a time, there was only salt and pepper. Now you see new flavors on the supermarket shelf almost every year. If you travel internationally, there are local flavors that you may run into which you would never even see in your own country.



Figure 1:
Variety of Flavorings Used for Chips

One of the important factors to success for companies in the flavors business is their ability to prototype new tastes in small batches and provide them to a key customer for evaluation. (See Figure 2) A dilemma that can slow



Figure 2:
Powder Sample in Catch Tray

the wheels of progress is the failure of the prototype flavor, usually in powder form, to flow successfully in the customer's process. This results in the need to reformulate and get another batch together as quickly as possible. The bottom line is a loss in time to market, plus the added R&D expense of doing things a second time, usually with the addition of a flow additive to facilitate better flow behavior.

What has been missing in the formulator's lab is an easy, yet scientifically proven, method to ensure flowability. It's not that the method hasn't existed; ASTM D6128 has been on the books for over 30 years. The equipment needed to implement this method has been expensive and has required a trained technician to run the test. Simply put, the method takes a sample of the powder, compresses it, then shears it to determine how much force it takes to get the powder particles to flow against themselves. This measures how the powder would behave when put into a bin and discharged under gravity feed out the opening at the bottom.

More recent advancements in powder flow testing have resulted in simpler instruments which perform this test and quickly determine the potential problem for the powder to "arch" or "rathole". (See Figure 3) These specific behaviors obstruct the steady discharge of the powder out of the opening. The ability to predict whether this will happen before the powder is packaged and sent to the customer is a tremendous benefit. Flow aids and dust suppressants can be added as necessary.



Figure 3:
Brookfield Powder Flow Tester

The chips market is definitely hot with plenty of competition between suppliers looking for both new flavors as well as consistency in the coating process for use of established flavors. One of the new paths to earlier success is the use of powder flow test equipment to ensure that the coating process works reliably. It's time to begin your investigation and learn what the instrument world has to offer to make your life a little more predictable.

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