

Products & Packaging

For most consumers the packaging of consumable products is of little interest. It should stay that way. The package becomes quite memorable when sudden failure of the bag scatters your potato chips at your feet rather than the slow opening of the bag seal that you expected. A similar situation occurred recently during some laboratory product testing.

Except for the situation just described, as long as product freshness is maintained the packaging is an afterthought. Of course, we like to be able to recognize our favorite products among the myriad of products on today's store shelves, but the packaging is otherwise irrelevant since it is usually disposed when the product is consumed.

From the manufacturers stand point much attention is generally paid to product quality, stability and consistency. Its packaging only becomes important as it relates to shelf life and shipping integrity. For the marketing department much more time is spent on consumer appeal of the product package, but we are concerned here only with after-sale interest in the package. There is another aspect of product packaging that receives far less attention than perhaps it deserves. Let's call it "consumer interaction" or "consumer function."

A case in point came to light recently while performing some texture testing in our lab to establish a correlation with sensory evaluation of hardness. The products in question were bite-sized, individually wrapped chocolate confections produced by a large international manufacturer. The manufacturer had already conducted a sensory panel which concluded that product A was more firm than product B and both were acceptable. A physical test for QC purposes was desired that could help to assure product consistency while confirming the differences in hardness between samples A and B.

Such testing is routine and involves selection of an appropriate probe and empirical develop-

ment of a test method specifying penetration of the sample for a certain distance at a certain speed while measuring the load response. The main goals of the texture test are to maximize repeatability within one sample type, while clearly distinguishing the differences between sample types. We frequently perform similar testing in our lab and take every opportunity to test as many aspects of a product as possible.

The surprise came when we began testing the product packaging. The large package was cut open near its middle so that the seal at each end of the bag would be intact for testing the integrity of the seal closure. To prepare the packaging for testing, strips of the bag must be



Figure 1
Brookfield CT3 Texture
Analyzer with Tensile Grips

be cut in such a way that the closure seal is in the middle of the strip as seen in the photo. (See Figure 1) The width of the strip is cut to match the width of the jaws in the grip assemblies. In this case the jaws can accommodate strips up to 1 inch in width, so 1 inch strips were cut. Three such sample strips were prepared from each end of the package. Each test piece is secured in the grips with the closure seal approximately half way between the grips. The test method simply pulls the grips apart at a fixed speed. Total travel distance was set to 2 inches to assure complete separation of the closure seal.

What happened in all six tests was that the polymer bag material stretched the

full 2 inches but none of the seals even began to open! This means the product package would be very difficult for a consumer to open. Even if enough force could be applied to tear the packaging, the seal would never separate and the individually wrapped product would likely end up scattered on the floor. The manufacturer was somehow surprised, although happily enlightened, to hear of our test results and is taking action to make the package more consumer friendly.

This experience shows that all aspects of consumer products and packaging should receive sufficient attention, but at least in this one case it might have been overlooked. A simple test with an instrument already in use for product testing can often be applied to evaluate packaging as well.