

# Process Management in Pouch Making; Measure and Control for Verifiable Quality

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## **Introduction summary**

As the flexible packaging market began to grow and stretch its boundaries into food, beverage and medical applications, end-users demanded higher levels of quality and, in some instances, full validation of the sealing process. This, in turn, required converters to demand more robust sealant films from their suppliers. This, however, did not satisfactorily mitigate the risk, so extensive sampling and testing protocols were developed...adding time and cost to the production of these packages.

## **Introduction summary**

Plastic Packaging substrates inherently possess subtle internal variations, which can affect the quality of the seal produced on it. The processing machinery itself possesses still more variables. When you combine these variables, the process has the potential to yield sub-standard seals, which could make their way into the supply chain undetected. This article will explore the importance of enhanced process management and real-time process feedback in the production of bags and pouches.

## ***Art or Science?***

It's been said that bag and pouch making is an 'art'. It is the assertion of this article that successful converters will minimize the 'art' of producing their product and maximize the 'science' of it.

Converters, faced with price-reduction pressures from customers, volatile raw material prices from suppliers and wage-and-benefit pressures from their employees, had to figure out how, in such a high-pressure environment, they could stay in business and remain profitable. To do so, the leaders in the industry turned to data. Process engineering positions were created with the sole purpose of driving internal costs out of the manufacturing process.

Data-driven process analysis tools have been utilized to provide significant gains in overall equipment efficiency. As a result, millions of dollars have been saved, simply by recognizing and correcting process waste. While gains in productivity are essential, providing a higher-quality product at a lower cost can gain the converter considerable market share – the highest prize of all.

### ***It's all about the seal***

When attempting to create a seal between two separate substrates, there are three critical components one must control: time (or dwell), temperature and pressure. The extent to which one can **measure and control** all three of these attributes is directly proportional to the overall quality of the seal itself. Up to now, technology has been focused on 'tightening-up' the process, not necessarily controlling it, mainly because there was no real need to do so.

As the market for high-end pouches and bags continues to expand into more demanding applications, quality requirements become increasingly stringent, and product traceability becomes imperative. These requirements are aimed at providing the end-user with **true confidence** in the integrity of the pouch or bag. Currently, most quality and process data is manually collected, manually entered, and manually analyzed. But all of this manual work takes time and people, which add cost and introduce human error into the overall process.

### ***A missing link***

Current technology provides accurate data primarily for temperature. In some instances, it is possible to collect accurate pressure data. However, dwell time settings are typically only *references* based on *mechanical position*, and not *actual time* in contact with the substrate. This lack of solid, reliable data produces uncertainty. Uncertainty produces more frequent testing, and more frequent testing adds cost.

### **The Solution:**

Process management can be a reality for today's pouch converters. It does not have to negatively impact productivity, nor require extra people to manually collect data and manage paperwork.

Soon, tools will be available for converters that will allow them to automatically capture **actual real-time** measurements for **time, temperature and pressure**. These tools will significantly change the flexible packaging and converting landscape.

Soon, converters will be able to automatically monitor and control the sealing process, using enhanced process management tools, available exclusively with PDI® Intelligent Sealing Technology. This traceable data for each aspect of the sealing process will allow converters to verify the quality of their product to a level never before attainable. Such verifiable product quality may command a premium price; it may garner more market share or entry into new markets.

The first challenge for PDI® (A division of converting and packaging technology leader, [CMD Corporation](#) of Appleton, WI USA) was to develop this level of capability at a cost that will still allow the converter to realize the benefits to the bottom line. Once this was achieved, the technology team at CMD/PDI discovered bright new possibilities.....

To learn more about how Intelligent Sealing Technology, and Enhanced Process Management tools can help boost your bottom line, be on the lookout for the conclusion of this article in the September version of the CMD newsletter.

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