# SPECIAL REPORT

## Alternative Packaging Systems.



SPRAY
TECHNOLOGY & MARKETING

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SaNogueiro


Ching

The dramatic success of aerosol sunscreen products over the last two summers has led to an increased interest in an entire packaging category. Clearly, the driving force of consumers' needs has led product developers to reevaluate existing options for spray packaging, resulting in several successful launches that now combine to claim over 20% market share in the sun care market.

In response to this increased interest in alternative packaging systems, the Eastern Aerosol Association held its Fall Seminar on Oct. 19, adopting a new all-day format, which featured an Alternative Packaging Showcase. Held at the Sheraton Edison, Raritan Center in Edison—another first—the seminar included a general overview of existing pressurized barrier packaging systems and a look at the advantages and the results in making the decision to incorporate these alternative packaging technologies.

"We are in a unique business. The package *is* the product," said Ed Martin, VP Sales and Marketing, CCL Container. Seminar speakers also included: Jim SaNogueiro, VP Research and Development, Playtex; Bryan Ching, Senior Account Manager, EP Spray Products; George Tomeny, President, Paxtek International; Roger Blose, National Sales Manager, Power Container Corp.; Robert Flaherty, Director of Operations/Marketing, Power Container Corp.; Christopher Mears, Founder/VP of Sales, Mixtek; and Ken Wanner, VP Contract Packaging and Consulting Services, Formulated Solutions. Stephen Tait, Chief Science Officer, Pair O Docs Professionals, gave a bonus presentation on Container Corrosion.

According to Martin, noted designer Karim Rashid observed that people are willing to spend 25% more on things that are beautiful, including product packaging. What drives design, packaging and function are a number of factors, including: economic possibility and cultural bias; selective indulgence; and relevance. Since "big value, aspirational statements" may not be attainable, these statements are often made in more affordable ways. However, if the consumer finds a product irrelevant, it won't sell, no matter how unique, edgy or cool, he added. "Relevance is in the eye of the consumer and relevance will change."

When the term "continuous spray" was used to market aerosol sunscreens and other products, consumers embraced the products because they could be sprayed at any angle—upright, sideways, even upside-down. Pressurized barrier packaging systems, providing the desired versatility, now include Bag-on-Valve, Bag-in-Can, Power Container's Atmos™ and Power Pouch, and Mixtek's two-component system, all with specific advantages. Environmentally safe with low or no VOC emissions, these systems dispense pure product without propellant and work to transform both the physical appearance of aerosols and consumers' perception of what aerosols do.

Banana Boat's UltraMist™ products are an instance of consumers' needs as catalyst for innovation. The evolution—from finger pump sprays to bladder sprays—and eventually to today's continuous sprays occurred to better meet consumers' needs, pointed out Jim SaNogueiro. The bladder system, an alternative to finger pumps, was used in products such as Banana Boat's Sunless Sprays. "But it didn't work so well," he noted.

Although BOV offered the next solution, several points had to be considered. The transition required a sizable investment and relatively high cost. Furthermore, sun care—generally a "returns business"—involved stores sending back their remaining, unsold products at summer's end.

Playtex remained committed, said SaNogueiro. "We had been looking for some time for a way to give consumers an easier way to apply sunscreen. The BOV offered ease and speed—just what consumers were looking for."

Taking the risk seems to have been worthwhile. In 2006, continuous sprays reached $160 million in the US market and accounted for 21% of sun care sales. As the fastest growing segment, its consumers are repurchasing products and using greater numbers of them, he affirmed. Banana Boat now has a range of four UltraMist™ products for sports, general sunblock, tanning and kids.

*EP Spray's Bag-on-Valve system*

## The ABS system

Also in the BOV family, CCL Container's Advanced Barrier System (ABS) includes a hermetically sealed multi-layered pouch separating the product from the pressurizing agent. This BOV system is used for the Coppertone Continuous Spray line of sunscreens—actually, one of the first sun care product lines sold in a pressurized Bag-on-Valve aluminum container combination.

Bryan Ching showed step-by-step how a BOV is filled at EP Spray: 1) The BOV is inserted into an aluminum or tin plate aerosol can (2P-160 psi or 2Q-180 psi can ratings required); 2) After crimping and Under-the-Cup gassing, a pressure check is administered; 3) Pressure filling fills the product in the bag; 4) A weight check is followed by the actuator/cap placement; and 5) The product is ready to use.

The BOV does hold similarities to the traditional aerosol package, said Ching. Proper internal valve gaskets must be selected; and the valve body, spring system and foil materials must be checked for product stability. And, in terms of spray ability, proper actuators must be selected or developed.

There are differences, however. In filling a BOV, for instance, no special internal can coating is necessary, as long as formula components do not diffuse through the bag; no product/propellant interaction exists; a water bath may not be required; and filling room requirements are less stringent. "With no LPG, no blast wall is needed," he affirmed.

In addition, Ching said, the BOV is a desirable alternative from three standpoints: 1) Environmentally—the airless pressurized system operates without propellant and more safely; 2) Preserving product—total separation of product from propellant means pure product is dispensed; and 3) Consumer experience—"It's convenient to use, the key to customer satisfaction and repeat business." It also offers greater than 99% evacuation; a continuous spray without pumping; and successful use with viscous products, he said.

However, Ching advised that companies ask a set of questions before deciding if a BOV system fits their needs. "What is your true motivation? Do you really need the features offered by a BOV? Do you need a spray at any angle? Do you want to keep the propellant separate from the product? Is your formula suitable for a BOV?"

## Market value

Ken Wanner stressed in his presentation on filling considerations, "You must know where your market will be." Equipment lead times; new vs. used equipment; line speed; footprints; component selection; packout; and cost—these factors must be considered, as well as a need for an automatic pressure tester for each can. "Good crimp is the number one quality issue," he said. "You should re-test for stability if there is any change in any of the components."

*Wanner*

The aluminum Bag-in-Can is one alternative system which allows for existing product filling lines to be used with the simple addition of a gasser plugger, said George Tomeny. Pure product is easily filled through a 1" opening, into an impermeable aluminum inner pouch, which is firmly connected to the can in the upper area. A standard valve is crimped onto the can, and gassing is done through a hole in the base or sealing plug, already inserted. The cavity between the bag and can base is used to hold the pressure medium, and during use, the inner bag is completely compressed; an emptying rate of up to 95% of the filled substance is possible, said Tomeny.

*Tomeny*

Advantages of this type of barrier pressure pack, manufactured by Nussbaum, are similar to those of the BOV: only pure product is dispensed; and depending on viscosity, evacuation is high at 93% to 98%. Benefits also include a long shelf life, stated Tomeny. The packages, made of pure aluminum, are easily recycled.

The Power Pouch, introduced by Power Container at the 2005 HBA Health and Beauty America Expo, can be thought of as a direct replacement for the BOV, asserted Roger Blose. Adding capacity to the BOV, its innovation stemmed in part from a demand for higher pressure levels. "Customers liked the PET bottle in the Atmos™, but needed more pressure," explained Robert Flaherty. Hermetically-sealed so that fresh product is dispensed with each use, the Power Pouch can be used with liquids, lotions, creams and gels. It also achieves higher adjustable pressure—from 60 to 150 psi—for a greater range of product viscosity. Advantages are much like other BOVs: product purity; convenience; safety; flexible package design; and environmental friendliness.

The company had attempted to adapt the Atmos™ Dispensing System to achieve higher pressure levels, said Flaherty; however, after a number of false starts, it found that it couldn't repeat successes in lab trials in product development. The Atmos™, a more than 15-year-old invention, can be thought of as a "bladder package," according to Blose. The inner package, or bladder, is made of a thin-walled, durable plastic inner PET bottle that's molded, pleated and coated, inserted into a natural rubber sleeve and fitted with


*Nussbaum's barrier pressure pack.*


Blose


Flaherty


Mears

an integrated valve assembly. The system is placed into an outer container, and as the inner bottle is filled, the sleeve expands, compressing and returning to its normal size when a user pushes the actuator to provide the dispensing power for the package. "The barrier system also keeps it cooler in higher temperatures," noted Blose.

No propellants (and therefore, no VOCs) are required, affirmed Blose. "It's pressurized, but not gas pressurized. It uses 22 to 25 psi versus 60 to 70 psi for aerosols, about half the pressure of a BOV." The Atmos™ also allows for a soft, continuous, 360° spray and provides 96% to 97% evacuation, he said; the remaining amount is not dispensed since the upper neck of the system cannot be squeezed.

Since the power assembly is independent of the outer packaging in dispensing the product, custom packaging means metal, glass or plastic can be used, as well as shaping with curves, angles, hand-grips and silhouettes. The color of the rubber sleeve can be customized, as well, especially if a clear or opaque outer package is selected. The system requires only enough inner space for expansion and a vent hole during the filling process.

Applications for the Atmos™ include post-foaming body washes, facial cleansers, glycolic peels and shave gels—in a wide variety of product price points—said Blose.

The Power Pouch's innovation is in the elimination of the rubber sleeve. A one-piece pouch—a blown bottle attached to a valve—is fashioned using a direct crimp onto an industry standard 1" mounting cup. The one-piece assembly, formed in a stretch blow-molding process, produces a seamless design that virtually eliminates any danger of a seam rupturing during the filling process.

Cost effective, the Power Pouch fills quickly since the product can flow better with the valve wide open, Blose observed. The Power Pouch can also be used with metal cans or plastic bottles, and like the other BOVs, gives a continuous, all-angle spray. Offering greater versatility and less cost to produce than the Atmos™, it "serves a need where a barrier package is required or desired, and good spray quality is needed," affirmed Flaherty.

Another instance of customer need inspiring innovation is Mixtek's co-dispensing system. "The universal objective of co-dispensing systems is to dispense ingredients that must be kept apart prior to use," explained Christopher Mears, Founder and VP of Sales for Mixtek. Although traditional systems incorporated a single container with a co-dispensing valve, Mears said that this early form "was a great idea, but met with problems." Early systems failed due to an inability to maintain a pre-determined dispensing ratio; less than optimal mixing (and therefore, poor performance); and problems with stability and compatibility.


*Power Pouch from Power Container.*

Mixtek's solution? The development of tandem containers, such as its Series E Advanced Co-Dispensing System, in which individual containers have product streams joined in a dispensing head. Key properties of the Mixtek system are accurate dispensing; a 1:1 dispensing ratio which can be varied; and flow or spray patterns for liquid gels and creams. The dual stream feature makes it well-suited for toothpaste, skin cleansers with moisturizers and enhanced self-tanning products, and product applications ranging from hair dye and bleach to exothermic shave products and lotions. From a marketing point of view, the system also offers quality imagery, a distinctive presence, possible "reason for being," and justification for a higher price point, said Mears. Its applications are able to span the practical to the upscale, he affirmed.

Of course, the real test is consumer perception. And, according to Mears, consumers perceive Mixtek's co-dispensing system as "convenient, non-messy and different."

The innovation in all of these alternative packaging technologies has provided a range of forms and functions and the opportunity to achieve companies' ultimate goal: developing and reaching a newer, wider consumer base. SPRAY

*Mixtek™ Systems, LLC introduced its System Series E co-dispensing system.*