

# New applications for the stand-up pouch

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A pouch of baked beans. It doesn't quite have the same ring as a can of baked beans &ndash; a term aired by generations of money-conscious consumers who have resorted to the product as a cheap but satisfying meal. However as the traditional tin can, and even in some instances the plastic bottle, comes under threat from stand-up pouches, a pouch of food or drink may soon be the norm.

Within the last six months a large number of products have been introduced or relaunched in the European and US markets that showcase an array of innovative and novel stand-up pouches, including multi-compartmental, microwavable and self-heating lines. These launches demonstrate just how rapidly the flexible pouch market is growing, and the potential it has to reshape packaging as we know it.

## The market

Stand-up pouches can be made from a variety of substrates, including foil and plastic laminates, that are free-standing on retail shelves. The European market for stand-up pouches is currently estimated at about nine billion units, making it one of the fastest-growing sectors within flexibles, with annual sales growth of the order of 15 per cent. Resealable pouches are expected to make up 80 per cent of the total market by 2007, as additional functions give more value to the pack in order to attract the consumer, keeping the product fresher at the same time as preventing it from spilling.

While the US has been slower to adopt the upright packaging phenomenon, with the market estimated at around five billion units, the advantages that stand-up pouches offer compared to existing packages are helping to push this packaging into new and emerging markets.

According to a study by The Freedonia Group, the market demand for pouches in the US will rise annually by 15 per cent until 2008 to reach US\$5.2 billion (e4.3 billion). The worldwide market for stand-up pouches is predicted to reach 30 billion units by 2007.

## Advantages

Stand-up flexible pouches can be used as an additional marketing tool for brand owners looking to boost sales. By introducing a stand-up pouch into a sector that uses predominantly another packaging format, and by taking advantage of the bright colours and graphic opportunities on offer, the brand owner can really make a product stand out from its competitors.

Companies that have converted to stand-up pouches in the last six months agree that the main reason for the change was to offer an innovative product that had the same or additional functions, at the same time as providing a unique point of difference on the shelves.

Another major advantage of flexible stand-up pouches compared to traditional alternatives is their weight. Stand-up pouches are lighter, easier to pack into cartons and take up much less volume, making them far more economical to ship. The size they compact down to makes them easier to dispense of &ndash; and therefore in this regard a more environmentally-friendly option than cans.

Visibility of the product before purchase can help the product sell itself, and this can be achieved through the use of transparent pouches with a high barrier.

Flexible packages also eliminate the use of additional labels or shrink sleeves, as graphics and nutritional information can be printed directly onto the pouch itself, with the greater panel area allowing more room for these. Steve Coulsen, Vice President of Business Development at Canada-based packaging converter Peel Plastics, claims that the pouches also offer better merchandising opportunities for brand owners, as the packs can be easily and better displayed on the shelf.

Faster running and sealing lines, and differentiation through add-on features, are also contributing towards the success of pouches, such as spouts, reclosable zippers and sliders, and tamper-evident features that make it obvious when a package has been tampered with.

Although innovative stand-up pouches &ndash; such as retortable pouches and stand-up pouches with spray nozzles &ndash; are more expensive than bottles or cans, suppliers of stand-up pouches claim that cost savings in manufacturing, pallet storage and shipping make flexible alternatives a worthwhile investment.

## Key applications

We can thank our furry friends for the dynamic change on retail shelves in the last few years, as stand-up pouches are most prominent in the pet food sector, used in the packaging of cat and dog food.

In 2002, pet food headed the list for stand-up pouches in Europe at 3.24 billion units. By 2007, the number of pouches used for this application is set to double and is forecast to account for 50 per cent of all stand-up pouches, according to a study by Pira International.

Pira International's Head of Business Intelligence Ania Krolak says there are numerous end-use applications for stand-up pouches, and that there is also likely to be strong growth across food, non-food and military supplies. This view is reinforced by packaging converter Kapak's Director of Sales and Marketing, Craig Rutman. Rutman says that the company has long believed that many products that historically have been packaged in more traditional packaging formats (such as bottles and cartons) would benefit by converting to stand-up flexible pouches.

However, considerable research needs to be done into the potential applications for flexible packaging. The key to the success of a product is understanding the consumer's needs and attitudes.

For some applications like detergents, stand-up pouches proved not to be the answer for consumers as their lack of acceptance, paired with quality problems, slow filling speeds and lack of stackability, resulted in the reintroduction of easy-to-handle bottles. In addition, many consumers preferred the rigid plastic containers as these were often fitted with the necessary detergent balls – not available with the flexible pouch format.

## Microwavable pouches

UK retailer Sainsburys became the first to adopt UK-based Exelsior Technologies' Steamfast microwave steaming technology for its premium Taste the Difference range of 18 different fresh vegetables. The technology employed is similar to Mondi Flexibles' NeoSteam stand-up pouch, which incorporates a venting valve that releases heat as steam pressure builds up inside the package. The steam process ensures that all nutrients remain in the food during the cooking process, and can be applied to a wide range of products including most fresh, chilled and frozen foods.

Convenience and portability are the keys for packaging ready meals in stand-up pouches. In these applications, a pouch with high barrier properties is required so that it is strong enough to survive the retort process, at the same time as being able to keep the product fresher for longer.

Improved barrier properties have played a key role in broadening the application of stand-up pouches into new areas, and the new pouches are beginning to replace the more established rigid microwavable containers with film lidding. US-based Asian Style Selections was responsible for the first home-produced, high-barrier, non-foil retort stand-up pouch, using Alcan Packaging's Ceramis SiOx barrier coated laminate, produced in Switzerland. The pouch is microwavable, and its high barrier properties give the contents a shelf life of up to one year.

Both Professor Scott Whiteside, Project Co-ordinator at Clemson University's packaging science department, and Peel Plastics' Steve Coulsen tag ethnic foods such as Indian and Thai foods and sauces as a growing market for stand-up pouches, and also as an entry point for flexible stand-up pouches breaking into the US. Coulsen claims that aluminium retortable stand-up pouches have been popular in Asia for packaging ethnic and pasta sauces for almost a decade.

## Self-heating pouches

EPOCA, a Belgium-based packaging supplier, has been working with Korean technology developer KSP Technologies to tailor the Asian company's self-heating technology for the needs of the Western European market. KSP's self-heating pouch has been commercialised in Malaysia and South Korea for heating herbal medicines, but EPOCA believes that it also offers great potential in Europe for coffee, soup and hair care products.

The activation of a button on the outside of the package causes a chemical reaction to begin within the pack layers that heats up the product. Depending upon application, the pouch can be made from laminated polyester, polyethylene, aluminium foil or polypropylene.

EPOCA Commercial Manager Rick Elsen initially thought that the self-heating pouch would be commercialised in Europe for either heating soup or baby food in the first instance. However, EPOCA has had problems tailoring the pouch so that it can heat foods at high enough temperatures. For heating food, the pack needs to reach temperatures of around

60–70°C. EPOCA is also in the early stages of developing a pouch for heating shelf-stable ready meals, but this is unlikely to be available for another two years.

Elsen says that tailoring the system to cosmetic applications has proved comparatively easy, with the packs heated to around 30–35°C. The inner core of the self-heating pack, which contains chemicals that combine to produce heat, has been adapted so that it is light enough for cosmetics. Polypropylene pouches are being used for the cosmetics trials. According to Elsen: “The cosmetics we have been using do not need to be heated to very high temperatures, and their viscosity has not proved as demanding as many thick soups and noodle products we have worked with in the past.”

Global hair and beauty care producer Schwarzkopf, and another unnamed beauty brand owner, are trailing the technology. This is the first time that the pouches have been tested with beauty products. The pouches are likely to heat a face wrap or make-up remover.

Schwarzkopf says that the self-heating concept gives a touch of luxury to the product, and it is hoped that the convenience of the self-heating mechanism will offset the higher price for the packaging.

### Flexible cans

Stand-up pouches are used for packaging fresh fish over the counter and for shelf-stable seafood. Tinned fish such as tuna, salmon and crab, which are traditionally packaged in tin cans, were among the first products to be packaged in aluminium retort pouches in Asia. Incursions made by stand-up pouches into areas traditionally dominated by tin cans led to coining of the “flexible can” expression.

Since the adoption of the first flexible can for fish there have been major inroads made into this area, and a wide range of fish is now being repackaged in retortable stand-up pouches, able to offer the same or better quality as tin cans. Retortable packages can also be shaped so that the top of the pack is rounded etc. in order to give the product a point of difference.

US-based Pyramid Flexible Packaging and zipper producer Presto Products developed a reclosable retort pouch for Miami-based seafood packer Blue Star Food Products’s six varieties of crabmeat. The heat-resistant, foil laminate stand-up pouches come in a three-side seal, die-cut handle and contoured shape.

The advantages of applying stand-up retort pouches to these type of applications is that, because the wall of the pouch is thinner than a tin, it permits faster, more energy-efficient sterilisation. It is also less likely that the food will be overcooked during the sterilisation process.

### Flexible bottles

Flexible pouches bring a whole new meaning to soft drinks, with a new convenient portable pack that offers brand differentiation from the established polyethylene terephthalate (PET) bottles or aluminium cans. The use of flexible pouches in beverage packaging applications has mainly focused on novel applications such as sports, energy or children’s drinks.

US-based Kapak is one company that has targeted the beverage packaging sector, developing the QuadPAK, a four-sided, gusseted stand-up pouch featuring the Smart Spout closure provided by another US company, Seaquist Closures.

The box-like shape of the pouch combines the benefits of a flexible pack, allowing for up to 50 per cent larger fills compared to traditional two-sided pouches. The side gussets also give more room for additional messages to be printed on the sides. The material used comprises of PET, foil, nylon and polyethylene (PE).

The Energice rehydration beverage, which is manufactured, marketed and distributed by The Jel Sert Company, is packaged in Kapak’s QuadPAK. The beverage manufacturer claims that the new structure has given it an innovative way to bring its glutamine-fortified endurance fuel drink to market.

Similarly, Amcor has recently tailored its FlexCan product offering, originally developed for dried snack foods, for use in water applications. The AquaFlexCan was launched in April 2005.

Amcor Flexibles Schüpbach Market and Development Manager Bruno Brünisholz says that, although the product was originally targeted solely for water applications, during its product launch in Germany, Amcor received a huge response from companies wanting to pack other non-carbonated beverages in the pouch.

The AquaFlexCan has a laser-perforated top that tears off easily to allow easy access to a non-spill mouthpiece. The

pouch is comparable in cost with other PET preforms used by small and medium-sized customers, and offers comparable shelf life to rigid containers.

Today a large number of drinks companies are examining the potential of stand-up pouches. Even global drinks giant The Coca-Cola Company has revealed that it is in the early stages

of looking into their use. The company claims that the fastest-growing trend within US sports is for under-19 males to play soccer, and sees this as presenting a great opportunity to push its carbonated products into the sports drink market.

However, Coca-Cola Company Director of Global Packaging Technology Services, Dr Michael Okoroafor, explains that during the half-time break of most matches, refreshments served are packaged in cardboard cartons.

While Coca-Cola's end goal would be to package carbonated drinks in semi-rigid packs, it acknowledges that it may not achieve this at its first attempt, and drinks such as iced teas may initially be applied to the packaging. Flexible packaging is a new area for The Coca-Cola Company, which currently packages around 90 per cent of its products in plastic bottles.

#### Multi-chambered pouches

Although stand-up flexible multi-chambered pouches have previously been found wanting due to poor seamability, a European supplier of household care products has committed itself to commercialising a multi-chambered pouch for a new generation laundry cleaner.

Germany-based S-Design is working with the company to pilot its multi-chambered stand-up pouch technology. S-Design developed the pouch technology several years ago to enable two separate components, such as a solid and liquid, to remain divided until a button is activated to collapse the inside walls so that the products can merge.

The designer behind the pouch and Managing Director of S-Design team, Andre Schelbach, says that the new package needs a big market, such as detergents, to help commercialise the technology. The new detergent requires the separation of the key ingredients until they are needed.

The drinks industry is likely to be the second market to commercialise the technology. The pouch could be used to keep a powder and liquid separate until ready for consumption. Possible applications include vitamins, and alcoholic, non-alcoholic and dairy drinks.

#### Resealable pouches

The global demand for savoury snack food packaged in pouches and bags is expected to exceed 20.3 billion units by 2007. Whiteside predicts that the snack food market will continue to convert to stand-up pouches in the US.

Eden Foods in the US has introduced a new flexible format to its range of gourmet popcorn. Exopack designed the stand-up pouch, which features a metallised polyester inner layer with reclosable zipper to reinforce the premium nature of the product to the consumer.

Sweets and dried fruits are also being packaged in non-transparent reclosable pouches for consumer convenience. For example, Masterfoods has also revamped its confectionery range in Europe by repackaging its family-sized packs of sweets such as Maltesers and M&Ms in resealable stand-up pouches. This trend is also accelerating dramatically for dried fruits such as apricots.

#### Spray pouches

Kapak, in conjunction with Hunter's Specialties, launched the first commercial US product to combine a trigger sprayer with a pouch for Wild Gamekeeper Spray, a new product formulated to help prevent bacterial growth on just harvested game.

Fortress Systems International provided the trigger pump, while Kapak developed the primary package and cylinders that are used in the rotogravure printing process. The end result is a polyester/linear low-density pouch, with an extended bottom gusset to accommodate the punch hole for hanging.

Kapak's Craig Rutman claims that the company is not working on any other trigger and pouch packaging systems at this stage, but should another application present itself that would be suited to the trigger then it would definitely take on the challenge.

The Scotts Company has also seen the benefits in swapping its Ortho Bug-Geta Snail & Slug Killer product from a carton to a stand-up pouch with a spout in order to get the product sold in outdoor garden centres. Peel Plastics supplies the flexible pack, which The Scotts Company claims not only improves the product's shelf appearance, but also protects it from moisture.

### The future of stand-up pouches

The latest innovations in stand-up pouches are in many instances pairing existing technologies such as novelty closures with high-barrier etc. pouches to create new applications. Potential new markets could include cosmetics and pharmaceuticals.

As this trend continues, stand-up pouches will continue to take up a larger share of the packaging sector. According to a study by Pira International, sales of pouches with additional functions will double year-in year-out over the next four years.

Foil stand-up pouches are currently the most popular types of pouch on the market, since foil has good barrier properties and is cost-competitive with traditional packaging materials. However, Whiteside predicts that the market is waiting for improvements in transparent barrier, microwavable, retort pouches available at feasible, realistic prices.

According to Whiteside: "Most brand owners are looking for clear barrier packaging that is microwaveable." This trend is also being driven by consumer demand, as consumers like to see what they are buying before purchasing it at the supermarket.

New stand-up pouches will continue to be developed, and further down-gauging and light-weighting of the pouches is already underway. However, the packaging market is highly consumer-driven, and the final uptake of stand-up pouches will always come down to the consumer and how much more they are prepared to pay for additional functions. However, there is every prospect that – within the next five years – traditional tins and bottles will continue to be given the can to make room for the upright alternatives.

### Takeaways

- The European market for stand-up flexible pouches is growing at an annual rate of around 15 per cent.
- The US has only comparatively recently shown any interest in adopting flexible packaging, while some Asian countries have been using the pouch for sauces for decades.
- Consumer demand for added functionality such as closures and reclosable zippers are the most significant drivers for stand-up flexible pouches.
- UK retailer Sainsburys has adopted Exelsior Technologies microwaveable steam pouches as a lightweight alternative to rigid plastic containers, due to its reduced weight and size.
- The first commercial application of a self-heating stand-up pouch is likely to be within cosmetics, now being trialled by major hair care producer Schwarzkopf.
- Flexible stand-up pouches are being introduced into the beverage market, initially through novel and specialty applications such as sports, energy and children's drinks. The Coca-Cola Company has also expressed interest in adopting stand-up pouches for carbonated drinks.
- An unnamed household care supplier is going to trial the packaging of a new generation laundry cleaner in a multi-compartmental stand-up pouch.
- Brand owners and flexible packaging converters are looking to target new applications for stand-up pouches in order to achieve brand differentiation.