

active & intelligent pack news

Vol Five Issue Six 1 May 2007

Mobile phone could pick out the genuine from the fakes

French software company Alpvision is developing technology to allow consumers to check whether a product is genuine using a mobile phone.

Consumers will be able to scan a product with cryptoglyph encoding using

a mobile phone, which will show if the product is genuine and also provide a product description in their native language.

The technology is compatible with flatbed scanners, which currently have a standard 2400 pixel

capability, and will be ready for mobile phones as soon as the image quality becomes good enough.

Alpvision's Roland Meylan says the company is working with mobile phone manufacturers to make the technology viable.

'In Japan you can already scan barcodes with a phone, but that is not yet happening here. It will be a couple of years yet,' he says.

'The technology for flatbed scanners should be ready this year and there are on-going in-house trials for scanners and mobile phones.'

The company's unique security device uses microscopic dots to form an invisible fingerprint marker, with encrypted dots not just on the packaging but in the varnish itself.

This means that manufacturers can protect the inside of a package so it cannot be filled with fake products by counterfeiters.

The Krypsos device was launched in March at the International Medical Products Anti-Counterfeiting Taskforce conference (IMPACT), the World Health Organisation's first anti-counterfeiting technology conference in Prague.



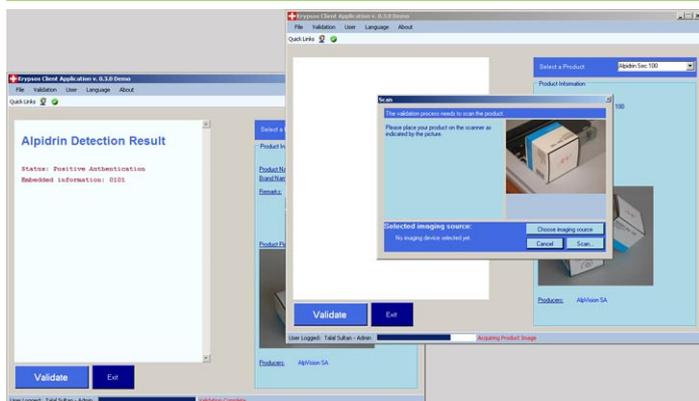
The Future of Caps and Closures

19–21 June 2007

Double Tree Guest Suites,
Galleria, Atlanta

[Click here to find out more](#)

The Krypsos device



Source: Alpvision

Cypak hooks up mobile phones to smart packaging

Swedish technology company Cypak will have a pharmaceutical compliance technology packaging that is compatible with mobile phones ready for launch later this year.

Founder Stina Ehrensvar, based in Stockholm, says: 'This Autumn we will launch a core component, a microchip that will enable the technology to be cheaper and more production-

friendly. We need mass volume to get the costs down.'

The packaging will be mass produceable by the end of the year. Each unit will cost around a dollar to make.

The company is working with about five global pharmaceutical and packaging companies, selling mainly to Europe and the US.

Cont. on page 2 ▶▶▶

In this issue ...

Trials of new barrier coating for beer in May	Page 2
Insulated drinks can about to trial	Page 2
Technology spotlight Scavengers and barriers	Page 4
Company profile Ampac Flexibles	Page 5
Milk-flavouring straws suck up business	Page 6

Trials of new barrier coating for beer in May

Global coatings company Valspar will begin trials of a new coating suitable for beer applications in May 2007.

A new product with better clarity, colour and recyclability will be released in the next two months.

Patents have been filed and internal tests are being completed before the coating is released to customers for initial trials.

Business director of packaging (emerging markets) Scott Stamback, based in Pennsylvania, says: 'If it is not ready mid-summer I'm going to be real unhappy.'

'The improvements are basically to the remaining holes where, if we could customise, we would have a much higher cost-to-performance ratio.'

The coatings will be the next generation of Valspar's Active 100 line, comprising passive multilayer structures and active scavengers.

Stamback says: 'Not a lot of barriers are being used the moment. It's still a fledgling market, especially in beer. This is partly because there are not many multilayer machines around.'

'Many bottles at the moment use PET and are simply shrink-wrapped to cover the haze, whereas our coatings allow for a container with high clarity.'

Stamback added that the company will begin supplying China shortly, but that production will remain in the United States because it is more about chemistry than being manpower intensive.

▶ ▶ ▶ **Cont. from page 1**

Patient compliance — whether or not someone is taking their prescribed medication — is a problem in the pharmaceutical industry that many large companies are targeting, but Cypac has a unique product that records every dosage.

It has taken seven years to develop says Ehrensverd: 'We are a very small team and we were also pioneering the idea,

so we had to do a lot of the big jobs ourselves.

'We got the idea from early compliance systems involving laptop computers. We thought why not put the electrics into the packaging?

'It is bigger than some competing technologies because it needs a power source and because the chip is large, but this is because it includes a sensor and encryption technology that others don't.'

Insulated drinks can about to trial

Trials of an insulating can for soft drinks and super-chilled lager will begin as soon as prototype test results are returned.

If trial results are good then manufacturing is expected to start by the end of the year.

CEO Mark Forrest of UK-based General Applications, the company behind the skin, says: 'We are talking to global brands and manufacturers of metals and have about six projects about to enter the trial phase.'

A global drinks vendor is interested in developing a number of applications with the technology, including alcohol and perhaps for super-chilled lager.

The insulating products to be trialled include a nanoskin technology that could be used for food and drink. One is a coating for a can's interior and the other is a nanoskin for secondary packaging such as boxes or the wrapping around a six-pack.

Patents were issued in September for the can but are still pending for the nanoskin and will come through in about a year.

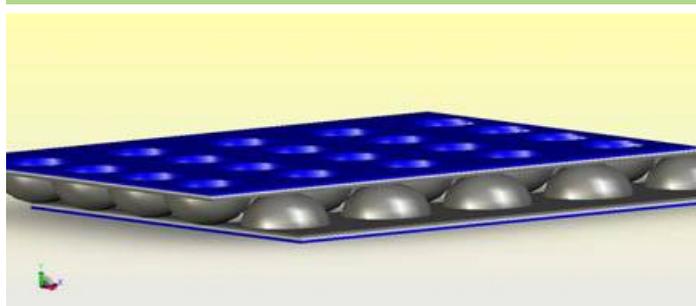
Forrest says there have been a couple of challenges in developing the can: 'Probably the biggest hurdle has been to develop a good perception view of the can because it takes longer to cool down, so we have had to look at multiple architectures. That has been complicated.'

'The other big challenge is finding the correct amount of metal to be used for the right insulating value.'

The target markets are in Europe, North America, China and Australasia, though Forrest says North America has tended to use different cooling mechanisms in the past.

General Applications is an innovation and intellectual property company, specialising in the application of nano-scale vacuum technology to create advanced insulating materials with many potential applications in a wide range of industries.

How the insulation technology works



Source: General Applications

Flavour blister for carbonated water to launch in 2008

Ipifini, the company that developed a programmable bottle for mix-and-match flavouring in drinks, has made a cheaper blister prototype, filled with a flavour, to add to water.

Company president Glen Wachler, based in Massachusetts, says Ipifini is working with an enclosure producer on a prototype for flavour and fragrance.

Wachler is confident the blister has a strong chance of success and anticipates the first commercialisation in 2008.

Says Wachler: 'This has been the biggest breakthrough because some companies have said the bottle is costing too much because it needs to be

blow-moulded, whereas the blisters can be incorporated into a collar.'

The prototypes use a collar of nine blisters filled with three flavours. A German company is producing them.

Wachler says it is important the collars are non-removable: We quickly discovered that if customers could remove the blisters, they become flavour squirters.'

The company is setting up relationships with manufacturers, such as enclosure companies, in the beverage industry. Most of the companies buying prototypes are from Europe or South America.

Work at the moment is focused on non-carbonated drinks, as an additional induction seal will be necessary for carbonated to ensure the fizz is retained.

The goal was originally to have a product commercialised

by the middle of 2007, but it will be more like 2008.

The drinkable prototype was developed with flavour house Firminich using strawberry, kiwi and lemon flavours in a carbonated lemon and lime base, and the flavour and colour combinations work well, says Wachler.

The 'programmable liquid container' patent covers all aspects of separating base products from liquids, and although interest is strongest from the beverage industry, there has also been interest from cosmetics companies.

For more information about Ipifini, [click here](#)

DNA Security partners with packaging ribbons

Security solutions company Applied DNA Sciences is partnering up with International Imaging Materials (IIMAK) to develop thermal transfer ribbons which incorporate APDN SigNature DNA Markers for the packaging and shipping industries.

Director of investor relations of APDN Debbie says, 'The ribbons containing DNA have not been made yet but the joint development project with IIMAK will begin imminently. When the joint development of the product

is completed, it will be ready for market and no further testing should be necessary.'

The ribbons will be used for printing product labels, shipping labels, and logistic barcodes.

Bailey says, 'we are currently targeting a number of vertical markets, including, digital media market (CDs DVDs), secure documents, pharmaceuticals, consumer products, food industry, fine wine and art'.

According to Applied DNA, the incorporation of DNA makes the product easier to authenticate as detect the absence of the DNA.

If the DNA is not detected, it proves the product is not authentic and it can be sent for further testing.

Bailey says 'The SigNature DNA can be either overt or visible and easily detected using a special pen to detect the colour changing ink or can be covert or hidden and detectable by PCR testing'. When printed on a package or label, the security marks enable brand owners to verify the authenticity of the labelled product.

Under the new agreement APDN is set to become the exclusive supplier of SigNature DNA Markers to IIMAK and IIMAK will become the exclusive worldwide manufacturer and seller of thermal transfer ribbons containing APDN DNA markers.

For more information about DNA Security, [click here](#)

The patent-pending programmable flavours cap



Source: Ipifini

‘Constar has developed green and brown colours that are going through the approval process.’

Technology spotlight

New frontier

Latest developments in barrier and scavenger technology for plastic bottles

Developing technology to reduce oxygen ingress into plastic containers is steadily increasing quality to allow its use in a greater range of applications, including condiments, fruit juices and wine.

Around a decade ago, multilayer barriers were at the forefront of the technology, providing oxygen ingress rates of less than one part per million. However, they involved high capital investment costs for extrusion machinery and provided limited design capabilities due to delamination, which is where the layers in a container separate.

The industry moved to combat these issues by integrating layers into a single barrier sheet. Single sheets brought machinery costs down and, although there was generally a slight increase in ingress rates, the levels were good enough for applications including beer. The main disadvantage of single barrier sheets was that blending two dissimilar materials resulted in hazing.

Present day work has focused on reducing hazing to produce a more glass-like material with a high gloss. One example is Constar's Diamond Clear technology, rolled out globally in March this year and targeted towards ketchup applications.

Most fruit juices and teas are packaged in glass at the moment because glass provides a good oxygen barrier combined with the aesthetic appeal of transparency. Work is now underway to further reduce oxygen ingress in order to replace glass as the currently favoured packaging material for these readily oxidised beverages.

Glass is also regarded as easily-recyclable and vice president of marketing Doug Robinson describes the issue of recyclability as the next frontier for barrier companies such as Constar. He says the next generation Diamond Clear 300 will address the issues of yellowing in the recycling chain to make it more environmentally friendly.

Wine also oxidises readily, but the issues preventing the replacement of glass with PET revolve around image as much as functionality, says

Robinson, recalling similar snobbery to wine in plastic bottles as that heaped upon plastic corks regardless of efficiency.

There are technology issues to be dealt with, mainly in terms of clarity due to the high levels of barrier required to prevent oxygen ingress and the ensuing reduction in clarity. Colour is used to mask haziness, but colour comes with its own issues as it has a tendency to kill off oxygen scavengers in the barrier material and it also needs to be food-approved.

Constar has developed green and brown colours that are going through the approval process. The company is also involved in an upcoming launch of a 750ml preform bottle in Canada for Yellow Jersey wine, which should be launched around the end of summer this year.

One other application for the technology is in the cosmetics industry, especially the burgeoning organic cosmetics market. Organic products can generate bad odours if a product oxidises, so oxygen barriers could be in demand. However, says Robinson, it is a small market involving multiple sizes so it is not very attractive in terms of volume. He does expect to see some licensing agreements in the future.

Next generation scavengers

An ongoing concern for the barrier industry is that oxygen scavengers start working as soon as the bottle is manufactured, so bottles must be filled within a finite number of days—from 30 to 80—or the scavengers will be used up.

Constar is involved in some work trying to find a 'switch-on' process that could turn the scavenger on when a container is filled, for example a heat or moisture trigger, but nothing has been developed in the industry as yet. 'If you can increase the power of the oxygen scavenger material that would solve the problem, because it would mean we could use less of it,' says Robinson.

‘We start with the resin and build the film for specific customers rather than adapting off-the-shelf technology.’

Company profile

Ampac Flexibles

Ampac Flexibles produces high performance breathable films for fresh cut produce and barrier films for meats and sauces. The company is two years old with two business units in Chicago and Minneapolis.

The Chicago plant focuses on pharmaceutical applications, producing containers for extremely hard-to-hold products that prevent migration. Ampac Flexibles is the predominant manufacturer of overwraps for Buterol, used in asthma inhalers, creating packaging with extremely low levels of retained solvents that could migrate into the drug. Another key hard-to-hold product is packaging citrus scents for household goods such as air fresheners.

The Minneapolis plant produces stand-up, retort, regular and custom pouches for the food market, and has won the Flexible Packaging Association's Highest Achievement Award for 2006 and 2007. This year's award was for the pouch-within-a-pouch Wetbone vitamin-enriched water package for dogs.

Company VP and GM George Thomas says success has been due to customer focus and innovation: 'We start with the resin and build the film for specific customers rather than adapting off-the-shelf technology and we have frequent new releases.'

There are five or six major projects currently underway, says Thomas, and expansion is expected in the fresh cut produce, meat and sauce sectors in particular. One major challenge is to create an anti-fog structure for fresh-cut produce packaging. There is also continual work to make packages safer, more recyclable and more reusable.

The company is also developing organoleptic packaging to prevent flavours migrating through plastics as they breathe, so that food and drink is not contaminated by other flavours. Water is the most difficult to package in this sense because it has no flavour and so easily takes on other tastes, with wine and other non-carbonated beverages also potential applications, he says.

Although business is currently focused in North America and Canada, Ampac has three manufacturing plants in China and one in Vietnam. Customers, particularly in food, are beginning to show an interest in producing products for Europe and Asia, but Thomas says business is being held back at the moment by high exchange rates.

Ampac Flexibles makes performance films, from mono to 9-layer custom blended co-extruded blown structures designed to meet precise film packaging requirements. Films can provide extended shelf life, product protection, or safeguards for the flavour and the aroma of products. The company combined efforts with Dow Chemical Company to become North America's only provider of wide-web, co-extruded blown films containing Dow's Saran resins. These structures provide a variety of high-barrier films that perform in most temperatures and high humidity conditions where other common barrier films degrade.

Ampac Flexibles's converted products business provides flexible packaging with high quality and performance. Capabilities include up to 10-color flexographic and 8-colour, 2-sided gravure printing, solvent and solventless laminations, and a wide variety of custom and stock pre-made pouch designs with laser scoring, fitments, and zippers.

Ampac Packaging and Ampac Flexibles

Ampac Packaging is a privately owned global packaging producer, that was set up in 1960. The companies products fall into two main categories: security bags and flexible packaging.

In early 2005 Ampac Packaging acquired Flexicon, in Illinois, and set up Ampac Flexibles. The business makes products for the pharmaceutical industry and pouches and other types of flexible packaging from the food market.

Ampac Flexibles's main competitors are Amcor Flexibles, Alcan, Beamis and Sealed Air.

Today Ampac Packaging is worth \$250 million and has 1000 employees.

Growth has occurred organically and through acquisition of other businesses in equal measure. The most recent acquisition is Trigon, which makes security bags for cash and jewellery in the UK.

Industry's first Petcore endorsement for recyclable multilayer EVOH bottles

Blow-moulding specialist Graham Packaging has received the industry's first recyclability endorsement after two years of testing and expects to commercialise a beverage application by 2008.

The company has developed the only five-layer EVOH bottles, with two thin, discrete layers of barrier material

sandwiched between three EVOH layers, instead of one thick layer between two nylon layers.

The thinner layers makes it easier to pull out the barrier material in the recycling elutriation process, where an updraught of air is used to separate flakes of PET from the lighter flakes of barrier material.

EVOH is also a more

effective barrier than nylon and can be used in smaller quantities. However, the material has previously been unpopular because of its tendency to delaminate.

VP Europe Geoffrey Lu, based in France, says: 'One of the key drivers to development was to produce something requiring a passive barrier but also with good delamination performance.'

'If you are mainly looking at high-pressure liquids, if you have a highly embossed bottle on a highly carbonated product like Coca-cola you can get delamination.'

'SurBond E was developed to take the gas barrier advantage of EVOH and modify it so it sticks to the PET. The beauty of it is that it has also been designed to go through recycling conditions.'

Trials are underway with three global beverage companies and are expected to finish towards the end of the year.

Milk-flavouring straws suck up business

Australian company Unistraw will launch an iced-coffee range of flavouring straws by the end of the year, to complement its current range of milk-flavouring straws.

The company is rolling out the milk-flavouring Sipahh straws globally, including with McDonald's franchises in five countries, and now hopes to conquer the adult milk market with coffee.

MD Tim York says: 'In the feedback from the Sipahh straws, the most requested flavour was coffee. It's the most popular adult milk product.'

'Coffee has taken us a while because there is more complexity to the flavour. It has different properties that require more understanding.'

The new coffee product, Mai'a, was launched in Australia at the end of 2006 and Unistraw has been trialling it

for about six months.

'We plan to roll out a coffee product by the end of this year,' says York. 'We are hoping to release a water product at the same time, definitely in Australia, possibly in America and, depending on our partners, other countries too.'

There has been a legal dispute with Nestlé over the rights to the flavouring straw design concept, first conceived as a way of flavouring milk more cheaply than with standard additives, powders and syrups. York says this has recently been amicably settled, leaving Unistraw ahead of the game in terms of number of different flavours and quality.

There are eight different Sipahh flavours: chocolate, strawberry, caramel, banana, cookies and cream, chocolate mint, toffee apple and vanilla, to Nestlé's two.

An EVOH bottle



Source: Graham Packaging

'One of the key drivers to development was to produce something requiring a passive barrier but also with good delamination performance'

Geoffrey Lu, VP Europe,

Graham Packaging



©Pira International 2007

ISSN 1478-7059

Published fortnightly by
Pira International Ltd
Cleeve Road, Leatherhead
Surrey KT22 7RU

T +44(0)1372 802080

F +44(0)1372 802079

E publications@pira-international.com

W www.intertechpira.com

Contributor

Jennifer McKiernan

Managing editor

Chantal Borciani

Editor-in-chief

Sara Ver-Bruggen

Publisher

Philip Swinden

Designer

Andrew Barron

Produced by

Moot Editorial and Design Services