

flexible & plastic packaging world

The journal of plastics packaging technology

News

EU ministers support food contact regulations

Braskem launches new resins

M&H removes the need for labels

Ecover goes green with latest packs

Dutch scientists develop renewable plastics

Reports

Healthy market for pharma packaging

flexible & plastic packaging world is published 10 times a year. Each issue includes consultancy-level articles that provide independent analysis and exclusive primary market data on flexible and plastic packaging trends, markets and technologies. Each issue provides exclusive reporting of latest material and product launches, trials and breakthroughs.

EU ministers support food contact regulations

Proposed European regulations regarding the manufacture and use of plastics as materials for packaging food have been accepted by the [EU Council of Ministers](#).

The Plastics Implementation Measure (Pim) – Regulation (EU) 10/2011 has been drafted by the European Commission, and as long as the European Parliament does not object, the legislation should be introduced from January 2016.

The legislation means that companies will have to start testing whether materials used to make plastic leach into food at safe levels. Detailed rules on the amount of these substances that can end up in food will

be introduced as part of the Pim strategy.

Peter Woodall from The Packaging and Films Association ([PAFA](#)) says: 'Such changes will inevitably bring added costs, which will proportionally be more burdensome for smaller companies than the larger international groups that can spread them over a much larger sales volume.'

PAFA adds that the introduction of Pim could be problematic.

'Given that it is far from being a simple consolidation measure, and that we have a transition period until 2016, we have in the short-term plenty of scope for complication and even confusion.

'We await with some eagerness the guidance

The Plastics Implementing Measure

Having attracted no objections from the European Parliament, the European Commission regulation on plastic materials and articles intended to come into contact with food ([10/2011](#)) was published in the *Official Journal* on 14 January 2011. It comes into force on 1 May 2011. Better known as the Plastics Implementing Measure (Pim), the regulation updates and replaces numerous directives dealing with food contact materials, dating as far back as 1978.

It contains a list of 885 substances approved for food contact uses. The important changes introduced by the Pim include coverage of plastics layers in multi-materials, changes in simulants for migration testing, and separate sets of standard test conditions, for overall and specific migration testing.

National provisions still apply to printing inks, adhesives or coatings.

notes, which have been delayed, but we hope will be available before Pim comes into effect on 1 May 2011.

'These, we expect, will enable us to define more precisely some of the requirements of the new regulation.'

Woodall adds: 'The introduction of further regulation does not on the face of it provide much in the way of opportunity for us.

'However, in meeting the challenge by demonstrating our members' ability to conform to it, we shall be able to continue to promote plastic flexible packaging as a safe choice, as well a good one based on its evident low cost and environmental credentials.'

The use of colourants and solvents in packaging is not covered by the new rules and remains controlled by national laws. This is likely to be reassessed in the

future, however, according to Pim.

Braskem launches new resins

Braskem, a global plastics producer, has boosted its film and polypropylene range with the launch of two thermopolymers.

The Brazil-based company says that the properties of the new Symbios resins are ideal for the automatic packaging process, because they have superior performance to conventional materials.

The Symbios 4102 was developed for the sealing layer in bi-oriented film coextrusion, with an initial sealing temperature lower than 115°C on the non-treated side.

The product's additivition is also suitable for the metallisation process.

The Symbios 3102, which has higher fluidity, was designed for the polypropylene film segment, maintaining the

Pim will revise the rules on food contact, and will come into force in May 2011. Legislation will be introduced in January 2016. The changes are an issue that flexible and plastic packaging producers will need to pay attention to in the coming years



Source: The Co-operative Group

other characteristics of the previous product.

The new Symbios products were especially developed to meet the needs of outer packaging layers.

The company explains: 'Aligning functional properties, the products offer a low sealing temperature, excellent optical and processing properties, surface treatment retention, high metallisation process performance, and a high degree of compatibility with adjacent layers.'

The resins provide the Brazilian market with an option to manufacture the material domestically, which until now was only imported.

The resins will also be available to the company's other clients in Latin America.

Marcelo Xavier, from Braskem's external communication department, comments: 'The resins could also be exported to other markets.

We are also developing a product that has an initial sealing temperature of under 110°C [in BOPP] on the non-treated face, which should be launched in 2011.'

Braskem owns the largest and most modern research centre in Latin America, which develops products, processes, applications and new markets in partnerships with its clients.

An M&H tube, produced featuring a photograph of a woman's face printed directly on to a black tube, demonstrates the detail and tonal ranges that are achievable using its new range of processing tools



Source: M&H

M&H removes the need for labels

M&H Plastics has developed a print technology that allows photo-realistic images to be printed directly onto tubes, enabling the company to offer label-quality print without the need for a label.

The Suffolk, UK-based firm has acquired the latest machinery to enable it to manufacture and decorate up to 1 million tubes a week, while continuing to achieve ever more demanding quality standards.

Vicki John, marketing manager for M&H Plastics, says: 'M&H purchased a new hybrid printing press that offers a combination of flexographic and silkscreen printing.

'This means that we are able to print high-level detail and tones such as skin tones – this level of tonal values is normally only achievable by printing on to labels.'

The system has allowed the company to offer its customers greater flexibility – it says that production resources have been fine-tuned for mass production and are also adaptable to short runs.

The tubes are available in any colour, as well as white and transparent. An extensive range of special effects can also be achieved using the new equipment.

The company also offers a complete decoration service, which includes flexographic and silkscreen printing, labelling and hot foil blocking, enabling

product differentiation with a virtually unlimited combination of effects.

Standard screw caps and snap-on dispensing closures are available to suit all sizes of tubes.

Ecover goes green with latest packs

Ecover, the Belgian manufacturer of ecological cleaning and washing products, is to begin selling its range of liquid products in fully renewable high-density polyethylene (HDPE).

The company has signed a contract with Brazil-based plastics manufacturer Braskem to use its green polyethylene, a plastic produced using sugarcane, which cuts greenhouse gas emissions by up to 75%.

Ecover and Braskem have introduced a number of measures to ensure the sugarcane is produced in the most sustainable manner: instead of using the traditional practice of cutting the sugar cane by hand and burning off the residue, a mechanical harvesting system has been introduced.

The system enables leftover leaves and stalks to be collected and used for energy generation.

Ecover is also using GPS technology to enable precise planting and fertilisation to achieve greater crop yields.

The increasing maturity of biopackaging and biomaterials means that products are likely

The University of Amsterdam's Gadi Rothenberg and Albert Alberts show off one of their newly developed resins, which are made from renewable materials



Source: University of Amsterdam

to directly compete in the future - not only on cost and performance, but also on the strength of their sustainability credentials. The materials that excel could take a greater share of the packaging market.

The project is the most recent in a series of moves intended to minimise the environmental impact of its packaging, such as changing the shape of bottles to lessen the quantity of material used, ensuring

new bottles are recyclable and suitable for refilling, and using partly recycled material where achievable.

Ecover's international brand manager, Tom Domen, says: 'We invest continually in enhancing our merchandise as well as the way we operate, scrutinising each and every single aspect of our business to determine where we can make a positive change, and our packaging is an aspect of this.'

The company will make the change from March 2011. The first orders will be served by an initial run of 20,000 units worldwide.

Ecover is not the first company to have turned to sugarcane derived plastic packaging. In August 2010 [Proctor and Gamble](#) announced it was moving brands from its range of cosmetic products to similar packaging, also produced by Braskem. The products moved to the new packaging material included Pantene Pro-V, Covergirl and Max Factor.

Meanwhile [Danone](#)-owned water brand Volvic revealed that it too was to move to a bottle manufactured from fermented and dehydrated sugarcane waste - on this occasion the material is being manufactured in India, by an unnamed company.

Dutch scientists develop renewable plastics

Researchers from the [University of Amsterdam](#) have discovered a new range of thermoset resins made from renewable raw materials, which are fully biodegradable, non-toxic and non-hazardous.

Most plastic products for domestic or industrial use consist of 3D networks of cross-linked polymers. Gadi Rothenberg and Albert Alberts, who work for the university's Heterogeneous Catalysis and Sustainable Chemistry research

group, wanted to develop a bioplastic alternative to conventional polymer materials.

The researchers found that by selecting the right raw materials and process conditions for the cross-linking reaction, they were able to make a range of bioplastics ranging from hard foam material to flexible thin sheet materials.

Rothenberg says: 'Our new resins are environmentally compatible and made 100% out of plant material. It also means a smaller ecological footprint and less dependence on petrochemicals.'

'We are aiming for fast development of these materials, but large-scale production will probably take 4-5 years at least. Things may go faster if we can find the right partner.'

The process requires no toxic ingredients and no harmful substances are released from combustion, while the raw materials are readily available at competitive prices on the world market.

The researchers believe that the resins could replace polyurethane and polystyrene in the packaging industries.

'We are working on several possibilities, and of course biomass-derived plastics are a popular research focus nowadays, so many other groups are working on this as well.'

The university is continuing its research, which will focus on additional applications, process development and upscaling.

As the pharmaceutical packaging market grows, producers must better address the consumer. Helen Lewis reports

Healthy market for pharma packaging

There is no doubt that packaging plays a pivotal role in the importance – and future growth – of the pharmaceutical industry.

Good packaging design ensures that patients comply with medication requirements, meet regulatory requirements, increase the appeal of the brand and vie for pole position in a hugely competitive global marketplace.

The pharma packaging industry is strong and set to regain robust growth once again following a tumultuous period for industries worldwide.

The global pharma packaging market is forecast to reach a value of \$68 billion (€49.4 billion) by 2015, up from \$42 billion in 2008.

As more and more pharma products move from behind the pharmacy counter to retailers' shelves, these previously faceless products are relying more than ever on packaging design to appeal to consumers.

Choice

Shoppers are gaining stronger control over their personal choice of healthcare products, with a wide selection available off the shelf without a doctor's prescription.

Getting the packaging design right first time in a commercially available product is imperative. Packaging provides an unrivalled opportunity to create visibility for products and help consumers make the right choice,

navigate the category, and identify the best product for their needs.

Plastic pharma packaging is predicted to reach volumes of 2.3 billion kilograms, up from 1.7 billion kilograms in 2010.

Materials

Polypropylene is the biggest sub-category, with a share of just over one quarter of volumes in 2010.

Polyvinyl chloride (PVC) and high-density polyethylene (HDPE) contribute the second- and third-biggest volume share of the global pharma pack market.

Other materials that are regularly used to produce pharma packaging, but contribute a smaller share, include polycarbonates, nylons, copolyesters (COPEs), thermoplastic urethanes (TPUs), silicones and acrylics.

Pharma packaging sales are expected to maintain steady growth in the short-medium term in developed markets, according to [IntertechPira](#) predictions.

While pressures on public finances may inevitably result in a slowdown in healthcare expenditure growth, this is likely to be offset by the effect of ageing populations.

Steady growth

The strongest pharma packaging growth will be witnessed in emerging markets such as China; while transitional economies, such as

As more and more pharma products move from behind the pharmacy counter to retailers' shelves, these previously faceless products are relying more than ever on packaging design to appeal to consumers

Russia, are likely to suffer slight declines in consumer spending that will have a negative impact on healthcare packaging sales in the short-to-medium-term.

China has become a desirable destination for packaging companies to expand into new markets, and also to outsource – and reduce the cost of – various parts of the packaging design chain.

The country is forecast to continue experiencing double-digit annual growth (an estimated 11–12% annually to 2013). Lower wages, a skilled and plentiful workforce and state-of-the-art technology have made China a pharma packaging hub.

The overall global pharma market is forecast to reach \$880 billion by 2011, driven by growth in the Chinese market. [IMS Health](#) predicts pharma sales in China, now the world's third largest market, will increase by more than a quarter to exceed \$50 billion this year.

The 17 so-called 'pharmerging' countries – IMS's term for Brazil, Turkey, Russia, China, India, Mexico, South Korea, Venezuela, Poland, Argentina, Vietnam, South Africa, Thailand, Indonesia, Egypt, Pakistan, and the Ukraine – are forecast to grow at a rate of 15–17% during 2011 to reach \$170–180 billion.

Regulation

Ever-changing health regulations will continue to pose challenges for pharma packaging innovations. However, regulatory requirements are constantly being updated and revised in the pharma industry, and this has been long accepted as a pivotal part of the new product development and packaging design process.

Martin Hawkins, executive director at [Sun Brand Technologies](#), says: 'Regulatory requirements, standards and processes are constantly being updated in the pharmaceutical industry, which makes packaging products in this sector a huge challenge.

'With tighter operating principles and labelling



Figure 1

Martin Hawkins, executive director at Sun Brand Technologies

Source: SBT

increasingly under the spotlight, it has become essential for manufacturers and retailers to streamline the packaging supply chain, and remove human error from the process as much as possible.'

Hawkins believes that the complex nature of the design-to-print stage of the product supply chain can impede new product development, compounded by confusing regulatory demands.

Processes

He says: 'A number of complex techniques and processes are involved, which require input from many individuals, both internally and externally. Incorporating everybody's comments is often a challenging task because of contradictory instructions and illegible handwriting.

'The complex nature of these procedures means that this part of the supply chain can be confusing, and lead to mismanagement, confusion regarding delivery deadlines, and an increasing number of amendments, resulting in the time-to-market for a product potentially extending months past its due date.

'In addition to severely affecting the profitability of the brand, a lengthy development period incurs costs, reduces staff productivity, and delays the income from those bodies and consumers who purchase the item.

‘Above all else it can compromise product quality, which in this sector could be disastrous and dangerous.’

Greater involvement by the consumer means more attention must now be paid to their needs – and their feedback – during the product development and packaging design process.

Consumer trials and focus groups are gaining importance but, of course, add to the length and complexity of the design process.

Hawkins predicts that future industry regulations will mean a solution that streamlines the design-to-print aspect of the product supply chain, which will prove increasingly valuable to pharmaceutical brands and manufacturers.

‘This will help to ensure quality is never compromised, and ensure repeatability, consistency and measurability of the process, as well as improving the profitability of all those involved,’ he surmises.

Trends

Three trends to watch in 2011, according to industry executives Gillian Garside-Wight, packaging technology director at [Packaging Partner](#), and Andrew Gilbert, business development director at [Ingenia Technology](#), are:

- Anti-counterfeiting
- Openability
- Sustainability

The global anti-counterfeiting and brand protection (ABP) market is forecast to grow strongly in 2010–15, according to a study by the ARC Advisory Group, Anti-Counterfeiting and [Brand Protection Worldwide Outlook](#).

The ABP market grew significantly over the past couple of years owing to the high growth in counterfeit goods. Drug counterfeiting is increasing worldwide, with more sophisticated counterfeiters and increased online purchasing.

Gilbert at Ingenia Technology points to 2010 health sector figures that showed



Figure 2

Gillian Garside-Wight,
packaging technology
director, Packaging Partner
Source: *Packaging Partner*

counterfeited drugs represented almost 10% of the worldwide pharmaceutical market.

There were 1,693 known incidents of counterfeit medicines in 2009, a rise of 7%, according a Reuters [news report](#) in May 2010.

Self-medication

‘One of the main contributing factors to this, and one that is expected to keep increasing throughout 2011, is the number of online pharmacies now available that allow people to self-medicate, without the need to visit the doctor to ensure they are in receipt of legitimate drugs,’ says Gilbert.

‘There is a worrying statistic from the *Cracking Counterfeit Europe* report, which surveyed the general public and doctors across 14 European countries. It revealed that 15% of UK adults surveyed admitted buying prescription drugs from the Internet rather than visiting their doctor.’

According to the aforementioned ARC report, manufacturers are increasingly deploying anti-counterfeiting technologies to reduce the risks associated with counterfeit products.

The report states: ‘Anti-counterfeiting technologies offer substantial benefits to

manufacturers that need to protect their supply chain.

‘The Internet and the increase in counterfeit products will continue to stimulate the market to employ ABP technologies, and deter counterfeiters. This will be especially true as government regulations and requirements are standardised, for compliance and supply chain visibility.

‘The economy has increased consumers’ desire to purchase “cheaper” products over the Internet, and increased manufacturers’ need to reduce counterfeit products in the supply chain and improve profits.

‘Liability, safety, and risk all play a role in the demand for ABP technologies.’

Counterfeiting

‘As we enter 2011, counterfeit products are becoming ever more prominent across a number of industry sectors,’ says Ingenia Technology’s Gilbert.

‘More specifically, with incidents increasing wherever drugs are available, counterfeit medicines are a serious issue across the globe. While they have traditionally been associated with developing countries and illegal online pharmacies, this is now spreading to legitimate supply chains, as counterfeiters become more security savvy.

‘This increasing recurrence of counterfeit crime is putting continuous pressure on brands to protect their products, and the users of these products, through more sophisticated covert technology solutions.’

Unichem Laboratories and PharmaSecure bought 70 million of PharmaSecure’s codes, to be used for protecting its products and consumers from counterfeiting and diversion in December 2010. The unique identifier codes are to be applied to several of Unichem’s leading medicines.

The product security solution empowers consumers to check whether a drug is authentic via text message (SMS) using a mobile phone.



Figure 3

Andrew Gilbert, business development director, Ingenia Technology
Source: Ingenia Technology

When consumers receive their medication, they can send a text message containing the unique identifier on the individual strip to a phone number that is printed alongside the code. They then receive an authentication text message from Unichem.

The introduction of the anti-counterfeiting measures has made no change to Unichem’s manufacturing processes and production output will remain the same, according to a company statement.

Following recent research conducted by Ingenia Technology of 1,000 consumers, more than 45% of respondents were not reassured of a product’s authenticity by any traditional anti-counterfeit security measures such as holograms, watermarks or trade body associations.

Gilbert believes there must be more advanced methods of securing our products in 2011.

Safety

‘With new regulations being introduced in the US and Europe, the focus is on how technology can play a more prominent role in the solution to this problem,’ he adds.

‘Technology must be more influential in making the supply chain more accountable, particularly as brand owners look to adopt a

more innovative and covert approach.’

Gilbert notes that the company’s Laser Surface Authentication is an example of a more innovative anti-counterfeiting technology.

The technology can rapidly analyse the surface of any item and produce a unique digital serial code.

‘This code, which has been described as being like a fingerprint or DNA sequence for the item, is unique for every document, card and carton, and can be used to uniquely and unambiguously authenticate and trace that item.

‘The serial code is naturally occurring and is not added by any manufacturing step. Hence, there is no way to reproduce it,’ says Gilbert.

Design

Garside-Wight of Packaging Partner notes that packaging design is also an important area of development.

‘In terms of openness, packs need to be child-proof, but all too often they are also adult-proof. As the population gets older, manufacturers must make sure that the ergonomics of packs are going to be suitable for the consumers that will be using them,’ she comments.

‘This means adopting easy-to-open closure systems, and perhaps removing the traditional squeeze and twist mechanism to simply use a larger cap, which children cannot grip to open.’

Sustainability

And pharma packaging is likely to change in the coming years with environmental impact in mind too.

‘When it comes to pharmaceutical packaging design there has always been a great deal of emphasis placed on the functionality of the pack,’ says Garside-Wight.

‘A lot of effort is put into ensuring the product is tamper- and child-proof, but there has been very little commitment towards making containers more sustainable.’

‘All packaging needs to contain, protect and preserve the product that it is holding. Over the years, developments in natural plastics now mean that sustainable containers have been commercially viable both in terms of structure, production and cost.

‘This will undoubtedly significantly help to reduce the amount of waste that is currently being put in landfill sites across the UK.’

Future

There are many aspects of design to consider, and it is likely that the pharmaceutical packaging industry will be transformed in the coming years, after a relative lack of innovation, according to Garside-Wight.

She concludes: ‘The pharmaceutical industry is one of the few sectors that has not experienced any major packaging developments in the last few years.

‘I believe that now is the time to start looking at innovative ways to ensure the packaging remains functional in the years ahead, whilst also becoming more environmentally friendly.’ ■

flexible & plastic packaging world
– the journal of plastics packaging
technology – provides independent analysis
and assessment of flexible packaging
technologies

Pira International is a leading consultancy
business with major publishing and
conference activities, serving retail supply
chain technologies.

© Pira International 2011
ISSN 1476-6795

Published by
IntertechPira
Cleeve Road
Leatherhead
Surrey KT22 7RU, UK
T +44(0)1372 802080
F +44(0)1372 802079
E publications@pira-international.com
www.pira-international.com

Contributors

William D’Alessandro
Helen Lewis
Liz Wells

Managing editor

Dan Rogers

Designed and produced by

Moot Editorial and Design Ltd