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September 2016

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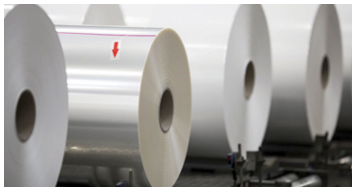
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Avery's $65m for film plant

Avery Dennison has invested $65m to expand its production facility in Rodange, Luxembourg – in order to meet increasing demand for pressure-sensitive materials in Europe.

The expansion incorporates a multi-capability coater, additional slitter capacity, a new packaging line, and an automated warehouse.

The total space used in Rodange will increase by more than 12,000 sq m, said the company.

A permit to begin the expansion is expected from local authorities by the end of September, with construction expected to start later this year. Initial production from the expansion is expected in the second half of 2018.

www.averydennison.com

North America machine orders on the rise in Q2

North American shipments of plastics machinery rose 2% in the second quarter of this year, according to the Society of the Plastics Industry (SPI).

Shipments of primary plastics machinery (extrusion, injection moulding and blow moulding equipment) exceeded $312 million in the second quarter. While this was 2% higher than the same period in 2015, it was 5.6% less than the first quarter of this ytear.

Year-to-date shipments of primary plastics equipment are currently up 7.6% compared with the first half of 2015.

"The quarterly comparisons will become more difficult in the coming quarters, so the trend of gradual moderation in the growth rate will likely continue," said Bill Wood, the plastics market economist who analyses the results for SPI.

"But the incentives to invest in new equipment will persist, so the shipments totals are expected to stay close to the current levels."

There was wide variation in results for each type of machinery. Compared to Q2 in 2015, single-screw extruders increased 12.4%, though twin-screw extruders (both co-rotating and counter-rotating) fell more than 35% in the same period. For comparison, injection moulding machinery rose 7.3%, while blow moulding machines fell by more than 17%.

New bookings of ancillary equipment for reporting companies reached nearly $124m in Q2, a rise of 1.4% compared to last year. It was also 3% higher than the first quarter of this year.

In an ongoing quarterly survey of machinery suppliers, 77% of respondents expect market conditions to hold steady or improve over the next 12 months. This is down from 84% in the previous quarter.

The outlook for global market conditions has also changed: Europe has emerged as the region with the strongest expectations for improvement in the coming year. Mexico and North America are expected to be steady-to-better. The outlooks for Asia and Latin America are less optimistic than in the last quarter, but most expect conditions to hold steady.

As for end-markets, the respondents to the Q2 survey expect that medical and packaging will enjoy the strongest growth in demand for plastics products and equipment in the coming year.

www.plasticsindustry.org

EconCore licenses honeycomb technology

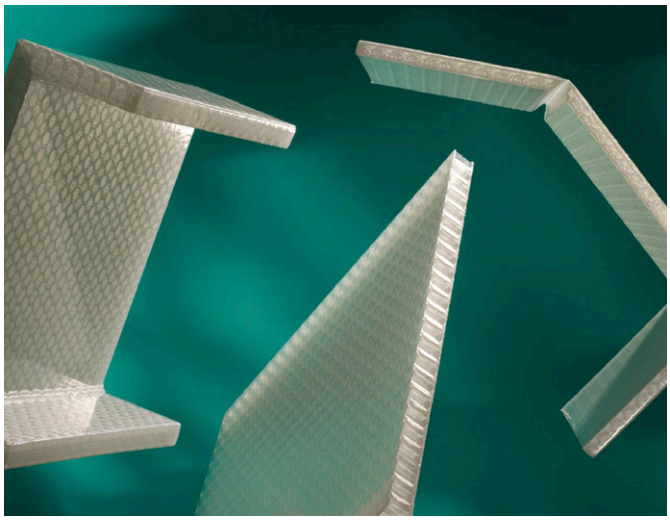
EconCore, the Belgian developer of honeycomb sandwich materials, has signed a license agreement with a leading textile manufacturer in North America. The applications will be focused on lightweight automotive interior panels and parts.

The manufacturer of a variety of needle punched nonwoven products will now integrate EconCore's technology in order to add value to the manufactured goods: thermoplastic honeycomb panels will be integrated with in-line lamination of nonwovens and carpets in order to finish the rigid, lightweight product.

Integrating the two technologies allows the company to move one step forward in the automotive industry supply chain.

EconCore's ThermHex technology produces honeycomb cores and sandwich panels in a fast, continuous, in-line process. Thanks to its high efficiency, the technology is typically applied in mass market applications.

www.econcore.com



Econcore's panels can be combined with other technologies

Strong US sales help Simona post first-half sales growth

Simona of Germany reported a growth in sales and profits in the first half of the year.

Group sales rose by 1.3% to nearly €188m ($213m) – though profitability (EBITDA) fell by 1.7% to €23.2m ($26.2m), which the company said was mainly due to the effects of foreign exchange rates.

The sales growth was driven by dynamic business in the US. The 'Americas' region saw revenue expand by almost 10% in the first half, taking sales to €45.7m ($51.7m). The region's share of group revenue is now close to 25%.

In Europe, revenues were down nearly 1% to around €134m ($152m), due in part to the poor performance of the chemical and mechanical engineering industry in Germany. The Asia-Pacific region saw a slight dip in sales revenue to €8.4m ($9.5m), down by around 4.5%.

PHOTO: ARMIN SEIBERT (RHEIN-ZEITUNG)

Moyses (left) welcomed Rhineland-Palatinate state premier Malu Dreyer to the opening of Simona's new technology centre

The company's semi-finished and finished products division – which includes products such as PVC sheet and foamed PVC – saw revenue grow by nearly 3% to more than €148m ($167m). Business related to PVC sheets benefited from a buoyant construction industry and sustained growth in the aircraft interiors market. Revenues from foamed PVC products and from fluoropolymer sheet were also healthy.

"Overall, we are satisfied with profitability at Group level," said Wolfgang Moyses, CEO of Simona. "We need a little more time for strategic measures to take effect. The trend, however, has been pointing upwards in the last few months."

For 2016 as a whole, the company expects €360-370m ($407-419m) in revenue and €20-25m ($23-29m) in EBIT.

In July it opened a new €10m ($11m) technology centre, which is equipped with modern extrusion lines, and brings together teams from R&D, process development and other disciplines.

"We will use the production lines at the technology centre to process high-performance plastics, which will help us to unlock new fields of application," said Moyses.

www.simona.de

Topas COC meets new standard

Topas says its COC materials are compliant with US Pharmacopeia (USP) 661.1 – a new standard for plastic packaging systems for the pharmaceutical industry. It says it is the first thermoplastic resin manufacturer to achieve this.Six of its COC pharma grades have been tested and approved by Toxikon, a pre-clinical contract research and testing organization.

www.topas.com

Teijin buys two polyester film businesses from partner DuPont

Teijin is to take full ownership of two polyester film companies that it currently owns in partnership with DuPont.

Teijin and DuPont run joint venture companies in seven countries. Teijin is to take full ownership of the companies in Japan and Indonesia – buying out DuPont's 40% share.

The two companies integrated their polyester film business in 2000. Recently, the business has suffered – due to a lack of demand (driven by the slowdown of the Chinese economy), and the rise of new Chinese competitors.

Production at the Japanese site will be consolidated into its Utsunomiya factory by the end of September, in order to focus on high value-added applications. Teijin says it can achieve further growth by acquiring the Japan and Indonesia joint ventures.

Teijin intends to increase profitability and competitiveness in the two companies by using "high-performance materials other than polyester", combining and integrating materials from other businesses in the Teijin Group, and promoting new business development through external alliances.

The new companies will be called Teijin Film Solutions, and PT Indonesia Teijin Film Solutions. Regulatory approval is needed before the deals can be confirmed.

www.teijin.co.jp

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Klöckner Pentaplast buys film producer in Turkey

Klöckner Pentaplast is to acquire Turkish rigid films producer Farmamak, from its owner Gözde Girişim.

Farmamak, which has sales of TRY155m ($52m), employs around 230 people and its production site is located in Gebze, Turkey.

"Integrating Farmamak into Klöckner Pentaplast shows confidence in the potential of our company and our employees, and brings more opportunities in the market to unlock further growth," said Kurt Kuruç, managing director of Farmamak.

Farmamak will operate as a subsidiary of Klöckner Pentaplast. Until the transaction is approved by competition authorities, the two companies will operate independently.

"This transaction allows us to improve our customer focus in Turkey and throughout the Middle East, to improve our regional service and capabilities," said Wayne Hewett, CEO of Klöckner Pentaplast.

● Klöckner Pentaplast says its profitability has improved in the latest quarter. Results for the third quarter of the year (to 30 June 2016) show an adjusted EBITDA of €58m, an increase of 5.4% compared to Q3 in 2015. EBITDA as a percentage of net sales grew from 16.3% to 17.8%. Net sales decreased by 3.3% to €326.7m driven by the impact of weaker foreign currencies.

www.kpfilms.com

Goldberg buys Schur Flexibles

Schur Flexibles Group has sold the majority of its shares to Lindsay Goldberg – a private equity fund that now becomes the main owner.

Goldberg's aim in investing in Schur is to continue its 'buy-and-build' concept by acquiring further companies that add to its portfolio. The transaction – for which details have not been disclosed – is expected to be completed in September.

"The fact we have been able to gain Lindsay Goldberg as a majority shareholder is a confirmation of our successful corporate development to date. We are very much looking forward to combining forces with a strong partner in the future. Together, we will realise our enormous development potential with determination, primarily through organic growth but also through further aquisitions," explains Jakob A. Mosser, CEO of the Schur Flexibles Group.

www.schurflexibles.com

Fauji Foods of Pakistan debuts Ecolean's 125ml package

Fauji Foods, a dairy producer in Pakistan, is the first company to introduce a product in Ecolean's new 125ml package. It will use the product for its Dostea brand of tea creamer, followed shortly afterwards by its UHT brand Nurpur.

"For our brands to be number one in the eyes of the consumer, the packages must be convenient and easily recognisable on the shelf," said Aamir Khawas, head of marketing and Sales at Fauji. "That's what we get with Ecolean. The smaller 125ml package fits our consumers perfectly. For us, Ecolean's stand-up pouches are the future for liquid dairy products."

www.ecolean.se

3M sells temporary protective film unit to Pregis

3M is to sell its temporary protective films business to Pregis in the US.

The business provides adhesive-backed temporary protective films used in industries including automotive, appliance, metalworking, building and construction. It has annual global sales of around $50m.

"After a strategic review, we decided to exit this business and focus on our core adhesives, sealants, and tapes businesses," said Ty Silberhorn, vice president and general manager at 3M's industrial adhesives and tapes division.

Around 90 employees, who are mainly based in Conover, North Carolina, are expected to join Pregis following the sale. The transaction is expected to close later this year.

"Growth within the protective films category is strategic to us," said Kevin Baudhuin, president and CEO of Pregis.

"This acquisition will enable us to expand the Surface Guard protective films portfolio with new technology and provide more solutions to a larger customer base."

www.3m.com

www.pregis.com

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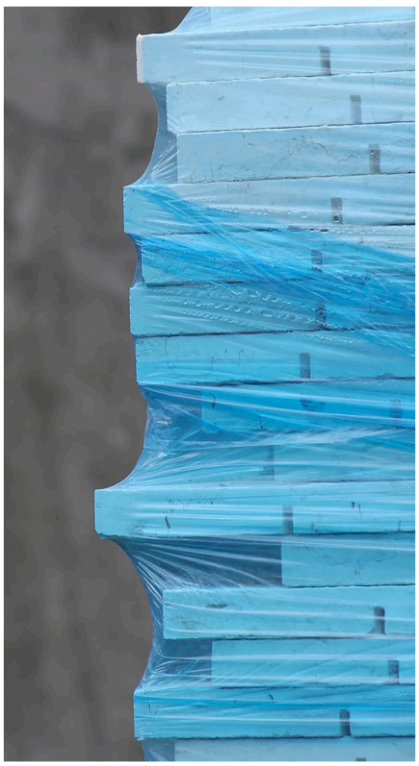

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RKW spends €5m to boost bag printing

RKW has invested more than €5m in its plant at Echte in Germany.

In the fourth quarter of 2016, it will bring a new 10-colour flexographic printing machine into operation – expanding capacity of the self-venting RKW ProVent plastic bag and other industrial bag solutions.

The new system will help meet customer demand for a variety of high-quality print designs. The investment includes a colour mixing system and various modernisation measures.

A 10-colour flexographic printing machine will expand capacity of the ProVent plastic bag

"Interest in ProVent is being driven by rising demands for high-quality print," said Matthias Kaufmann, a board member at RKW. "Customers are increasingly asking for plastic bags with distinctive print designs to distinguish themselves from the competition. That is why we took the decision to invest in the latest technology resources."

Echte is the competence centre for ProVent – a plastic-based FFS alternative to paper packaging for powdered, moisture-sensitive goods. For building materials, food and chemicals in particular, the self-venting plastic bag offers significant advantages during transportation and storage – providing effective protection against the weather.

RKW has also installed a modern, resource-efficient colour mixing system – characterised by efficient solvent recovery, which exceeds the legal requirements for environmental protection. The solvent vapours are automatically sucked in and thermally burned. The heat is used to operate the colour dryer. Dirty solvents are distilled and re-used, which contributes to lower solvent consumption.

www.rkw-group.com

Sekisui opens third US plant

Sekisui Polymer Innovations has held an opening ceremony for its third manufacturing facility.

The factory, in Bloomsburg, Pennsylvania, recently took delivery of its first extrusion line – which is specifically configured to produce Kydex thermoplastics sheet materials used in the aviation interiors market.

Ronn Cort, president and COO, said: "Our parent company, Sekisui Chemical, is intentionally investing in the US. Strengthening our position in Pennsylvania is a direct reflection of our confidence in the North American plastics manufacturing renaissance."

The new extrusion line has created 25 jobs at the company – while further posts will be created as Sekisui adds more extrusion lines in the future, he added.

In 2015, Sekisui invested $15m in the site – and this will continue at all three of SPI's facilities.

"This symbolises our first step in creating a centre of manufacturing excellence in central Pennsylvania," Cort added.

www.sekisui-spi.com

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BOPP film is a mainstay of the packaging sector – and recent advances have seen the development of new grades that are resistant to moisture and mineral oil. **Lou Reade** reports

Stretching a point: advances in BOPP

Most biaxially oriented polypropylene (BOPP) film is used for food packaging – and so film producers know that any extra properties they can bring to their products will make them potentially more attractive to customers.

Treofan, for instance, says that tests prove its coated BOPP films protect foods against migration of mineral oil more effectively.

It said that the measurements were taken by the Zürich Canton Laboratory in partnership with Swiss Quality Testing Services (SQTS) – on behalf of the Swiss Packaging Institute (SVI) – during development of the SVI's new '2015.01_Innenbeutel' guideline.

Treofan supported the project as a sponsor of the SVI's Joint Industry Group.

According to the new guideline's assessment criteria, Treofan's CLG film – which has an acrylate coating on both sides – prevents migration of mineral oil for at least five months. Its CLB film, which has a combined acrylate and PVdC coating, prevents migration for at least 27 months.

SQTS is conducting its own additional tests with the aim of further improving the barrier effect of the films.

The SVI Guideline, published on 1 March 2016, defines criteria and measurement techniques, making it possible to assess the barrier effect of different types of film qualitatively and quantitatively.

"This is especially helpful when developing customer-oriented packaging solutions," said Marco Holst, director of business development and technical service at Treofan.

"Not only can we grade existing products, we can also test how effective the barrier properties of new solutions are, and optimise them if necessary."

Treofan says its coated BOPP films protect foods against mineral oil migration

Russian range

Russian petrochemicals company **Sibur** presented a range of polypropylene (PP) homopolymers at Chinaplas earlier this year, including a grade for making BOPP film.

PP-H031-BF is characterised by standard molecular weight distribution, medium melt flow rate, balanced physical and mechanical properties, said Sibur, and is recommended for making BOPP films, and for clear and metallised food and clothes packaging.

Polymers account for more than 86% of Sibur's total sales volumes to China.

Sergey Komyshan, executive director of Sibur, said: "We increased our sales of polymers into China last year thanks to recent expansion of capacity in Tobolsk. We see increasing polymer demand from China, and our interest in further expansion there will grow with the completion of the ZapSibNeftekhim polyolefin project in 2020."

Cosmo launched its Premium range of lamination films at Drupa

Moisture protection

Cosmo Films has developed a special BOPP film that enhances the moisture resistance of cement bags. The film is used for laminating block bottom cement bags which are made of woven PP material. The product is already in commercial use by cement brands.

The Indian cement industry has seen a large amount of spoilage, due to moisture and lump formation. Cosmo's special film provides additional protection to the contents – by adding a moisture barrier – while enhancing the print quality of the packaging.

The film bonds well to the woven PP fabric and also takes micro-perforation/ nano embossing well. The laminated bag has high heat seal and hot tack properties and is easily machinable. Apart from cement and other building materials, the bags could be used to pack staples such as rice, pet foods, fertilisers and chemicals.

Pankaj Poddar, CEO of Cosmo Films, said: "India is the world's second largest cement producer, after China. With only 15% of cement being packed in block bottom bags, there is a huge potential in converting these bags into laminated ones. Laminated bags have already done well in Pakistan and Bangladesh, and consumption is already on the rise in the Indian market."

Earlier, the company launched a new range of lamination films at the recent Drupa exhibition in Germany. Its Premium range of lamination films comprises velvet, scuff free matte, and digital lamination films. The portfolio has been designed for luxury packaging and high end graphic lamination applications.

Its velvet lamination films lend a velvet finish to the printed surface. Engineered on a special matte base film, it gives a premium finish to luxury packaging and other items.

Scuff-free matte lamination films provide high scuff-resistance, which could develop during production, transportation or handling of the pack. The matte surface of the film is ideal for post-laminating procedures such as UV spot coating, hot foil stamping or embossing, said the company.

And, its digital lamination films have been engineered to provide strong bonding to digital printed surfaces, while providing superior optics and protection. The film is available in both gloss and matte varieties.

Plastchim-T already has a number of BOPP lines from Brückner, including this 8.2m wide example

Expanded installations

Plastchim-T of Bulgaria says it has invested in the world's largest BOPP line – with an hourly output of more than 7,600kg.

The 10.4m wide line, supplied by **Brückner Maschinenbau** of Germany, runs at speeds up to 600m/min. With a future total output of more than 110,000 tonnes/year of BOPP film, Plastchim-T says it is strengthening its position as one of Europe's leading packaging manufacturers.

"We strive to make our company fit for the next generation," said Beyan Faik, managing director. "This huge line has enormous potential and is a perfect complement to our existing machinery park."

Plastchim-T will build a new factory to house the new line. The company already has a broad range of Brückner BOPP lines in widths of 4.2m, 6.6m, 8.7m.

"With this new equipment we will be able to react flexibly to the fast-changing demands of the market, and offer various films grades in small or large lots – even on short notice," he added.

Plastchim-T's line features a high speed machine direction orienter (MDO), a new sliding chain track system, a tailor-made surface treatment system and a special winding concept, both for the highest speeds and outputs.

Meanwhile, Portuguese BOPP film producer Poligal has installed an aluminium oxide metalliser from **Bobst**.

The K5000 2850 line with AlOx capability is the first supplied to Europe, says the company. Poligal chose this model because it can switch rapidly between standard aluminium and AlOx metallising at the touch of a button.

The new machine will help Poligal achieve ambitious expansion plans, which also involves a new green field investment and a new BOPP film line in Poland. With

At K 2016, OMG srl to thermoform Ultraclear PP meat trays made using Milliken's Millad® NX™ 8000

Two industry leaders — Italian machinery supplier **OMG srl** and specialty chemicals supplier **Milliken & Company** — are combining their expertise at the K 2016 show in Dusseldorf to showcase a highly automated, electric thermoforming machine producing a meat tray using polypropylene clarified with Milliken's **Millad NX 8000**.

The resulting UltraClear PP tray — which will be made on an OMG **Elektra PVE** thermoforming machine on OMG's booth (**D06/Hall 3**) — is a lightweight, microwaveable and recyclable PP food tray with the transparency and clarity normally associated with PET packaging.

Millad NX 8000, which makes PP UltraClear and is known in the market as NX UltraClear PP, makes PP a viable alternative to PET in a wide range of clear applications. Products such as cups, trays, clamshells, and foldable containers can be made lighter, thinner, stronger and more heat resistant, performing well and keeping food fresh for longer *(click here to watch our video)*.

At **Booth A27/Hall 6** at K, Milliken will focus on how its technology-leading clarifiers and nucleators can improve polypropylene, with the core themes of Making PP Clearer; Making PP Better; Making PP Faster.

OMG, meanwhile, will highlight how its energy-saving Elektra PVE thermoformer, which features both vacuum- and pressure-forming, is ideal for producing thermoformed parts in medium to high volumes. This model is also the only such machine with a universal stacker that can work doing up or down stacking.

Established in 1965 in Turin, OMG now offers a half-century of expertise in making thermoforming equipment, packaging production lines and thermoforming tooling. It offers a wide range of inline machines, cut-in-place machines, and custom thermoforming lines and systems for the processing of all types of plastics. OMG's new facility in Givoletto, near Turin, has expanded considerably to meet customers' needs. Today, more than 1,300 OMG machines are in the market worldwide.

Open your eyes to the benefits and reach out to both Milliken and OMG for more information. Please learn more online at ***millikenchemical.com/K2016*** and ***omgitaly.com*** and visit our stands at K 2016.

2016

Milliken: **Hall 6, stand A27**
OMG: **Hall 3, stand D06**

Poligal has installed an aluminium oxide metalliser from Bobst

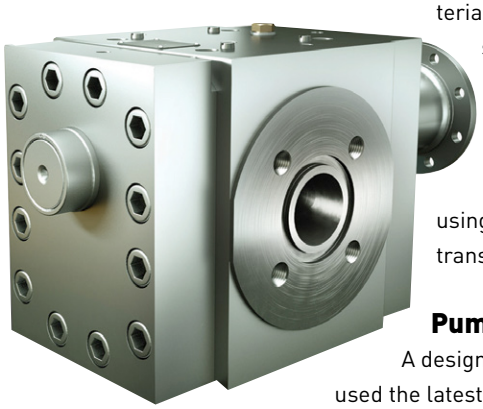
the new equipment, Poligal will increase film metallisation capacity above 10,000 tonnes/year.

José Luis Doldan, chief operating officer at Poligal, said: "We wanted a machine with AlOx production capabilities that was already proven on the market – and the Bobst machine has a great reputation: the ability to perform a quick changeover from aluminium to AlOx, and vice versa, is ideal for our requirements."

As well as purchasing the new machine, Poligal has joined the Bobst integrated AlOx conversion project. The objective for Bobst is to develop a full turnkey solution for the conversion of AlOx transparent barrier films. It has brought together leading names in raw materials, film production, conversion and machinery.

Bobst says that Poligal's involvement will help it make progress towards a robust AlOx-based solution using a polyolefin-based transparent substrate.

Maag's Generation 6 gear pump was chosen for a new BOPP line



Pump action

A designer of BOPP film lines has used the latest generation of gear pump from **Maag** to improve reliability and efficiency.

Gear pumps are used to transfer melted polypropylene (PP) at high pressure from the extruder through a filter and into the die. They are specified because of their volumetric consistency.

For its latest line, the company selected Maag's Generation 6 gear pump. It tested a prototype pump on its production line and saw lower energy input, less polymer degradation and improved volumetric efficiency. At the same time, the pump could withstand higher pressures – meaning that it could run for longer before the downstream filter had to be changed.

Maag says that the main advantage for BOPP producers is that the film produced – prior to stretching – has minimal deviation in thickness.

Click on the links for more information:

- **www.treofan.com**
- **www.cosmofilms.com**
- **www.sibur.ru/en**
- **www.cosmofilms.com**
- **www.brueckner.com**
- **www.bobst.com**
- **www.maag.com**
- **www.amiplastics.com**

BOPP demand likely to grow by 5% until 2020

Demand for BOPP film grew by 4% in 2015, according to the latest report on the industry from **Applied Market Information** (AMI). It is likely to keep advancing at around 5%/year to 2020, giving rise to a demand of 9.5 million tonnes.

By focusing on increased efficiency, cutting waste and developing value-added film, many companies boosted profitability in 2015 – leading to several announcement of capacity enhancement.

However, with potentially 37 new lines coming onstream in 2016 and 2017 – adding 1.5 million tonnes of capacity – utilisation rates are expected to remain at around 70-75%. (As recently as 2010, utilisation was 80%.) This figure is also affected by the trend to downgauge to produce thinner films, and by the development of more speciality films.

Many BOPP customers – such as food companies – need consistent product across multiple regions, and need BOPP partners that can help them achieve this. This could lead to more consolidation in the market – and there are signs this is starting to happen: the 10 largest BOPP producers now account for 30% of global production, compared with 25% in 2011 and 27% in 2013.

This consolidation is not just affecting existing companies in Europe and North America, but is creating new market leaders in China and South America.

As new manufacturing is established across the world, this will drive the need for rationalisation of old capacity. The situation looks risky for Europe's less profitable players – where new players in Poland and Russia could add around 100,000 tonnes of capacity. The only region where new capacity is unlikely is China – where there is already excess capacity.

Turn page for the full programme ➤

Multilayer Packaging Films 2016

International conference on advances in flexible packaging technology, materials and markets

15-17 November 2016
Austria Trend Hotel Savoyen, Vienna, Austria

Images courtesy of: **pladis** and **Windmöller & Hölscher KG**

* + 20% Austrian VAT

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FINAL REMINDER – BOOK NOW

Multilayer Packaging Films 2016

15-17 November 2016,
Austria Trend Savoyen Hotel, Vienna, Austria

AMI is pleased to invite you to attend the next international conference on speciality flexible packaging, Multilayer Packaging Films 2016, taking place from 15-17 November at the Austria Trend Hotel Savoyen in the beautiful city of Vienna, Austria. The 2-day programme of technical and market presentations will provide essential data and unique insights relevant to all companies involved in the manufacture and specification of flexible packaging.

The digital age is having a profound impact on the flexible packaging industry, presenting both challenges and opportunities. As more people around the world gain access to the internet, there is a new generation of technologically literate customers who are changing the way we shop and how products are sold. Brand owners are responding by finding new ways to connect with, and engage consumers, and packaging has a clear role to play. From added functionality and smart security features to mass personalisation of packs aided by digital printing, the flexible packaging industry is being increasingly shaped by the online revolution.

Across the packaging supply chain, reducing environmental impact whilst retaining product quality and safety is a key focus. Innovation in areas including film extrusion, resins, additives and adhesives are enabling optimisation of resources and processes and will be explored in depth at the conference. Meanwhile developments in credible alternative materials such as bio-based and recycled barrier films, together with end of life options for multilayer films will also be discussed.

Multilayer Packaging Films 2016 will bring together brand owners and flexible packaging converters to discuss the economics and technology of new developments, alongside film processors, machinery experts, polymer materials specialists and researchers.

Futureproof your business by staying up-to-date with the latest trends and technologies - book your place now for Multilayer Packaging Films 2016!

FIVE GOOD REASONS WHY YOU SHOULD ATTEND:

1. **Connect with international industry professionals and form valuable networks**
2. **Review new market trends**
3. **Get updated on the latest material, technical and machinery innovations**
4. **Benchmark your company against other leading players**
5. **Assess future opportunities**

CONFERENCE HOTLINE

Contact: Emily Renshaw, Conference Organiser
or: Becca Utteridge, Senior Conference Organiser
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HEADLINE SPONSOR SITE VISIT

Starlinger recycling technology

Starlinger recycling technology is a business unit of Starlinger & Co Ges.m.b.H. For more than 25 years Starlinger recycling technology has been supplying machinery solutions for the recycling and refining of a wide scope of plastics. For the film recycling industry, Starlinger recycling technology offers a spectrum of innovative machinery solutions (recoSTAR dynamic and recoSTAR universal) for the efficient recycling of all kinds of film materials. Polymers such as PE (LDPE, HDPE, LLDPE), PP (BOPP), PA (BOPA), PET (BOPET), PS, PLA, etc. can be processed with a choice of pre-treatment, degassing, filtration and pelletising modules.

The expectations in packaging are increasing constantly; hence the complex structures of different polymers in a multi-layer film that challenge the production technologies. At the same time, the use of regranulate is a factor that contributes to competitive film production.

For the film recycling industry, Starlinger recycling technology offers a spectrum of innovative machinery solutions for the efficient recycling of all kinds of film materials. While the recoSTAR dynamic recycling line of Starlinger features extended functionalities for processing in-house film production scrap and washed post-consumer waste, the recoSTAR universal recycling line is the most efficient solution or rigid, flexible and hard-to-grind production scrap, and features three-drive design. Starlinger machines ensure versatility, easy accessibility for high up-time, and intelligent operation through innovative process adaptions.

The site visit to Starlinger's factory, which takes place on Tuesday 15th November, will consist of a tour of the factory and live demonstration of machines followed by some refreshments and a chance to ask questions and talk to employees. Transport from the conference hotel is provided and will return in time for the Welcome Cocktail Reception. Registration is available on the registration form by ticking the site visit option.

Please note the Starlinger& Co. Ges.m.b.H reserves the right to deny participation.

EARLY BIRD REGISTRATION OFFER

Register before 9th September 2016 and pay €1090* saving €100 on the full price of €1190*. There are additional discounts for group bookings. The registration fee includes attendance at all conference sessions, the Welcome Cocktail Reception, lunch and refreshment breaks on both days and a set of conference proceedings.

MULTILAYER PACKAGING FILMS 2016: EXHIBITION SPACE

Make it easy for the delegates to find you at this busy event with your own table top exhibition space. Bring your own display stand, banners or use the space to showcase samples of your products and ensure that you make an impact. The table top exhibition will run throughout the conference in the spacious lobby and exhibition room next to the main meeting room.

Registration includes 1 delegate place!

Space is limited so to avoid disappointment please register for this service as soon as possible.

SPONSOR THIS EVENT

A variety of sponsorship opportunities are available at this conference to help to promote and enhance your company's products and services to this highly targeted international audience. Contact the Conference Hotline for further information.

HOTEL ACCOMMODATION

Delegates are responsible for booking their own accommodation. Please see registration form for further details.

*+20% Austrian VAT

Turn page for booking details ➤

HEADLINE SPONSOR

Starlinger recycling technology

CONFERENCE PROGRAMME

Tuesday 15th November 2016

15.00 approx. **Site visit at Starlinger Recycling Technology**

18.00-19.30 Registration and Welcome Cocktail Reception
There are no conference sessions on this day

Wednesday 16th November 2016

08.00 Registration and welcome coffee
09.00 Opening announcements

MARKET OVERVIEW

09.10 **The changing market for flexible packaging**
Ms. Charmaine Russell, Senior Project Manager,
AMI CONSULTING, United Kingdom

09.40 **What FMCG companies expect from packaging**
Mr. Vladimir Zernin, Global Value Engineering Lead for Packaging,
KRAFT HEINZ COMPANY, Netherlands

SESSION 1 - PACKAGING FOR THE DIGITAL AGE

10.10 **What challenges and opportunities could the changing consumer create for the FMCG multilayer packaging?**
Mr. Andrew Revel, Commercial Manager,
THE RETAIL INSTITUTE LEEDS BECKETT UNIVERSITY,
United Kingdom

10.40-11.20 Morning coffee sponsored by: ThermoFisher SCIENTIFIC

11.20 **The missing link – packaging as a shot in the digital world**
Mr. Florian Constabel, Project Manager / Designer Innovation Centre Wipak Group,
WIPAK WALSRODE GmbH & Co. KG, Germany

11.50 **Electronics for a flexible world**
Dr. Richard Price, Chief Technology Officer,
PRAGMATIC, United Kingdom

SESSION 2 - IMPROVING PERFORMANCE

12.20 **Recent developments in polymer films packaging laminates**
Prof. Dr. Achim Grefenstein, Head of Group R&D,
CONSTANTIA FLEXIBLES GERMANY GmbH, Germany

12.50-14.20 Lunch

14.20 **Improving multilayer films through next generation polyolefins**
Ms. Lucia Costa, Polypropylene Film and Fibres Specialist,
REPSOL, Spain

14.50 **Sustainable, lightweight sealant concepts for fresh meat packaging**
Mrs. Camille Orly, Field Development Specialist,
DUPONT DE NEMOURS INTERNATIONAL SarL, Switzerland and
Dr. Karlheinz Hausmann, R&D Fellow and Global Sustainability Technology Leader ECP,
DUPONT DE NEMOURS INTERNATIONAL SarL, Switzerland

15.20-16.00 Afternoon tea

16.00 **A comparative study of the adhesive performance of 'ready to use' tie resin versus diluted concentrate tie resin extruded in specific multilayer barrier blown films**
Dr. Richard Rebizak, Technical Development Manager,
ARKEMA, France

16.30 **Active packaging – oxygen scavenger for BIB (bag in box) and other applications**
Mr. Benjamin Bourbon, Business Development Manager Packaging,
ALBIS PLASTIC GmbH, Germany

17.00 **Purchasing equipment - cost of ownership**
Mr. Andreas Holt, Owner,
ANDREAS HOLT today-tomorrow-together (on behalf of ADVANCED BLENDING SOLUTIONS, USA), Germany

20.00 Conference Dinner sponsored by: Mitsui Chemicals Group

Thursday 17th November 2016

08.30 Registration & welcome coffee
09.00 Opening announcements

SESSION 3 - SUSTAINABILITY

09.10 **Packaging and environmental sustainability – the approach of a major brand owner**
Dr. Robert Witik, Senior Specialist: Sustainability & Packaging Material Science,
NESTLÉ, Switzerland

09.40 **Quantifying the resource efficiency of multilayer packaging in a circular economy**
Mr. Graham Houlder, Sustainability Director,
FLEXIBLE PACKAGING EUROPE, Germany

10.10 **New biobased polymer for multilayer film applications with improved barrier properties**
Mr. Stephan Roest, Market Development Manager,
CORBION, Netherlands

10.40-11.20 Morning coffee sponsored by: ThermoFisher SCIENTIFIC

11.20 **Improving multilayer packaging performance with bio-based barrier layers**
Mr. Jari Vartiainen, Senior Scientist,
VTT TECHNICAL RESEARCH CENTRE OF FINLAND Ltd., Finland

11.50 **Addressing a key sustainability challenge in flexible packaging: full recyclability**
Mr. Paulo Cavacas, Application Marketing Manager Flexible Packaging,
BOREALIS POLYMERS N.V., Belgium

12.20 **Development of functional barriers for the use of recycled materials in multilayer food packaging**
Ms. Rosa Gonzáles, Senior Researcher / Extrusion Department,
AIMPLAS, Spain

12.50-14.20 Lunch

SESSION 4 - ENHANCING MANUFACTURING

14.20 **FILMEX – latest technology for consistent high quality multilayer cast film extrusion**
Mr. Robin Roy Barman, Technical Consultant – Cast Extrusion Equipment,
WINDMÖLLER & HÖLSCHER KG, Germany

14.50 **The use of polymer processing additives to enlarge the process window for polyolefins in multilayer blown film extrusion and to optimise productivity**
Mrs. Greet Dewitte, Application Engineer Specialty Additives,
3M BELGIUM BVBA/SPRL, Belgium

15.20-16.00 Afternoon tea

16.00 **Electron beam crosslinking of polyolefin films for various packaging applications**
Mr. Im Rangwalla, Market Development Manager,
ENERGY SCIENCES INC., United States

16.30 **New methods for quality and process control in plastic film production – an important step towards industry 4.0**
Mr. Hans Oerley, Senior Manager Business Development,
DR. SCHENK GmbH INDUSTRIEMESSTECHNIK, Germany

17.00 Conference ends

Conference lanyard sponsored by: Tosaf

Conference signage sponsored by: DOW

AMI reserves the right to alter the programme without notice. See the latest programme and confirmed speakers at: ***www.amiconferences.com***

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Invoice address *(if different from above)*: _____

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DELEGATE DETAILS

If more than one delegate please photocopy form

Title: _____ First name: _____

Surname: _____

Position: _____

Email: _____

Special dietary requirements: _____

Signature: _____ Date: _____

PAYMENT DETAILS

All payments to be made in Euros

Please tick box and write amount:

❑ Early bird admission fee: *(Until 9th September 2016)*	€1090 + €218* = €1308	_____
❑ Admission fee thereafter:	€1190 + €238* = €1428	_____
❑ Table top exhibition package: € (Includes 1 delegate place)	€2500 + €218** + €2718	_____
❑ Conference Dinner:	€90	_____

❑ Yes I would like to attend the site visit at Starlinger Recycling Technology on 15th November 2016
(Starlinger Recycling Technology reserves the right to deny participation)

*(**Only admission fee part of package is VAT chargeable at 20%)*
*Austrian VAT charged at 20%

Total: _____

Please note all delegates have to pay the VAT stated above

METHOD OF PAYMENT

You will be sent an invoice in 7-14 working days.

❑ **Bank transfer quoting:** Your Invoice and A/C No. or 'Applied Market Information Ltd. -Multilayer Packaging Films 2016' to: National Westminster Bank Plc., Thornbury Branch, 16 the Plain, Thornbury, Bristol, BS99 5HD
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MULTILAYER PACKAGING FILMS 2016

CONFERENCE INFORMATION

Date and location
15-17 November 2016
Austria Trend Savoyen Hotel
Rennweg 16
1030 Vienna
Austria

Tel: +43 1 206 33 0
Fax: +43 1 206 33 9210

Registration fee
The registration fee includes attendance at all conference sessions, the Welcome Cocktail Reception, lunch and refreshment breaks on both days and a set of conference proceedings.

- ***Early bird registration:*** Register before 9th September 2016 for only €1090*. Thereafter the cost is €1190*.
- ***Group rates:*** For companies wishing to register two or more delegates, group discounts are available. Please contact the Conference Organiser for more details. (Please note to qualify for the group discount delegates must be booked at the same time, otherwise additional delegates may be charged at full price).

Multilayer Packaging Films 2016 table top exhibition
A limited number of table top exhibition spaces are available in the spacious lobby and exhibition room next to the main meeting room. The table top exhibition fee is excellent value for money and **includes 1 delegate place**. Exhibitors may either use tables provided by the hotel or bring their own stand or display.

Sponsor this event and promote your company
A variety of sponsorship opportunities are available at this event that can help to promote and enhance your company's products and services to this highly targeted international audience. For further information, please contact the Conference Organiser on: +44 (0) 117 314 8111.

Social events
The social events organised for Multilayer Packaging Films 2016 will provide an ideal setting for delegates and speakers to mix business with pleasure.

- ***Welcome Cocktail Reception:*** A welcoming cocktail reception will be held on the first evening. All delegates are invited to attend and it will offer an excellent opportunity to meet speakers and other colleagues. The Welcome Cocktail Reception will run approximately from 18.00 to 19.30 and is included in the delegate fee.
- ***Conference Dinner:*** All delegates are warmly invited to attend the Conference Dinner, which will take place at a local restaurant on the evening of 16th November 2016. The additional cost is €90.

Hotel accommodation
Delegates are responsible for booking their own accommodation. AMI has negotiated a limited number of rooms at the rate of €140 for a single room and €160 for a double (breakfast and Wi-Fi included) at the Austria Trend Savoyen Hotel in Vienna for a limited time only. To reserve a room, please contact the reservation department and state that you are attending "AMI's Multilayer Packaging Films 2016" conference on:

Tel: +43 1 206 33 0 Fax: +43 1 206 33 9110
Email: reservierung.savoyen@austria-trend.at
Or follow the link on the accommodation tab of the event webpages

Cancellations
Full refunds, less a cancellation charge of €200 will only be made on cancellations received prior to 14th October 2016. Thereafter we regret that no refunds can be made. Delegates may be substituted at any time. Please note that refunds will not be given on table top bookings, sponsorship packages or Conference Dinner places.

*+20% Austrian VAT

CONFERENCE HOTLINE

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The latest programme, including any new speakers or changes to the schedule can be viewed on our website: **www.amiconferences.com**

Plasticiser producers are developing new products that meet user demands for higher performance and lower migration while addressing regulator concerns over safety, writes **Peter Mapleston**

Plasticiser industry offers users many more options

The global market for PVC plasticisers continues to grow and at a relatively healthy rate (around 4% a year, according to IHS). At the same time, the options available to formulators continue to extend.

Bio-based types are available but appear to be taking a while to take off, largely because of their price premium, but to counter that there is plenty of activity in development of alternatives to lower molecular weight phthalates mineral oil more effectively..

Emerald Kalama Chemical points out that just four phthalates – DEHP, DINP, DPHP, and DIDP – account for the bulk of PVC plasticiser consumption worldwide. But their market share is falling year-on-year. "Formulators may turn to terephthalates such as DEHTP or to [something like] di-isononyl cyclohexanoate," a spokesperson for the company says. "However, in many applications, formulators cannot achieve needed end use performance with these non-phthalate general-purpose plasticisers alone. Despite concerns with health, environment, and meeting regulations, it is still essential to optimise and tailor key properties and processing characteristics, such as long-term durability, viscosity, fusion time, and film strength."

Historically, orthophthalates such as BBP were favoured for their fast fusion and economy, but use of BBP has been phased out entirely in the EU, with other regions following close behind. "Today, many formulators will utilise blends of non-phthalate general purpose and other high solvator plasticisers—such as dibenzoates—to improve compatibility and optimise a balance of desired performance properties and economy," the company says.

"Dibenzoates have excellent compatibility with a wide range of polar polymers. They outperform

Medical products such as blood bags are a major user of PVC plasticisers

phthalates such as DINP for properties such as stain and extraction resistance, are more efficient (10 to 15%), and offer greater compatibility. As high solvators, dibenzoate plasticisers also contribute to lower gel fusion temperatures and increased line speeds.

As a result, manufacturers of resilient flooring, spread coatings, and foam plastisols have increasingly utilised dibenzoates in recent years," according to the company.

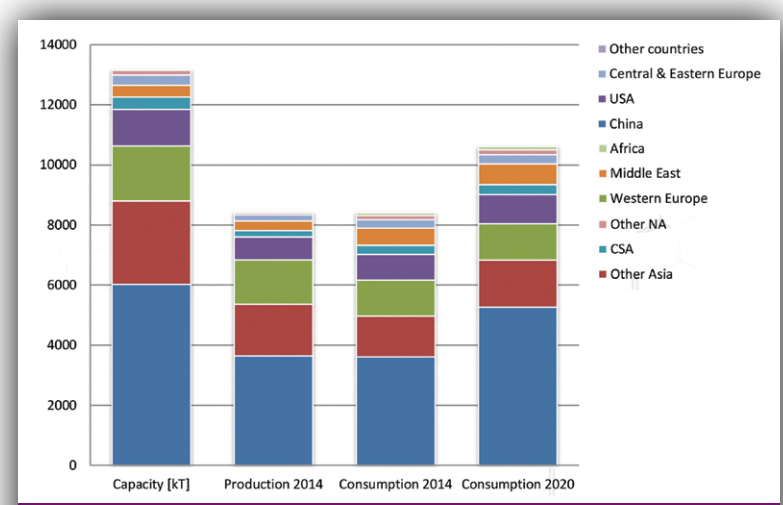
Emerald Kalama offers such products under the K-Flex banner and says it continues to focus R&D on optimising and enhancing end use performance. It notes that high solvators are not a drop-in replacement for other plasticisers; it is necessary to adjust the formulation in order to prevent unwanted viscosity increases. Use of dibenzoates in blends can resolve this problem.

Another recent priority for Emerald Kalama has been to increase the formulator's latitude to tailor performance characteristics for specific end use applications. It cites K-Flex 975P, which comprises a highly compatible, dibenzoate-based composition designed for improved processing and handling over other modern dibenzoate blends as well as providing enhanced properties such as stain resistance and durability.

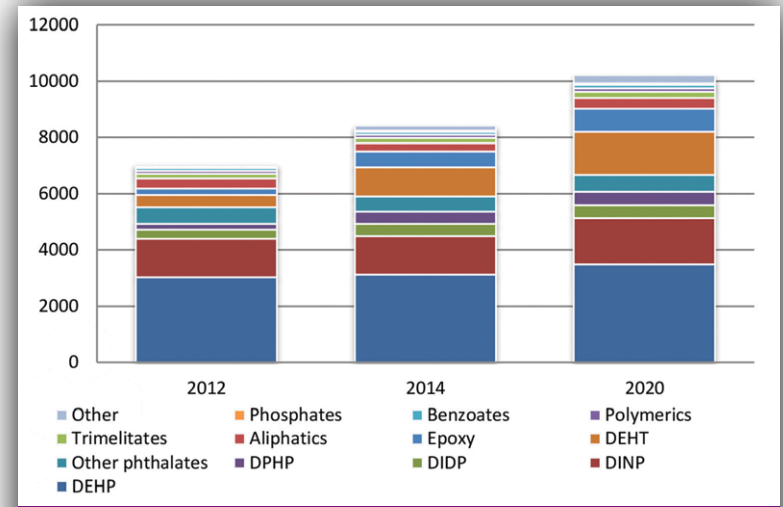
Emerald Kalama completed REACH registration for the new composition last year and was granted patents and applications in use for K-Flex 975P covering a number of countries in June. The company also has several developmental dibenzoate plasticisers specifically designed to compatibilise less compatible GP non-ortho-phthalate plasticisers.

This March, **Eastman Chemical Company** unveiled the second member of its nonphthalate plasticiser portfolio, VersaMax Plus. The new grade complements the original VersaMax product and, like the original, is a terephthalate. Eastman describes VersaMax Plus as an enhanced, general-purpose, non-phthalate solution that provides better efficiency, improved dry time, lower and stable plastisol viscosity, and faster fusion when compared to traditional orthophthalate plasticisers and other non-phthalate options. It says it is suitable for use in plastisols and dryblends.

VersaMax Plus is said to demonstrate performance consistent to DEHP across a variety of Shore A hardness levels while outperforming DINP (diisononyl phthalate).



Global plasticiser balance (kT)
Source: GA ZAK estimates, IHS



Global plasticiser consumption by type (kT)
Source: GA ZAK estimates, IHS

Overcoming difficulties

Mark Holt, director of market development and advocacy for Eastman's plasticiser business, says that development of the two VersaMax products came in response to difficulties that a number of customers had been experiencing in reformulating compounds with its well-established Eastman 168 grade as they moved away from more traditional plasticisers.

"With VersaMax, we have a product they can use like plasticisers they have been used to in terms of compatibility, dry time, efficiency and things like that," he says. "Now with VersaMax Plus we give formulators with even lower fusion temperatures, faster gelation…it really matches the performance of DEHP in many plastisol and dry blend formulations. You get a wider formulation window than you get with DEHT and most non-phthalate plasticisers. Everyone still uses DEHP as the standard, and VersaMax allows them to meet that standard."

Both Eastman 168 and VersaMax will continue to be available, however. "A lot of people have been able to formulate just fine with these products," says Holt. "For situations where you really need high compatibility and fast dry times, VersaMax Plus gives you that. There are so many ways you can formulate PVC, it depends a lot on what equipment the customer has and what they are

Photo: istock

Cutting-edge technology for PS & PP thermoforming sheet production

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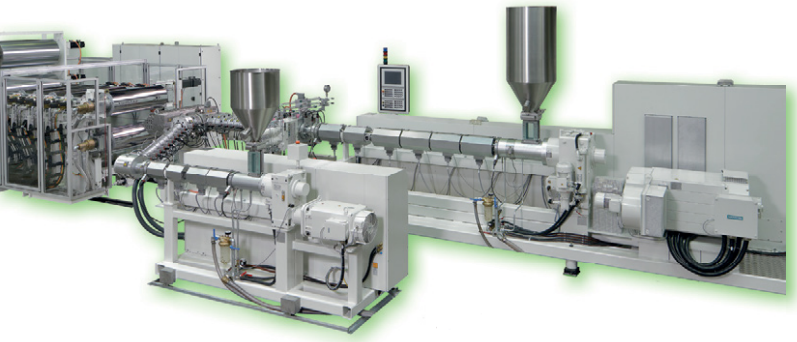

Co-extrusion line with high-speed extruders & Multi-Touch roll stack

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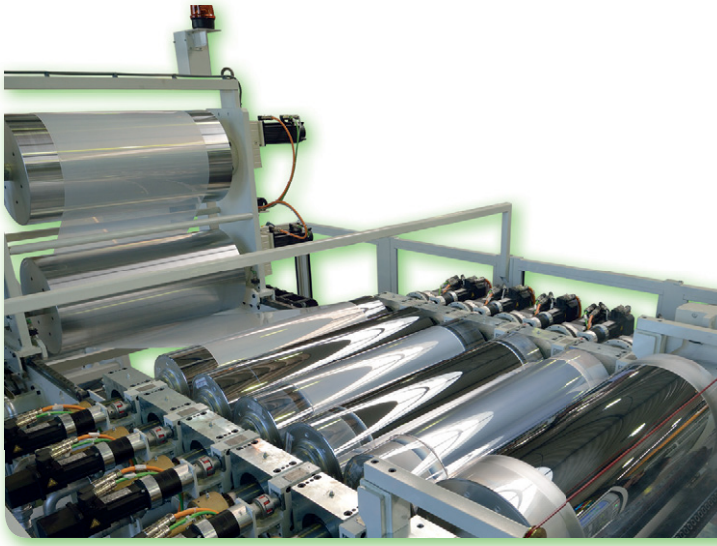

Close-up of Multi-Touch roll stack from above

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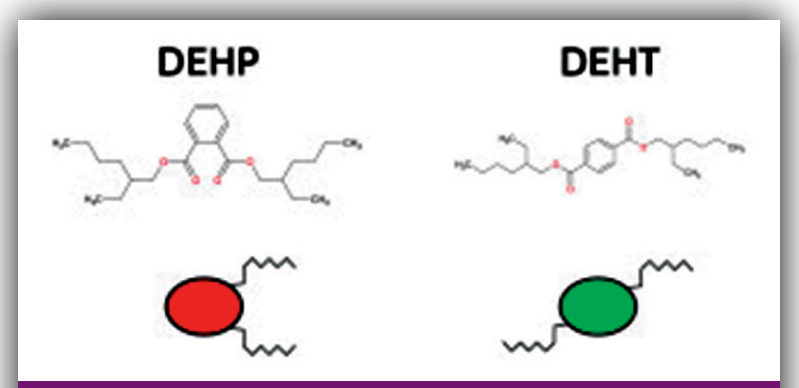
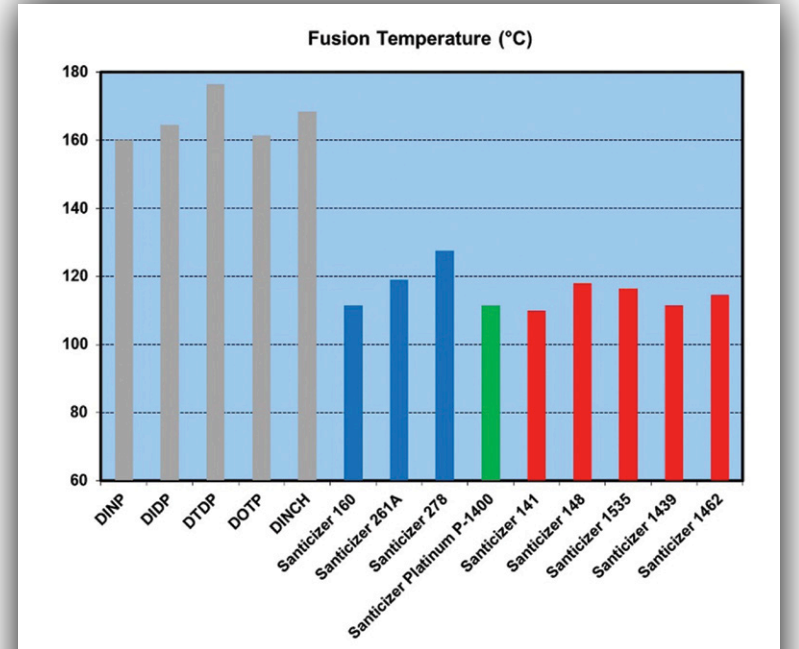


DEHT and DEHP are structural isomers: DEHP is a 1, 2-benzenedicarboxylic acid (ortho position = phthalic acid) esterified with 2-ethylhexanol while DEHT is a 1,4-benzenedicarboxylic isomer (para position=terephthalic acid)

Source: Grupa Azoty



Fast fusing Santicizer products versus general purpose plasticisers , Formulation (100phr PVC, 67phr plasticiser, 3phr stabilizer), Internal mixer (90 RPM, 3°C/min).

Source: Valtris Specialty Chemicals

trying to achieve. There are places for all three products in the market."

Terephthalate-based plasticisers are not recommended for applications requiring long-term weather resistance. For these, Eastman's extensive plasticiser portfolio includes Admex polymeric plasticisers. In addition, Holt says the company offers Benzoflex high solvating benzoate ester types, traditionally used in adhesives but increasingly used in PVC formulations.

At **Grupa Azoty**, Europe's fifth largest producer of oxo alcohols and plasticisers, company spokesman Grzegorz Kulik says the company will "in the near future" expand its plasticiser portfolio through the introduction of specialty esters, including bio-esters. For the moment, he says the company's existing Oxoviflex range is its response to the growing interest in non-phthalate plasticisers. Its formulation is based on Grupa Azoty's own 2-EH OXO alcohol and purified terephthalic acid (PTA). "It has been positively tested for usage in food packaging and child toys according to European regulations," Kulik points out.

Santicizer plasticisers from **Valtris Specialty Chemicals** encompass high solvating benzyl phthalates, flame retardant and smoke suppressing phosphate esters, and polymeric plasticisers. The family now also includes the non-phthalate Platinum range of cyclohexanoate products, which are high solvating and fast-fusing as well.

Karl Billast, EU/AP business manager for speciality plasticisers, says the Platinum products are similar in performance to benzyl phthalates, but without the regulatory concerns. Santicizer Platinum P-1400, a butyl benzyl cyclohexanoate, was commercialised in the US in 2014. In Europe, it has been PPORD (product and process orientated research and development) registered, which allows for sampling to enable product and process testing. Full REACH registration and subsequent commercialisation are expected to be finalised around the end of this year.

Valtris is already developing the next product in the Platinum family, Billast says. Santicizer Platinum P-1700, a long chain (C12) cyclohexanoate, is expected to be introduced in the US later this year. It offers superior VOC characteristics and will be targeted at specialty automotive and building applications.

Proven advantages

Perstorp is talking up plasticisers based on C10 chemistry.

"On all technical performance parameters, phthalate ester plasticisers based on isomeric C10 alcohols deliver a level of excellence that C8-9 plasticisers cannot achieve," claims Anders Magnusson, Technical Market Development Manager for Plasticisers at the company. He says such plasticisers offer proven advantages in weather resistance, flexibility and overall wear and tear. This provides sustainable and low maintenance solutions for tough outdoor applications.

There are two C10 general purpose plasticisers, dipropylheptyl phthalate (DPHP)—which Perstorp markets as Emoltene—and diisodecyl phthalate (DIDP). Both provide similar performance properties, with DPHP marginally better in some areas. Magnusson says there are seven key areas where C10 plasticisers can show a clear advantage over their C8-9 rivals: they have lower volatility; an exceptionally low level of water

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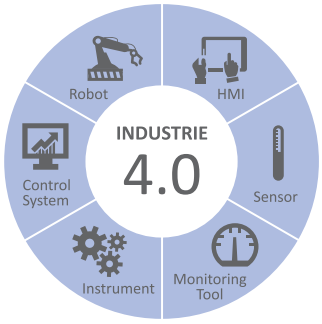

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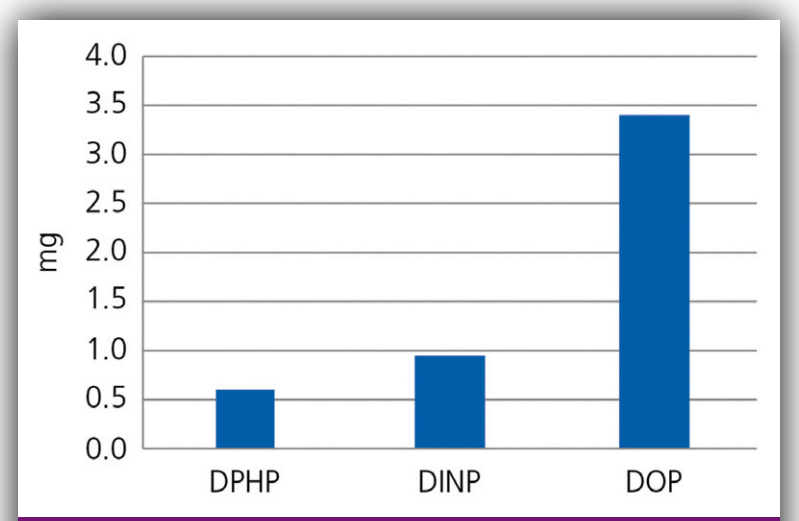
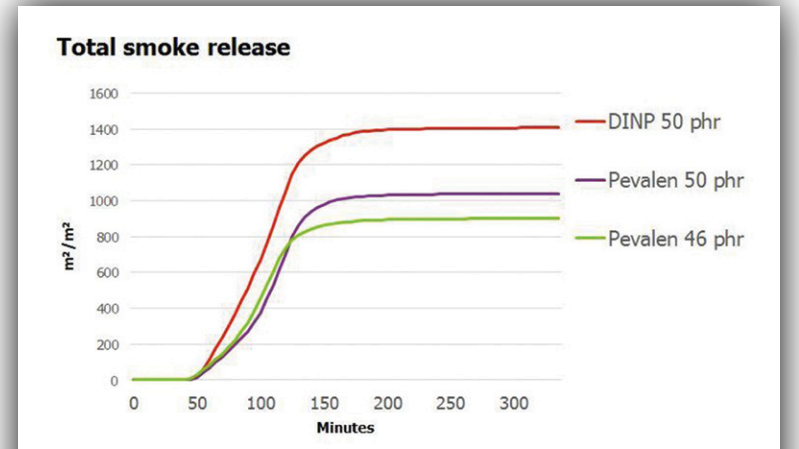


Fogging profile of common plasticisers. C10 (DPHP) has a significantly lower fogging profile



Graph showing the amount of smoke given off by different flexible PVC formulations in the Cone Calorimeter. Formulations containing 50phr of Pevalen give off much less smoke than formulations containing the same amount of DINP. The difference is even more significant when formulations of the same softness are compared (Pevalen 46phr).

Source: Perstorp

absorption; low fogging; high UV stability (especially DPHP) and ageing performance; very low migration; lower density; and they are non-classified under REACH.

Perstorp also offers a non-phthalate general purpose polyol ester plasticiser, Pevalen, for close-to-consumer applications. The company says new advantages are now emerging for this product. Researchers recently studied various formulations using Pevalen and DINP and, when they compared formulations with the same hardness, they found that formulations based on Pevalen had superior performance in terms of smoke release.

They also found that the limiting oxygen index (LOI) of formulations containing Pevalen and a number of different types of flame retardant, most notably antimony oxide, were better than formulations containing DINP (which it speculates may be due to synergies between the plasticiser and the flame retardant). Pevalen does not appear to be inherently more flame retardant than DINP but, because formulations do not need as much of the Perstorp product, there is a marked difference in the fire properties of the PVC/plasticiser combination.

Fire performance

Grupa Azoty has also reported on positive effects on fire performance with its Oxoviflex DEHT plasticiser. Application Laboratory Manager Ryszard Grzybek and Strategic Marketing Manager Maciej Budner spoke about the potential for synergies between Oxoviflex and mineral additives in both rigid and flexible PVC at AMI's PVC Formulation 2016 conference in Cologne in April (where Perstorp's Magnusson also spoke). They said tests indicated improvements in flame resistance (both in terms of flame-out and total smoke release) and thermal properties.

Hallstar says it continues to expand its current product line of specialty esters. Dejan Andjelkovic, Technical Director of Polymer Additives, says there is an ongoing need for new product development. "Markets for these esters are mature but our customers are pushing to maximise performance to meet the ever-increasing demands," he says, highlighting increasingly stringent performance requirements for low -fogging esters for auto interiors. "The Fog Value from years ago was 75-85 and now 95 has become the new minimum," he notes. "Non-migration to polyurethane foam is an absolute need. Also low-temperature properties continue to need improvement with -30°C or better required by most of the automotive companies."

To address these higher performance requirements, Hallstar has developed Paraplex A-8862, a polymeric ester. It has a Fog Value in PVC compound of 98. Another new polymeric ester is Paraplex A-7020, developed for improved compatibility and lower PVC fusion temperature (102°C).

Migration concerns

At **Oxea**, Commercial Business Director for Specialty Esters and Amines Jacco de Haas highlights the company's Oxsoft and Oxblue ranges. Oxsoft is primarily focused on the continuing trend to move away from phthalate products. "Another trend is the concern about migration in general. Simply said, if a plasticiser is not migrating at all nobody would be concerned if the product is a phthalate or not. So next to moving away from phthalates, we clearly see a trend to move to

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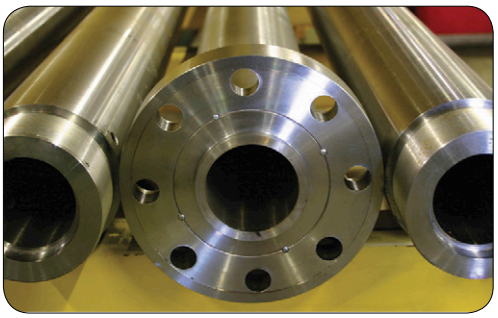

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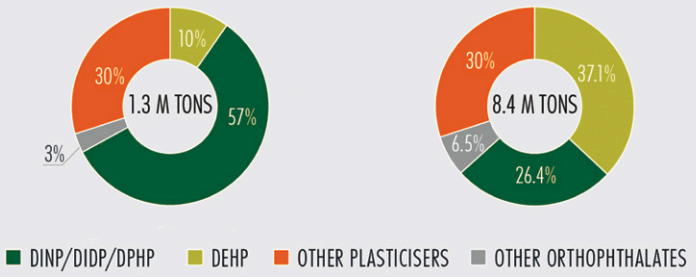
European and global plasticiser usage by type



Source: ECPI/IHS

Plasticisers: A European regulatory update

Few chemicals have found themselves more central in the regulatory spotlight than phthalate plasticisers. For those that may not have kept pace with developments in this area in Europe, Cefic sector group ECPI (European Council for Plasticisers and Intemediates) has provided this update.

Over the last two decades, DINP has become the major plasticiser in the EU and one of the main alternatives to classified phthalates such as DEHP. More than one and a half years ago, the Danish EPA said it would submit a dossier to ECHA (European Chemicals Agency) requiring the harmonised classification and labelling (CLH) of DINP. This has still not been submitted and DINP can continue to be used in all current applications.

In December 2012, the ECHA RAC (Committee for Risk Assessment) rejected a proposal from the Danish EPA for the broad restriction of four phthalates in articles (DEHP, DBP, DIBP and BBP). Since then, the use of DBP, DIBP, and BBP in flexible PVC applications within the EU has been completely phased out. The use of DEHP has been further reduced due to replacement with alternative plasticisers.

In September 2014, the ECHA RAC and SEAC (Committee for Socio-Economic Analysis) recommended the authorisation of DEHP for a number of specific PVC compounding applications and in recycling of flexible PVC made with DEHP. In April 2016, the European Commission granted a four year authorisation for the formulation and use of recycled soft PVC containing DEHP to VinyLoop Ferrara, Stena Recycling and Plastic Planet.

ECHA and the Danish EPA are now proposing restrictions in articles of the same four phthalates for which RAC has already concluded that there is no risk. It is now appropriate for the REACH Committee to confirm authorisation of the use of DEHP in PVC compounding and the manufacture of original PVC articles, with restrictions only for non-authorised uses. Nevertheless, a decision on authorisation of DEHP for manufacturers (currently only the Czech company DEZA) has not been taken yet. Companies that have applied for authorisation are eligible to continue to produce DEHP and their customers in their downstream supply chain may continue use as specified in the applications (Regulation EC No 1907/2006, article 56, 1d).

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products with a better migration profile," he says.

"Certainly in automotive applications migration is a concern. The 'new car' smell is actually nothing more than the smell of plasticisers migrating out. There is a global trend that in automotive this migration should be reduced and trimellitates are benefiting from this," according to de Haas. Oxea offer two kinds of trimellitates, Oxsoft TOTM (trioctyl trimellitate) and Oxsoft L9TM. He says the latter in particular is growing in automotive applications.

Outside automotive, de Haas says his company sees clear concerns concerning VOCs and migration in areas such as paints, artificial leather and wallcoverings. Larger molecules show better performance and are growing in importance, he notes. In addition to OTM and L9TM, Oxea also sells special products such as Oxsoft Duo 1 and 2.

"Normally bigger molecules how lower migration but they are also harder to handle, basically due to their high viscosity," de Haas says. "The Duo products are developed to combine low migration with good handling properties."

Oxblue, meanwhile, is a partly bio-based plasticiser based on succinic acid. "The Oxblue product range was developed to try to combine the best of petrochemistry and best of biochemistry," de Haas says. "We saw with 100% bio-products that performance is not always good enough. This makes sense as they will biodegrade much easier. However, in PVC applications that is exactly what you want to prevent. The goal is to have products with a long life time."

Affordability focus

De Haas says the company also determined it could make the products much more affordable through the combination of petro and bio-based chemistries. "This indeed is and was a reason for success. At the moment, bio is still interesting for our customers but really more for marketing reasons - everybody just wants to have a bio product on the portfolio. And also, very clearly, no customer is prepared to pay a premium. Still Oxea is committed to promote Oxblue products, but we believe that only being bio is not enough. Pricing and certainly performance should be the success factors."

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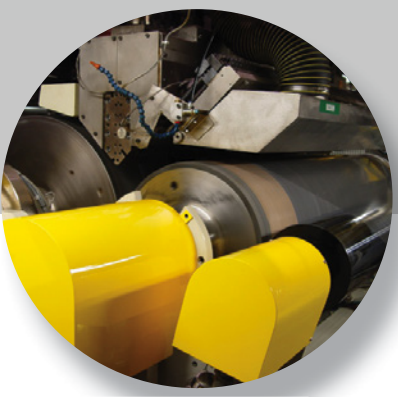

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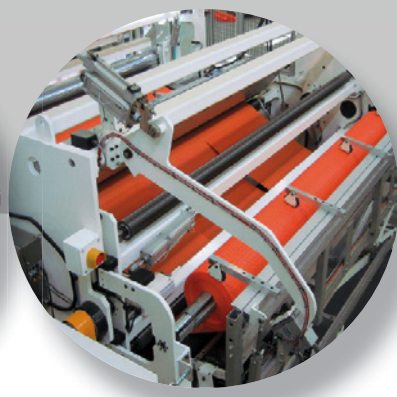

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European market healthy for heavy duty plastic sacks

Heavy duty plastic sacks – used to package products ranging from cement to plastic granules – are increasingly preferred to their paper equivalents, says **John Campin**

Heavy duty sacks account for a significant part of the European polyethylene (PE) film packaging market. Last year, Europe produced 5 billion such sacks – consuming around 600,000 tonnes of polymer, and accounting for just over 7% of total European film production. The sector is well developed, with a large number of producers serving a number of industries.

The main competitor to PE heavy duty sacks is paper, which still holds a large share in some industry sectors. One major trend that has affected heavy duty PE sacks over the past few years is a shift from 50kg (or heavier) packages to 25kg sacks, largely as a result of health and safety regulations regarding maximum lifting weights.

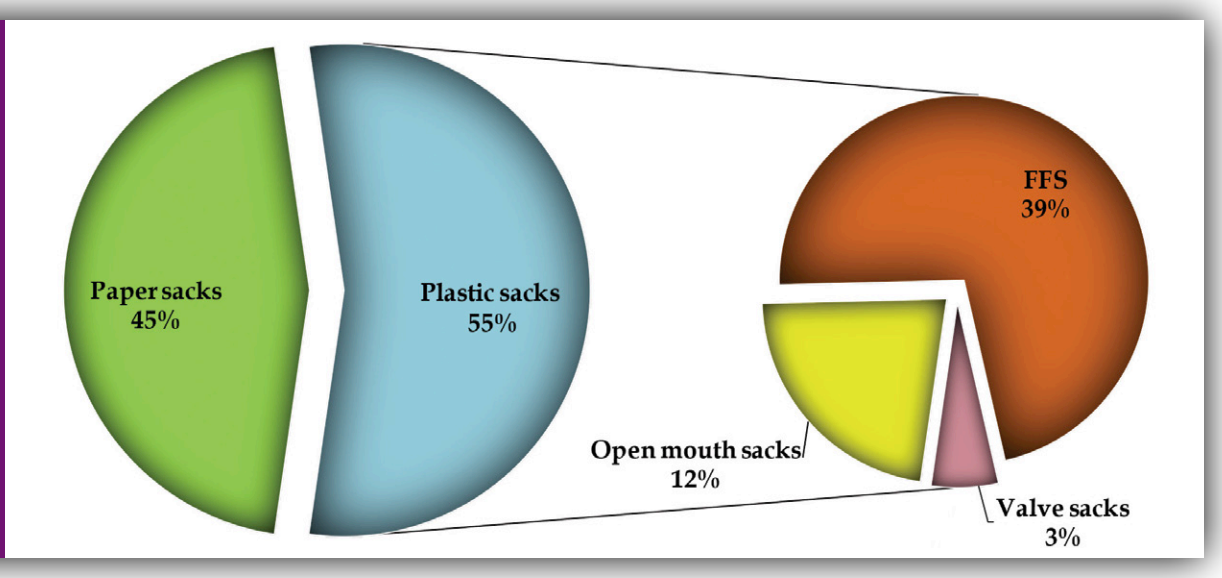
PE sacks have become more popular in recent years for several reasons: they can reduce the carbon footprint of the product being packed; they are straight-forward to recycle, while paper sacks are not – as they often have a plastic liner; they have excellent sealability, which leads to dust-free handling, reduced spillage and reduced product waste; and barrier properties can be built into the base film as required – such as to improve odour or moisture barrier.

Horticultural applications account for a quarter of all plastic heavy duty sacks

Sack varieties

There are essentially three varieties of heavy duty plastic sack: form fill & seal (FFS); valve sacks; and open mouth

Plastic sacks will continue to win market share from paper sacks



sacks. Valve sacks account for the lowest volume, with a 6% share of the plastic heavy duty sack market. This type of sack may incorporate a square seal in the bottom, or gusseted sides, and has a valve in its mouth. Generally, it is well shaped and easy to stack on a pallet. Incorporating a valve prevents spillage and allows faster filling than with open mouth sacks. There is usually no need for the packer to seal the sack after it has been filled.

The open mouth sack – which accounts for 22% of the market in terms of the number of sacks used – starts with a tube of film that is then sealed at the bottom by the manufacturer. The packer then fills the sack and seals it at the top. This leads to the formation of tapered sides and ends, which may make storage of the filled sacks unstable and difficult. An open mouth gusseted sack is made in a similar way, but the filled sack has squared sides – making it far easier to stack than the layflat sack described above. Open mouth sacks can also be made in the gusseted square bottom variety, which is easier to stack.

FFS growth

But it is FFS sacks that have shown enormous growth over the past 10 years, and now account for 72% of all PE heavy duty sacks. FFS is a fully automatic, low cost packaging concept for dry solids, pellets, flakes, powders, crystals and similar products. The bag is formed on the packing machine from a roll of film – either tubular or flat sheet – which is then filled and sealed.

There are three main types of FFS application: vertical FFS, which produces sacks from flat film; horizontal FFS, in which the sack is made from a roll of tubular film; and C-fold FFS, where the sack is made from centre-folded film. Flat film is unwound and formed into a tube, which is then made into a bag before being filled. As the top of the filled bag is being sealed, the bottom of the next bag is made. The vertical sealing bar and the horizontal welding bars are generally coated with PTFE to stop film sticking to them. Flat film packing machines can be half the price of tubular FFS machines – for the same sized bag – because the machinery is smaller and the bag is made and filled at the same point. Speed, though, is an issue with flat film machines compared with the tubular film alternative.

Tubular packing machines

Tubular packing machines first make the bag, sealing the bottom (often with impulse sealers), then often cooling them with a shot of air. The bag is cut to length, transferred to the filling point and then to the top sealing area. At the filling point, there are several different methods of opening the top of the bag and discharging the pre-dosed quantity of product from the filling chute to the bag interior.

The bag then moves on to the point where the top seal is made. For high outputs, several machinery suppliers offer a carousel type filler aimed at products such as flour, which needs to be shaken down for de-aeration after filling.

FFS bags have grown so quickly in recent years thanks to the development of stronger, lighter films – resulting in more cost-effective bag production. Developments in resin technology and greater use of co-extrusion have improved sealing characteristics and powder handling techniques. It is also possible to put a simple print design on to the film while running on certain FFS machines – particularly useful for bar coding when there is a change in product being wrapped. Flat film FFS runs on machinery with few moving parts, resulting in low machinery maintenance cost. The film thickness of FFS bags is typically less than that of the other two sack types because film rigidity is not such an issue.

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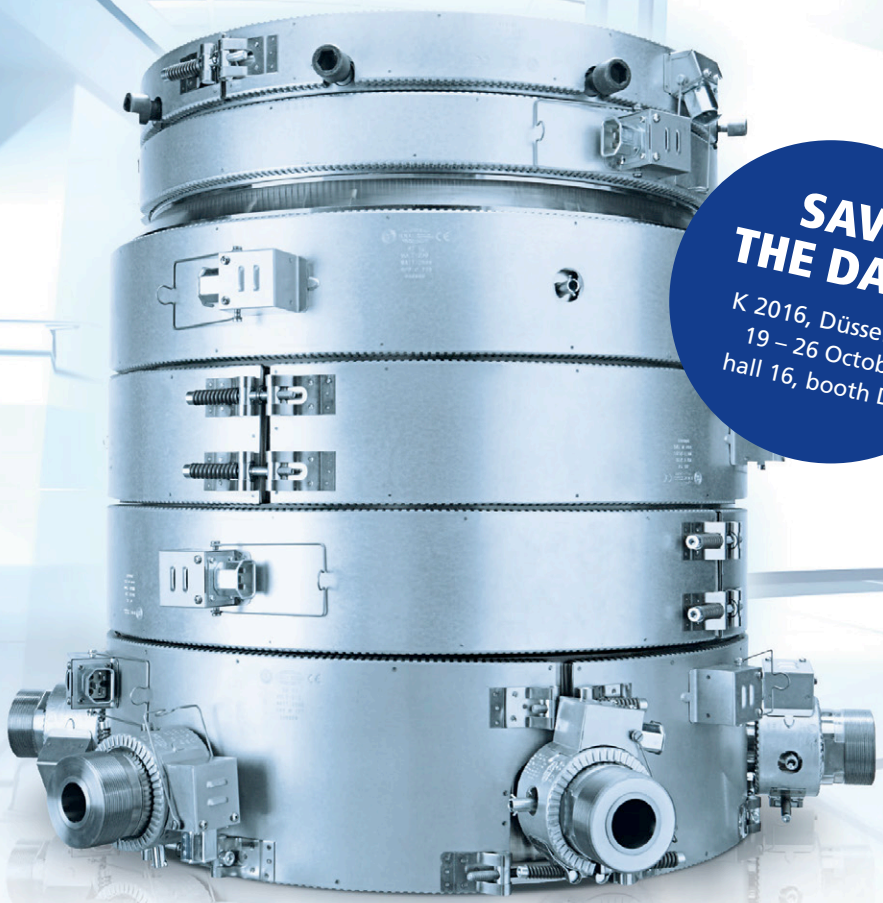

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Pet food is a growing market for tough plastic sacks

Packing it in

What is packed in over 5 billion sacks a year? The largest single market is chemicals and fertilisers – which accounts for 30% of total sacks, and almost 35% by weight. Polymer and fertiliser producers are the major customers. Other products included in this category are calcium carbonate, titanium dioxide, caustic soda and other minerals.

Demand from the polymer industry is determined by different criteria from those of other sectors. Polymer producers tend to align their production pattern with the price of oil. For a limited time, sack consumption develops independently of the actual level of demand for polymer. Once oil prices settle, these are reflected in polymer products. Similarly, the market may fluctuate as a result of stocking and destocking by polymer producers and their customers.

Paper sacks still dominate in pigments, PVC additives, titanium dioxide and other additives where paper valve sacks are used. The main reason for using paper sacks is that they are all fine powders – which makes it challenging to extract surplus air. Also, if any leakage occurs during packing the surface of a plastic sack becomes slippery – causing pallet instability. Most plastic sacks used in the chemicals and fertilisers sector are FFS, which have taken over from pre-made sacks and paper during the past decade.

The second largest single market sector for plastic heavy duty sacks is horticulture. It accounts for a quarter of all sacks, and 20% in terms of weight. These sacks are made from quite thin film, as the packaged products – such as compost, decorative bark and potting soil – are relatively light. These products are generally targeted at the consumer.

These products have demanding storage conditions – including moisture and light barrier, plus the need for durability and ease of handling – so are generally packaged in PE sacks: paper now accounts for less than 10% of this market sector.

Packing peat

Most sacks used in the horticultural sector are of the FFS type becuase most peat suppliers, for example, pack their products in-house. The product is typically high output, which encouraged rapid substitution of traditional open mouth sacks with much more efficient flat vertical FFS. Peat and compost usually use co-extruded film – with a white outer layer and a black inner layer, because they are light-sensitive. High quality flexo printing – in up to 10 colours – is often applied, in order to boost appearance at the point of sale. Increasingly, printed film is laminated to another layer of unprinted PE film to protect the print against

weathering by sandwiching it, resulting in filled sacks that can withstand up to 18 months of outside storage. The highest demand for products in this sector comes from Germany, followed by the UK, Nordic countries, Spain and France.

Building a future

Sand & aggregates is another important sector, accounting for 12% of the market. Products included in this sector include sharp sand, yellow building sand, dolomite and plastering sand; aggregates include gravel, crushed limestone and granite, fine aggregates for decorative concrete, rounded pebbles and decorative chippings.

Plastic sacks have a 90% share of the market. FFS film will continue to take market share from open mouth sacks, particularly in speciality applications and where pre-made sacks restrict producers from increasing output because of the slower packing process. Again, Germany dominates this sector, followed by Spain, the UK, France, Italy and Benelux.

Pet food and animal feed represents some 10% of the European market. Although plastic sacks have been taking market share from paper sacks, paper still holds about one-third of the heavy duty sack market. A growing area is cattle fodder, which used to be sold in bulk but is nowadays increasingly in PE heavy duty sacks. Products include protein feed granules. Feed for farm animals remains mostly in paper for most European countries – because pet food and animal feed

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Most cement is still packed in paper sacks

are often packed at relatively high filling temperatures. Fish feed has been an exception because, being oily, it is unsuitable for unlined paper packaging.

This sector has a much higher proportion of open mouth sacks (more than 50%) than any other segment discussed in this article. This is because the market is still at an early stage of replacing paper open mouth sacks, so there is a higher number of existing semi-automatic machines handling pre-made open mouth sacks, and high-end dry pet food packed in open mouth sacks has emerged. This is largely due to the fact that open mouth sacks can offer additional benefits for domestic customers, such as special opening systems and better ability to stand upright when unsupported. Often these high-end sacks are made of multi-layer film laminated with a PET or PP layer with high quality flexo print of up to 10 colours.

Other sectors

The remaining sectors include food, salt and cement products – each of which accounts for less than 5% of the plastic sack market. A wide variety of dry food products are packed in heavy duty sacks, including flour, sugar, starch and spices. Paper continues to play an important role in the food sector – where heavy duty plastic sacks account for around one-third of the market.

The difficulties in taking market share from paper in this sector include: condensation and a lack of breathability, which may lead to mould growth; cost of investment in new lines, especially for smaller producers; and tradition – as in some cultures where food plays an important role in society, some negative perception of plastic in food contact can be seen.

Because of fragmentation in this market sector – with many small companies that find it hard to invest in FFS machinery – open mouth sacks still represent almost 40% of all plastic heavy duty sacks. The main driver for growth of PE sacks in this sector is ingredients, such as sugars and spices, which are switching from paper. Increasingly, food manufacturers are aiming to eliminate cardboard and paper products from 'high risk' end uses such as baby food because of the risk of contamination by paper fibres.

As well as being used in food processing, large quantities of salt are used for road treatment during winter, water softener regeneration, the chemical industry, animal feed and the textile and tanning industries. Over the past decade, this sector has grown strongly due mainly to a trend to replace paper with plastic alternatives, driven by the need for an improved moisture barrier and sack durability for storage and handling. Today, some 95% of 25kg heavy duty sacks used for packing salt are made of plastic. Edible salt is increasingly packed in plastic, although not to the extent found for road salt.

Although cement products account for almost one third of all sacks used in Europe, the vast majority – more than 90% – is packed in paper sacks. There are two main reasons for this: cement is normally hot filled at 90-110°C, which makes it challenging for plastic film to compete with paper; and it is a very fine powder – so removing excess air is easier if it is packed in a semi-permeable paper sack. (At the same time, plastic sacks cost slightly more than paper sacks – and cement is a relatively low cost item.) A few major cement producers in Europe have begun packing some of their cement products in PE heavy duty sacks – but paper sack manufacturers will be eager to defend their biggest market sector.

In summary, the total market for heavy duty sacks is currently estimated at over 10.3 billion sacks – plastic and paper combined. Of this, 55% are plastic sacks – which have increased their share from 51% just over five years ago, and are expected to account for nearly 60% by the end of the decade.

More information

Heavy Duty Sacks Europe 2016 complements a set of detailed market reports on industrial films published earlier this year by AMI Consulting which includes also **Palletisation Films Europe** and **Collation Shrink Films Europe**. For further information, contact Karla Vittova (**kv@amiplastics.com**) on +44 117 314 8140.

AMI is also organising a conference, **Heavy Duty Bags and Sacks**, which will take place on 27-28 June 2017 in Cologne, Germany.

For more information, contact Maud Lassara (**ml@amiplastics.com**) on +44 117 314 8111.

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Mrs. Charmaine Russell, Senior Project Manager,
AMI CONSULTING, United Kingdom

10.10 **Application and market trends in flexible packaging**
Mr. Mohammed Mowkley, C.E.O. Obeikan Printing & Packaging,
OBEIKAN INVESTMENT GROUP, Kingdom of Saudi Arabia

10.40 **Tailormade masterbatch solutions for flexible packaging applications: product portfolio and technology trends**
Mr. Michael Weber, Technical Service / R&D,
CONSTAB POLYOLEFIN ADDITIVES GmbH, Germany

11.10-11.50 Morning coffee sponsored by: ExxonMobil

SESSION 1 - MATERIAL INNOVATIONS

11.50 **New performance polymers and solutions to support highly demanding packaging needs**
Dr. Francois H Chambon, PE Market Development Manager, EMEAF,
EXXONMOBIL PETROLEUM AND CHEMICAL, Belgium

12.20 **Enhanced packaging performance with multimodal PE/PP**
Mr. Peter Malmros, Senior Technical Manager,
BOROUGE MARKETING & SALES COMPANY, United Arab Emirates

12.50-14.20 Lunch

14.20 **Precision solutions for flexible packaging**
Mr. Martin Pavlik, Senior R&D Group Leader,
DOW EUROPE, Switzerland
Mr. Prashant Mogre, Principal TS & D Scientist – MEAF,
DOW CHEMICAL IMEA GmbH DUBAI, United Arab Emirates

SESSION 2 - TECHNOLOGY DEVELOPMENTS

14.50 **New developments in heat shrinkable bi-axially oriented barrier films**
Mr. James Stobie, Chief Executive Officer,
MACRO ENGINEERING & TECHNOLOGY Inc., Canada

15.20 **Improving flexible packaging barrier properties through nanotechnology**
Prof. Abdellah Ajji, Professor,
POLYTECHNIQUE MONTREAL, Canada

15.50-16.30 Afternoon tea

16.30 **Applied printed electronics for added value packages**
Prof. Dr. Ulrich Moosheimer, Professor for Printing Technologies,
MUNICH UNIVERSITY OF APPLIED SCIENCE, Germany

17.00 **Recycling of flexible packaging – latest innovations & opportunities for converters**
Mr. Paul Niedl, Head of Sales – Recycling Technology,
STARLINGER & Co. GmbH, Austria

17.30 **Packaging safety and compliance programme in Nestle**
Ms. Sarah Divan Beigi, Packaging Safety & Compliance Expert,
NESTLE MIDDLE EAST FZE, United Arab Emirates

18.00 – 19.30 Networking Cocktail Reception

Wednesday 7th December 2016

08.30 Registration and welcome coffee
09.00 Opening announcements

SESSION 3 - MEETING PACKAGING DEMANDS

09.10 **Africa rising with flexible packaging**
Mr. Joseph Wanjala Nyongesa, President,
APO-AFRICAN PACKAGING ORGANISATION, Kenya

09.40 **Understanding the packaging needs of the consumer, starting from the granules**
Mr. Oktay Aral, Packaging Director (Flexibles, foils and polymers), Innovation Office,
PLADIS, Turkey

10.10 **Inks for packaging printing – a guide to safe & efficient performance**
Mr. Andreas Schellenbach, Regional Director Application Technology,
SIEGWERK, Germany

10.40-11.20 Morning coffee

SESSION 4 - IMPROVING PERFORMANCE

11.20 **Coating and laminating processes and latest developments for flexible packaging applications**
Mrs. Andrea Glawe, Regional Sales Director,
KROENERT GmbH & Co. KG, Germany

11.50 **Recent developments in polyolefin film stabilization for demanding applications**
Dr. Hayder Zahalka, Global Technology Manager,
ADDIVANT, United States

12.20 **Coated films for new packaging trends**
Mr. Turgut Selbasti, Deputy General Manager,
SUPER FILM AMBALAJ SANAYI ve TICARET A.S., Turkey

12.50-14.20 Lunch

14.20 **Latest developments in specialty tie resins for multilayer barrier packaging**
Dr. Wouter van den Berg, General Manager,
YPAREX B.V., The Netherlands

SESSION 5 - ENHANCED MANUFACTURING

14.50 **New innovations in the production of packaging materials**
Mr. Thomas E. Lengenberg, Sales Director,
WINDMÖLLER & HÖLSCHER, Germany

15.20 -16.00 Afternoon tea

16.00 **Latest developments in online measurement and control for extrusion applications**
Mr. Chris McGowan, Director of Sales, ÉMEA,
NDC TECHNOLOGIES Ltd., United Kingdom

16.30 **Process integration for production output maximization**
Mr. Giorgio Santella, Chief Marketing Officer,
PIOVAN GROUP, Italy

17.00 Conference ends

AMI reserves the right to alter the programme without notice.
The latest programme including any new speakers or changes to schedules can be viewed on our website ***www.amiconferences.com***

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Surname: _____

Position: _____

Special dietary requirements: _____

Email: _____

Signature: _____ Date: _____

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All payments to be made in USD

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❑ Early bird admission fee: *(Until 12th September 2016)*	USD1320	_____
❑ Admission fee thereafter:	USD1450	_____
❑ Table top exhibition package (includes 1 delegate place)	USD2500	_____
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FLEXIBLE PACKAGING MIDDLE EAST & AFRICA 2016

CONFERENCE INFORMATION

Date and location
6-7 December 2016
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Dubai
United Arab Emirates

Tel: +971 4 343 8888
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Registration fee
The registration fee includes attendance at all conference sessions, the Networking Cocktail Reception, lunch and refreshment breaks on both days and a set of conference proceedings.

- ***Early bird registration:*** Register before 12th September 2016 for only USD1320.Thereafter the cost is USD1450.
- ***Group rates:*** For companies wishing to register two or more delegates, group discounts are available. Please contact the Conference Organiser for more details. (Please note to qualify for the group discount delegates must be booked at the same time, otherwise additional delegates may be charged at full price.)

Flexible Packaging Middle East & Africa 2016 table top exhibition
A limited number of table top exhibition spaces are available in the lobby next to the main meeting room. The table top exhibition fee is excellent value for money and **includes 1 delegate place**. Exhibitors may either use tables provided by the hotel or bring their own stand or display.

Sponsor this event and promote your company
A variety of sponsorship opportunities are available at this event that can help to promote and enhance your company's products and services to this highly targeted international audience. For further information, please contact the Conference Organiser on: +44 (0) 117 314 8111.

Social event
The social event organised for Flexible Packaging Middle East & Africa 2016 will provide an ideal setting for delegates and speakers to mix business with pleasure.

- ***Networking Cocktail Reception:*** A networking cocktail reception will be held on the first evening. All delegates are invited to attend and it will offer an excellent opportunity to meet speakers and other colleagues. The Networking Cocktail Reception will run approximately from 17:30 to 19:00 and is included in the delegate fee.

Hotel accommodation
Delegates are responsible for booking their own accommodation. AMI has negotiated a room rate of AED 850 (plus tax) for a standard room (breakfast included) or AED1150 (plus tax) for a deluxe room (breakfast included) at the Shangri-La Hotel in Dubai if you book before 6th November 2016. Please be aware that when they have sold out, the discount rate will not apply. Therefore please book your room as soon as possible.

To reserve a room please contact the hotel directly and state that you are attending "AMI's Flexible Packaging Middle East & Africa 2016 conference".

Email: mice.sldb@shangri-la.com Tel: + 971 4 4052825.

Cancellations
Full refunds, less a cancellation charge of USD300 will only be made on cancellations received prior to 4th November 2016. Thereafter we regret that no refunds can be made. Delegates may be substituted at any time. Please note that refunds will not be given on table top bookings or sponsorship packages.

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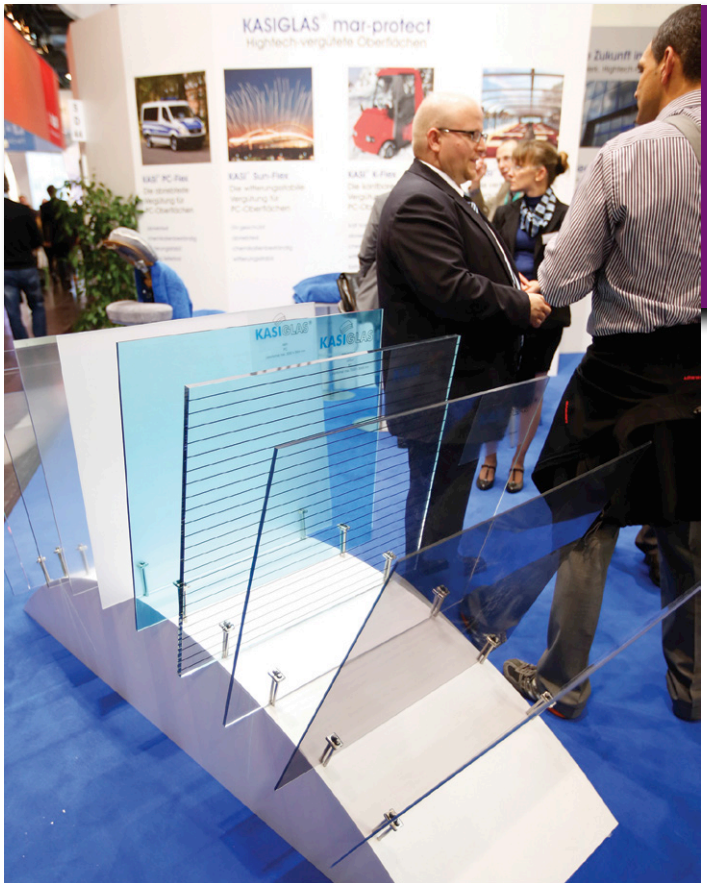


After a three-year wait, the K show is back. We kick off our preview of K2016 with a look at materials innovations in film and sheet extrusion

Getting ready for K2016

Machinery takes up the vast majority of floorspace at K, but that's not to say that materials are not important. Innovative materials and additives are a key part of the show – and can be found in halls 5, 6, 7, 7a, 8a and 8b – which also house semi-finished products, technical parts and reinforced plastics.

There are also special materials-related features at this year's event. One, called 'Plastics shape the future', will highlight current developments as well as the potential for innovation in the future.

Messe Düsseldorf, the organiser of the K show, will also repeat the Science Campus concept this year – following its successful launch at K2013. The Science Campus gives exhibitors and visitors the chance to learn about scientific activities and findings in the plastics and rubber sector, while promoting collaboration between companies and universities.

Participants at the Science Campus, which is situated in Hall 7.0, include: Darmstadt University of Applied Sciences; Institute of Plastics Engineering (IKD); the Institute of Polymeric Materials and Testing at Johannes Kepler University in Linz, Austria; Leibniz Institute of Polymer Research Dresden (IPF); Chemnitz University of Technology; the Institute of Polymer Technology (IKT); the Fraunhofer Society; EnCO2re – a European innovation programme to enable CO2 re-use by Climate-KIC; and the Association of German Engineers (VDI).

Each will present breakthrough materials and technologies that are relevant to the plastics and rubber industry.

The Science Campus will concentrate on four key themes:

- Innovation drivers of global change, focusing on resource efficiency;
- Plastics Industry 4.0;
- New materials; and,
- Lightweight engineering.

At the same time, there will be a focus on scientific training in macromolecular chemistry and plastics technology.

Of course, it is the exhibitions that dominate the show. In materials, this will range from new film grades to additives that promote more efficient production. On the following pages, we preview some of the materials and additives technologies that are of most relevance to film and sheet extruders.

(In our next issue, we will focus on machinery developments.)

Innovations in materials and semi-finished products are a recurring feature of the show

FAST FACTS

Dates:	19-26 October 2016
Venue:	Düsseldorf Fairground, Düsseldorf, Germany
Hours:	10:00 to 18:30 daily
Organiser:	Messe Düsseldorf
Website:	www.k-online.de

BYK's new barrier additive is designed to work with PLA

BASF has developed a new co-polyamide for film applications.

Ultramid C37LC is a PA6/66 co-polyamide that allows manufacturers of shrink film for food packaging to achieve higher hot water and hot air shrinking. The manufacturer can thus avoid the usual admixture of amorphous polyamides – making the production process leaner and more efficient.

The improved properties of the product also avoid undesired curling of asymmetrical multi-layer films with polyethylene or polypropylene. These films are used for stand-up pouches, lid films and deep drawing applications, among others. By reducing the melting point of the Ultramid to 182°C, the usual effort for post-treatment in form of a water bath or the admixture of amorphous polyamides can be omitted.

Films produced with Ultramid C37LC have a low crystallinity, so are much softer and more transparent than films made of conventional co-polyamide, says BASF.

"The new Ultramid C37LC is a huge step forward," said Frank Reil, head of marketing and new business development for polyamides at BASF. "It will redefine the standard for shrink films. This is our way of fulfilling the industry's request for higher product quality and efficiency in the manufacturing process."

BASF operates Ultramid polymerisation plants in Ludwigshafen, Germany; Antwerp, Belgium; Freeport and Texas, USA; and Shanghai, China.

www.basf.com

Borealis has rebranded its Compact technology – which was originally developed and marketed by DSM – as Borceed. As a flexible technology – exhibiting both plastic and elastomeric properties – Borceed is the platform behind the company's Queo products – a range of polyolefin elastomers.

It complements the proprietary Borealis technologies Borstar and Borlink and can serve similar target markets and customers as these existing technologies, including high-end packaging.

Borealis is now launching three new grades of Queo, whose lower density and increased flexibility make them ideal for applications such as interior and exterior car parts, adhesives and cable compounds, said the company.

"We are delighted to offer these new Queo elastomers as a product of our Borceed technology," said Alfred Stern, executive vice president of polyolefins and innovation & technology at Borealis.

Its sister company, Borouge, will use K2016 to introduce a number of products, including a greenhouse film – based on Borstar technology – that diffuses sunlight.

Diffused light has been shown to increase crop yield by up to 35%, as well as improving crop quality by reducing plant stress. For some crops, it can speed up growth. At the same time, the film has strong mechanical performance – for enhanced longevity and durability.

www.borealisgroup.com

www.borouge.com

BYK, a leading manufacturer of additives for plastics and coatings, has developed a new barrier additive that is designed to be used with PLA packaging.

Byko2Block-1200 has an even distribution of layered silicate platelets in the polymer matrix, allowing a very effective barrier layer to be built up. This significantly reduces gas and water vapour permeability – helping food to stay fresher for longer.

Another highlight at the show will be BYK's extended product portfolio for thermoplastic applications following its acquisition of Addcomp – including additives for thermal and UV stabilization, anti-fogging and nucleation.

www.byk.com

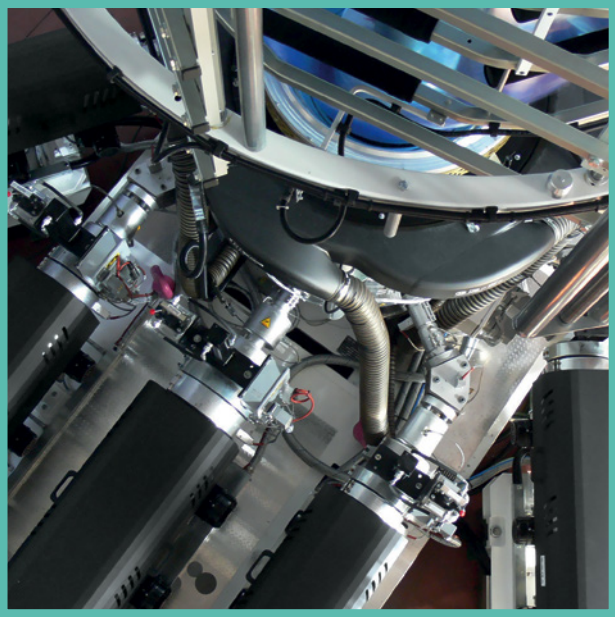
Finke will add a range of colour effect pigments and additives

At K2016, **Finke** will present a range of colourings with a focus on innovative effect pigments and new additives for irreversible laser marking.

Finke's Fibaplast, Fibafekt and Fibacomp masterbatches offer a wide variety of special effects such as metallic gleam, pearly shine, rainbow and colour flop. Special technical processes allow for lacquer-like

2016
19-26 October
Düsseldorf
Germany

booth
17 C20



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finishes or soft-grip surfaces. Also, fragrances can be incorporated into the material.

Apart from these aesthetic effects, Finke masterbatches can enable functional solutions for the unchangeable marking of products – such as invisible safety formulations and additives for irreversible laser marking.

www.finke-colors.eu

FKuR's new material allows downgauging of compostable films

Bioplastics specialist **FKuR** has developed new material blends that allow downgauging of compostable films. Its new technology makes compounds that can be processed into flexible packaging films with low thickness and high puncture resistance.

BioFlex FX 1120 and Bio-Flex FX 1130 are the first two products based on the technology. Films made from these materials are suitable for food contact, and are compostable according to EN 13432. Depending upon the type, the proportion of renewable raw materials is more than 50%. The processing of both grades corresponds largely to standard PE processing.

FX 1130, which is designed particularly thin films, complements the previous standard compound F 1130. Films made from F 1130 have a paper-like touch, while FX offers a silky surface. Films made with the new blend also have increased tensile strength, and resistance to puncturing and tearing. This means converters can use less material without affecting performance characteristics. FKuR says that film thicknesses down to 8 microns are possible. In addition, film manufacturers benefit from high extrusion throughputs, and excellent sealing properties.

FX 1120 is designed for making very thin bags, such as bio-waste bags. The increased water resistance, compared to starch blends, allows it to retain more of the moisture that is generated during the decomposition of organic products in bio-bags. With a high proportion of renewable raw materials of more than 50%, the FX 1120 compound meets the requirements of the German Bio-waste Ordinance.

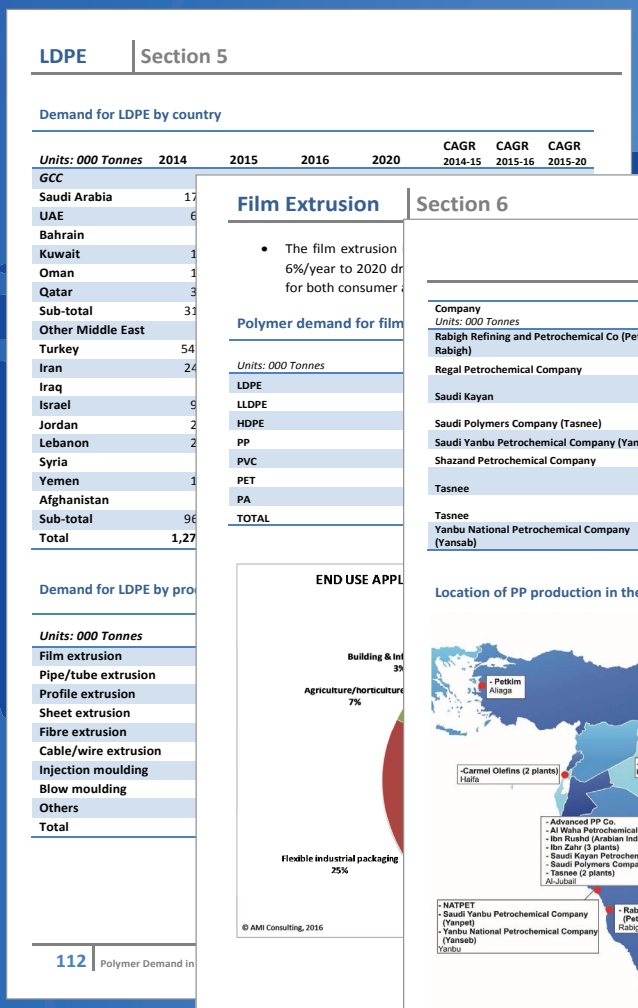
"Material reduction is an essential pillar on the road to achieving greater sustainability – which applies to bioplastics as well as conventional plastics," said Julian Schmeling, head of development at FKuR. "In conventional polyolefin films, producing thinner films without the loss of strength and toughness has been known for quite some time."

Films made from biodegradable resins have reached sufficient performance values with thicknesses of about 15 microns, he said – though in practice they are between 18 and 26 microns. Thanks to novel polymeric additive systems, and an adapted compounding process, FKuR gives converters a way to combine material savings with compostability.

www.fkur.com

POLYMER DEMAND IN THE MIDDLE EAST

An AMI Consulting Data Report



LDPE | Section 5

Demand for LDPE by country

Units: 000 Tonnes	2014	2015	2016	2020	CAGR 2014-15	CAGR 2015-16	CAGR 2015-20
GCC							
Saudi Arabia	17						
UAE	6						
Bahrain							
Kuwait	1						
Oman	1						
Qatar	3						
Sub-total	31						
Other Middle East							
Turkey	54						
Iran	24						
Iraq							
Israel	9						
Jordan	2						
Lebanon	2						
Syria							
Yemen	1						
Afghanistan							
Sub-total	96						
Total	1,27						

Demand for LDPE by pro

Units: 000 Tonnes
Film extrusion
Pipe/tube extrusion
Profile extrusion
Sheet extrusion
Fibre extrusion
Cable/wire extrusion
Injection moulding
Blow moulding
Others
Total

112 | Polymer Demand in

Film Extrusion | Section 6

- The film extrusion 6%/year to 2020 dr for both consumer

Polymer demand for film

Units: 000 Tonnes
LDPE
LLDPE
HDPE
PP
PVC
PET
PA
TOTAL

END USE APPL

Building & In 3%
Agriculture/horticulture 7%
Flexible industrial packaging 25%

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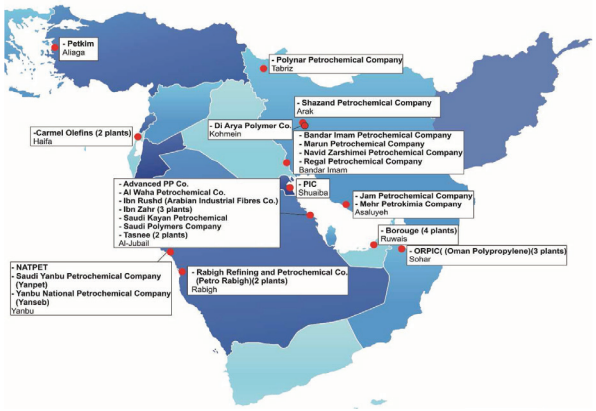
Section 5 | PP

Company Units: 000 Tonnes	Location	Capacity 2015	Capacity 2020
Rabigh Refining and Petrochemical Co (Petro Rabigh)	Rabigh, Makkah Province, Saudi Arabia	350	350
Regal Petrochemical Company	Bandar Imam, Khuzestan, Iran	150	150
Saudi Kayan	Jubail Industrial City, Al Jubail, Saudi Arabia	350	350
Saudi Polymers Company (Tasnee)	Jubail Industrial City, Al Jubail, Saudi Arabia	400	400
Saudi Yanbu Petrochemical Company (Yanpet II)	Yanbu Al Sinaiyeh, Yanbu, Saudi Arabia	260	260
Shazand Petrochemical Company	Shazand, Arak, Iran	75	75
Tasnee	Jubail Industrial City, Al Jubail, Saudi Arabia	270	270
Tasnee	Jubail Industrial City, Al Jubail, Saudi Arabia	450	450
Yanbu National Petrochemical Company (Yansab)	Yanbu Al Sinaiyeh, Yanbu, Saudi Arabia	450	450

Location of PP production in the Middle East



AMI CONSULTING

Published: February 2016 This brand new report draws on AMI Consulting's unique, in-depth knowledge and understanding of the downstream plastics processing value chain and provides unrivalled detail in quantifying the volume of polymer materials used across all the major plastics processing technologies on a country-by-country basis.

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The global plastics industry specialists

Huntsman will introduce titanium dioxide and other innovations at K2016

Huntsman is to unveil a new titanium dioxide pigment to formulators at K2016. Its Tioxide TR48 – part of the Tioxide TR28 family – is a new grade with excellent colour properties, says the company, and has been engineered to process well even at high temperatures.

It is designed for use in the production of polyolefin master batches, biaxially oriented polypropylene (BOPP) films, and engineering compounds. It is easy to disperse, has excellent tint reduction capabilities and has been developed with low volatile organic compound (VOC) formulations in mind. Typical applications include premium and general packaging systems, as well as parts for consumer electronic devices and the automotive industry.

The new grade is one of a series of innovations that Huntsman is working on to improve its range of TiO2 pigments for the plastics industry. Under its Tioxide and Sachtleben brands, Huntsman offers a range of white pigments for use across different industries.

The new grade will be commercially available in 2017.

www.huntsman.com

Milliken's clarifiers and nucleators improve the performance of polypropylene

Milliken will showcase its range of clarifiers and nucleators that improve the clarity of polypropylene (PP).

At K 2016, visitors can explore application examples and case studies featuring the benefits of its Millad NX 8000 and Hyperform HPN nucleators. For instance, it will demonstrate how Millad NX 8000 can make PP UltraClear – allowing material replacement in a wide range of processes. It will also showcase examples of how to reinforce the faster, trouble-free production and improved end-product performance, which is made possible by Hyperform HPN nucleators' balance of physical properties. In addition, Milliken will present its range of additives for materials such as PET, PE and PU including reactive colorants, antioxidant and antimicrobial additives, UV absorbers for PET, and nucleators to enhance the performance and processing of PE films and other extruded applications.

www.millikenchemical.com

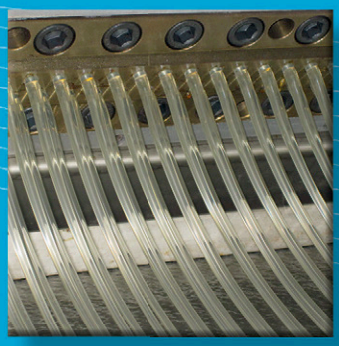
Palsgaard of Denmark is to introduce a family of vegetable-based polymer additives called Einar. The products include antistatic and antifogging products – all of which are safe for food contact.

Conventional additives can have an adverse effect on food quality, says the company, and are a concern for consumers. Einar products are made from vegetable oils such as palm oils, so can overcome concerns over food contact, says Palsgaard.

"Our bio-based polymer additives allow our customers to produce what the global consumer really wants: safe, efficient and sustainable packaging materials with outstanding properties," said Bjarne Nielsen, business development manager for polymer products at Palsgaard.

Its bio-based polymer additives reach beyond food-contact products: two newly developed dispersing aids for masterbatch production, also based entirely on vegetable oils, have recently been introduced to the market: Einar 101 and 102. Dispersing aids are used for

Polymer Plants – Redefined.



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distributing colour pigment in polymers. Palsgaard says that independent tests have shown that the two grades deliver superior performance against industry-standard waxes – leading to increased colour strength and yield and less use of expensive colour pigment.

www.palsgaard.dk

Sabic says that its tough, energy-efficient Lexan sheets were a key factor in the success of the ICEhouse – a structure that can be easily assembled, disassembled and reused.

The ICEhouse – where ICE stands for Innovation for the Circular Economy – was designed and built by architect William McDonough in collaboration with Sabic.

It was first constructed in January this year, at the World Economic Forum in Davos, Switzerland. It was recently reassembled in the

"The ICEhouse is a unique example of our belief in innovative circular economy thinking," said Ernesto Occhiello, Executive Vice President Specialties for SABIC. "This is a structure that can be rapidly constructed, disassembled and used time after time.

The ICEhouse uses an aluminium frame structure and several forms of Lexan sheet, including highly insulating, nanogel-filled Lexan Thermoclear multiwall sheet for cladding – which can lead to energy savings of up to 50% compared to monolayer glass.

Another Lexan product – Cliniwall sheet – will also be seen at K2016. Sabic has developed a new version for clean room surfaces and interior wall cladding applications in public facilities and hospitals.

This opaque, low-gloss PC/ABS blend solid sheet portfolio delivers high strength and stain resistance to blood, iodine, rubber gasket marks and other common stains in hospitals and public facilities. It also offers excellent chemical resistance to most of the cleaning agents including disinfectant Isopropanol (rubbing alcohol), helping save significant maintenance costs.

Meanwhile, Sabic says that its LDPE NC308 film is used to make very thin-gauge packaging.

The product offers excellent draw-down ability, running stable at a film thickness as low as 12 microns, using less raw material

Sabic has developed a new film for thin-gauge packaging

Rail interiors are one applications of Tolsa's material

and enabling higher production line speed, says Sabic.

It is typically used in both mono and coex films and is available as a certified renewable grade. At the same time, it provides full compliance with stringent food-contact regulations for a broad range of applications with both fatty and non-fatty foods.

www.sabic.com

At K2016, **Simona** of Germany will focus on its portfolio of semi-finished parts made of PFA.

PFA is available as a backed and non-backed sheet for tank lining. Owing to the sheet's special width of 1,500mm, the number of weld seams can be reduced significantly. This helps to improve tank reliability and safety for operators. Simona will also unveil its PE 100 AP-Line, a new product range encompassing multilayer pipes, sheets and fittings designed to deliver improved wear protection.

Among the new products to be introduced within the Agriculture segment is the third generation of its Twin-Wall Sheets. This lightweight product has been further refined and combines the benefits of an isotropic core structure and reduced thickness with high stability – now also for use as a component in air scrubbers and livestock pens.

The product can also be used for tank construction. Featuring a new lattice structure within its core, it offers the benefits of high quality and durability.

Within its Construction market segment, it will focus on next-generation Simowood products – extruded sheets made from Resysta, a hybrid material that incorporates rice husks, and have the look and feel of wood. New products include a new IMO-certified product targeted at the shipbuilding industry.

In the Mobility business, the company will showcase its Boltaron 9815 product line – developed by subsidiary Boltaron – which is available as a calendered, extruded or press-laminated sheet product for aircraft interiors, and is compliant with strict FFA and EASA standards regarding flammability, smoke generation and heat release. Boltaron 9815 offers high impact strength as well as superior abrasion and chemical resistance and is easy to thermoform.

www.simona.de

Tolsa of Spain is to introduce a new range of high-performance flame retardant (FR) synergists. Its Adins Clay extended range are FR clay synergists that deliver reduced smoke production in PVC and rubber polymer systems, in addition to the existing FR additives used in other polymers.

The additives can be used in a range of applications, including rail interiors, thermoformed sheet and construction products.

The new Adins grades use Tolsa's technology, which is based on natural silicates. The company says that new materials help meet the new stringent demands for smoke performance (CPR and others) due to the use of more stable coatings than competitive clays.

Other benefits include tailored performance benefits, better processability and reduced cost in polymer systems.

Tolsa says that the combination with halogen and non-halogen FR and Adins additives in PVC and rubber systems reduces heat release and smoke generation in

Heavy duty sacks Europe 2016

An independent assessment of the European market for heavy duty sacks which addresses the following:

Main trends, challenges and drivers in the market

- **Market overview of the respective types of plastic sacks (FFS, valve and open mouth sacks) and end-use applications**
- **Demand in individual countries by sack type and application, quantified both by number of units and tonnes**
- **Average sack thickness for each application and downgauging trend estimates to up to 2020**
- **Paper sack consumption in each country and application**
- **Supply structure and production shares of major producers in each country**
- **Polymer consumption by polymer type and drivers for inter-polymer competition**
- **Technology and raw material developments**

For a copy of the study's proposal please contact Karla Vittova: kv@amiplastics.com

New report Published June 2016

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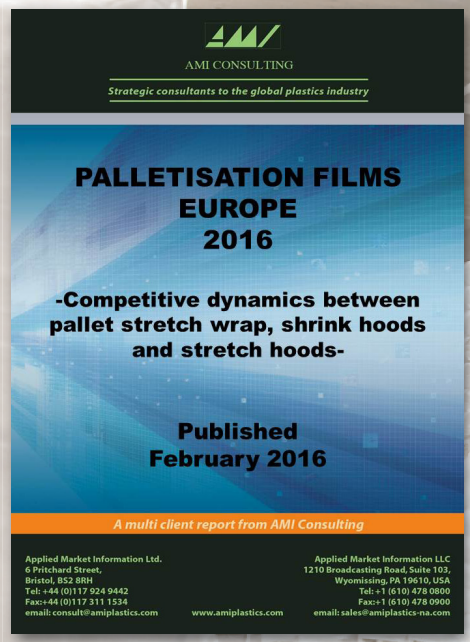

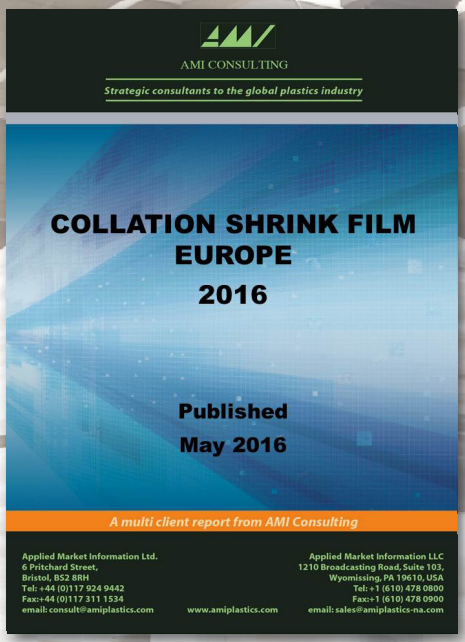

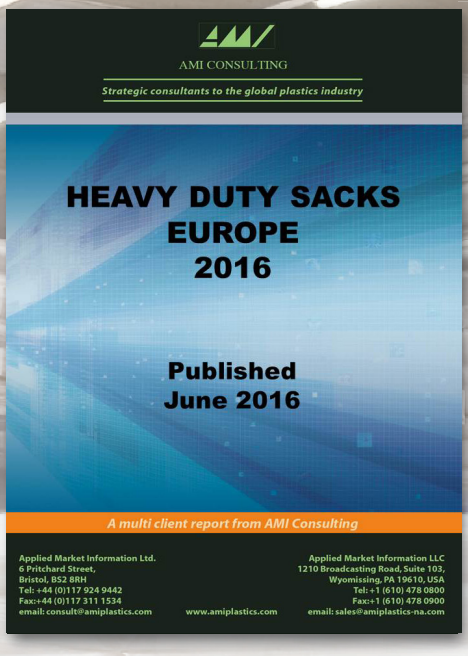

The reports fully quantify and analyse the film markets and provide an overview of the latest trends affecting each film type.

The studies address the following issues:

- **Demand by film type and growth prospects within each country**
- **Impact expected from material, machinery and a final product development**
- **Raw material prices and the impact on production**
- **End-use segments, growth prospects and the drivers**
- **Changes in European industrial structure and the supply chain**
- **Leading players and production volume by film type**

Click on the above icons for more information or contact Karla Vittova kv@amiplastics.com, +44 (0)117 314 8140

building and construction and structural applications.

"This is an important development that broadens the field of applications of these materials," said Antonio Esteban, technical specialist at Tolsa. "Our ultimate effort is increase the use of clay synergists in a wide range of systems that require the highest standards of flame retardancy."

Tolsa's technology allows modification of the sepiolite clay to meet the OEM's strict requirements in terms of heat and smoke performance. In PVC applications, for instance, the clay can be modified to attain good dispersion and interaction with the polymer.

www.tolsa.com

Velox has extended the range of products that it distributes for Polyram Plastic Industries – and has begun to supply new grades of the company's Bondyram TL adhesive resins.

The ready-to-use polypropylene-grades and concentrated anhydride polyethylene-grades are designed for multilayer coextruded structures. These new grades are primarily used for food packaging applications.

Introduced this year, the new grades TL4530 and TL4401 will allow customers to co-extrude co-polyester (PET/PETG) or polystyrene (PS) with materials such as EVOH, PA and PE resins.

Dror Koen, international marketing manager for Europe at Polyram, said that the development of the new grade and all necessary tests have been completed. Bondyram TL4401 was developed for polystyrene hot fill applications, and its main characteristic is a Vicat Softening Temperature (VST), above 85°C.

This new grade offers a very good adhesion for coextruded films, which could have the structure PE/TL4401/EVOH/TL4401/PS.

Paul Kunzfeld, product manager for the plastics division of Velox, said: "We are pleased to extend our product range by these two Bondyram TL grades, which will offer our customers additional options and solutions."

www.velox.com

Additives supplier **Vertellus** will introduce a range of new technologies at K2016.

These include a family of masterbatches that act as compatibilisers for polyamide (PA) combined with recycled polyethylene terephthalate (PET), and as a

Polyethylene Films 2017

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chain extender to produce branched high RV polyamides with lower material and processing costs.

The company will also promote the use of its technology in microencapsulation products which are gaining broader use in size regulation of microcapsules in formulations for specialty inks, fragrances and temperature-reactive textiles and mattresses and in construction of energy-efficient 'green' buildings.

Further, it will highlight the use of a monomer used to produce polysulfones – which offer very high service temperatures.

www.vertellus.com

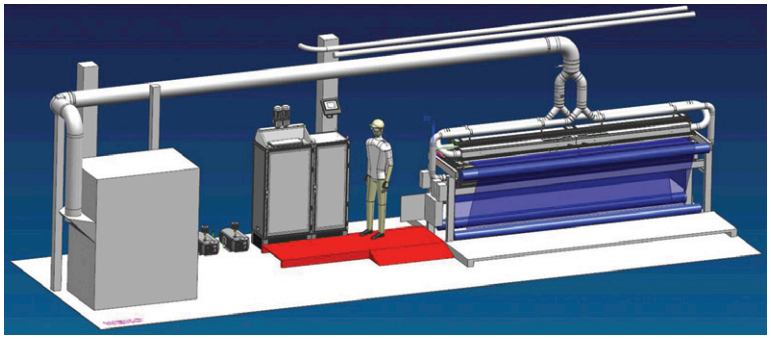
Wacker's Elastosil film can be used for applications such as wearable sensors

Wacker says that its new polyvinyl acetate-based Vinnex additives can enhance the processing and property profile of biopolyesters or blends with starch.

Vinnex 2526, for example, simplifies the manufacture of highly transparent, rigid PLA films, while Vinnex 2522, 2523 and 2525 all improve the processing and heat-sealing properties in paper coating with PLA or PBS (polybutylene succinate).

Vinnex 2526 works by optimising both melt and bubble stability during the respective extrusion processes. Blister packs can be produced at lower temperatures and with a more uniform thickness distribution, says Wacker. Vinnex also enhances the printability of biopolyester films. In paper cups with PLA or PBS, the additive optimises the water-repellent coating, so that the cups are equivalent to their PE-film counterparts.

During processing, the low-molecular weight Vinnex



Weko can incorporate anti-fog or anti-static effect onto plastic films

2522 and 2523 grades increase the initial adhesion of the PLA film to paper. In addition, they improve the heat-sealing properties, so that a particularly strong bond forms between the paper and PLA. Film-coated paper cups can then be composted and recycled more readily – making them a more sustainable end product, despite their single use.

The company will also demonstrate applications of its Elastosil silicone film, which include wearable sensors, membranes and actuators.

The wearable sensors take advantage of the electroactive properties of silicone rubber. When the film is embedded between two conductive electrodes – which are made from silicones that incorporate carbon black – the layers combine to form a flexible capacitor that can store electric charge. If the capacitor is stretched – such as by movement – the capacitance will change.

The electroactive properties also make it appropriate for use in actuators – in which electrical power is converted into motions, in products such as pumps, switches and electrical relays. And, by piling several hundred stacks of flexible capacitors together, motion can be converted into novel power generators.

Silicone films are also impermeable to water, but permeable to gases, so could be used as the basis for membranes that remove specific gases from a mixture, says the company.

www.wacker.com

Weitmann & Konrad (Weko) is to showcase a variety of ways to give plastic films special properties – by non-contact spray application of anti-blocking, anti-fog or anti-static additives.

Many packaging and film manufacturers rely on functionally finished films to offer their customers products with special properties. As well as incorporating additives such as anti-blocking agents to the batch, manufacturers can also use a surface-coating technology – such as an anti-blocking coating for PET films. When manufacturing deep-draw products, emulsions that contain silicone make it easier to release the shells from the mould and to remove the final product from a stacked pile. This precise application of anti-blocking agent saves cost in itself, and leads to other cost advantages through higher cycle rates and less downtime.

Another option to reduce sticking is to apply a fine powder film using Weko's non-contact powder application systems.

As well as PET films, the technique is suitable for many pre-treated polyolefin products – leading to improvements in sliding properties, and the ability to apply anti-static, anti-fog and antibacterial coatings. Curling on coextruded films can be eliminated by using minimal liquid quantities.

www.weko.net

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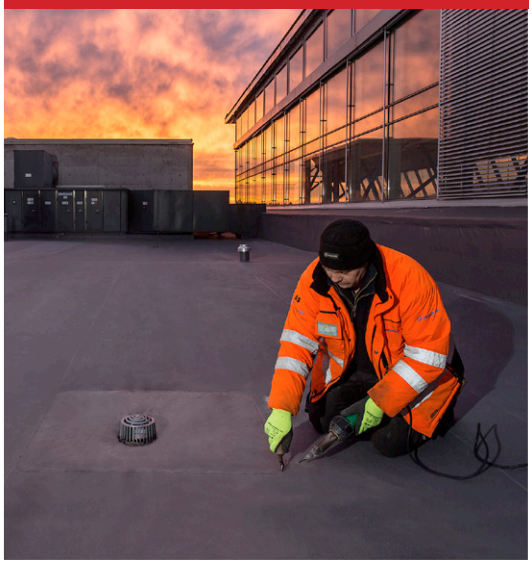

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Recent innovations in downstream equipment – which can be seen at this year's K2016 – include anti-static systems, rewinders and welding innovations. **Lou Reade** reports

K2016: focus on downstream equipment

Downstream equipment encompasses a diversity of products, and many offerings – from slitter-rewinders and stretch lines, to welding devices and anti-static systems – will be on show at K2016.

Meech International has extended its range of anti-static systems with the launch of the Hyperion 971IPS-30 pulsed DC ionising bar.

The new model is the most powerful ionising bar in the Hyperion range, and has an operating working distance of 200 to 1500mm. It is suited to very long-range applications, such as large diameter rewinds and turret winders. As with the previous version, a 24V DC supply removes the need for high voltage wiring.

Meech's Ion Current Monitoring (ICM) technology uses local and remote alerts to maintain the bar's performance – such as by indicating when it needs cleaning. The design of the titanium emitters makes them easy to clean in situ, and replaced when required. The Hyperion BarMaster Remote Programmer can also be used to adjust the frequency and balance of the bar, optimising it for any application.

"We have recently seen increased demand for longer range ionisation in certain applications," which led us to upgrade the Hyperion 971IPS bar," said David Rogers, technical director at Meech.

High IQ

Meanwhile **Simco-Ion** of the Netherlands – which also specialises in static control – has developed the IQ Easy platform, which it says will fit in with the emerging 'Industry 4.0' standard.

Simco says that static control has for years been treated as a last resort – as a cost rather than a benefit. Combining all components into a system that can be controlled by the Manager IQ Easy from one central location now puts static control in another light, says Simco.

It has become a valuable tool for process optimisation, quality control and ensuring that no material leaves the factory with too much static charge. Integrating the IQ Easy system with existing machine control, network and SCADA systems provides a platform for data logging and quality reports.

Up to 32 static control devices within a process can be controlled by one Manager IQ Easy. Warnings and alarms give the operator insight in the status of all devices. Advance notice – if an anti-static bar needs cleaning, for example – provides the opportunity to correct a problem before it affects the process.

Meech has extended its range of anti-static systems with the Hyperion 971IPS-30

SML's 4m-wide PowerCast stretch film line will run at K2016, and simultaneously at its headquarters in Austria

Reducing film thickness and increasing machine speeds make films more susceptible to problems with static charge. Simco's IQ Easy system can manage each converting process step and ensure low levels of static charge.

Electrostatic control

Eltex will show two innovations in electrostatic control Its new R60 is a patented AC discharge bar with freestanding, air supported spring tip that achieves high passive discharge effect. This enables active operation even at a low level of high voltage AC. A small amount of air can be blown through the spring tip to increase the range. This is also used to clean the emission tips. The bar's aluminium profile has a highly robust layer that significantly increases ion production.

Benefits include: excellent discharge at close range; and flexible use in narrow and grounded machine environments.

At the same time, its fully integrated 24V discharge technology – for mid-size distance and speed areas – is now equipped with its Connected Control system for convenient, intelligent monitoring control. All control data – such as system status, actual values, error messages and bar pollution – can be called up and configured directly through a touchscreen.

Rewinding equipment

Atlas Converting Equipment will present its range of primary and secondary slitter rewinders at K2016 – which coincides with the company's 40th anniversary.

The company's Atlas and Titan brands of slitter rewinder can accommodate 10.6m wide unwind rolls, and process them at speeds up to 1500 m/min (5000ft/min). Of the 2,600 secondary Titan and 1,000 Atlas primary slitter rewinders installed worldwide, more than 250 film slitters exceed 6m (236in) width.

Atlas will present its latest slitter rewinders at K2016, including the Titan SR9-DT dual turret rewinder

Titan secondary slitters include the small footprint ER610, the flexible SR800 and two models of the high productivity SR9 series – one a duplex slitter rewinder, the other a duplex turret machine that allows operators to get the machine up and running in typically 30seconds from stop to start.

Stan Braycotton, sales director at Atlas, said: "We have significantly grown our order book – and will be delivering three 10.5m primary – and several secondary – slitter rewinders this year."

At the same time, the company has published the first in a two-part 'Guide to rewinding'. The first instalment, available from the company's website, details the types of winders available, and the principles behind techniques such as centre-surface winding and lock core winding.

High speed

Davis-Standard is to unveil a high-speed unwinder that is engineered for splice speeds up to 800m/min (2,600 feet/min) for sensitive, thin webs. Pneumatic splice-unit control helps to improve processing and functionality, says the company.

It is designed for extrusion coating applications involving aluminium foil and PE films. The two-position, shaftless, phantom-axis turret design offers several advantages, including:

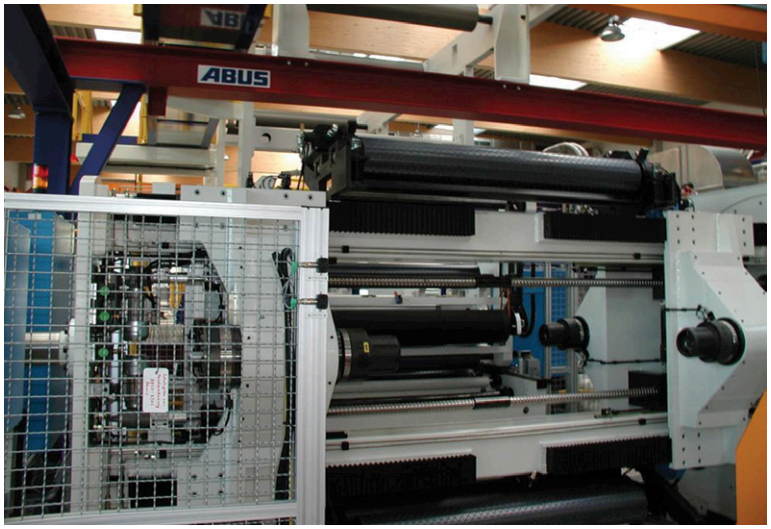
- Driven idler rolls on the turret
- Direct spindle drive using a timing belt without backlash
- Cross-cut knives on the turret between two driven idler rolls

Other benefits include an inverter-controlled turret drive, precision turret control with an absolute encoder, and tension control via a long-stroke dancer roll.

The unwind can handle roll diameters of 300-1,000mm (11-40in) with a maximum diameter of 800mm (31in) for aluminium foil, and a maximum roll weight of 1,800kg (4,000lbs). It is ideal for PE films from 30 to 100 microns.

The unwind is typically used as an auxiliary unwind for aseptic packaging lines to maintain consistent

Davis-Standard's high-speed unwinder is engineered for high splice speeds on sensitive, thin webs



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CMD's 1270GDS system makes drawtape-style trash bags at up to 183m/min (600 ft/min)

high-speed operation. However, it can also be used as the primary unwind for flexible packaging lines that process a wide range of substrates.

Mondon is to present its two downstream products at this year's K2016 – its FTW Series of dual winders, and its wrapping and palletising systems.

Its FTW3200 double automatic turret winders, located at the output of the extrusion line, are designed to wind agricultural film. The company provides two winders with 3200mm width, which load the cores and unload the finished rolls by themselves.

The automatic splice and roll change-over complies with non-stop processes and so there is no need for an accumulator. The FTW3200-Dual insures a constant speed and can eliminate the damages of over-tension in the product. Each winder is controlled separately in roll diameter and tension. The controlled tension helps to deliver high quality reels. The equipment includes a global touchscreen for machine supervision.

At the same time, the company offers wrapping and palletising systems. Its automatic wrapping machine packs the rolls in cardboard cases which are conveyed then to the palletising machine. The palletiser then builds the layers and binds them – and can also place inserts.

Stretch improvements

SML says it has developed a faster, smarter stretch film line – which will be displayed at K2016.

PowerCast is a 4m-wide (8-up) stretch film line for hand, machine and jumbo roll production, which combines low energy consumption with high production flexibility. It is equipped with a 13-layer feedblock and eight extruders including edge encapsulation for maximum throughputs of 3,000kg/h.

At the same time, a second PowerCast stretch film line with an identical extruder configuration – but using a 55-layer Cloeren nano feedblock system – will be running at SML headquarters in Lenzing, Austria. This line will serve the scientific comparison of the film qualities achievable by means of nano-layers, as opposed to conventional co-extrusion.

US-based **CMD** will demonstrate its converting technology for drawtape-style trash bags – on easy-to-dispense rolls – at K2016.

Its 1270GDS system offers production speeds up to 183m/min (600 ft/min), as well as a compact footprint that saves floor space. It is simple to thread up and operate, and features retainable menu settings for consistent, high-quality bags. There is optional print-to-seal registration, for high-speed production of printed bags, plus a large, colour touch screen and centralised line control for simplified operation, according to CMD.

An Ethernet-based system allows for remote troubleshooting and programming, while optional CMD single seal technology places the bag-separation perforation precisely in the centre of a single seal – which eliminates cut-off seals and gives converters a predictable and narrow 'skirt' area between bags.

The system can be configured with the 0305GOWE overlap bag winder. This enhanced winding system produces drawstring style bags on 'overlapped' rolls with popular, one-at-a-time dispensing, banded for retail merchandising.

Booth visitors can examine bags-on-a-roll samples and explore these and other benefits the Global Overlap Bag Winder offers:

Wound bags can be connected to each other by perforations, or each bag separated and overlapped onto the previous bag to provide the advantage of easy-to-dispense overlapped bags on rolls – a sought-after consumer convenience.

Coperion's FFS machine boasts hygienic packaging of crystalline, granular, beaded and flaked goods

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GLX-3 laser welders from Branson Ultrasonics allow high speed joining of large-format plastic parts

Enhanced processing capabilities include high speed production up to 183m/min (600ft/min) and up to 20 unbanded rolls per minute.

At K2016, **Coperion** will present a number of new developments – including a highly automated form-fill-seal machine.

The FFS Packaging Machine ITL 250 provides accurate weighing and dosing and hygienic packaging for crystalline, granular, beaded or flaked goods. The new conical shape of the loading hopper assures fewer dead zones and better cleanability. Faster, more accurate dosing can be achieved by a new, servo-actuated gravity feeder.

Also, the machine will be equipped with a vacuum pump, resulting in better vacuum flow for moisture sensitive products and improved bag shaping. Additional design improvements including a new body frame with motorised reel unwinder ensure more efficient and reliable operation, says the company.

Kiefel's latest high-frequency generator is based on semiconductor technology

Welding boost

The latest generation of high-frequency generators from **Kiefel** – aimed at medical plastic film processing – is based on semiconductor technology.

The new semiconductor generator, developed at the company's in-house innovation and technology centre, promises to improve the high frequency welding of products such as blood or infusion bags.

When polar plastic films such as PVC, PU or EVA are heated and joined under pressure using high-frequency energy, the energy is ordinarily produced by a tube generator – which is based on vacuum tubes.

The new welding generator – in which the power is generated by semiconductors – requires next to no maintenance, shows no signs of wear and tear and does not exhibit any loss of power throughout its entire service life, says Kiefel.

Power output can be set freely between zero and the rated power output, making it very flexible in terms of its power range and when tools are introduced. It allows customers to perform a large variety of welding tasks with a single generator, and produce a wide range of products with consistent weld quality.

The generator is particularly suitable for clean room applications, as it uses a closed-loop water cooling system instead of using a fan cooling system.

GLX-3 laser welders from **Branson Ultrasonics** allow high speed joining of large-format plastic parts. They are typically used for applications in automotive, medical, filtration and other areas that require particulate-free welds with high aesthetic quality.

It incorporates advanced features, including Branson's patented Simultaneous Thru-Transmission Infrared (STTIR) process, which heats, melts, and joins the entire weld line of two or more parts simultaneously.

Compared to scan or trace laser welding processes, which must travel the entire length of the weld line to accomplish heating, Branson's STTIr results in a significantly faster weld cycle on large parts, and more precise melt of the weld line.

Thanks to this, the laser welder can achieve cycle times as fast as 0.5 to 5 seconds on weld lines of 2.0 meters nominally, depending on part material and geometric complexity – which is far faster than trace laser welders of comparable capacity.

Throughput speed is increased further with automatic tool changes, which typically can be performed in under five minutes. In addition, their exclusive STTIR technology enables the precision welders to accommodate variable weld widths, delivering weld depths of 1.0 mm or more, yet holding tight tolerances on weld depths as shallow as 0.05 mm or less, according to the company.

Click on the links for more information:

- **www.meech.com**
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SURFACE TREATMENT

Edible wax adds non-stick

US-based scientists have developed a 'superhydrophobic' coating that means viscous liquids such as ketchup and honey can be completely removed from containers.

The coatings are made from edible, non-toxic substances including beeswax and carnauba wax – in contrast to typical coatings of this type, made from fluorocarbons.

The team of materials scientists – led by Arun Kota at the Colorado State University – published their findings in *Applied Materials and Interfaces* recently.

One of Kota's students came up with the idea of trying to make the coatings from beeswax. Its chemical properties are similar to non-sticky fluorocarbons, but even at extremely high doses they are safe to ingest. The researchers came up with a way to spray the coating onto a surface by first dissolving the wax. The coating was tested with a wide range of aqueous liquids – including pancake syrup, orange juice, milk and coffee – using common polystyrene cups.

There is room for improvement in the mechanical durability of their coatings, which cannot currently withstand harsh and abrasive environments, says the paper.

www.colostate.edu

PMMA

Transparent sheet helps grow vegetables in the Antarctic

A greenhouse made from Evonik's Plexiglas Alltop is helping scientists in the Antarctic grow fresh vegetables.

It means that the crew of the Chinese Great Wall Station can now exist without some of the supply flights that provide them with food.

"Among the materials we researched, Plexiglas Alltop proved to be most suitable as a covering material for greenhouses in Antarctica," said Le Lu, an engineer at Shanghai Dushi who was involved in developing the greenhouse.

The greenhouse needed a material that would let through the maximum amount of light, while being strong enough to withstand the high winds – and sub-zero temperatures.

Because of its 91% light transmission, the PMMA material guarantees that the plants get sufficient natural sunlight. The greenhouse was built from 600 square metres of 16mm-thick multi-skin sheets – providing good insulation and UV transparency, to help grow plants including tomatoes, cucumbers, peppers lettuce.

The material shows no visible yellowing – even after 30 years – which helps it to retain maximum light transmission.

Weimin Wang of Evonik, who was responsible for building the greenhouse, added: "We now want to build a second greenhouse in the Antarctic. It's already in the planning phase."

www.evonik.com

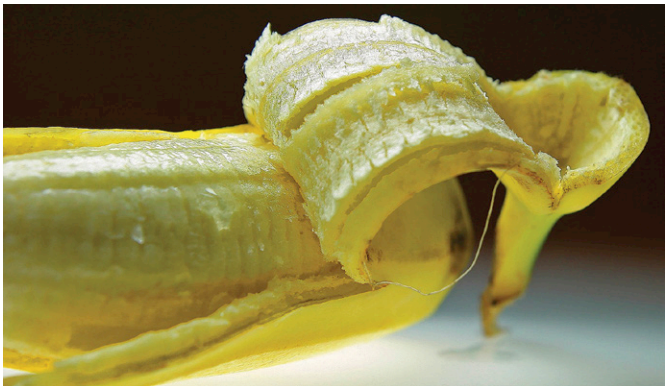
BIOPLASTICS

Bioplastic based on bananas

Researchers from the University of Sonora in Mexico have developed a bioplastic based on starch derived from banana skins.

The materials could be used to create compostable bags that have antibacterial properties, said the researchers.

The method involves extracting a layer of banana peel, and immersing the strips in two anti-oxidants solutions – one of propolis, the other of citric acid. When mixing with citric acid, the biomaterial is thinner than that obtained with propolis, with a shorter life and lesser ability to be converted into grocery bags.



Although the biopolymers can be obtained from any starch-containing food, the researchers said they wanted to use a fruit that was rich in the polysaccharide but was also a waste products – hence the use of banana skins.

They added that the cost of production was low, because the constituent elements are accessible.

www.unison.edu.mx

MELT FILTRATION

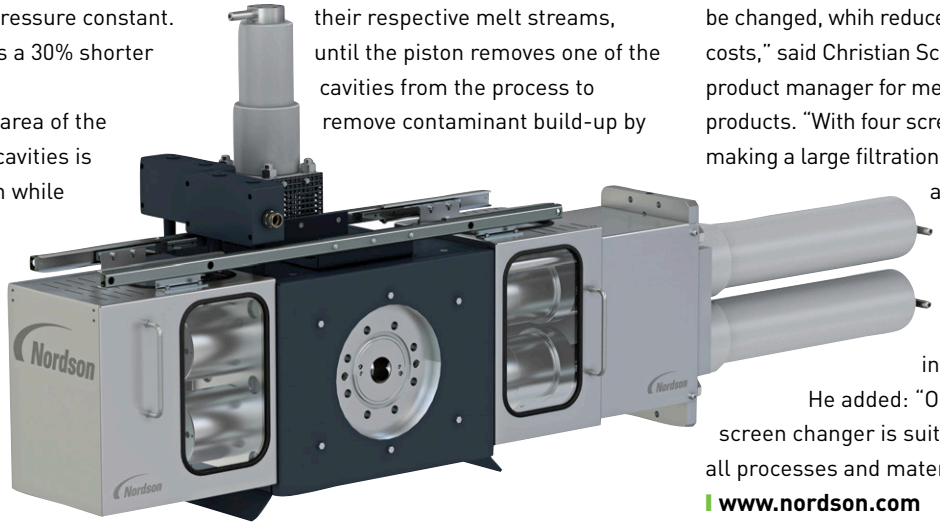
Redesigned screenchanger is more compact and offers higher efficiency

Nordson has redesigned its "power backflush" V-Type screen changer to be more compact and efficient.

Its BKG HiCon V-Type 3G screen changer uses a hydraulically powered backflush system to remove contaminants automatically, while maintaining extrusion and keeping flow and pressure constant. At the same time, it has a 30% shorter backflush cycle.

The entire filtration area of the combined four screen cavities is available for production while filling of the displacement-piston cylinder takes place. Two outlets for backflushed material are located on the bottom of the unit, with discharge automatically controlled by the movement of the screen-bearing pistons.

Melt flow from the extruder is split at the entry side and guided to the four screen cavities, two of which are located on each piston. Each pair of cavities is positioned so that they can filter their respective melt streams, until the piston removes one of the cavities from the process to remove contaminant build-up by means of backflushing. In normal operation, polymer is flowing through all four cavities. While one of the cavities is changed, the other three remain in the process.



"This screen changer provides up to 200 backflushing cycles before needing to be changed, whih reduces operating costs," said Christian Schroeder, global product manager for melt delivery products. "With four screen cavities making a large filtration area available in a comparatively small housing, only minimal amounts of material are lost in backflushing."

He added: "Our new backflush screen changer is suitable for almost all processes and materials."

www.nordson.com

MATERIALS HANDLING

Separator keeps out the dust to boost product quality

Conair has introduced the DeDuster C-50 separator, a compact, easy-to-use unit that can be mounted above the machine feedthroat.

It helps to prevent problems such as haziness, gels and black spots, by removing dust, angel hair and streamers from polymer feedstock, according to the company.

The lightweight unit weighs 20lbs (9kg) and requires only 9.5in (241mm) of additional headroom above the feedthroat of an extruder and loading or drying hoppers.

It features stainless steel construction, 110 or 220 V operation and only consumes 2-3 CFM (3.4-5 m^3/h) compressed air at 20-30 psi (1.5-2 bar) pressure.

As raw material enters the unit, a servo-driven agitator eliminates bridging and regulates flow.

Compressed air is then introduced, and splits into two streams: one passes through an ioniser and into the body of the DeDuster – breaking the electrostatic bond between pellets and the dust/angel hair falling through it; the second air stream passes through a venturi to create a vacuum that draws the lighter contaminants away as the heavier, clean pellets continue down into the processing machine, according to the company.

The dust and angel hair are carried into two mini-cyclones where that they fall out of suspension and into a clear catch bin. Air is exhausted through a filtered outlet.

The physics of the venturi and ioniser ensures that almost all dust and angel-hair streamers are separated from the pellets.

The unwanted elements can be seen to accumulate in the transparent catch bin, says Conair.

The DeDuster C50 separator yields clean dust-free pellets, making it ideal for medical processors and others that must banish imperfections from finished parts.

www.conairgroup.com

INDUSTRY 4.0

FOR PLASTICS PROCESSORS 2017

Creating a "Smart Factory" - exploring potential and identifying key challenges

NEW DATE!

7 March 2017

Maritim Hotel, Cologne, Germany

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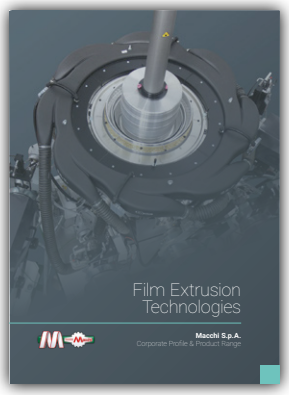
Macchi: film extrusion



This 28-page brochure from Macchi covers the company's wide range of film extrusion technologies including coextrusion lines, wide webs, die heads, take offs, winders, trim recovery and control systems.

➤ Click here to download

Colines: barrier films

This new brochure from Colines focuses on extrusion lines for the production of barrier films for vacuum and modified atmosphere packaging to preserve foodstuffs and medical products.

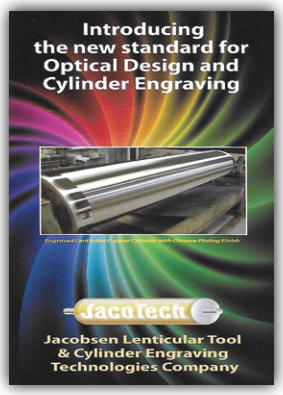
➤ Click here to download

Bandera: intelligent extrusion

Luigi Bandera is a leading global player in extrusion technology. This 28-page brochure details the company's extrusion solutions for blown film and for flat foil and sheet production, as well as its systems for compounding, pelletising and steel pipe coating.

➤ Click here to download

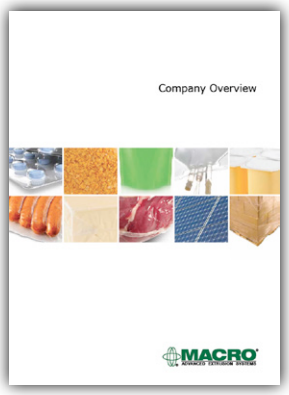
JacoTech: microstructured rolls



Find out more about JacoTech's globally-available scientific solutions for the development and production of cylindrical plastic material processing, including manufacturing of microstructured optical roll surface mould components for use in the management of light.

➤ Click here to download

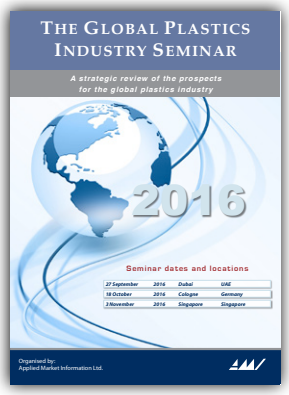
Macro: extrusion systems



This 20-page brochure from Macro provides an overview of the company, which manufactures film and sheet extrusion systems plus web handling systems. It also offers process development and optimisation services.

➤ Click here to download

AMI: polymer strategy



AMI's Global Plastics Industry Seminars provide up-to-the-minute industry analysis for all decision makers in the polymer industry. The upcoming schedule includes meetings in Cologne, Singapore and Dubai.

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This month's free brochure downloads

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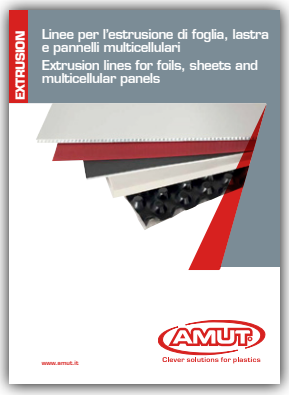
Amut: sheet extrusion systems



Over eight pages, this brochure details Amut's range of extrusion systems for production of sheet and panel products. It explains the key features of its extruders, dies, roll stacks, winders and stackers, together with key application examples.

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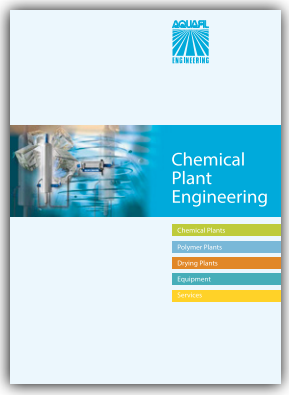
Aquafil: plant engineering



This 12-page brochure from Aquafil Engineering details its comprehensive range of chemical plant engineering capabilities, which include polyamide polymerisation, polyester condensation and polymer drying installations.

➤ Click here to download

PTTMCC Biochem: bioPBS

Produced using advanced technology from Mitsubishi Chemical Corp, BioPBS (bio-based polybutylene succinate) is a renewable and ambient-compostable polymer. This brochure provides details of the polymer and applications in food and non-food products.

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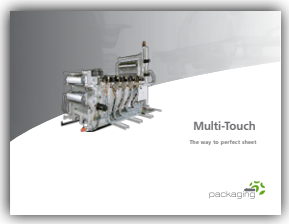
Battenfeld-Cincinnati: Multi-Touch



This eight-page brochure explains the technical and performance features behind Battenfeld-Cincinnati's Multi-Touch roll stack, which uses multiple roll sets to control deflection and sress in sheet production.

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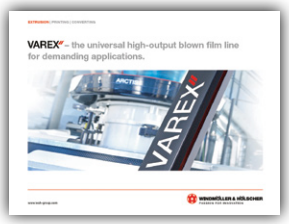
W&H: Varex II film systems



Varex II is Windmöller & Hölscher's latest universal system for high output blown film production. This publication details the critical Varex II system features that ensure production of the highest quality films with minimal scrap and highest plant efficiency.

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Use Film and Sheet Extrusion to promote your products and services to our global audience: email distribution 20,903; app downloads 9,027, Twitter followers 12,380. Download our 2016 media pack for circulation data and advertising rates.

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Download the programmes for these forthcoming conferences

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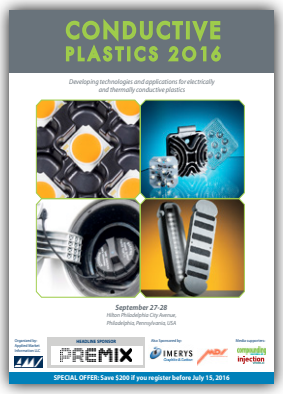
Conductive Plastics 2016



AMI's Conductive Plastics 2016 conference takes place on the 27-28 September in Philadelphia, USA. The event explores the latest additives, design concepts and processing ideas for development of thermally and/or electrically conductive plastics applications.

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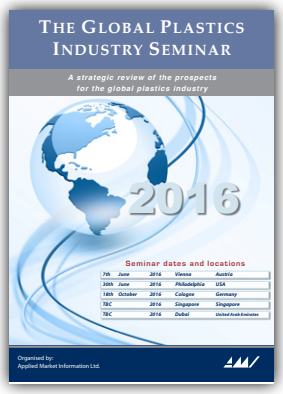
Global Plastics Industry Seminar



AMI's Global Plastics Industry Seminars have been providing up-to-the-minute industry analysis to polymer industry decision makers for more than a decade. The upcoming schedule includes Dubai, Cologne and Singapore.

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Polymer Sourcing and Distribution

Taking place in Philadelphia, USA on 4-5 October 2016, Polymer Sourcing & Distribution 2016 will review polymer demand patterns and sourcing options and identify the key threats and opportunities for all players in the North American distribution sector.

➤ Click here to download

Waterproof Membranes 2016

AMI's 10th Waterproof Membranes conference takes place in Cologne in Germany on 7-9 November 2016. This high level international event brings together specifiers, engineers, researchers, and material and equipment suppliers to discuss the latest market and technology trends.

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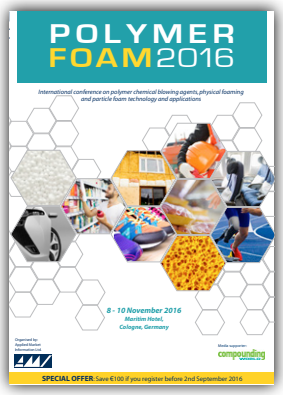
Polymer Foam 2016



AMI's fourth international conference on chemical blowing agents, physical foaming, particle foam processing and syntactic foam technology takes place in Cologne in Germany from 8-10 November 2016.

➤ Click here to download

Multilayer Packaging Films Europe

The ninth European Multilayer Packaging Films conference will be held in Vienna in Austria on 15-17 November. The event provides a meeting point for all involved in the use, specification, production and development of high performance flexible packaging materials.

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To see our full line-up of more than 30 plastics industry events over the next 12 months, please visit www.amiconferences.com

Download the programmes for these forthcoming conferences

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Thin Wall Packaging 2016

Now in its 11th year, Thin Wall Packaging 2016 takes place in Cologne Germany on 29 November to 1 December. This established international event brings together brand owners, retailers and producers to explore innovations in the European packaging market.

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Plastics in Africa 2016

Dubai, UAE, hosts the second Plastics in Africa conference on 5 December 2016. The event will deliver expert insight into the key consumption trends and business developments in this fast growing marketplace for polymers.

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Fire Resistance in Plastics

The 11th Fire Resistance in Plastics conference takes place in Cologne in Germany on 6-8 December 2016. This international event explores the latest regulatory and technological developments in the flame retardants sector.

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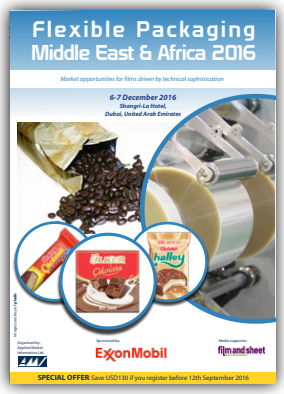
Flexible Packaging ME&A



Newly expanded to include Africa, AMI's Flexible Packaging MEA takes place from 6-7 December in Dubai providing the ideal opportunity to explore technical and commercial developments in these fast growing markets.

➤ Click here to download

Compounding World Forum 2016

Organised by Compounding World and AMI, the fourth Compounding World Forum takes place in Philadelphia, USA, on 13-14 December, providing an opportunity to learn about the latest business, market and technology trends in the North American industry.

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Thermoplastic Concentrates 2017

AMI's 20th Thermoplastic Concentrates conference takes place in Coral Springs, Florida, USA, on 24-26 January 2017. This well established event is the place to explore the technical and business developments impacting the North American concentrates sector.

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To see our full line-up of more than 30 plastics industry events over the next 12 months, please visit www.amiconferences.com

Signet

Head office:	Brisbane, Australia
CEO:	Jack Winson
Founded:	1968
Ownership:	Private
Turnover:	Around A$150m (US$112m)
Employees:	Around 300
Profile:	Signet was founded in 1968 by John Winson. In addition to its plastic film products – including stretch film, bags, industrial and speciality tapes and protective packaging – the company supplies a range of industrial products such as inks, aerosol paints and signage.
Product lines:	Plastics extrusion is at the heart of what the company does, and it offers a diversity of products. Its plastic bags include heavy-duty poly bags – for applications such as DIY packaging – as well as biodegradable shopping bags. It also supplies a wide range of pallet wrap – including its Ultimate Film, which uses ExxonMobil's Enable metallocene PE resin and can cut film usage by around 20%. Its protective packaging includes anti-static bubble wrap, while it also supplies a broad range of packaging tape.
Factory location:	Last year, the company moved into a new facility in Wakerley in the south-east of Brisbane. Earlier this year, it invested $7m to expand the factory – which included the purchase of an 'Italian-made plastic extrusion machine'. It said that the purchase will allow it to make film that was previously imported from Asia. The move to bring manufacturing back to Australia was spurred in part by the weak Australian dollar.

To be considered for 'Extruder of the Month', contact the editor on lou@filmandsheet.com

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Film and Sheet – Jul/Aug
The July/August edition of Film and Sheet Extrusion magazine looks at the latest converting machinery innovations. It also reviews developments in bioplastics and masterbatch and analyses the European collation film market.

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Film and Sheet – June
The latest innovations in thermoforming feature in the June edition of Film and Sheet Extrusion magazine. This issue also looks at pouch packaging, blown film dies and PVC recycling, as well as reporting on the latest print technology news from the Drupa show.

➤ Click here to view

Compounding World – Aug
The August edition of Compounding World magazine explores the latest developments in PVC plasticisers. This edition also looks at technological solutions to minimise screw and barrel wear and reviews new applications and introductions in the field of functional fillers.

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Compounding World – July
The July edition of Compounding World examines the latest developments in biocidal additives. It also reviews innovations in impact modifiers, discusses effective colour measurement, and looks at the latest melt filtration introductions.

➤ Click here to view

Pipe and Profile – Sept
September's edition of Pipe and Profile Extrusion examines the latest machinery for production of medical tubing. It also looks at developments in window profile and downstream automation and previews the materials innovations to be found at K2016.

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Injection World – Sept
The September edition of Injection World focuses on medical moulding innovations and reviews developments in energy management and in-line compounding. Plus, we take a look at the new materials that will be launched at the upcoming K2016 show.

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Global exhibition guide

26-30 Sept 2016	Colombiaplast, Bogota, Colombia	www.colombiaplast.com
19-26 October 2016	K 2016, Dusseldorf, Germany	www.k-tradefair.com
6-9 Nov 2016	Pack Expo, Chicago, USA	www.packexpointernational.com
14-17 Nov 2016	Emballage, Paris, France	www.all4pack.com
8-10 January 2017	Arabplast, Dubai	www.arabplast.info
19-23 January 2017	Plastivision India, Mumbai, India	www.plastivision.org
24-26 January 2017	Swiss Plastics, Lucerne, Switzerland	www.swissplastics-expo.ch
20-24 March 2017	Plástico Brasil, São Paulo, Brazil	http://www.plasticobrasil.com.br/
4-7 April 2017	Feiplastic, Sao Paulo, Brazil	www.feiplastic.com.br
4-10 May 2017	Interpack, Dusseldorf, Germany	www.interpack.com
13-16 June 2017	FIP, Lyon, France	www.f-i-p.com
26-28 Sept 2017	Interplas, Birmingham, UK	www.interplasuk.com
2-6 October 2017	Equiplast, Barcelona, Spain	www.equiplast.com
17-21 October 2017	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de
24-28 October 2017	IPF Japan, Tokyo, Japan	www.ipfjapan.jp
7-12 February 2018	PlastIndia, Gandhinagar, India	www.plastindia.org
7-11 May 2018	NPE, Orlando, USA	www.npe.org
29 May-1 June 2018	Plast, Milan, Italy	www.plastonline.org

AMI conferences for film & sheet extruders

20-21 September	Thin Wall Packaging Asia, Singapore
20-21 September	Smart Packaging, Cologne, Germany
20-22 September	Agricultural Film, Barcelona, Spain
7-9 November	Waterproof Membranes, Cologne Germany
15-17 November	Multilayer Packaging Films, Vienna, Austria
29 Nov-1 Dec	Thin Wall Packaging, Cologne, Germany
6-7 December	Stretch & Shrink Film, New Orleans, USA
6-7 December	Flexible Packaging Middle East & Africa, Dubai, UAE

For information on all these events and other conferences on film, sheet, pipe and packaging applications, see

www.amiplastics.com

Turn page for the full programme ➤

THIN WALL PACKAGING 2016

International conference on market trends and developments in plastics tubs, cups and tray packaging

Images coutesy of: **Verstraete In Mould Labels**

29th November-1st December 2016
Maritim Hotel, Cologne, Germany

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FINAL REMINDER – BOOK NOW

THIN WALL PACKAGING 2016

29 November -1 December 2016, Maritim Hotel, Cologne, Germany

AMI's 11th international conference on Thin Wall Packaging will take place from 29 November -1 December 2016 at the Maritim Hotel in Cologne, Germany.

The conference focus is on plastics packaging tubs, cups, trays, jars and pots. It looks at storage and functionality of plastics materials in protecting and preserving items such as meat, yoghurt, margarine, fruit and vegetables, dairy, fish, soup, and ready meals.

This year's programme looks at innovations in material science, juxtaposing traditional and new materials used for thin wall packaging conversion as well as the latest developments in technology. Improving sustainability is an on-going objective in the TWP industry, which is reflected in this year's programme. The programme will also cover the latest in decoration technology.

The TWP industry continues to answer market demand for added-value packaging for long-life applications. Packaging suppliers and end-users are presented with a range of barrier technologies to suit their operational needs.

Single serve capsules are a segment of high growth, which triggers innovation that will affect the demand for TWP in the future.

Thin Wall Packaging 2016 offers a meeting point for the industry to debate business trends and improvements in packaging technology. It provides a unique opportunity to network with the wide range of professionals involved with the plastics packaging industry at all levels of the supply chain.

FIVE GOOD REASONS WHY YOU SHOULD ATTEND:

1. **Review the latest market trends**
2. **Learn about sustainability issues**
3. **Assess the latest packaging innovations**
4. **Keep up with new materials and technology**
5. **Network with top international experts**

CONFERENCE HOTLINE

Contact Maud Lassara, Associate Conference Manager
Tel: +44 (0) 117 314 8111
Fax: +44 (0) 117 311 1534
Email: ml@amiplastics.com
Twitter: @AMIconferences #attendAMI

Save €110

Register before 9th September 2016

EARLY BIRD REGISTRATION OFFER

Register before 9th September 2016 and pay €1190* saving €110 on the full price of €1300*. There are additional discounts for group bookings. The registration fee includes attendance at all conference sessions, the Networking Cocktail Reception on the first evening, lunch and refreshment breaks on both days and a set of conference proceedings.

EXHIBITION SPACE

Make it easy for the delegates to find you at this busy event with your own table top exhibition space. Bring your own display stand, banners or use the space to showcase samples of your products and ensure that you make an impact. The table top exhibition will run throughout the conference in the spacious lobby next to the main meeting room.

The Exhibition space includes 1 delegate place!

Space is limited so to avoid disappointment please register for this service as soon as possible.

SPONSOR THIS EVENT

A variety of sponsorship opportunities are available at this conference to help to promote and enhance your company's products and services to this highly targeted international audience. Contact the Conference Hotline for further information.

HOTEL ACCOMMODATION

Delegates are responsible for booking their own accommodation. AMI has negotiated a limited number of rooms at the rate of €159 for a single room and €197 for a double (tax, breakfast and Wi-Fi included) at the Maritim Hotel in Cologne until 1st November 2016. To reserve a room, please contact the reservation department and state that you are attending "AMI's Thin Wall Packaging 2016" conference on:
Tel: +49 221 2027 849 Fax: +49 221 2027 826
Email: reservierung.kol@maritim.de

CONFERENCE VENUE

Cologne was founded over 2,000 years ago and is a good place for dining out, cultural tours and shopping. The conference will take place at the Maritim Hotel, which is on the banks of the Rhine within walking distance of the old town and ancient cathedral.

*+19% German VAT

Turn page for booking details ➤

THIN WALL PACKAGING 2016

Tuesday 29th November 2016

17.00-19.30 Registration
18.00-19.30 Networking Cocktail Reception

There are no conference sessions on this day

Wednesday 30th November 2016

08.00 Registration and welcome coffee
09.00 Opening announcements

MARKET OVERVIEW

09.10 **The European thin wall packaging market**
Mr. Jon Nash, Head of Strategic Research,
AMI CONSULTING, United Kingdom

SESSION 1 - END-USER PERSPECTIVE

09.40 **Preformed cups - From resin to recycling: how to switch gears**
Mr. Guerino Madeddu, Global Preformed Cup Suppliers Technology Manager,
DANONE, Canada

10.10 **How to leverage new technology to bring added value for the consumer. A case study of a global renovation project.**
Mr. Stanislas Viaud, Packaging Innovation Manager,
BEL GROUP, France.

10.40-11.20 Morning coffee sponsored by: SML

SESSION 2 - SINGLE SERVE BEVERAGE CAPSULES

11.20 **Overcoming performance challenges for single serve food/beverage capsules**
Mr. Thierry Fabozzi, Managing Director PTI-Europe,
PLASTIC TECHNOLOGIES, Inc, Switzerland

11.50 **Compression moulding technology applied to single serve products. Case study on coffee pods: lowest TCO in the industry**
Mr. Iacopo Bianconcini, Marketing Manager Closure & Beverage Division,
SACMI, Italy

12.20-13.50 Lunch sponsored by: BOREALIS Borouge

SESSION 3 - DECORATION TECHNOLOGY

13.50 **IML decoration with anti-counterfeit possibilities**
Mr. Hans Huyghe, Development Manager,
VERSTRAETE IN MOULD LABELS, Belgium

14.20 **Alternative label handling strategies**
Mr. Robert Harvey, Vice President - Sales and Marketing,
CBW AUTOMATION, United States

14.50 **IML-T – Efficiency and versatility**
Mr. Claus Weinert, Area Sales Manager & Product Manager,
ILLIG MASCHINENBAU GmbH & Co. KG, Germany

15.20-16.00 Afternoon tea

SESSION 4 - TECHNOLOGY & TOOLING

16.00 **Realisation and industrialisation of IML thin wall and high performance tooling projects**
Mr. Benjamin Noack, Sales,
ROTH WERKZEUGBAU GmbH, Germany

16.30 **ICM, then, now and the future**
Mr. Peter Clarke, Technical Director,
GR8 ENGINEERING LIMITED, United Kingdom

17.00 **High cavitation injection molding technology for minimised packaging costs**
Mr. Jordan Robertson, General Manager - Bus. Dev. & Marketing,
STACKTECK SYSTEMS LIMITED, Canada

20.00 Conference Dinner

Thursday 1st December 2016

08.30 Registration & welcome coffee
09.00 Opening announcements

SESSION 5 - THIN WALL PACKAGING INNOVATIONS

09.10 **Best and ideal packaging for the future**
Dr. Kurt Stark, Director Business Development,
BUERGOFOL GmbH, Germany

09.40 **Global megatrends and local needs translated into innovative food packaging solutions**
Mr. Rainer Schlicht, Group Director Global Innovation Food & Consumer Packaging,
KLOECKNER PENTAPLAST, Germany

10.10 **Customer driven innovation focusing on sustainability**
Mr. Thomas Tang, Director Group Commercial Affairs,
FAERCH PLAST, Denmark

10.40-11.20 Morning coffee

11.20 **The convenience cap that convinces the most demanding consumer**
Mr. Rafael Mira, General Manager,
ITC PACKAGING, Spain

11.50 **Functional tie resins for added value multilayer packaging**
Mr. Pascal Wüst, Assistant Technical Manager,
MITSUI CHEMICALS EUROPE GmbH, Germany

SESSION 6 - SUSTAINABILITY

12.10 **A new approach towards a circular concept**
Mr. Paolo Glerean, Co-Chairman of PET TRAYS Working Group,
PETCORE EUROPE, Italy

12.40-14.10 Lunch

14.10 **Upcycling of PET thermoforming production scrap - Lifting the IV-levels and establishing food grades while recycling PET**
Mr. Christian Fellner, Sales Manager,
NGR NEXT GENERATION RECYCLING MASCHINEN GmbH, Austria

14.40 **Recycle and reuse: sustainable and efficient size reduction and granulation solutions**
Mr. Giorgio Santella, Chief Marketing Officer,
PIOVAN GROUP, Italy

15.10 Afternoon tea and conference ends

Conference signage sponsored by: sabic

Conference lanyard sponsored by: KIEFEL TECHNOLOGIES A Member of Brückner Group

AMI reserves the right to alter the programme without notice. The latest programme including any new speakers or changes to schedules can be viewed on our website ***www.amiconferences.com***

REGISTRATION FORM

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(Must be completed by all EU Companies)

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DELEGATE DETAILS

If more than one delegate please photocopy form

Title: _____ First name: _____

Surname: _____

Position: _____

Email: _____

Special dietary requirements: _____

Signature: _____ Date: _____

PAYMENT DETAILS

All payments to be made in Euros

Please tick box and write amount:

❑ Early bird admission fee: *(Until 9th September 2016)*	€1190 + €226.10* = €1416.10	_____
❑ Admission fee thereafter:	€1300 + €247* = €1547	_____
❑ Conference Dinner:	€85 + €16.15* = €101.15	_____
Table Top Exhibition Package (includes 1 delegate place)		
❑ German resident companies	€2000 + €380* = €2380	_____
❑ Non - German resident companies (***Only admission fee part of package is VAT chargeable at 19%*)	€2000 + €226.10** = €2226.10	_____

** German VAT charged at 19%* **Total:** _____

Please note all delegates have to pay the VAT stated above

METHOD OF PAYMENT

You will be sent an invoice in 7-14 working days.

❑ **Bank transfer quoting:** 'Your Invoice and A/C No. or Applied Market Information Ltd. -Thin Wall Packaging 2016' to: National Westminster Bank Plc. Thornbury Branch, 16 the Plain, Thornbury, Bristol, BS99 5HD
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THIN WALL PACKAGING 2016
CONFERENCE INFORMATION

Date and location
29th November- 1st December 2016
Maritim Hotel
Heumarkt 20
50667 Cologne
Germany

Tel: +49 221 2027 0
Fax: +49 221 2027 835

Registration fee
The registration fee includes attendance includes attendance at all conference sessions, the Networking Cocktail Reception, lunch, refreshment breaks and a set of conference proceedings.

- ***Early bird registration:*** Register before 9th September 2016 for only €1190*. Thereafter the cost is €1300*.
- ***Group rates:*** For companies wishing to register two or more delegates, group discounts are available. Please contact the Conference Organiser for more details. (Please note to qualify for the group discount delegates must be booked at the same time, otherwise additional delegates may be charged at full price).

Table top exhibition
A limited number of table top exhibition spaces are available in the spacious lobby next to the main meeting room. The table top exhibition fee is excellent value for money and **includes 1 delegate place**. Exhibitors may either use tables provided by the hotel or bring their own stand or display.

Sponsor this event and promote your company
A variety of sponsorship opportunities are available at this event that can help to promote and enhance your company's products and services to this highly targeted international audience. For further information, please contact the Conference Organiser on: +44 (0) 117 314 8111.

Social events
The social event organised for Thin Wall Packaging 2016 will provide an ideal setting for delegates and speakers to mix business with pleasure.

- ***Networking Cocktail Reception:*** A networking cocktail reception will be held on the first evening. All delegates are invited to attend and it will offer an excellent opportunity to meet speakers and other colleagues.
- ***Conference Dinner:*** All delegates are warmly invited to attend the Conference Dinner, which will take place at a local restaurant on the evening of 30th November 2016. The additional cost is €85*.

Hotel accommodation
Delegates are responsible for booking their own accommodation. AMI has negotiated a room rate of €159 for a single room and €197 for a double (tax, breakfast and Wi-Fi included) at the Maritim Hotel in Cologne until 1st November 2016. To reserve a room, please contact the reservation department and state that you are attending "AMI's Thin Wall Packaging 2016" conference on:

Tel: +49 221 2027 849 Fax: +49 221 2027 826
Email: reservierung.kol@maritim.de

Cancellations
Full refunds, less a cancellation charge of €200 will only be made on cancellations received prior to 28th October 2016. Thereafter we regret that no refunds can be made. Delegates may be substituted at any time. Please note that refunds will not be given on table top bookings or sponsorship packages. at any time.

*+19% German VAT

CONFERENCE HOTLINE

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The latest programme, including any new speakers or changes to the schedule can be viewed on our website: **www.amiconferences.com**