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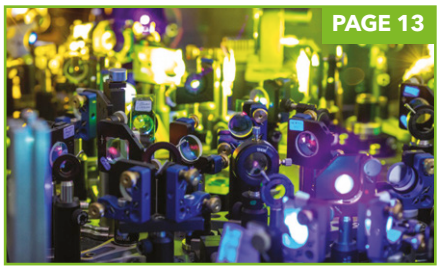
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CONTACT US

AMI
Third Floor, One Brunswick Square,
Bristol, BS2 8PE, United Kingdom
Tel:+44 (0)117 924 9442
Fax:+44 (0)117 311 1534
www.ami.international
www.twitter.com/plasticsworld
Registered in England No: 2140318

EDITORIAL

Editor-in-Chief: Chris Smith
chris.smith@ami.international

Editor: Lou Reade
lou@filmandsheet.com

Events and magazines director:
Andy Beevers
andy.beevers@ami.international

ADVERTISING

Advertisement manager: Claire Bishop
claire.bishop@ami.international +44 (0)1732 682948

Sales & commercial manager: Levent Tounjer
levent.tounjer@ami.international +44 (0)117 924 9442

Sales manager (China): Jenny Zhou
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Petoskey expands to Texas with new facility

US-based plastic film converter Petoskey Plastics is to invest US$30 million in a new facility in Texas.

The new facility will help the company to meet growing demand for its blown film products such as trash bags, construction sheeting and automotive seat covers. A combination of converting and extruding lines in the new facility will increase the company's output by around 15% over the next 12 months.

Petoskey currently makes blown film products with post-consumer recycled content at three separate locations in Michigan, Indiana and Tennessee.

"This expansion is an exciting one for us," said Paul Keiswetter, chairman and CEO of Petoskey. "We are increasing our ability to service current customers and adding new opportunities for our growing sustainable product lines."

The new 53,000 sq ft facility is located in McKinney, a suburb of Dallas-Fort Worth. Building expansion is scheduled for completion in August 2022 and includes an additional 40,000 to 60,000 square feet for converting and warehouse space, nine silos and rail spurs. Petoskey plans to grow the Texas facility to a total of around 130,000 square feet within five years.

The company says that the facility will put it closer to its raw material suppliers in the Gulf and help it us service its West Coast customers. In many cases, delivery times will be halved for both raw material and finished goods, it said.

Petoskey Plastics employs more than 450 full-time staff and plans to hire 20 new people in Texas. Later, it plans to add 55 new jobs.

› **www.petoskeyplastics.com**

Nova adds three new PCR resins

Nova Chemicals of Canada has introduced three post-consumer recycled (PCR) resins to its portfolio.

The LDPE and LLDPE grades are aimed at flexible film applications.

One is collected from distribution centres and is for collation shrink and stretch wrap applications. The second is a recycled agricultural film, ideal for re-use in the same field. The third is made from closed-loop agricultural and irrigation film recyclate.

› **www.novachem.com**

Makrolon is renamed

Exolon's polycarbonate multiwall and solid sheets will now be named after the company – after it dropped the Makrolon brand name. The name will change for multiwall sheet from May 2021, and for solid sheet in July 2021.

"Nothing else is changing, apart from the name," said Jens Becker, CEO of Exolon.

The Makrolon brand – as a registered trademark of Covestro – will continue to be used for polycarbonate raw material, which is still used to make Exolon sheet.

› **www.exolongroup.com**

Trex steps up incentives for recycling

Decking manufacturer Trex has stepped up the incentives it offers to partners who collect post-consumer plastic film – which is then recycled into its composite decking

The NexTrex supplier incentive programme allows participating retailers and other partners to earn points for their contributions – which can be redeemed for Trex products.

Trex provides participants – who are typically retail stores, of any size – with recycling bins and other materials such as instructional videos, to help collect everyday items such as pallet film, grocery bags, bread bags and newspaper sleeves. Around 32,000 stores participate in the programme.

Trex claims to be one of the largest recyclers of plastic film in North America, collecting more than 450 million lbs (around 200,000 tonnes) of polyethylene plastic waste each year, for use in its decking – which is made of 95% recycled material.

"The contributions of our partners are not only integral to our manufacturing process, but also critical to addressing our country's growing plastic waste problem," said Dave Heglas, senior director of supply chain excellence at Trex.

› **www.trex.com**

Limited supply hurting EU plastics converters

Material shortages and price rises are seriously affecting production at European plastics processors.

Industry organisation EuPC, which represents European plastics converters, says the European polymer market has been under pressure for some months. Converters have reported difficulties in sourcing the raw materials they need to keep their production running, as well as suffering from low stocks.

"Since December 2020, the situation has worsened rapidly," said Alexandre Dangis, managing director of EuPC. "Additionally, extreme weather conditions in the USA led to production losses that also affected the European market."

In addition, he said, European polymer producers have been declaring increased numbers of force majeure cases in the past months – as reported by the Polymers for Europe Alliance in January.

EuPC said the situation is further aggravated by shortages in shipping containers. This combination of factors has forced polymer prices upwards – which has limited credit facilities for processors, and reduced the already small margins of converting companies.

EuPC has called on European polymer producers to work with their European customers to resolve the situation as soon as possible, so as not to put supplies of essential goods at risk.

EuPC president Renato Zelcher added. "If the situation continues, more companies will have to reduce their production, leading to shortages of plastic products such as food packaging or parts for the construction or automotive industry."

German manufacturers of plastics packaging have reported worsening supply bottlenecks for a number of raw materials.

A recent survey of members of the IK industry association revealed that three quarters of respondents reported a poor (or very poor) supply situation.

This applies particularly to PP, HDPE, LDPE and PA, said IK.

"Plastic packaging manufacturers are alarmed and in great concern," said Martin Engelmann, director general of IK. "The survey results show a clear deterioration in raw material supplies compared to the beginning of the year. At the moment, there is nothing to indicate an end to these supply bottlenecks. In addition, dramatic price jumps are weighing on the industry."

› **www.plasticsconverters.eu**
› **https://kunststoffverpackungen.de**

ProAmpac buys into UK market

ProAmpac, a US flexible packaging manufacturer, has acquired two UK-based companies.

IG Industries makes multi-layer polyethylene-based films for markets including food, drinks, industrial and horticulture. Brayford Plastics also makes PE-based films and bags – for markets such as bakery, fresh produce and fruit and vegetables,

"These strong businesses broaden our product offering and expand our reach across the UK and Europe," said Greg Tucker, CEO of ProAmpac.

Cincinnati-based ProAmpac is owned by Pritzker Private Capital, along with management and other co-investors. The new additions mean it now has 38 manufacturing sites globally.

› **www.proampac.com**
› **www.igindustries.co.uk**
› **www.brayfordplastics.com**

Indian JV targets bioplastics

SKYi FKuR Biopolymers, a new joint venture between Germany's FKuR Kunststoff and India's SKYi Innovations, has commenced production of biodegradable, partially-biobased plastics at Chakan in India.

The facility operates a three-shift compounding line, which will produce a significant part of FKuR's Bio-Flex range for the Indian and regional markets. It is claimed to be the first dedicated manufacturer of compostable biopolymer compounds in India.

The Bio-Flex family comprises fully biodegradable and compostable (according to EN 13432) grades. They are based entirely or partly on natural raw materials and are suitable for production of flexible films, as well as thermoformed and injection moulded parts.

SKYi Innovations has distributed FKuR products in India for around 10 years. The company is well established in the Indian compounding industry and claims to operate the country's largest LFT production facility.

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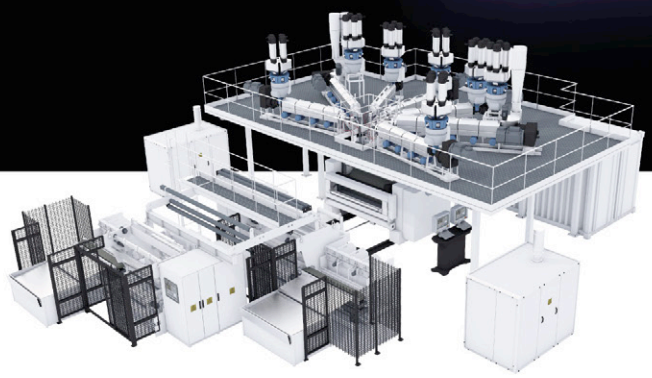

Get yourself into the next generation of film production and supply chain

A few days ago, due to the worldwide Pandemic, the Plastics Industry Association Board of Directors decided to cancel the in-presence NPE show, which is something understandable: we are aware that the priority always has to be the everybody's health and safety. Anyway, even in such a situation, the show must go on! Don't worry, we have come up with a contingency plan: we are putting together a virtual event which will allow you to enjoy the same show that you would have experienced "phisically" at the NPE in Orlando.

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Amcor sees flat H1 sales

Australian packaging major Amcor saw flat sales for the first half of its financial year.

In the six months to the end of December 2020, net sales reached US$6.2 billion – a rise of just 0.003%. The company claimed a 3% increase in sales when corrected for constant currency.

However, profitability at the company rose. By excluding items "which management considers as not representative of ongoing operations", EBITDA rose by 4% to US$948 million.

"We have built momentum in both our operating segments – resulting in adjusted EBIT growth of 9% in flexibles and 10% in rigid packaging in constant currency terms," said Ron Delia, CEO of Amcor.

The company says it has raised outlook for the year.

› **www.amcor.com**

German machinery makers see order and sales growth for 2021

VDMA, the trade body that represents Germany's plastics and rubber machinery makers, says its members expect both order and turnover volumes to grow this year.

A survey of members showed that almost half of all respondents expect to see an upturn in the first six months of 2021. A similar amount expect to see market conditions strengthen further in the second half of the year.

"In the second half of 2020, the demand for plastics and rubber machinery has clearly changed across all regions," said Ulrich Reifenhäuser, chairman of VDMA. "The situation in China and Germany is seen as particularly positive."

In addition, around half of all survey participants expect to take on new staff in the first half of the year.

IMAGE: VDMA

Reifenhäuser: "Demand rose in the second half of 2020"

Thorsten Kühmann, managing director of VDMA, added: "It looks like the plastics and rubber machinery industry can look forward to a successful business year. We will be viewing the coming months with anticipation."

The survey's findings are in line with 2020 year-end figures, which showed a 7% increase in orders compared to 2019.

VDMA says that it will no longer be part of the German Pavilion at Plastico Brasil, which is scheduled to take place in Sao Paolo in November this year. The reason is the increased spread of the Coronavirus in the country. However, VDMA says its decision has no influence on the participation of other companies in the pavilion.

It added that Brazil is the most important market in South America for plastics and rubber machinery – and many companies have local branches there.

VDMA will participate in Chinaplas but is not planning to send any staff there from Germany.

› **http://kug.vdma.org**

Pregis expands bag production in Wisconsin

US-based film converter Pregis has added new bag production and equipment assembly operations to its operations in Wisconsin.

The company says the expansion will support the growth of its Sharp Packaging Systems brand – which it says is in response to increased demands from e-commerce.

Bag production has been moved from nearby East Troy to Elkhorn, which Pregis says has doubled the number of converting lines. The facility converts multi-layer coextruded polyethylene film into pre-opened bags supplied on a roll or in a box. The bags are used with Sharp Packaging bagging equipment at to package and ship a variety of soft goods, pharma/nutraceuticals, and other non-fragile products.

"The shift to e-commerce from traditional retail outlets has been significantly amplified by the Covid-19 pandemic," said Mike Menz, division president. "To help meet demand from companies who use bagging equipment for their products, we have doubled the facility's converting capability by installing additional lines."

Pregis will also move its equipment assembly operations to a new location in Germantown, Wisconsin in Q2. This move enables more efficient assembly layout, double the production space and the potential for further expansion of its polymer converting capacity.

Pregis makes its own converting equipment, which it says gives it "the right capabilities to meet performance goals".

› **www.pregis.com**

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Italian machine sales decline 11% in 2020

Sales of Italian plastics and rubber machinery fell by more than 11% last year – but have begun to recover in 2021.

Amaplast, which represents machinery manufacturers, said that sales in 2020 fell to €3.9 billion (US$4.6bn).

These figures include an 11% fall in exports, a 14% decline in imports and a fall of around 13% in the value of the domestic market. Exports declined to just over €2.7bn (US$3.2bn), while the domestic market fell below €2bn (US$2.3bn).

An analysis of exports in 2020 shows a rise in sales in Europe – which represents more than 58% of the total. There was particularly good performance in markets outside the European Union, said Amaplast.

The proportion of sales to Asia fell slightly, from 17.5% to 16.7%, with a similar situation in North America (from 15.2% to 14.6%). Many of the 10 leading export destinations saw double-digit drops – though exceptions included Russia (a 42% increase) and Turkey (up 14%).

"Overall, 2021 began in an encouraging manner," said Amaplast. "A rebound in production and exports is foreseen, although it might be optimistic to expect a return to pre-crisis levels within the space of a few months. This will be much more likely to occur in 2022."

Amaplast added that its members fared relatively well compared to the sector as a whole. Revenues fell by a "quite minor" 2.8% in 2020, while employment numbers rose by around 3.3%, it said.

In another positive sign, half of the member companies that took part in a recent survey reported increased orders in the first half of this year, compared to the second half of 2020.

› **www.amaplast.org**

Italian market for plastics and rubber machinery, equipment and moulds (% value change 2019/2020)

Production	-11
Exports	-11
Imports	-14
Domestic market	-13
Trade balance	-10

Source: Amaplast

Corplex grows in recycling with acquisition in France

Plastics extruder Corplex has further expanded into recycling by acquiring French recycler GeboPlast.

GeboPlast, formed in 1977, has two sites in Alsace in northern France, which process around 15,000 tonnes/year. It specialises in a number of recycling activities, including shredding, pelletising, densification and compounding. The company will now operate under the name Corplex Recycling.

"Through this acquisition, we confirm our vision to accelerate the transition to a circular economy for plastics," said Lucas van der Schalk, CEO of Corplex.

The acquisition means that Corplex now has eight sites. Both of the new Alsace sites are qualified for the recycling of plastics including PE, PP, polystyrene and polycarbonate, says the company.

› **www.corplex.com**

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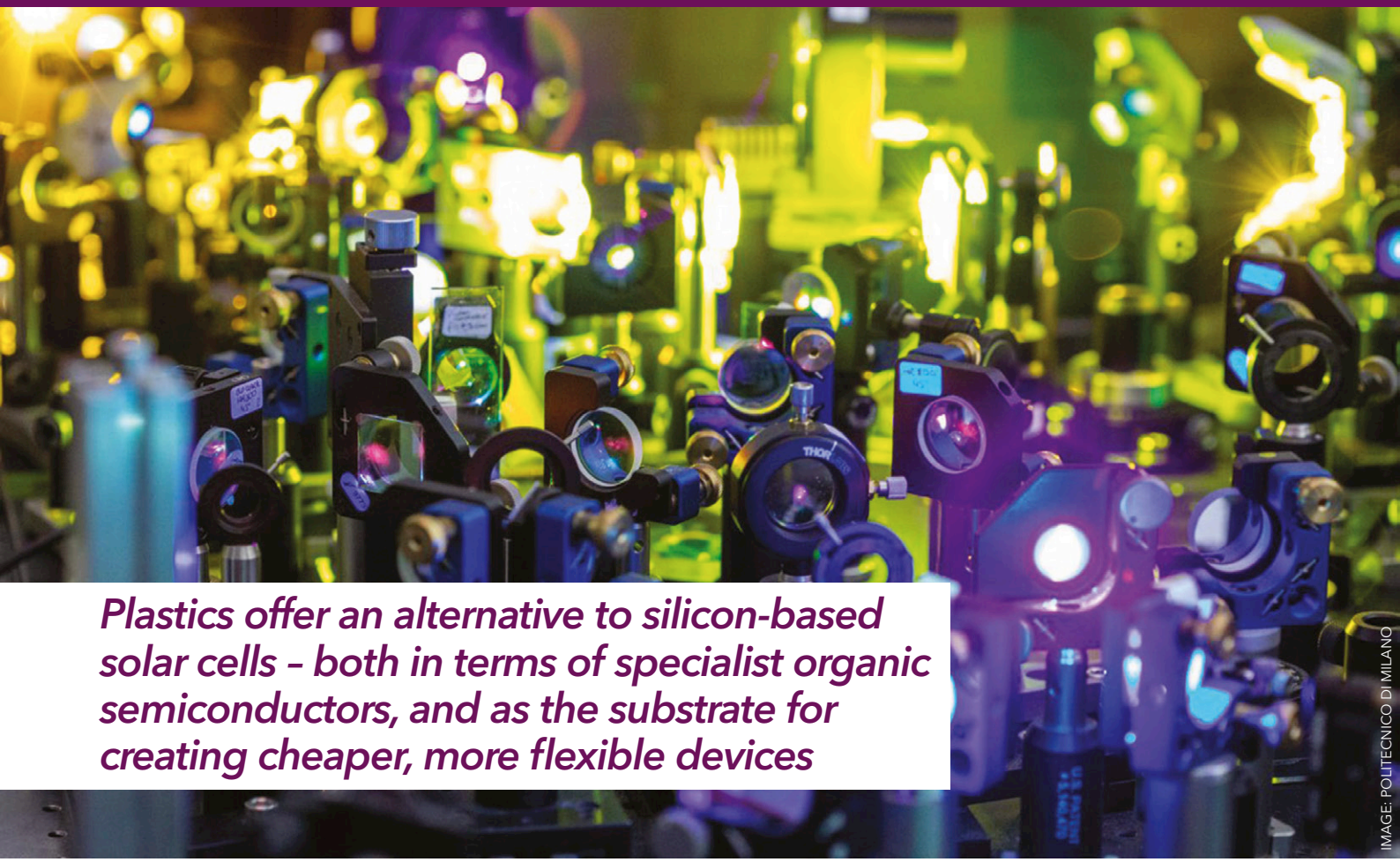


IMAGE: POLITECNICO DI MILANO

Plastics offer an alternative to silicon-based solar cells – both in terms of specialist organic semiconductors, and as the substrate for creating cheaper, more flexible devices

Taking in the sun: latest advances in photovoltaics

Silicon continues to be the material of choice for solar cells, due to its high efficiency in converting sunlight into electricity. However, silicon solar cells are rigid, expensive to manufacture and have high disposal costs.

For these reasons, researchers are continuing to investigate the potential of 'organic' solar cells (also known as organic photovoltaic – OPV – devices). These typically rely on organic semiconductors – in place of silicon – to convert light into power. The organic semiconductors are often highly specialised polymer materials.

These polymers are typically used to make 'inks', which are then printed onto a plastic substrate to make a new type of solar cell. The cell is typically flexible, and far cheaper to manufacture than its silicon equivalent – which could widen the use of photovoltaics.

Laser focus

Researchers at **Milan Polytechnic** in Italy recently used short-pulse lasers to study the properties of organic solar cells. One shortcoming of these cells is that their light conversion efficiency is lower than that of silicon cells. The organic materials also have more complex physics than crystalline inorganic materials such as silicon – making the problem harder to solve, said the researchers.

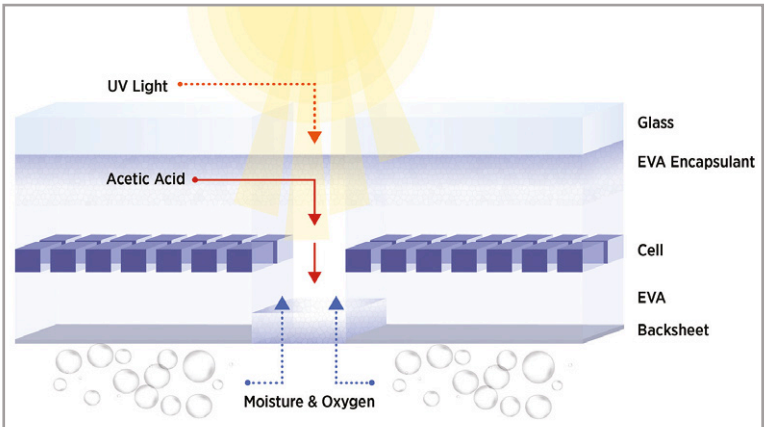
However, they have delved into the behaviour of the materials – using short-pulse lasers – and devised a way to improve efficiencies – by reducing losses at the interface between the donor and acceptor material.

The researchers used a blend of two organic materials in their device. Their work showed that there is an optimum 'blend' of materials that will lead to minimum efficiency losses.

"Future photovoltaic cells made from organic technology will be a cheaper source of energy with less environmental impact," said the researchers. "They can be incorporated into various everyday objects such as windows, cars, or even clothes and coats because of their mechanical flexibility."

The research was published recently in *Nature*. ❯

Main image: Milan Polytechnic researchers uses ultra-short pulse lasers to study the properties of organic photovoltaic cells



Above: NIST researchers found that interaction between EVA and nylon was causing premature cracking
Source: N Hanacek/NIST

Performance boost

One research team, from the **Chinese Academy of Sciences**, recently produced an organic solar cell with 17% efficiency – and claims superior processability for large-area coating

Although OPVs offer several advantages, they are usually fabricated in the laboratory by spin-coating, at sizes below 0.1 sq cm – which is not suitable for future upscaling.

In spin-coating, wet films dry rapidly due to high spinning speed. However, when area is increased, the films dry too slowly – which can affect final performance.

"It's still a challenge to fabricate highly efficient OPV cells via large-area fabrication methods," said the researchers.

They overcame the problem by modifying the chemical structure of one of the organic polymers – which boosted efficiency to 17%.

This work, which was published in *National Science Review*, showed that changing the chemical structures of the photoactive materials had "great significance in larger-area production", said the researchers.

Indoor performance

Researchers at two Scottish universities – **Strathclyde** and **St Andrews** – have demonstrated a plastic solar panel that can harvest indoor light while also receiving multiple high-speed data signals.

This makes it potentially useful in the future development of self-powered data-connected devices, said the researchers.

The team created stable OPVs – that convert indoor lighting into electricity – using an optimised combination of organic semiconductor materials. A panel of four OPV cells was used as part of an optical wireless communication experiment.

"Organic photovoltaics offers an excellent platform for indoor power harvesting for mobile devices," said Professor Graham Turnbull, of the St Andrews Organic Semiconductor Centre. "Their advantage over silicon is that they can be designed to achieve maximum quantum efficiency for typical LED lighting wavelengths. Combined with the data reception capability, this opens up a significant opportunity for self-powered Internet of Things devices."

The ability to harvest energy and transmit data cannot usually be done at in a single device.

Professor Harald Haas, of the Strathclyde LiFi Research and Development Centre, added: "To the best of our knowledge, this has never been shown before. It is imaginable to turn entire walls into a gigabit per second data detector while harvesting sufficient energy to power many distributed intelligent sensors, data processing and communication nodes."

Low light conditions

For similar reasons, a joint research team from France and Japan has also been looking at how to harvest light from indoor lighting.

Toyobo of Japan and French research institute **CEA** have made prototype OPV modules on two different substrates – thin PET film, and glass. The trial products use a power-generating material for OPV that Toyobo has been developing. The material can dissolve easily in solvents, allowing it to be coated evenly onto a substrate.

The researchers say that the glass-based OPV has achieved "the world's top-level conversion efficiency in a dim room". In a verification experiment under neon lighting with 220 lux – equivalent to that of a dark room – the trial product attained a conversion efficiency of about 25% – around 60% higher than the amorphous silicon solar cells typically used for desktop calculators. The PET-based OPV – which was more difficult to make than its glass equivalent – had an output of around 130 microwatts under the same illumination.

Toyobo aims to commercialise the material by early 2023, for use as a wireless power source in devices such as temperature-humidity and motion sensors.

Blended boost

Researchers at **Hiroshima University** in Japan have blended various polymer and molecular semiconductors to create a solar cell with higher power efficiency and electricity generation.

The team added a small amount of a compound that absorbs light at longer wavelengths – resulting in an OPV that was 1.5 times more efficient than the

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Right: Cracks often form on solar panel backsheets in straight lines, along the gaps between solar cells

version without the compound. The compound enhanced absorption intensity due to optical interference within the device.

"A very small amount of a sensitiser material is added to an OPV cell – which consists of a semi-conducting polymer that we developed previously," said Itaru Osaka, corresponding author of a recent paper on the research, published in *Macromolecules*.

"This leads to a significant increase in the photocurrent and the power conversion efficiency. A key is to use a very specific polymer. This allows us to have a very thick semiconductor layer for OPV cells – which enhances the optical interference effect."

In future, Osaka aims to raise efficiency further, by developig better semiconducting polymers and sensitiser materials – that can absorb more photons in the longer wavelength regions.

"This would lead to the realisation of the world's highest efficiency in OPV cells," he said.

Polyamide problems

As well as providing a non-silicon alternative for solar power, plastics play a key role in conventional photovoltaics – for components such as backsheets, which protect the delicate electronic components of the cell. Here, they must contend with ultraviolet rays, strong wind and heavy rain that threaten to shorten the working life of a solar cell.

Researchers at the US-based **National Institute of Standards and Technology** (NIST) have found that many solar panels are experiencing premature failure – due in part to cracked backsheets.

The premature cracking has largely been attributed to certain plastics, such as polyamide, but the reason for their rapid degradation has been unclear. Now, NIST and co-researchers from Arkema have discovered how interactions between these plastics, environmental factors and solar panel architecture may be accelerating the degradation process.

These findings, published in *Progress in Photovoltaics: Research and Applications*, could help researchers to develop better durability tests – and longer-lasting solar panels.

"In the 2010 to 2012 timeframe, many modules were deployed containing polyamide-based backsheets, which presented dramatic cracking failure in as little as four years despite meeting standard requirements," said Xiaohong Gu, NIST materials engineer and co-author of the study.

Gu and her team gathered backsheet samples from solar panels across the world, including sites in the USA, China, Thailand and Italy. Most panels, which were three to six years old, showed clear

IMAGE: NIST

signs of premature cracking. Chemical and mechanical tests were performed, to examine the patterns and severity of degradation. These showed that the areas that suffered the worst cracking were also those that had become the most rigid. Curiously, the most brittle areas were on the inner side of the sheets, said Gu.

Gu and her team speculated that sunlight-induced degradation on the top side of the encapsulant – a film that surrounds the solar cells – produced damaging chemicals that migrated toward the backsheets and accelerated their decay. This mechanism would explain why cracks formed between solar cells – as chemicals could spread to the back through these regions.

The researchers identified acetic acid as a prime suspect: it is known to be harmful to polyamide and is produced when ethylene vinyl acetate (EVA) – a commonly used encapsulant material – degrades. To test the hypothesis, the researchers compared the degradation of polyamide strips in acetic acid, air and water. The samples exposed to acetic acid showed cracks – similar to those seen on the backsheets – that were much worse than those seen in air or water. Chemical analysis also showed that degradation products of polyamide were higher in the acetic-acid-exposed strips.

The study shows that interaction between materials is an important consideration when designing solar panels, said the researchers.

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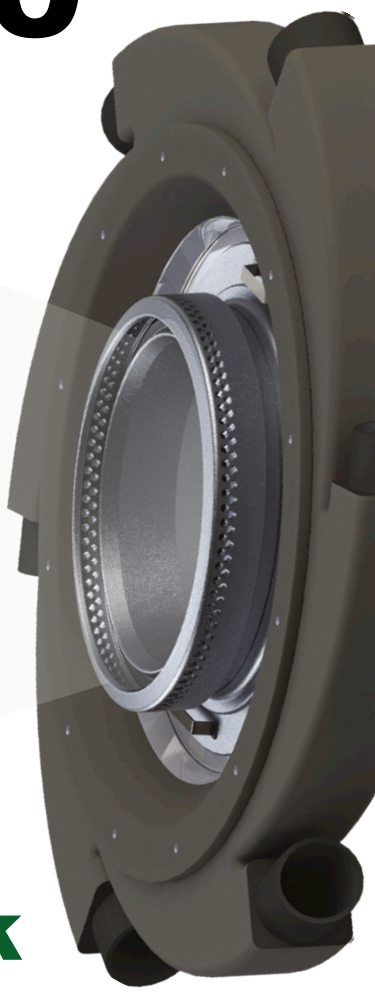

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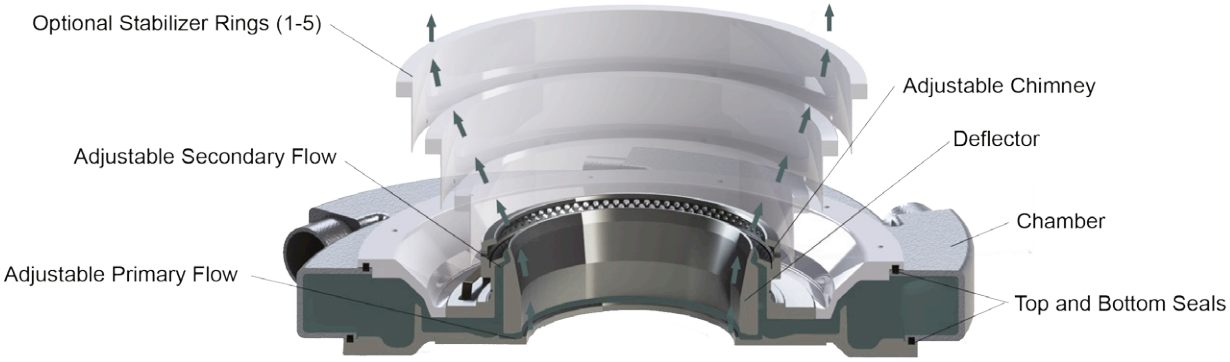

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IMAGE: SHUTTERSTOCK

Agricultural film in its many forms continues to help the industry boost yields, reduce costs and improve environmental performance – such as through biodegradability

Going green: update on plastic agricultural film

Delegates who tuned in to *Agricultural Film* – a virtual conference run recently by **AMI** – disovered that metallised mulch film can boost citrus growth, biodegradable film saves costs and new film formulations can raise banana yields.

Robert Adair, executive director of **Florida Research Center for Agricultural Sustainability**, told delegates how metallised reflective mulch (MRM) has helped to prevent disease in citrus trees.

The organisation trialled an MRM called Shine 'n' Ripe – from Imaflex – on grapefruit trees. The heavy duty, 3 mil TIF (Totally Impermeable Film) was coated with a highly reflective layer of aluminium, which reflects more than 90% of solar radiation over the course of three years. It has been used on other crops including almonds, peaches, strawberries, peppers and tomatoes.

The key goals of the project were: to reduce the incidence of Huanglongbing (HLB) – otherwise known as citrus greening disease; to deter Asian Citrus Psyllids (ACP); to decrease the bearing age of citrus trees in new plantings; and, to increase crop yields.

One important factor was to prepare the ground properly – with smooth beds and careful planting. Each tree was well irrigated – and grew on bare ground, or was protected by either wood chip compost or the mulch film.

One advantage of using the film was that it increased canopy volume compared to both other methods. The MRM was still intact and working after five years, he said. It also led to a lower percentage of smaller fruit, and a higher yield of larger fruit. Overall, it also succeeded in cutting incident of ACP and HLB.

"While the growth, yield and tree health benefits was dramatic, the trees rapidly outgrew the 6ft wide MRM used in the study – so we recommend using a wider MRM (10 feet) for citrus and other tree plantings," said Adair. ›

Main image: Metallised mulch film has helped to boost the yield of grapefruit trees

Right: Bananas are traditionally protected in bags as they grow and ripen

Biodegradable mulch

Ralf Dujardin, vice president of marketing and innovation at **Imaflex**, presented details of another innovation in metallised mulch film: biodegradable products that break down naturally in the soil.

"Natural microorganisms can break down natural materials and digest them for energy generation and biomass growth," said Dujardin.

The company's Can-Eco films are made from of PLA and PBAT – a combination of bio-based and petroleum-based products. Dujardin says this was because all-biobased mulches were too brittle to be laid quickly – and biodegraded into the soil too quickly during the crop season.

The film itself is thinner than the standard LDPE used for mulch films – yet had the same toughness. This compensated for the higher cost of the material, he said. The longer life of the film helped to reduce water evaporation and nutrient leaching, control weeds and maintain soil structure. Degradation rates in loamy soil was faster than it was for sandy soil.

Metallised mulch helps crops in several ways. Reflecting UV and IR radiation helps to deter pests, accelerate plant growth and cool the plant's surroundings. Depending on the crop, the time from planting to harvest can be reduced by 50 % compared to bare ground or black mulch, he said. Fully metallised mulches also cool the soil in an entire bed over the whole season in hot climates.

Sustainable tool

Novamont of Italy, whose main product is the starch-derived bioplastic Mater-Bi, also produces biodegradable mulch film – which it says offers a "tool for sustainability".

The company points out that agricultural film accounts for around 5% of all plastic waste – and that some films have high levels of impurity when they are collected. In addition, around half of all agricultural plastic used in Europe is landfilled.

Biodegradable mulch film, on the other hand, can be worked into the soil at the end of the season. This reduces cost – by removing the need for collection – while also cutting plastic waste.

Novamont says its biodegradable mulches have been used to grow a number of crops that are not normally mulched with plastics. Some crops where it has been applied include tomatoes, rice, grapes, raspberries, sweetcorn and olives.

Benefits for tomatoes included higher colour uniformity, a 10-15% saving in water use, improved root structures and higher yields. In vines, they led to better weed control, high soil temperatures and earlier cropping (by one year) of the first crop.

IMAGE: SHUTTERSTOCK

Banana boost

US-based **Techmer** has developed a number of film formulations to improve the 'survival' of bananas. The formulas are used in a variety of applications, including banana bunch covers and post-harvest bags.

Other than sun-scorch, banana growers face many other problems – from a range of insects, bacteria and fungi.

To prevent pest damage, each bunch of bananas on a tree is typically enclosed in a large plastic apertured bag that incorporates pesticides. Few of the pesticides used in the bags reach the edible tissue of the fruit, but still pose a risk to workers and the environment. At the end of life, used bags need to be segregated – and cannot be recycled.

Techmer has looked into developing new types of aperture bag that use a crop protector called TPM-CP, which 'blinds' the insects' sense of smell. It tested a range of bags, including traditional ones (with or without pesticides), and those with TPM-CP, either open or closed – which used 1g of the chemical. The researchers tested 20 trees for each type of bag.

Results showed that the closed bag containing TPM-CP had the lowest number of damaged bananas over a two-month period. Open bags with TPM-CP led to the smallest number of damaged bunches (rather than single bananas).

Techmer is now planning a larger field study with 500 trees, as well as carrying out mulch film testing.

›

IMAGE: SHUTTERSTOCK

Above: Sabo took part in a project to determine whether UV-stabilised greenhouse film affects pollinator activity

Pollinator study

Sabo presented details of a study into whether UV-stabilised greenhouse film has any effect on the activity of pollinators such as bees.

The company produces a range of additives for greenhouse film, including UV protection, anti-fogging and anti-mist additives.

A study carried out by the Developmental and Support Centre for Agricultural Practices (**CERSAA**) in Italy looked at whether benzotriazole UV absorbers have any effect on pollinator activity.

Two films were tested: a UV-blocking formulation based on Sabo's Stab UV 216 film – which uses HALS and a UV absorber (Film A); and a second film, the 'benchmark', which used a triazine UV absorber and HALS (Film B).

The first trial involved three types of tomato, and bumbus bees. Here, two out of three cultivars were not affected by the UV screen. One cultivar had slightly higher productivity under Film A.

A second trial looked at the effect on melon production, and the Apis mellifera. Here, there were no differences in productivity, and the UV-A open film seemed to accelerate ripening time.

"The hypothesis of complete inhibition of pollinator activity – due to the high UV filtering effect in the greenhouses – was rejected in all cases," said Sabo.

A more likely reason for a lack of pollinators was the use of agrochemicals, a delay in pollen maturation of damage to flowers, said the researchers.

Stable performance

Michael McLaren, a research scientist at **Ingenia Polymers**, also presented details of how UV stabilisation – in the form of a masterbatch – can be applied to greenhouse film.

The company uses hindered amine light stabilisers (HALS) in its formulations. Its objective in developing the masterbatch was to evaluate a range of HALS formulations, and develop an optimised, mid-range package for greenhouse film with pesticide resistance.

This involved accelerated testing under UV-B to determine mechanical failure point for formulations of interest. The test film was a 150 micron octene-LLDPE monolayer. From here, the company developed two HALS packages.

IP1368 is an optimised, mid-range performance combination of greenhouse film stabilisers. The second, IP1369, is aimed at higher performance – with a recommended service life beyond four years, with pesticides exposure.

■ Proceedings from AMI's *Agricultural Film* virtual conference – which was held in October 2020 – are available from Rocio Martinez on +44 (0) 117 314 8111 (**rocio.martinez@ami.international**).

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Winding sheet: latest in slitters and rewinders

Recent slitting and rewinding installations include a huge new BOPP plant in China, and a US-based packaging producer that aims to raise production of lidding film

Slitting and rewinding is not often at the top of the list when it comes to planning a new production line – but one packaging manufacturer recently commissioned four new BOPP lines, with slitters to fit beside them.

Chinese company Yongguan is planning a €125 million investment in a new site to make "eco-friendly adhesive BOPP film tape". Its plan involves installing four lines to make BOPP film – and it has already fitted a Monoslit Giant from Italy-based **Goebel IMS**.

Goebel's slitter rewinders will work as primary slitters beside production lines supplied by Brückner Maschinenbau. Two production lines are 10.4m wide, while the other two are 8.7m wide.

The first machine – installed and launched in February – is an 11m Monoslit Giant with a slitting speed up to 1,500 m/min.

The first machine – installed and launched in February – is an 11m Monoslit Giant with a slitting speed up to 1,500 m/min. The second 11m primary slitter will be completed by 2021, while the slitter for the third and fourth lines – which are both 9m wide – will be completed by early 2022.

Later this month, the company will take part in Chinaplas and intends to display a range of its slitting and winding systems at the show.

Now, in its 170th anniversary year, Goebel is also undergoing a few changes. Tobias Lanksweirt has been appointed managing director of the German division Goebel Schneid- und Wickelsysteme – while remaining as sales director for the film business unit of Goebel IMS.

At the same time, the German-based division is moving to new premises in Darmstadt, Germany.

Main image: Preferred Packaging intends to raise output by using a Deacro slitter rewinder

Raising output

US-based packaging producer **Preferred Packaging** intends to raise production capabilities by adding a **Deacro** T610 turret slitter rewinder.

The machine, due to be installed this spring, will join three other Deacro machines that support film processing for making lidding film and other flexible film types. It will also help the company raise automation levels and throughput.

The company supplies sealing equipment, stock and custom containers, and lidding films to customers across North America – and is exploring opportunities in overseas markets.

"As film applications continue to gain in popularity, it's important to update efficiencies," said Rick Ivy, CEO of Preferred Packaging. "For us, that meant moving from standard slitter rewinder technology to greater automation."

Initially, the company could not justify buying a new automated turret machine, so it bought a used one to test the concept. This confirmed its ap-

Tips for maintaining slitter-rewinders

Davis-Standard – which owns slitter manufacturer Deacro – says that wear and tear on slitter-rewinders is inevitable.

"In a dynamic packaging market that demands shorter runs, more frequent tool changes, and multiple substrate requirements, increased equipment stress is just part of the deal," said the company.

Slitter rewinders run at high speeds with frequent cycles, so parts such as brakes, nip rollers, belts and motor drive systems need frequent maintenance.

A complete guide to maintaining a slitter rewinder – and how frequently – will be in the reference manual. However, Davis-Standard has produced a checklist of common items that need attention. This is a selection from the list.

Idlers: monthly
Check to see if idlers run freely and quietly. Verify condition of the covering – and replace or clean as required. Ensure bearing screws are tight and that idlers have not shifted.

Bow roller: every three months
Ensure it runs smoothly at high speed, that the sleeve has not separated from the bearings, and that the bowed roller has not shifted laterally – causing a drive belt misalignment. Also, check the drive assist belt for tension and wear -- and replace as needed.

Drive train: every three months
Inspect all drive belts for correct tension, including excessive wear and alignment problems.

Check alignment and condition of nip roller: there should be adequate contact with drive roller at the ends and in the middle.

Slitting System: frequently
Some items – such as position system functions or knife settings – can be checked every three months. However, others should be checked weekly, including:

Mechanical, Shear, Razor: Check shear holders for clamping on the dovetail, and condition of the shear blades. Ensure knife spindle bearings are in good condition with proper angular clearance. Check lower shear knives for sharpness and damage. Change blades as required.

Score system: Check score knives for wear, replace as needed. Ensure adequate cutting pressure. If there is excessive wear or grooving on score anvils, replace as needed.

It's important to refer to the manual that came with the slitter-rewinder, as it will have a complete listing of maintenance items and frequency of service. At the same time, it makes sense to keep it close to the equipment, for easy reference.

› **www.davis-standard.com**

proach – but it realised it needed a better model

"We purchased the T610 twin-turret duplex slitter rewinder and look forward to installation – because we know it will make an immediate impact on our production goals," he said.

The T610 model allows the operator to set up cores on the outer rewind mandrels during the slitter runtime. When rewinding is complete, the machine turrets the rewind shafts and automatically continues winding while finished rolls are unloaded onto a receiving tree. After the finished rolls are removed, new cores are positioned during slitter operation.

Another advantage is the differential rewind system, which compensates for web gauge variation. If there is a non-uniform web construction, the operator can easily rewind the film to where the glitch occurred and correct it.

Other benefits – such as touch-screen operation and automatic knife assembly – support repeatability. Operators never have to handle rewind tooling, shafts, set up knives or manually remove rolls, which simplifies operator training and improves safety.

Manual addition

UK-based slitter and rewinder producer **Atlas Converting Equipment** has added a manually operated push button roll pusher system to its Titan ER610.

The floor mounted, rack and pinion electrically driven roll pusher uses a fabricated steel arm to transverse the length of the rewind shafts. The rewind shafts are rotated backwards, which 'unchucks' the finished rolls. This allows the operator to save time by not manually unchucking the finished rolls or checking that any chucks maybe in the chucked (open) condition.

The pusher is rated for the maximum capacity the ER610 series machines can rewind. As finished roll products are increasing in size and weight, safety and ergonomics dictate that mechanical unloaders be used to save operators undue fatigue, stress and injury.

The Roll Pusher upgrade requires the machine to have the Ball Lock style rewind chucks on the machine and that the existing unloader lock securely to the end of the rewind shaft.

This all adds efficiency and safety to uploading completed cores from the Titan ER610, says the company.

Atlas has also upgraded its SR7 series of slitters, with updates to the PLC control system and software.

One upgrade involved replacing the existing

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Right: Atlas has added a manually operated push button roll pusher system to its Titan ER610 IMAGE: ATLAS CONVERTING

Viscomm/Siemens control PC with a new Siemens 827D PC. The existing 'slot' PLC is removed from the PC and replaced with a new and standard external Siemens PLC (S7-1516). The new PLC communicates with the new Siemens PC via Ethernet. The new PC is mounted into a new hood and fits on top of the existing control desk. The replacement PC is fully tested by Atlas in the UK.

The existing TP170 panels are obsolete and are replaced with new TP700 units. The upgrade requires some minor calibration after installation, says the company.

At the same time, web drives on most SR7 machines – which are obsolete 9326 drives – have been replaced with Lenze 8400 style drives. The upgrade replaces existing drives and modifies the control system to cater for them. New software allows the PLC to cater for the Profibus communications. Existing AC motors can be reused. The upgrade includes drives (main, unwind, upper rewind and lower rewind) and electrical control gear to suit the new drives.

Last year, Atlas became part of **Kampf** within the **Jagenberg Group**. Kampf, Atlas and Titan products will continue to be separate brands. The companies say that synergies between them will ensure long-term availability of installed machines by offering a common global service that covers all brands.

IT upgrade

Plastics packaging manufacturer **Walki** recently modernised its IT infrastructure – including an update of its trim optimisation operations – with help from **Greycon**.

"The goal of the transformation is to standardise processes – with the support of a modern and

reliable system – across our global network," said Wolfgang Thissen, executive vice president at Walki.

A central ERP will be set up to digitalise all Walki business processes across multiple locations. Greycon was chosen as the partner to deliver the Manufacturing Execution System (MES) solution, trim optimisation and planning & scheduling system.

Walki had four main objectives with the upgrade: improve overall operational efficiency; support flexibility throughout the supply chain; develop a system that allows fast, efficient fact-based decision making; and, raise systems usability.

To ensure these objectives were met, Greycon recommended combining all three of its solutions – Opt-Studio, for planning & scheduling; X-Trim for trim optimisation; and GreyconMill, for production tracking – into an MES solution integrated with a selected ERP system by Walki.

Walki said that the new, integrated solutions would allow it to capture important business data – enabling it to make informed decisions.

Abder Guezour, managing director of Greycon, said the project gave the company scope to show the full range of its solutions.

"As an industry specialist with in-depth experience in planning, optimisation and manufacturing execution solutions, we see ourselves as excellently prepared and look forward to assisting Walki achieve its objectives," he said.

IMAGE: GOEBEL IMS

Above: Goebel has installed a large slitter at Yongguan of China as part of its BOPP tape production

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Chinaplas returns with a new location in Shenzhen

IMAGE: ADSALE

Covid-19 caused Chinaplas 2020 to be cancelled, but the show is back at a large new venue in Shenzhen – and is the only major plastics event to go ahead so far this year

With so many plastics exhibitions and conferences still being cancelled or postponed, it seems incredible that a trade show is even going ahead at the moment. Yet **Chinaplas** – one of the largest international plastics exhibitions anyway – will take place this month. It is set to be the first major plastics show to run in more than a year.

Last year's Chinaplas was one of the first casualties of the emerging Covid-19 pandemic. It was originally due to take place in Shanghai in April 2020. The organisers pushed the date back to August, but later shelved the event entirely. Since then, many other major events – including Plast, NPE and Fakuma – have also been either cancelled or postponed.

Now, the 34th edition of Chinaplas will take place on 13-16 April 2021. It will be held in Shenzhen for the first time. The annual event will now alternate between Shenzhen (in odd-numbered years) and Shanghai (even years).

The last edition of the show to be held – Chinaplas 2019 – occupied 250,000 sq m at its Guangzhou location. This year's event will occupy 16 halls of the Shenzhen World Exhibition & Convention Centre, covering 350,000 sq m of exhibition space. Show organiser Adsale Exhibition Services says around 3,600 exhibitors will be in Shenzhen, similar to the number at Guangzhou in 2019.

"The Shenzhen convention centre is an ideal venue for a world-class trade show," said Norris Chu, project director of Adsale. "Its 400,000 sq m of indoor exhibition space can alleviate the constraint of booth area we experienced in Guangzhou and support the show's long-term growth. All 19 exhibition halls feature column-free structures and are located on the first floor – which is very suitable for displaying large-scale machines, and easy for visitors to navigate."

Around 160,000 people attended Chinaplas in 2019, but existing travel restrictions are likely to

Main image: Chinaplas will now alternate between Shenzhen and Shanghai

Foreign visitors unlikely at Chinaplas

Overseas visitors are likely to be a rarity at this year's Chinaplas, due mainly to restrictions on visiting the country.

The Chinaplas website tells foreign visitors that they must isolate for at least two weeks on arrival in China – with regular Covid-19 testing to be done during this period. Before travelling, they must have had a negative Covid-19 test (carried out two days before they leave). Visitors must also prove that they have been vaccinated – but this must be with a 'China-produced' vaccine.

While many countries allow travel abroad for business purposes, there are likely to be restrictions – such as isolation – on return. In the UK, for instance, those returning from abroad must self-isolate for 10 days. This would mean that attending Chinaplas – a four-day show – would require overseas visitors to spend more than three weeks or more in isolation, either side of their visit.

At the time of writing, many direct flights to China have been suspended, for instance. This would make it very difficult for many visitors to attend the show.

VDMA, which represents Germany machinery manufacturers, said nobody from the German office was planning to travel to Chinaplas – and that the German pavilion there was likely to be staffed by local (China-based) representatives. Other exhibitors have reported a similar approach.

affect this in 2021 – especially for overseas visitors. In 2019, around 31,000 overseas visitors – from 159 countries and regions – attended Chinaplas. However, stringent rules over entry into China – in order to control the spread of Covid-19 – are likely to reduce the number of international visitors (see separate box story). This year's Chinaplas has nine country/region pavilions – a slight decrease from the 11 pavilions in 2019.

Special events

As in previous years, Chinaplas 2021 will have several special events and feature areas – ranging from plastics design to medical technologies.

The 'Industry 4.0 Factory of the Future' event will highlight the benefits of digital manufacturing, including improved customer and supplier engagement, optimising production efficiency and cost-effectiveness and automated process monitoring and quality control. Workshops will introduce the application of Open Platform Communication Unified Architecture (OPC UA) to the industry. The event is organised by Adsale, iPlast 4.0, Euromap, VDMA and OPC Foundation.

Below: BASF will focus on sustainability at this year's event

IMAGE: BASF

Tech Talk will showcase a range of advanced technologies across the plastics spectrum – and how they are applied to industries such as telecoms and automotive. One area of interest to film and extruders is 'Automated Precision Manufacturing', which focuses on "precise extrusion and injection moulding and moulds for manufacturing high-precision parts".

Other events and features include Medical Plastics Connect, Design x Innovation and an event on recycling and the circular economy.

However, the main focus of the show will be the exhibition itself. While machinery companies will dominate – with Adsale saying there are more than 3,800 machinery exhibits expected at this year's show – a number of materials specialists will also be showing new products.

Sustainable focus

One example is **BASF**, which says it will highlight its innovations in sustainability – including low-emission and energy-efficient solutions for automotive and a range of sustainable materials.

"Our showcase at Chinaplas will reflect our commitment to sustainability – how we help our customers to be more successful and achieve their sustainability targets," said Andy Postlethwaite, senior vice president of performance materials for Asia Pacific at BASF.

BASF's compostable – and partly bio-based – Ecovio material can be used in a variety of applications and fit with China's plan to reduce single-use, non-biodegradable plastic products over the next five years, says the company.

Ecovio can be used in soil-biodegradable agricultural films and certified compostable food packaging and film applications like bags for the collection of organic waste or fruit and vegetable

bags. After use, these applications can be composted together with organic waste by industrial composting.

At the show, BASF will also present new co-created products, including a fridge, cold storage and trunk floor made of polyurethane (PU) waste.

Market debut

Also, **Borouge** will hand a debut to Anbiq – an "enhanced LLDPE resin" produced using its Borstar bimodal technology, that includes "smart catalyst design and comonomer incorporation".

The company says that Anbiq offers a balance of mechanical properties, sealing performance, easy processing and good optics for flexible film applications. Borouge has developed a number of successful solutions of recyclable, circular packages, using PE and PP products Anteo, Anbiq and Borstar. These have been commercialised into applications including an all-PE solution to replace PET in detergent pouches, and a new e-commerce solution containing both virgin and recycled PE.

Borouge says that Anbiq FM1810/FM1818 can be processed by most types of blown film equipment such as LDPE, LLDPE or HDPE extruders. Blending in a minimum 5% LDPE will improve its optical properties, it says. The material enables energy saving by processing at lower temperature and motor load with excellent bubble stability, it added.

Other recent uses of Anbiq include: as the basis for mulch films in India; for oil packaging film in Pakistan; and for higher strength ice bags in Malaysia.

Adding value

US-based additives manufacturer **SI Group** says it has a strong presence in Asia Pacific – and has growth plans for the region

"The changing demands in the polyolefins industry require increased innovation and deeper partnerships," said Chuck Reardon, VP of plastics solutions at the company. "We continue to invest in the region and develop leading solutions that meet our customers' needs with the global footprint to support them."

At the show, the company will highlight some of its latest innovations, including Weston 705, Ultranox LC, and Naugard E-1 antioxidants and stabilisers.

Weston 705 liquid antioxidant is SI's proprietary antioxidant for the stabilising polyolefins and synthetic elastomers and is globally available. Ultranox LC is a new platform of solutions that delivers superior colour stability and colour reduction for demanding polypropylene (PP) and biaxially-oriented PP (BOPP) applications. Naugard E-1 is a high-efficiency stabilisation solution for elastomers that is nonylphenol-free and provides better colour protection, says the company.

Material choice

At Chinaplas, **Albis** will present a range of products from its partners – including Covestro, LyondellBasell, Ineos Styrolution, Lanxess, Wipag and Mocom – the former compounding unit of Albis. It will focus on materials for healthcare applications, lightweight solutions and sustainable products.

Mocom offers brands including Altech, Alcom and Tedur. Despite limited allocation of material and import duties for certain products, it can deliver customised alternatives based on locally sourced raw material.

"Chinaplas is an ideal forum for introducing customers and partners to relevant solutions and example applications," said Hans Rukes, managing director for the Asia-Pacific region at Albis – who points out that a future growth rate of more than 6% per year has been announced for the Chinese market.

Asian expansion

However, the majority of the exhibits will be machinery related. **Davis-Standard** will exhibit a range of its extrusion technologies – from cast and blown film to sheet and thermoforming.

The company says that its China-based subsidiary, Davis-Standard (Suzhou) Machinery, is central to its customer focus and expansion in Asia. Developments in machine building and assembly, inventory and aftermarket services, field service engineering, and installation at customer sites have been essential to supporting customers, it says.

Suzhou is also the site of R&D capabilities for testing rigid and flexible packaging products. In 2019, Davis-Standard added a 35,000 square foot (3,251 sq m) facility near the existing Suzhou shop.

At Chinaplas, the company will highlight its DSX

IMAGE: DAVIS-STANDARD

Below: Davis-Standard's DSX Flex-pack 300S extrusion and lamination line is built specifically for the Asian flexible packaging market

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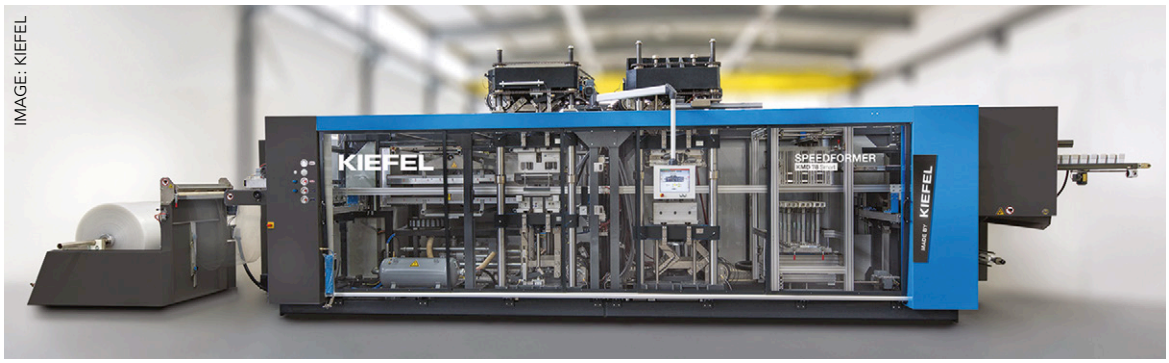

IMAGE: KIEFEL

Right: Kiefel will highlight its thermoforming expertise at this year's show

Flex-pack 300S. The single-station extrusion and lamination line is a collaboration between its design teams in the USA, Germany and China. It is built at the Suzhou facility to meet the requirements of the Asian flexible packaging market. It helps converters by balancing the pricing, machine footprint, output and technical attributes required by Asian customers. The 300S can support web widths from 650 to 1,350mm and is engineered for processing rates up to 300 meters per minute. Features of the line include consistent end-product quality, greater uptime and productivity, reduced waste and application versatility, says Davis-Standard.

The company has also incorporated interconnectivity and functionality into its machinery, including DS Activ-Check – which monitors key parameters of a converting line (such as extruders, coaters and winders) to provide early notification of potential failure.

Visitors can also learn about technology from recent Davis-Standard acquisitions. These include: Brampton Engineering, which has further supported regional infrastructure for blown film applications; Thermoforming Systems, which offers solutions in sheet extrusion, tooling, automation, and granulating for thermoforming; and Deacro Industries, which produces slitting, rewinding and roll handling equipment.

Thermoforming showcase

Kiefel will highlight a number of its thermoforming technologies at this year's Chinaplas – including its Speedformer and Sharpformer machines.

Its steel rule cutting machine Speedformer KMD 78 Smart, will be shown live at the show for the first time. It is used to manufacture food and non-food plastics packaging using various materials such as PET, PP, PS, PLA, PE and recycled plastics. It offers maximum output and efficiency in mass production and is economical even for small quantities, says the company

The Speedformer is a standard machine that can increase profit and reduce production costs through the use of accurate servo-driven tables, fast and easy tool change and HMI, says the company. The forming station with third motion servo-plug-drive guarantees optimal material distribution, it says. As stacking is the first step into automation, the platform also offers three stacking solutions. Kiefel says that its 'kiss cut' technology ensures reliable stacking, extended knife service life and minimised labour costs.

Kiefel machienes can also be used to make refrigerator components – such as inner liners and door liners – from materials including HIPS and ABS. Multiple colours of a single material can be handled on one machine. Both simple and complex shapes can be produced with a Sharpformer KID vacuum-pressure forming machine, with an output up to 150 pieces per hour. A Sharpformer machine will also be presented at the show.

Cementing its reputation

Starlinger of Austria is to highlight its cement packaging and plastics recycling technologies at Chinaplas 2021.

High performance cement bags are a particular focus in China: over the next year, Chinese cement producers must switch their packaging to one of the three cement sack types specified in a new national standard. Among these are Adstar block bottom valve sacks – made of plastic fabric – from Starlinger.

"Since it was established that the our Adstar

IMAGE: STARLINGER

Right: Demand for Starlinger's Adstar block bottom valve sacks is rising in China due to new rules on cement packaging

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IMAGE: MAAG

Right: Maag will show the Ettlinger ERF350 melt filter at the exhibition

block bottom valve sacks meet the specifications of the National Standard, demand for them in China is skyrocketing,"said Herman Adrigan, head of sales at Starlinger. "We are delivering conversion lines for an additional 2 billion sacks to China until 2022."

Although Starlinger will focus on Adstar production technology, it will not be presenting its latest technological developments on a live conversion line during the show.

The sacks are made of laminated PP tape fabric using a special welding process. The plastic fabric is highly durable and break-resistant and protects the contents from moisture. These characteristics make for a sustainable cement packaging solution, by reducing waste caused by broken sacks.

Starlinger will also focus on post-consumer recycling – including waste such as containers or films made of HDPE, PP, PE or PET.

One feature of this will be its odour-removal technology – which affects products such as LDPE post-consumer films from household and agricultural waste. The company's odour extraction technology solves this by removing the substances that cause the odour – because if they remain in the regranulate, unwanted smells can develop during the manufacture of new products.

Starlinger C-Vac modules and odour extraction units for effective odour reduction are already being used successfully in many different applications.

High-quality, odour-free regranulate can increase the use of recycled materials in new products, says the company. Paul Niedl, head of sales for Starlinger's recycling technology, said: "If recycled materials can replace virgin materials in part or even totally, this will be another important step towards a circular economy."

Performance filtration

Maag, which supplies a wide range of plastics technologies, will showcase a number of them at Chinaplas.

The centrepiece of its booth will be the Ettlinger ERF350, a high-performance melt filter for filtration of contaminated polymer feedstock. The self-cleaning filter has a rotating, perforated drum – through which melt flows continuously from the outside to the inside. A scraper removes contaminants from the surface and feeds them to the discharge system. This allows the filter to operate automatically, without disruptions over long periods – and without having to replace the screen. Advantages include low melt losses and good mixing and homogenising of the melt.

Maag will also present its Extrex gear pump in the X6 class design. Maag has re-engineered and redesigned its components – from shafts through to bearings and seals – and optimised the interaction of the components. Specially developed gear teeth with low compression allow high pressures to be achieved with low shear rates. This further increases product quality, volumetric efficiency and produc-

tion consistency and safety, says the company.

Feeding time

Coperion K-Tron will present a range of its latest plastics processing technologies at Chinaplas.

An example is the K2-ML-D5-T35/S60 Quick Change feeder. It features the ActiFlow smart bulk solid activator and Electronic Pressure Compensation (EPC) in combination with a 2400 Series vacuum receiver for refill.

The T35/S60 on display is designed for applications requiring quick changeover of materials and the convenience of fast cleaning. The QC feeder allows for the removal of the entire feeding module with screws in place for replacement with a second unit. The removed feeding module can then be transported to a cleaning facility for further disassembly, cleaning and preparation for another material.

Twin and single screw feeding modules are available. Single screw feeding units handle free flowing powders, granules, pellets and other non-flooding materials, while twin screw units are ideal for floodable powders and more difficult, sticky or hard-to-flow materials.

The ActiFlow smart bulk solid activator offers an innovative method to reliably prevent bridging and rat-holing of cohesive bulk materials in stainless steel hoppers without internal hopper agitation. ActiFlow is a non-product contact device, consisting of a patent-pending vibratory drive and intelligent control unit. It is designed to work with the company's line of gravimetric loss-in-weight feeders. Together with the ActiFlow control unit, it continuously activates the material inside the hopper with an optimised frequency and amplitude, without exerting any mechanical force on the bulk material.

The 2400 series vacuum receivers provide a high-capacity sequencing system primarily used where larger conveying rates or long distances are required, in applications with one or multiple destinations. They are designed to high quality standards for pneumatically conveying powder, pellets and granular materials for the bulk materials handling industries. Conveying rates range from 720-15,000 lbs/h (327-6,804 kg/h).

IMAGE: MORETTO

Left: The design of Moretto's DGM Gravix gravimetric dosing unit helps it cope with vibrations

Good vibrations

Moretto will exhibit a range of its technologies at the forthcoming Chinaplas show.

Firstly, it will showcase its DGM Gravix gravimetric dosing unit. The machine ensures production flexibility and high precision, even in presence of vibrations – thanks to its Vibration Immunity System (VIS). The unit can be installed directly onto processing machinery, including extruders. Thanks to its multiple connections, it allows real time production traceability.

"China is an important growing market for us," said Silvia Moretto, marketing manager at the

IMAGE: AMUT

Above: Amut will highlight its extrusion lines for PVC and TPO waterproof membranes

company. "Chinaplas will not only be an opportunity to showcase our products, but above all a return to direct contact with our customers."

The company will also show X Comb, a compact and fully electric mini dryer. It helps to ensure full polymer dehumidification thanks to homogeneous treatment of the material inside the OTX (Original Thermal eXchanger) hopper. This solves the problem of falling flows to guarantee uniform dehumidification more quickly, which the company says makes it more than 66% more energy efficient than conventional hoppers. The dryer can be installed on the machine's throat with fast and immediate programming: the user only has to set the material type and hourly throughput.

The dryer can be combined with Moisture Meter, a moisture analyser specifically designed for plastic granules. Moisture Meter uses patented Power Peak technology to allow in-line and just-in-time moisture measurement – eliminating any offline analysis. It ensures that the polymer enters the processing machine at the correct dehumidification level.

Measured approach

Sikora will present a range of its measuring, control, inspection, analysis and sorting systems at Chinaplas.

For online inspection and sorting of plastic material, the company offers its Purity Scanner Advanced, which combines an X-ray with up to three optical cameras. This means that metal inclusions down to 50 microns in raw material can be detected. At the same time, the optical cameras can detect black specks and burns on a pellet's surface. Once detected, faulty pellets are immediately removed via compressed air. Integrated software provides the operator with a statistical evaluation including information about the size, area and number of the detected contaminants during production.

Extrusion range

Amut of Italy says it will show a range of its extrusion, recycling and thermoforming solutions at Chinaplas this year.

The company offers a range of extrusion plants for making sheets and panels, r-PET sheet, waterproof membranes and other products. Amut will also show cast lines for making stretch film.

A highlight will be its extrusion lines for PVC and TPO waterproof membranes, for which it has a large number installed in China – in response to a growing construction sector. During a recent supply contract for a customer, Amut completed the mechanical and electrical assembly of the system within five weeks.

Lines for the production of thermoplastic PVC and TPO waterproof membranes can be designed with a single or double calender system. Amut says that its experience in making waterproof membranes has led to it developing a 'single calender' system. This configuration allows a co-extruded, three-layer membrane to be made in a single step – which includes adding the inner reinforcement and the fleeceback scrim bonding for support. The result is a finished membrane with five materials/layers, made in a single step.

CLICK ON THE LINKS FOR MORE INFORMATION:

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Chinaplas 2019 – Key Information

Dates: 13-16 April 2021 **Opening Hours:** 09:30-17:00
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MEDICAL

Deep cleaning for blown film dies

Pharmaceutical packaging manufacturer Polycine of Germany is using vacuum pyrolysis cleaning technology from Schwing to ensure that its blown film dies and tubing die heads are free of residues.

Polycine's products include three-layer films and tubes, which are used as primary packaging for pharmaceutical or medical products. So, they must be produced in a high-class cleanroom environment.

"We monitor and control the entire production process online to ensure the highest product quality," said Gert Klemann, technical manager at Polycine.

The company is using Schwing's vacuum pyrolysis system (Vacuclean) to remove polyolefins from the

die, without leaving any residue. This results in clean channels that guarantee consistent flow behaviour of the melt and avoid cross-contamination.

There are significant advantages compared to mechanical cleaning methods – or the use of cleaning granules, chemicals, welding torches or flames – says Klemann.

"The blown film die head can be cleaned, assembled and dismantled with minimal effort and without any damage," he said.

Polycine regularly uses six blown film dies and two tubing die heads. How often they are cleaned depends on the individual production orders: there is no specific cleaning interval. With Vacuclean, parts can be fully cleaned and returned to production – which reduces maintenance costs, plant downtime and production losses.

During the cleaning process, a multi-layer blown film die head is processed in a Vacuclean system. It can clean die heads with diameters up to 1.7m that weight up to 12 tonnes. First, any plastic inside the die head is gently melted off under vacuum. Any remnants are further heated to around 450°C.

› **www.schwing-tech.com**

ANCILLARIES

Maguire buys into Newton

US-based Maguire Products has bought a minority stake in OA Newton, a supplier of storage, conveying and blending systems for industries including WPC production and both rigid and flexible PVC.

Maguire is best known for its gravimetric blenders, liquid colour pumps and vacuum dryers but also makes loading systems, auger feeders, granulators and software at six locations in Aston, Pennsylvania.

"This investment broadens our offering to the plastics industry and allows us to serve markets that we would otherwise never reach with our current product line," said Steve Maguire, president of Maguire.

› **www.oanewton.com**

› **www.maguire.com**

DOSING

Software update helps with remote installation of dosers

Movacolor has developed an updated version of its software for dosing plastic additives.

The new software includes extra features such as sensor neck integration, fast calibration options and a single shot test button for taking verification samples. It is also possible to contact support staff from Movacolor directly, via remote control.

"We would normally travel a lot to customers to help with installation or to provide support – but this is not an option during the Covid-19 pandemic," said Gerhard Dersjant, managing director of Movacolor. "We have made it our mission to serve our partners as best we can remotely. This new software allows us to help by temporarily taking over control of a machine that is thousands of kilometres away."

The software is available in 20 languages and is free of charge.

› **www.movacolor.com**

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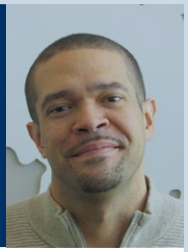

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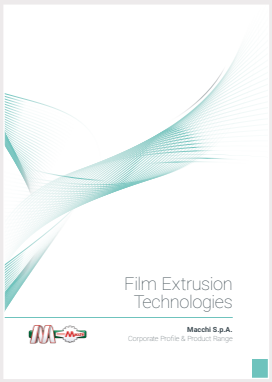

This 28-page brochure from Macchi covers the company's wide range of film extrusion technologies including coextrusion lines, wide webs, die heads, take offs, winders, trim recovery and control systems.

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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.

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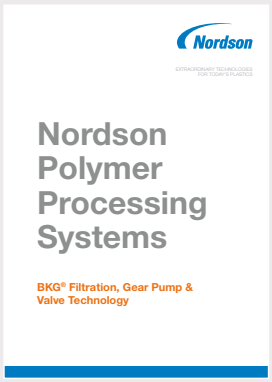
NORDSON: FILTRATION SYSTEMS



The BKG range of filtration systems and screen changers from Nordson Polymer Processing Systems are detailed in this six-page brochure which also features products from BKG's ranges in gear pump and valve technologies.

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PALSGAARD: PLANT-BASED ADDITIVES

Palsgaard produces an extensive range of sustainable, plant-based additives that can be used to enhance the performance and processing of many polymers. Find out more about its products and how to use them in this brochure.

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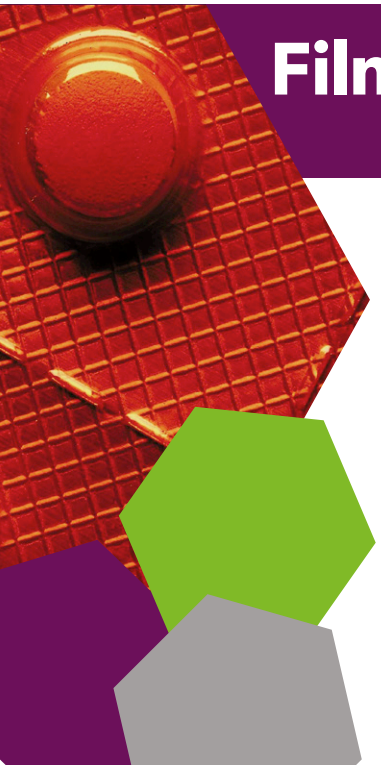
If you would like your brochure to be included on this page, please contact Claire Bishop claire.bishop@ami.international. Tel: +44 (0)1732 682948

Oben Group

Head office:	Lima, Peru
CEO:	Jamil Zaidan Saba
Founded:	1991
Ownership:	Private
Employees:	Around 1,800
Profile:	Oben Group, formed in 1991, produces a wide range of bioriented plastic film – using materials including polypropylene, polyester and nylon. These are used to make flexible packaging, coated films for the graphic industry and thermoformed PP products. The company's products include BOPP, BOPA and BOPET film, as well as extrusion-coated and metallised film.
Product lines:	The company's main focus is films – and it claims a portfolio of more than 150 different types. These include: CPP, BOPP, BOPA and BOPET films, which are typically used in applications such as food packaging. Its main output is BOPP film: it claims an output of 300,000 tonnes/year, on 12 lines, in five different countries. BOPET and CPP are made in Peru. The company also makes thermoformed products, including PP cups, lids, tubes and containers. This is a relatively small proportion of its output and is made in Ecuador and Colombia.
Factory locations:	Oben has 11 production plants in six countries: Argentina, Chile, Peru, Ecuador, Colombia and El Salvador. This gives it a total capacity of over 550,000 tonnes/year. In addition, the company recently acquired Poligal, which has CPP and BOPP film plants in Portugal and Poland. Earlier this year, Oben also opened a new 52,000 tonnes/year BOPET line at its facility in Barranquilla, Colombia, which will begin production in July.

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



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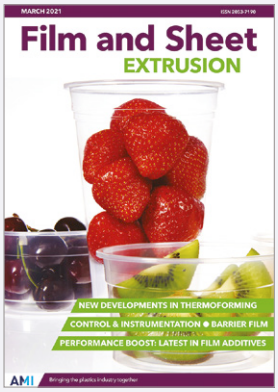

Film and Sheet
March 2021
The Film and Sheet Extrusion March edition contains a lead feature on advances in thermoforming, including PET replacement and the growing incorporation of recycled content. Other features cover film additives, barrier packaging materials and controls/instrumentation.

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Film and Sheet
January/February 2021
The January/February 2021 edition of Film and Sheet Extrusion looks at how some polymer industry players have stepped up to take on the Covid pandemic. It also examines development in bioplastics, polyolefins and materials testing technology.

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Compounding World
April 2021
Features in the April issue of Compounding World cover compounds for electric vehicles and impact performance, along with small batch compounding, process aids, a preview of Chinaplas 2021 and an interview with PVC compounder Benvic.

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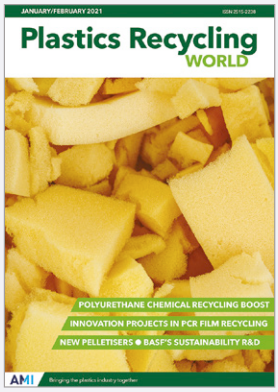

Plastics Recycling World
January/February 2021
The January/February edition of Plastics Recycling World looks at how chemical recycling technology could be utilised to recycle polyurethane foams. It also explores some of the latest developments in post-consumer film recycling and pelletising equipment.

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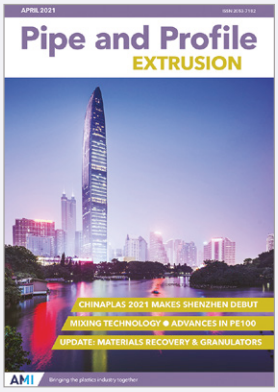

Pipe and Profile
April 2021
The April edition of Pipe and Profile Extrusion previews the Chinaplas trade fair, the first international plastics show to take place since the pandemic hit. It also looks at the latest developments in PE100 pipes, batch mixers and in-plant recycling equipment.

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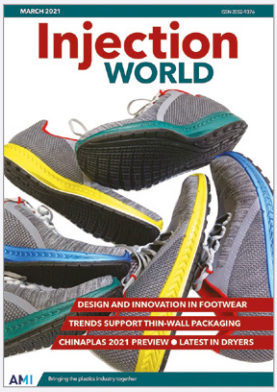

Injection World
March 2021
The March edition of Injection World magazine looks at how footwear producers are using new materials and process technologies to lift their designs. It also reviews the latest trends in thin wall packaging production and explores recent developments in materials drying equipment.

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Compounding WORLD
Film and Sheet EXTRUSION
Pipe and Profile EXTRUSION
Injection WORLD
Plastics Recycling WORLD

GLOBAL EXHIBITION GUIDE

2021	**13-16 April**	Chinaplas, Shenzhen, China	www.chinaplasonline.com
	14-18 September	Equiplast, Barcelona, Spain	www.equiplast.com
	21-23 September	Plastics, Printing & Packaging, Dar-es-Salaam, Tanzania	www.expogr.com/tanzania/pppexpo
	29-30 September	Plastics Extrusion World Expo Europe, Essen, Germany	https://eu.extrusion-expo.com
	12-16 October	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de
	25-27 October	Plastic Print Pack Nigeria, Lagos, Nigeria	www.ppp-nigeria.com
	3-4 November	Plastics Extrusion World Expo North America, Cleveland, USA	https://na.extrusion-expo.com
	8-12 November	Plastico Brasil, Sao Paolo, Brazil	www.plasticobrasil.com.br
	15-18 November	Arabplast, Dubai, UAE	www.arabplast.info
	1-3 December	Plast Print Pack West Africa, Accra, Ghana	www.ppp-westafrica.com
2022	**25-28 January**	Interplastica, Russia, Moscow	www.interplastica.de
	17-21 February	PlastIndia, New Delhi, India	www.plastindia.org
	8-11 March	Plastimagen, Mexico City	www.plastimagen.com.mx
	5-8 April	FIP, Lyon, France **NEW DATE**	www.f-i-p.com
	26-30 September	Colombiaplast, Bogota, Colombia **NEW DATE**	www.colombiaplast.org
	3-7 October	Plastex, Brno, Czech Republic **NEW DATE**	www.bvv.cz/en/plastex
	1-3 December	Plastic Print Pack West Africa, Accra, Ghana **NEW DATE**	www.ppp-westafrica.com

AMI CONFERENCES

20-22 April 2021	PVC Formulation North America **VIRTUAL SUMMIT**
1-3 June 2021	Plastic Pouches **VIRTUAL SUMMIT**
8-10 June 2021	Stretch & Shrink Film **VIRTUAL SUMMIT**
22-24 June 2021	Thin Wall Packaging **VIRTUAL SUMMIT**
28-30 June 2021	Multilayer Flexible Packaging **VIRTUAL CONGRESS**
27-29 July 2021	Smart Packaging **VIRTUAL SUMMIT**
Dates TBA	PVC Formulation Asia, Bangkok, Thailand

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

www.ami.international

PLASTICS RECYCLING WORLD EXPO

POLYMER TESTING WORLD EXPO

29 - 30 September, 2021

ESSEN, GERMANY

PLASTICS EXTRUSION WORLD EXPO

COMPOUNDING WORLD EXPO

3 - 4 November, 2021

CLEVELAND, OHIO

www.ami.international/exhibitions