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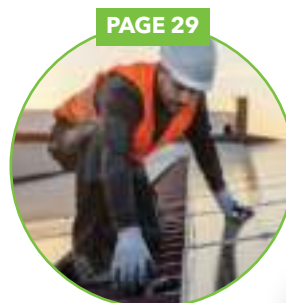
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# Davis-Standard will acquire Battenfeld-Cincinnati owner

US-based extrusion equipment maker Davis-Standard is to buy Extrusion Technology Group (ETG) from Dutch investment firm Nimbus.

Companies within ETG include Battenfeld-Cincinnati, Exelliq (formerly Greiner Extrusion) and Simplas.

The acquisition is subject to customary closing conditions. Terms

of the deal were not revealed.

"Acquiring ETG will be highly complementary to Davis-Standard, and we believe it will allow us to provide a broader and deeper product portfolio to our customers," said Giovanni Spitale, CEO of Davis-Standard.

Since December 2021, Davis-

Standard has been majority-owned by Gamut Capital Management.

Gerold Schley, current CEO of ETG, said: "We believe this merger will create a diversified global supplier of extrusion equipment."

He will join Davis-Standard and continue to manage the ETG business.

➤ <https://davis-standard.com/>

## Trinseo shuts sheet facilities

Trinseo has closed three of its acrylic (PMMA) sheet plants.

The facilities are in Denmark (Bronderslev), Italy (Rho) and the US (Belen, New Mexico). In addition, it has closed a styrene manufacturing operation in the Netherlands.

Materials produced at the three closed PMMA sheet plants will now be made by other Trinseo facilities - primarily Saint-Avold in France, and Florence in the US.

Between them, the closures - and other cost saving measures - are expected to save around US\$75 million per year.

"Given reduced European demand - and global styrene capacity additions - we believe we can support our downstream business through market purchases," said Frank Bozich, CEO of Trinseo.

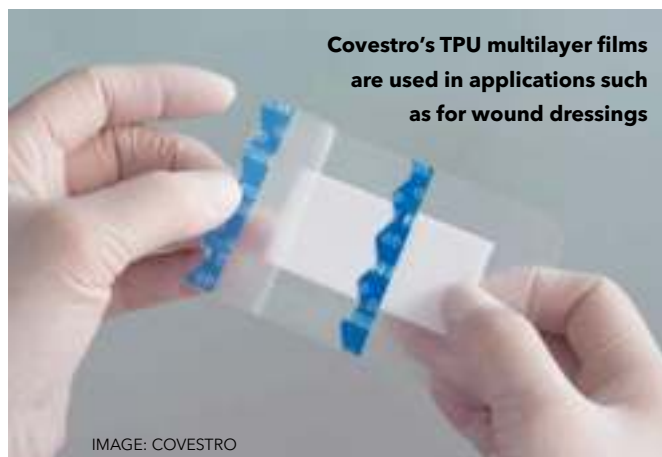
➤ [www.trinseo.com](http://www.trinseo.com)

## TPU film expansion in Germany

Covestro has expanded production of Platilon thermoplastic polyurethane (TPU) films at its plant in Bomlitz, Germany.

The company has invested a low double-digit million Euro amount to expand the facility of its subsidiary, Epurex Films.

The new capacity will meet growing global demand for multi-layer TPU films, it says, which are used in applications such as automotive interiors and construction. Breathable, water-impermeable speciality films are used in wound



care and outdoor clothing.

"With this expansion, we are strengthening the Bomlitz site and our position as a supplier of technical

speciality films," said Thorsten Dreier, chief technology officer at Covestro.

➤ [www.covestro.com](http://www.covestro.com)

## Thai PLA plant to start in 2025

NatureWorks says it will begin full production at a new 75,000 tonnes/year PLA plant in Thailand in 2025.

The plant will include three manufacturing facilities: lactic acid fermentation; lactide monomer production; and polymerisation. It will produce the full portfolio of Ingeo grades.

"The construction is a significant undertaking that

represents our continued investment in the Asia-Pacific region and the expansion of the bio-based materials market," said Steve Bray, VP of operations at NatureWorks.

He said the new facility will allow the company to satisfy growing demand for its Ingeo PLA in the region.

Polymer produced at this site will be made from

sugarcane, sourced from farms within a 50km radius of the Nakhon Sawan site, said the company.

Jill Zullo, CEO at NatureWorks, added: "The market's evolution has redefined the scope of what we can accomplish, allowing us to think bigger when it comes to our manufacturing expansion."

➤ [www.natureworkslc.com](http://www.natureworkslc.com)



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# Blown film line with MDO lifts capacity of mono-material film

Polish packaging manufacturer ERG has invested in its first line from Hosokawa Alpine, to make mono-material film.

It has installed a seven-layer blown film line - with inline machine direction orientation (MDO) - allowing it to make films that are more easily recyclable. In addition, the new line has helped raise production capacity by 30%.

"Our vision is the sustainable production of packaging that meets customers needs while minimising impact on the environment," said Tomasz Gwizda, commercial director at ERG.

One product made on the line is ERG's Premium PE-MDO film. This is a seven- or 14-layer film for printing and laminating. As mono-material packag-

IMAGE: HOSOKAWA ALPINE



ing, it is more easily recyclable, says the company.

"Due to its unique mechanical properties, the film is suitable for both surface and interlayer printing in flexo,

offset and digital printing," said Gwizda.

Hosokawa's MDO technology is based on monoaxial stretching of blown film. The stretching process reduces the film thickness while improving optical and mechanical properties - including barrier properties, transparency or processability. Stresses created during stretching are reduced in the later annealing phase - then the film cools and compensates for thermal shrinkage.

Richard Hausner, sales manager for Poland in the Hosokawa Alpine's film extrusion division, said: "The raw material requirement can be reduced with this technology in a resource-saving way - and efficiency can be increased."

> [www.hosokawa-alpine.com](http://www.hosokawa-alpine.com)

## Expanding graphics collaboration

Printing and decoration company Leonhard Kurz of Germany has bought Canyon Graphics - a US-based specialist in printing, thermoforming and other techniques.

Canyon operates internationally and employs more than 60 people.

"We welcome Canyon into our group and anticipate collaborating with a company that operates in such captivating market segments," said Rainer Suessmann, executive senior vice president for plastic decoration at Kurz.

Thomas Hertlein, CEO of

US-based Kurz Transfer Products, added: "Canyon's proficiency in engineering and supplying IML parts in the US perfectly complements our strengths in crafting decorative plastics components and flexible sensors."

> [www.kurz-world.com](http://www.kurz-world.com)

## IN BRIEF...

September's **Plast** exhibition in Milan, Italy, attracted 38,000 visitors, according to event organiser Promoplast. Attendance was down by around 40% on the previous show in 2018, which took place before the Covid pandemic. Even so, the organisers described it as a "good result in an increasingly complex international context".

[www.plastonline.org](http://www.plastonline.org)

US film extruder **Novolex** is to close its plant in Coldwater, Ohio, which makes customised mono and co-extruded blown films bags. The plant will be wound down in December 2023, resulting in around 60 job losses.

[www.novolex.com](http://www.novolex.com)

## Sonoco plant to close down

US-based packaging specialist Sonoco is closing a thermoforming plant in Indiana, with the loss of more than 60 jobs.

The facility, in Fremont, was originally acquired when Sonoco bought Thermoform Engineered Quality in 2019, said a report in local news outlet

*Inside Indiana Business.*

"As part of ongoing operational improvement programs, we continue to evaluate our manufacturing footprint based on long-term economic viability and the ability to cost effectively serve our customers," said a Sonoco spokesperson in the article. "Against this back-

drop, we have made the difficult decision to close the Fremont facility."

The first phase of the closure will take place in December, while some employees will be kept on for production and facility shutdown activities until it finally closes in June 2024.

> [www.sonoco.com](http://www.sonoco.com)

## Improving plastic sheets and rigid food packaging

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Top: Partly coated with anti-fog



Bottom: Stacked packaging, coated with anti-block

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# Sales decline in oriented film

Manufacturers of oriented film have reported a decline in both sales and profits in the first half of the year.

In its latest business confidence survey of oriented film producers, *Orientate* magazine - published by AMI - reported falling sales and profits. Over the last six months, two-thirds of survey respondents reported a dip in sales - though 13% reported a sales increase. Just over half of respondents saw a drop in profit margins. In the 10 years of the

survey, these figures are unprecedented, said AMI.

A large imbalance between supply and demand is a major factor behind the results. Despite this, respondents have some confidence that the market is improving: a quarter of respondents believe the market will decline over the next six months. (Last year, that figure was nearly 50%.)

Producers of biaxially oriented film were more confident: 61% expect a stronger performance over the next

six months, 40% expect the economy to improve and 39% are more likely to invest in new plant and equipment.

Overall, 55% of oriented film producers do not expect to make changes to their investment plans. Those looking to increase their investments fell to 24% (from 33% last year) - the lowest figure since the survey began. Only 7% of respondents expect to cut their investments.

➤ <https://www.amiplastics.com/market-intelligence/orientate>

## Plaskolite acquires Vycom

US-based Plaskolite is to acquire plastic sheet maker Vycom from Azek.

The transaction is expected to close by early November.

Based in Pennsylvania, Vycom manufactures olefin and PVC thermoplastic sheet for markets including semiconductors, marine, industrial and graphics. Its products are often specified for their performance in fire and chemical resistance, it said.

"Vycom recycles and reuses 99% of its scrap, which will expand Plaskolite's involvement in sustainability and recycling," said John Szlag, co-president of Plaskolite.

Plaskolite, which is partly owned by Pritzker Private Capital, supplies a range of sheet products in materials including acrylic, polycarbonate, ABS and PET.

➤ [www.plaskolite.com](http://www.plaskolite.com)

## BASF app delivers CO<sub>2</sub> data

BASF has released a new digital application designed to give customers a better overview of the sustainability status of the product portfolio they purchase while helping them identify solutions to reach sustainability targets.

The app, called MyCarbonFootprint, contains data on more than 700 selected large volume BASF products. Using the app, the company says customers can determine how adjustments in their purchasing portfolio affect their sustainability status in terms of CO<sub>2</sub> emissions and use of renewable raw materials.



The MyCarbonFootprint app carries data on more than 700 BASF products

IMAGE: BASF

■ BASF has also launched what it claims are the first biomass balance plastic additive offering. The first two introductions are Irganox 1010 BMBcert and Irganox 1076 FD BMBcert,

both certified by TÜV Nord for mass balance according to the ISCC Plus scheme. The grades are drop-in replacements for Irganox 1010 and Irganox 1076.

➤ [www.basf.com](http://www.basf.com)

## Mitsubishi ups EVOH capacity

Mitsubishi Chemical Group (MCG) is increasing its annual production capacity of Soarnol ethylene vinyl alcohol copolymer (EVOH) resin at its plant in the UK by 21,000 tonnes to 39,000 tonnes.

Construction is already underway, with the new capacity expected online in July 2025. It will take the group's global capacity, which is spread across sites in Japan, the US and the UK, to 90,000 tonnes.

Soarnol is a high gas-barrier resin suitable for use in long shelf-life food packaging. Multilayer films containing the resin are certified as recyclable when used with the group's recycling compatibiliser Soaresin, according to the company.

The group said it anticipates solid growth in global demand for Soarnol in the coming years.

➤ <https://mitsubishichemical.co.uk>



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# New protocol to test nanoplastics

Finnish researchers have published what they say is the first harmonised exposure protocol for ecotoxicity testing of micro- and nanoplastics.

Existing ecotoxicity studies often use commercial spherical particles as models for micro- and nanoplastics (MNPs), said the researchers – even though, in nature, they occur in variable shapes, sizes and chemical compositions.

“Moreover, protocols developed for chemicals that dissolve or form stable dispersions are currently used for assessing the ecotoxicity of MNPs,” said the researchers, from the University of East Finland. “These protocols are not optimal for studying MNPs, as plastic particles do not dissolve and also show dynamic behaviour in the exposure medium.”

The new exposure protocol considers the particle-specific properties of MNPs and their dynamic behaviour in exposure systems. It enables, for instance, the production of more realistic MNPs that resemble those in nature. The protocol also describes exposure system development for short- and long-term toxicity tests for soil and water organisms.

The researchers give examples of using the protocol to test, for example, MNP toxicity in marine rotifers, freshwater mussels, daphnids and earthworms. The protocol takes between 24 h and two months, depending on the test of interest, said the researchers.

The research was published in *Nature Protocols*.

> [www.uef.fi](http://www.uef.fi)

IMAGE: SUEDPACK



## Suedpack expands in France

Suedpack Medica has expanded medical packaging production at its site in Coulmer, France.

The site mainly manufactures sterile barrier pouches – under ISO 7 clean room conditions – such as those used for packaging implants. It also produces reel material and lidding made of film, Tyvek and paper. In future, it will also focus on making header bags, especially for large-

volume medical technology products that typically undergo ETO sterilisation. Typical applications include syringe nests and pipette boxes.

“The expansion will allow us to position ourselves more strongly in the pharmaceutical sector and medical goods industry,” said Thomas Freis, managing director of Suedpack Medica.

> [www.suedpack-medica.com](http://www.suedpack-medica.com)

[www.filmandsheet.com](http://www.filmandsheet.com)



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# Slender advantage: thin-wall packaging

*The thin-wall packaging market has seen huge changes over the last decade - with legislation in particular affecting factors such as material use and packaging design*



IMAGE: SHUTTERSTOCK

The thin-wall packaging market has seen huge change over the last decade. Susannah Owen, a consultant at **AMI**, told delegates that the main themes at this year's *Thin Wall Packaging* conference included recyclability, circularity (including tray-to-tray recycling), plastics reduction and energy efficiency. At the equivalent event in 2013, the main topics were barrier packaging, decoration, new PP grades and biopolymers.

In the interim, there has been lots of industry consolidation and a massive focus on recycling - which has partly been driven by legislation.

"Recent requirements put further pressure to accelerate the availability of recyclate," she said.

In Europe, thin-wall packaging production is likely to remain stagnant between now and 2027. Within this, there will be inevitable winners and losers: applications such as convenience food is likely to thrive, while disposable, take-out containers and fruit & vegetable packaging and likely to decline.

Here, initiatives such as reusable packaging, or the use of alternative materials - such as fibre or paper - has contributed to this lack of growth. Regarding specific materials, while PP and PET will continue to thrive, PVC and PS will decline.

'Combination packaging' - which uses a blend of materials such as plastics and cardboard - is also on the rise.

"Sustainability regulations are increasingly

determining and driving material and format substitutes," she said.

## Stateside rules

In North America, legislation is also having a huge effect on the packaging market. Dan Felton, executive director of **Ameripen**, said that 'producer responsibility' legislation - which forces packaging producers to take on more responsibility for their products at the end of life - is becoming more prevalent.

"Packaging producer responsibility has existed in other jurisdictions such as Canada and EU for decades - and officially arrived in the US in the summer of 2021," he told delegates.

Just two states - Maine and Oregon - introduced new laws that year, but since then others have followed - or are "in discussions". In addition, there are two bills under consideration by the US Congress.

A number of states have - or are planning - targets for the use of recyclate in plastics packaging.

"This is a possible policy lever to increase demand and supply for recycled content and drive end market development," he said.

However, he warned that moves may lead to unintended consequences if not "done thoughtfully".

In California and Maine, the legislation - or planned legislation - covers only beverage containers. In Washington and New Jersey, the laws cover

**Main image:**  
Food trays are a common example of thin-wall packaging



**Above: Berry's Heinz Snap Pots contain 39% recycled plastic**  
**IMAGE: BERRY GLOBAL**

a wider range of products, including plastic trash bags, and carry-out bags. As well as laws of recyclability and labelling, he said other policies are under consideration, including: deposit return systems; single-use packaging bans; material and product taxes; and advanced recycling (such as chemical or molecular recycling).

**Sustainable approach**

Diane Marret, sustainability director at **Berry Global**, talked about how her company has responded to the two types of legislation - PCR mandates (specifying levels of recycle in products); and EPR laws (shifting the cost of managing end-of-life packaging costs towards brand owners).

She said there are 43 active EPR taking place across 15 states. Recycled content mandates will be part of EPR commitments.

"The intent is to improve recycling infrastructure and improve access," she said. "This will increase recycling rates and the availability of recycled materials and decrease the use of virgin materials."

At the same time, demand for high-quality, food-safe PCR will continue to increase.

Packaging companies need to carry out three

main actions in response:

- Ensure that packaging is designed for recyclability;
- Incorporate circular materials into packaging; and,
- Reduce or lightweight packaging, to lower carbon footprint.

"Don't wait for the implementation of new laws - take action now," she said. "Circular material supply is already limited and legislation will only raise demand and intensify competition."

There are three steps to getting started, she said: evaluate current packaging for recyclability; ensure that any new packaging design complies with legislation; and then validate designs through qualification on pilot and production lines.

She said that an option like mechanical recycling was suitable for many applications, but presented some challenges for quality and aesthetics.

Chemical recycling can allow offsetting of fossil fuel-based feedstocks - but can be harder to explain to consumers.

She also highlighted a few examples of how Berry had developed more sustainable packaging. In one example, a multi-material canister was converted to an all-PP version that was easier to recycle; drinking cups for Wendy's were made easier to recycle, saving an estimated 10 million lbs of waste from landfill in two years; and stock PP containers incorporated 10% bio-circular material, derived from cooking oils. ➤

# Moulded fibre thermoforming on the rise

While moulded fibre is not an extruded plastic, it has risen to become a potential rival to thermoformed plastic parts in some applications.

Some companies, such as **Kiefel**, even offer machines to process moulded fibre alongside its portfolio of thermoforming machinery.

Larry Hutchinson, global market development manager for food packaging at **Solenis**, told delegates that moulded fibre accounts for nearly 5% of 'paper and fibre' packaging. Nearly 40% of moulded fibre parts are effectively thermoformed, he added.

The global market for moulded fibre packaging is projected to double over the next five years, he said, with most growth coming in the Asia-Pacific region. The most common end-use will be food and drink packaging.

There is still work to do on the technology, he said: at 60°C, for instance, he said oil penetration took 120 minutes. Regarding water penetration, wet moulding was "essentially bulletproof", he said, while dry moulding was "acceptable [with] further development needed".

He cited some advantages of moulded fibre as: PFAS-free; many material sources; and recyclability. Regarding composting, he said individual assessment was needed for most industrial composting, while home and backyard composting could not yet be confirmed by testing.



**Left: In addition to its conventional plastics machinery, Kiefel offer machines to process moulded fibre**

IMAGE: SIEMENS

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IMAGE: PURECYCLE



**Above and right: Officials from the port of Antwerp-Bruges recently visited Purecycle's facility in Ironton**

**Outsourcing needs**

Scott Carter, vice president of R&D at **Tek Pak**, said that outsourcing of thin-wall packaging is a key consideration for producers.

His company produces thermoformed packaging – and electronics packaging and tooling – at facilities in Illinois. It began as a supplier of custom carrier tape for the mobile phone market, and its services now include thermoforming in a Class 8 cleanroom.

Its thermoformed trays are used in a variety of industries including food, medical and electronics. As well as commonplace materials, it also uses advanced polymers such as Peek, PEI, PBT and polycarbonate.

In thermoforming, it produces custom-designed aluminium moulds – with prototype tooling often being used in production tooling. Tools are built for both in-house and external use.

“In some cases, we run production for customers until they are ready to bring production in house,” he said.

The company runs prototyping, mid-volume and high-volume machinery. Prototyping machinery might typically run at 60 parts per hour, mid-volume at 250 per hour and high-volume at more than 1200 per hour. The high-volume machinery is typically KMD models from Kiefel.

“We responded to customer demand and bridged the gap between prototype and full production quantities,” he said. “Small footprint equipment – such as the KMD 60 – is key to running low- to mid-volumes in the ‘gap’.”

Full tooling capabilities is critical for development – and the path to high-volume production, he added.



**PP recycling**

Tamsin Ettefagh, chief sustainability officer at US-based **Purecycle Technology**, said the company uses a solvent-based process to recycle used polypropylene (PP).

She pointed out that more than 180 billion lbs (81 million tonnes) of PP was produced in 2021 – of which less than 5% got recycled.

The company takes scrap PP and recycles it into ‘clean’ resin – by removing odour, colour and contaminants. The seven-step process involves melting and filtering, extraction, mixing and settling, filtering, purification, separation and finally extruding and pelletisation.

The process itself is licensed from Procter & Gamble.

This is not chemical recycling, she said – as the resin is not broken down into its component monomers. Instead, it is purified using solvents, she said.

“We don’t alter the PP properties – they remain the same as the PP is purified,” she said. “This allows it to be recycled multiple times.”

The company recently opened its first facility in Ironton, Ohio. It has a capacity of 107 million lbs/year (48,000 tonnes/year). The new plant will employ up to 100 people.

The company is eyeing other plant start-ups – in Augusta, Georgia, as well as Belgium, South Korea and Japan.

Purecycle will produce grades of ‘ultra pure’ resin – which will typically be blended with virgin resin. In one example – its HPP15S with virgin PP – it has tested five grades, ranging from 100% virgin resin to 100% recycled resin. The grades have been tested for physical characteristics such as tensile strength, flexural modulus and melt flow rate.

“Based on the results, the maximum suggested blending ratio of HPP15S – with a measured melt flow rate of around 15 – with virgin PP is about 25%,” she said. “We will continue our experiments to evaluate the effect of various MFRs of HPP15S and different virgin PP grades on blend properties – to develop maximum blending ratios for HPP15S across the entire range of its expected MFR.”

**Nucleating agent**

John Mara, technical director of **Amfine**, told delegates that polypropylene can be imbued with superior properties – such as through the use of its new beta-nucleating agent.





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He said that the main application of PP in thin wall packaging was for food containers such as cups and trays. The advantages include high productivity, low cost and light weight.

"There is a trend towards thinner packaging from the perspective of resource saving," he said.

PP comes in two crystalline forms, he said - alpha and beta. While the alpha-form is more stable - and has high flex modulus - it has low impact strength and moderate transparency. The metastable beta-form shows high elongation and impact strength - but low transparency.

Typical applications of beta-crystalline PP include films with microscopic voids - for tapes and labels - and stretch film.

The structure also has potential benefits in thermoforming.

"Beta nucleating agents increase the fraction of beta-crystals - increasing ductility, elongation and impact strength and improving the stretchability of extruded sheet," he said.

The nucleating agent can also be used to widen the processing window for extruded sheet - allowing it to be uniformly drawn, which minimises thickness variation.

The lower forming temperature of beta-crystals also helps to avoid sheet sag.

The company's novel NA-B99 stabiliser claims high nucleating performance and beta crystal formation ability. In addition, it improves the impact strength and HDP to of PP - and exhibits low anisotropic shrinkage.

"It improves the performance of beta-crystalline PP and is expected to contribute to the expansion of beta-crystalline PP applications," according to Mara.

■ AMI's next edition of Thin Wall Packaging is held in Cologne, Germany on 28-29 November 2023. For more details, contact Rebecca Weir on +44 (0) 117 314 8111 ([rebecca.weir@amiplastics.com](mailto:rebecca.weir@amiplastics.com)).

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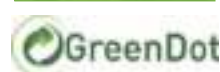
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# Going flat out: latest sheet developments

*Recent applications of sheet materials include interior components for a new tram, grades designed to compete with injection moulding and a potentially record-breaking speedboat*



Sheet materials are used in a multitude of places, from thermoformed packaging to more engineering-based projects such as construction or machinery applications.

One example of this is Induro from **Trinseo** - an engineered continuous cast acrylic capped sheet that has been developed as a more durable replacement for exterior panels.

It claims to offer advantages over other exterior panel materials - such as gel coatings and fibreglass - by enhancing aesthetics, performance, and processability. It performs well in demanding environments due to the weather- and UV resistance of acrylic. In comparison to gel coat and fibre-reinforced polyester, it enables hydrocarbon- and emission-free production and streamlines part processing because of the repeatable, consistent caliper thickness throughout the full width of the sheet.

"Induro allows manufacturers to deliver a long-lasting finish to their customers," said Michel Brendel, vice president of global engineered surfaces at Trinseo. "It is used for the largest, most visible parts of a vehicle."

The result of a multi-year development project, Induro helps manufacturers who are looking for a

more durable material solution. It is uniformly pigmented, providing a more stable and less UV-sensitive colour than traditional materials, and is available in custom colours. The non-fading, non-yellowing characteristics of acrylic make it a long-lasting finish solution for harsh environments, says Trinseo.

The multi-layer finish provides good resistance to chalking, which is caused when a surface finish degrades due to extreme weather conditions.

It is available in lengths up to 245in (6223mm) and customised widths up to 104in (2642mm).

## Tram interior

Swiss rail vehicle manufacturer Stadler has used Simorail HL3 sheets from **Simona** to make a range of thermoformed components.

The components are used in the interior design of Stadler's latest tram - called Tina. The sheets boast a long service life and can be recycled at the end of their product life cycle.

With a view to offering a solution that covers all tram concepts, Stadler was keen to combine flexibility with standardisation when developing its new generation of trams. For tram-operating

**Main image:**  
**Trinseo has developed Induro - a continuous cast acrylic capped sheet for exterior panels**

IMAGE: ROEHM



**Above: Roehm says that shoe inserts made from its Europlex O are light, comfortable and inconspicuous**

companies, the focus goes beyond safety and functionality to include styling and visual appeal.

The task was to find a material that combined good mechanical properties with low weight and a high degree of design flexibility. It also had to be sustainable, durable, easy to clean and certified according to EN 45545-2.

Thanks to its high impact strength, dimensional stability and thermoformability, Simorail was chosen to make seat bases, side wall panels, covers and skirting boards for the tram. Compared to materials such as HPL or GRP, Simorail HL3 is recyclable and has higher visual appeal. Sheets can be produced in almost any colour and various textures. In addition, as a solid-coloured material, it offers advantages regarding the visibility of scratches - without the need for time-consuming painting and coating.

The Tina project team also included three thermoforming companies: Durotherm, Lakowa and Swissplast.

**Sheet for inserts**

**Roehm** says that its transparent orthopaedic sheet - called Europlex O - makes it easy to manufacture high-quality orthoses.

The transparent material is aimed at manufacturing high-quality orthoses, shoe inserts and other orthopaedic aids. It is formable at low temperatures - using standard tools - while being very stable. It also has high chemical resistance and withstands both skincare products and sweat.

"One major application advantage is that Europlex O can be bent and moulded at temperatures as low as 90°C without pre-drying, while remaining more stable than many comparable materials," said Christian Wacker, product manager at Roehm.

Thanks to its high mechanical stability and

impact resistance, shoe inserts and orthoses made from it are "virtually indestructible". Its good thermoformability allows orthopaedic technicians to adapt the material to the anatomy - and, if needed, make alterations later. The transparency makes it easy to spot pressure points that need to be readjusted.

Transparent Europlex O sheets are available in the size 2000 x 1250mm and thicknesses of 1.5 to 4.0mm. The material is on show at the Compamed exhibition in Germany in November.

**Structural parts**

**Sabic** has introduced two new materials for sheet extrusion and thermoforming.

It says its PP compound H1090 and Stamax 30YH611 offer an alternative to traditional sheet metal forming, compression and injection moulding - allowing customers to form large, complex structural parts.

The products are 30% glass fibre-reinforced, intumescent, flame retardant (FR) materials, based on polypropylene (PP). They can be used for electric vehicle (EV) battery pack components such as top covers, enclosures and module separators. Both grades offer good thermal barrier properties to delay or contain thermal runaway propagation.

In addition, their properties offer design, system cost, inherent thermal and electrical insulation and weight advantages compared to stamped sheet metal, said Sabic. Compared to injection moulding of thermoplastics and compression moulding for thermosets - which require expensive tooling and equipment - extrusion and thermoforming can be more cost-effective and efficient for several cases, said Sabic.

"By providing alternatives to traditional materials and processes, we can enable customers to design and manufacture the next generation of battery components while driving down costs and gaining a competitive advantage," said Abdullah Al-Otaibi, general manager for ETP and market solutions at Sabic.

The company has validated the mechanical, fire safety performance and manufacturability of both resins in EV battery applications with complex geometries - both

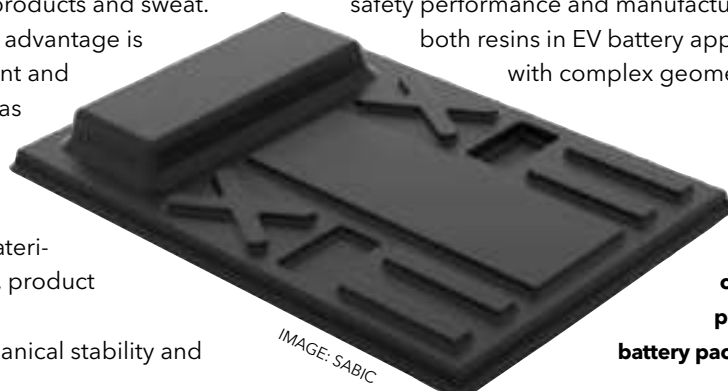


IMAGE: SABIC

**Left: Two new Sabic materials can be used for parts such as EV battery pack components**

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in its labs and with customers. The materials allow the replacement of sheet metal or thermosets in final applications – and can be used to create prototypes to determine the feasibility of investing in injection moulding tools.

### Record attempt

A speedboat powered only by the wind – which glides across the water at 80 knots – is hoping to break a world record next year.

Weight and safety play a major role in achieving speed records on the SP80 speedboat. The cockpit is made of 12mm-thick solid polycarbonate sheets from **Exolon** that are thermoformed by French company Vitalo/Starplast.

The transparent sheets provide optimum visibility thanks to their high optical quality, are resistant to environmental conditions, and are impact resistant and lightweight. They can be hot and cold formed, so can be adapted optimally to the aerodynamic requirements of the boat.

The SP80 is 10.5m long and 7.5m wide and has space for two pilots. Together with the sail and the power module, the cockpit is one of the three most important elements of the sailboat.

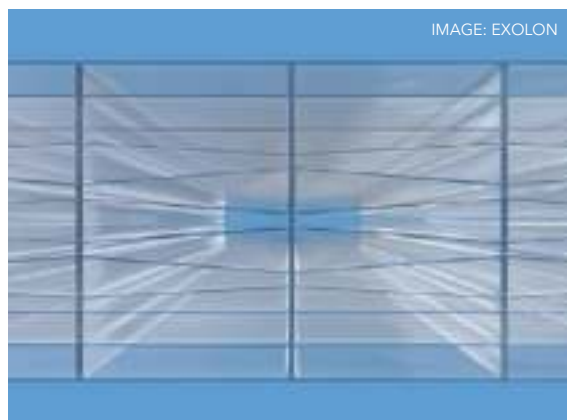
### Multiwall sheet

Exolon has also expanded its range of heat-insulating polycarbonate multiwall sheets.

Its Multi UV Hybrid-X (HX) is now also available in a thickness of 50mm and completes the HX multiwall sheet family, which already includes 25, 32 and 40mm thicknesses. The HX structure enables maximum insulation while reducing energy consumption, says Exolon.

The sheet thickness improves thermal insulation, with a U<sub>g</sub> value of 0.85 W/m<sup>2</sup> K, and extends the application possibilities of the multiwall sheet due to its load bearing.

Exolon Multi UV HX/50-32 is suited to flat glazing, such as in conservatories, industrial glazing, sports halls, skylights and continuous



rooflights as well as roofs and wall cladding (facades). The sheets have a UV-protective layer – applied using co-extrusion – that is homogeneously bonded to the sheet material.

Last year, Exolon launched its Hybrid-X multiwall sheet. The X structure is the result of several years of R&D. The complex combination of walls and air chambers maximises thermal insulation, light transmission and mechanics without adding weight, it says.

### Turkish takeover

**Isik Plastik** of Turkey has acquired **Ug Plastic Inc** – a sheet manufacturer that trades in North America as US Plast.

US Plast makes multi-wall and solid polycarbonate sheet, and multi-wall polypropylene sheet. It operates an 8,000 m<sup>2</sup> production facility in York, Pennsylvania, where it has an annual production capacity of 11,500 tonnes. Its products are sold into many end markets, including automotive, lighting and agriculture.

“We entered the US market in 2016 with the acquisition of Sirius Plastic,” said Abdullah Ceker, CEO of Isik Plastik. “With the Ug Plast transaction, we will reduce lead times, create cost advantages and acquire a new customer base.”

Isik operates two production facilities in Turkey, with a total production area of 28,000 m<sup>2</sup> and annual production capacity of 65,000 tonnes. Its products include plastic sheet and thermoformed food packaging.

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**Above: The SP80, which has a polycarbonate cockpit, will attempt a world speed record next year**

**Left: Exolon has expanded its range of heat-insulating polycarbonate multiwall sheets**



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IMAGE: TOSAF



*Recent advances in film and sheet for the construction market include increasing use of solar installations, grades with improved fire safety and polycarbonate sheet that uses recycle*

# Building a future: new applications in construction

Film and sheet in construction applications can vary widely - from huge panels for sports stadiums to waterproof membranes and even organic (plastic-based) solar cells.

**Exolon** has added two new products to its Ecorange family of multi-wall and solid sheet.

The new products - Reco and Recoplus - both make use of recycled materials. Ecorange is a range of products that raise sustainability through a reduced ecological footprint. It currently comprises 12 Exolon, Vivak and Axpert products in four product ranges.

Both pre- and post-consumer waste are recycled to create the sheet material used in Reco and Recoplus. They use at least 40% ground material from the company's own production and increase the renewable raw material content in as high as 89%. The polycarbonate products use a mass-balance approach, with renewable raw materials being used at the beginning of the production chain as a replacement for fossil raw materials.

Reco solid sheets comprise between 50% and nearly 100% pre-consumer waste. This waste is generated after the sheets have left the factory, but

before they are used in their final application - such as when cutting the final product. This reduces waste during post-processing and ensures greater use of resources.

## Additive boost

**Tosaf** has added a new compounding line at its production site in Alon-Tavor in Israel - allowing it to boost capacity of polycarbonate (PC) additive masterbatches for use in film and sheet.

One recent development includes light diffuser masterbatches for both PC and PMMA. In addition, it has developed heat blockers for the near IR range (NIR blockers) and additives for creating matt surfaces with either a fine or rough structure. Both of the latter are intended to be applied to the surface of PC sheets by coextrusion, each in combination with a UV absorber. As a 50-100 micron top layer, they work more efficiently than when added directly to the bulk sheet, says Tosaf.

It also offers two types of anti-block that are tailored to prevent corrugated sheets from sticking together, allowing high efficiency even in small doses.

**Main image: A new line has helped Tosaf raise output of additives for polycarbonate**

**Right: Exolon has extended its Ecorange family of multi-wall and solid sheet**

“For some years, we have seen growing demand for our products from PC processors,” said Gabi Bar, polycarbonate product manager at Tosaf. “Our new facility in Alon-Tavor will increase our flexibility in supplying products and further reduce lead times.”

**Fire classification**

**Simona** says that its PVC-CAW material has been classified according to the DIN EN 13501 standard for fire behaviour.

The European standard is an important benchmark for assessing the fire safety of building materials, so a classification of fire behaviour plays a key role in determining whether building materials are suitable for use in individual parts of construction projects, says the company.

The material has been classified as B - s3, d0. This applies to all colours of the grade, as well as to thicknesses of 1-10mm glued to the substrate over the entire surface. This means it meets the building authority requirements for flame-retardant building materials under the conditions specified, says Simona. Classification to DIN EN 13501 confirms the material’s fire-protection properties. It offers a safe, reliable solution for demanding applications where fire protection is critical.

**Light work**

**EconCore**, which manufactures honeycomb sandwich materials, recently showcased a set of lightweight solar panels at JEC World.

The company, in collaboration with **Solarge**, says the design can cut the weight of solar installation by up to 65%. The partners have worked together since 2018 to replace heavy glass with lightweight honeycomb materials.

The result, they said, is a recyclable alternative to traditional materials. A panel measuring just over 2.66 sq m weighs less than 15kg - compared to more than 28kg with the old glass-based design.

**Below: Heliatek has installed organic solar cells at the Port of Barcelona in Spain**



IMAGE: EXOLON

“Making photovoltaics lighter, cheaper, and more efficient means many more buildings will be able to harness solar energy,” said Tomasz Czarnecki, chief operations officer at EconCore. “These panels are also sustainable - which has huge potential in the battle against climate change.”

The new solar panels combine a composite, honeycomb structure and a polymer frontside. Rigidity and impact resistance are important properties for solar panels, as bending and impact - such as from hail stones - can result in breakages or decreased efficiency. The honeycomb panels can handle these stresses in different ways, says Econcore. Another advantage of the new design is that it does not require an aluminium frame - unlike glass panels.

The circular panels offer improved resistance against UV radiation and higher heat conductivity than glass panels - allowing more effective temperature control.

The honeycomb panel itself is made from recycled materials. One possible design focuses on a mono-material solution - where only the solar cells and the encapsulant would be a different material, said the company.

Huib van den Heuvel, CCO at Solarge, added: “Compared to glass-based solar panels the production of this composite product is very easily scalable.”

**Solar installation**

Adding solar panels to buildings has become increasingly common. German solar energy company **Heliatek** has completed a project to install organic solar cells at the Port of Barcelona in Spain.

It involves installing 584 of Heliatek’s solar films onto undulating rooftops at three port facility buildings. Heliatek says this shows that unconventional building structures can become green electricity generators.

The installation, completed in February 2023, was part of the Life BIPV project. It will generate



IMAGE: HELIATEK

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**Right: Econcore and Solarge have developed very lightweight solar panels**

green electricity while reducing the port's carbon footprint.

"This project is not just beautiful - it's a game-changer," said Guido van Tartwijk, CEO of Heliatek. "Our solar films have transformed three undulating rooftops into ultra-green electricity generators, seamlessly integrating into the existing port landscape.

He said it was the company's largest installation of its kind on non-straight building shapes. The cells cover an area of 509 sq m and has a capacity of 29.5 kWp.

**Plant light**

Meanwhile, researchers at the **University of California Los Angeles** have developed solar panels that can be added to a greenhouse roof - and still allow through the light that plants need.

Yang Yang, a materials scientist in the school of engineering, leads a team that designed the device. Incorporating a layer of L-glutathione - a



naturally occurring chemical typically sold as an antioxidant dietary supplement - helped extend solar cell lifetime, improve efficiency, and still allow sunlight to reach plants in a greenhouse prototype.

"Organic materials are uniquely suitable for agrivoltaics because of their light-absorption selectivity," said Yang. "The main drawback that has prevented their widespread use up to now is their lack of stability."

Organic solar cells tend to degrade more quickly because sunlight can cause organic materials to oxidise and lose electrons. The researchers found that an additional layer of L-glutathione prevented the other materials in the solar cell from oxidising, which resulted in the organic cells maintaining more than 80% efficiency after 1,000 hours of continuous use - as opposed to less than 20% without the added layer

UCLA has now established a start-up that aims to scale up production of the organic solar cells for



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# PVC recycling rates flat

Recycling rates of PVC in Europe remained at around 27% in 2022, according to VinylPlus. The construction market is a major user of PVC products such as roofing membranes and window profiles.

For the year as a whole, VinylPlus reported that 813,266 tonnes of PVC waste were recycled and used in new products in the EU-27, Norway, Switzerland and the UK. This compares with a total of 810,775 tonnes recycled in 2021 – a rise of around 0.3%.

Of this, 62% was pre-consumer waste – where factories reprocess their own waste internally – and 38% post-consumer waste (where PVC is collected after use). In 2022, the amount of pre-consumer recycling fell by around 1.5%, while post-consumer recycling rose by nearly 3.5%.

Recycling of flexible PVC and films appeared to decline by around 19%, from around 262,000 tonnes in 2021 to 212,000 tonnes in 2022.

Under its VinylPlus 2030 commitment, the organisation has a target to recycle 900,000 tonnes/year of PVC by 2025, and 1m tonnes/year by 2030.

> [www.vinylplus.eu](http://www.vinylplus.eu)

industrial use. The researchers hope to make greenhouses incorporating organic solar cells commercially available in future.

## Solar pontoon

**BASF** has installed a proof-of-concept floating solar pontoon at its manufacturing site in McIntosh, Alabama, USA.

The system, from Noria Energy, uses renewable energy to power three aerators that improve the water quality of a scenic pond at the facility.

BASF's hindered amine light stabiliser (HALS) additives are used to protect the polymer against degradation of harmful UV light.

"The additives and antioxidants used for the pontoons – and produced at our McIntosh site – improve durability and extend the lifetime of the systems," said Marcus Pezent, site director at BASF.

Alex Mayer, chief technology officer at Noria Energy, added: "We set out to develop an innovative floating solar system to reduce capital requirements, including logistical costs. Working with BASF was instrumental in getting the system from concept to pilot installation in under a year."

## Adding capacity

**Duro-Last**, a supplier of custom-fabricated thermoplastic single-ply roofing systems, opened its seventh manufacturing facility in the US earlier this year.

The 16,000 sq ft facility in Largo, Florida will make custom-fabricated membrane up to 60 feet

in length and custom accessories for thermoplastic single-ply commercial roofing installations.

"As one of the largest single-ply roofing markets in the US, the needs of Florida contractors are complex," said Tom Saeli, CEO of Duro-Last. "This new location will allow us to better serve our customers in the Florida market."

As well as membrane and accessory manufacturing, the facility also hosts the company's paints, coatings and caulk manufacturing operations – plus an on-site training space for contractors.

Prior to this, the company was acquired by construction products supplier **Holcim**. The transaction was valued at around US\$1.3 billion. With the acquisition, Holcim roofing systems says it will now exceed US\$4bn in net sales. Duro-Last's sales are around US\$540 million.

## Plaskolite acquisition

US-based **Plaskolite** is to acquire an acrylic sheet-manufacturing facility in Mexico, from **Trinseo**.

The plant, in Matamoros, specialises in the production of cell cast acrylic sheet, which is used in display, signage, construction, marine and sanitary products, says Plaskolite.

The facility is located on an 11-acre site. Its location – on the border with the USA – enables Plaskolite to serve the North American market with a full range of acrylic sheet technologies – including extruded, continuous cast and cell cast. Deliveries from the Matamoros plant are expected to begin in the second half of 2023.

The facility complements Plaskolite's cell cast operations in Gerona, Spain.

"We look forward to expanding our North American footprint with the acquisition of this highly strategic facility," said Ryan Schroeder, president and CEO of Plaskolite.

"It will strengthen our product offering for our customers, who value an extensive range of manufacturing methods."

## CLICK ON THE LINKS FOR MORE INFORMATION:

- > [www.exolongroup.com](http://www.exolongroup.com)
- > [www.tosaf.com](http://www.tosaf.com)
- > [www.simona.de](http://www.simona.de)
- > [www.econcore.com](http://www.econcore.com)
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- > [www.holcim.com](http://www.holcim.com)
- > [www.plaskolite.com](http://www.plaskolite.com)
- > [www.trinseo.com](http://www.trinseo.com)

# Smart packaging helps improve track and trace



IMAGE: R-CYCLE

*Industry schemes like R-Cycle can help producers of plastic packaging - and other products - to apply a 'digital passport' in order to improve circularity*

Packaging that can be traced from the start to end of its life is a key concept in recycling - and in smart packaging - and has recently taken another step forward.

At Fakuma recently, **R-Cycle** - a consortium of plastics companies looking to improve recycling - unveiled new software that they say can be used to apply digital product passports (DPPs) to plastics items such as packaging.

R-Cycle says this is the first software-as-a-service solution for applying DPPs, based on the new GS1 Germany Guideline 'Circular Plastics Traceability'.

"With the help of the DPP, R-Cycle provides plastic products with all relevant information about their composition and use during production," said Benedikt Brenken, director of R-Cycle. "This means every subsequent processor, consumer and recycler can use this data to fulfill information and reporting obligations, optimise production processes and ensure the best possible recycling."

## Global standard

R-Cycle is based on open, global GS1 standards. It offers those in the plastics value chain a uniform framework for modelling cross-company processes and exchanging data. R-Cycle was involved in the development of 'Circular Plastics Traceability', along with other partners.

The underlying technology is the cross-industry GS1 Electronic Product Code Information Services

(EPCIS) interface. GS1 is a global network for cross-industry process development. The best-known example of a GS1 standard is the barcodes that are used in global trade.

Bernd Reifenhäuser, CEO of Reifenhäuser - an R-Cycle founder - said: "Publication of the Circular Plastics Traceability guideline is a milestone for the establishment of R-Cycle. It gives us - as a machine manufacturer - the certainty of investing in a future-proof technology that enables our customers to use standardised DPPs."

A DPP for plastic products and packaging enables relevant data to be stored in an interoperable system - allowing efficient, standardised and secure data exchange across company boundaries. Relevant information - such as materials, product properties and process data - can be recorded in the R-Cycle DPP. DPPs generated in this way can be retrieved by machine or manually via suitable markings (such as QR codes or digital watermarks) on primary and end products.

## Fingerprint trace

Also at Fakuma this year, German company **Polysecure** showed its Track by Stars technology - which allows forgery detection as well as product tracking.

It showcased the technology on the stands of **Roehling** and **Arburg** during the show. The technology relies on high-contrast fluorescent

**Main image: R-Cycle's DPP provides relevant information on plastic packaging products**

**Right: Polysecure's particle fingerprint technology allows product tracking and forgery detection**

tracer particles that are incorporated into the resin before it is processed into an end product. These can later be recognised by a 'novel fingerprint recognition algorithm'.

Its name comes from the fact that it creates a distinctive, three-dimensional image that only becomes visible when excited by special light - making it shine like a starry sky.

As well as being incorporated into bulk plastics, the particles can be added to coatings and inks. The company says that particle distribution is random and cannot be copied - making the solution "truly forgery-proof".

Jochen Moesslein, managing director at the company, added: "With our technology, OEMs can combine anti-counterfeiting with individual traceability because the particle fingerprint (FPF) patterns are individual and forgery-proof."

Last year, the company signed an agreement with materials specialist Roechling for the use of its technology. The technology, which Roechling calls SmartMarker, equips plastics products with an unmistakable identifier. This allows customers to easily authenticate and identify their components - offering new options in counterfeit protection and



IMAGE: POLYSECURE

developing digital material passports and recycling cycles.

"This cooperation is an important step for us in the further expansion of our smart products," said Franz Luebbers, CEO of Roechling Industrial.

**CLICK ON THE LINKS FOR MORE INFORMATION:**

- > [www.r-cycle.org](http://www.r-cycle.org)
- > [www.reifenhauser.com](http://www.reifenhauser.com)
- > [www.polysecure.eu](http://www.polysecure.eu)
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## BARRIER FILM

## New formulation allows better processing of PE barrier film

Adapa (formerly Schur Flexibles) says it has revised its SkinFresh Top range of films - and now offers SkinFresh Top Expert.

The company says it has developed a new formulation that allows for improved processing. The new range includes transparent, glossy and printable PE-based films - with high barrier - that enclose products tightly but without tension. They can be used for food products of various heights and are also suitable for packaging products with bones.

The high-performance



skin films are available in thicknesses of 80-150 microns and seal reliably to PE sealing layers or APET and PP mono films and trays. For material- and resource-saving applications, it has been possible to reduce film thickness further while

maintaining performance.

Users can see how the films perform at Adapa's PackScience centre in Kempten, which demonstrates them on tray sealers and thermoforming machinery.

➤ [www.adapa-group.com](http://www.adapa-group.com)

## MASTERBATCH

## Medical-grade anti-static formula

Masterbatch specialist Ampacet has introduced a new anti-static formulation for polyolefin films used in pharmaceutical processes.

The company says that ProVital + Permstat is used in the external layers of packaging films to create a dissipative polymeric network within the bulk layer of the film - allowing electrostatic charges on the film surface to dissipate throughout the external layer.

The antistatic effect is immediate, consistent during the lifetime of the film and lasts as long as the film is in use, it says.

Thanks to the dissipative effect, powder can be emptied from packaging more effectively, as the anti-stat prevents some particles from remaining inside due to the static effect. In sealed bags, it can eliminate the presence of static powder in the sealing area.

➤ [www.ampacet.com](http://www.ampacet.com)

## UHMW-PE

## Fluoropolymer alternative

At Fakuma 2023, Dreyplas showed a number of alternatives to fluoropolymers.

Its melt-processable UHMW-PE can be used for sheet, films, profiles and coatings in applications where low friction and

abrasion are critical. Dreyplas uses Mitsui Chemicals products, which are available as pellets, powders and micro powders. Dreyplas continues to offer a range of fluoropolymers for those applications.

Highly abrasion-resistant

sheets, profiles and hoses are some of the applications of Lubmer pellets, a self-lubricating, high-impact grade of UHMW-PE. It has food safety, acoustic and electrical insulation properties.

➤ [www.dreyplas.com](http://www.dreyplas.com)

## STRETCH FILM

## Pallet stabilisation revealed at Powtech

Berry Global showed the latest versions of its stretch hood film and NorDiVent form-fill-seal (FFS) film at the Powtech exhibition in Germany.

The new generation of stretch hood film uses up to 30% recyclate - yet manage to maintain stretch perfor-

mance. Berry has done this while retaining seal integrity and tear resistance. The film is aimed at low to medium stretch applications in markets such as beverage, building, and glass. The stretch hoods provide high load stability and waterproofing,

with lower material usage than traditional shrink hooding films, it says.

NorDiVent film - which provides a dust- and moisture-free way of filling and packing powdered products - now includes up to 50% recyclate.

➤ [www.berryglobal.com](http://www.berryglobal.com)

MDO FILM

# HDPE grade for mono-material film

ExxonMobil has developed an HDPE grade for machine direction oriented (MDO) PE film applications.

The grade, HD7165L, can help converters create mono-material laminates, which can be easier to mechanically recycle. Offering good optical and mechanical properties, the material can be used to make mono-material packaging for products such as nuts, crackers and potato chips.

"The development of HD7165L has been driven by market demand for all-PE packaging - which in turn has created a need for print webs made of blown MDO-PE films," said Nilesh Savargaonkar principal customer and application development engineer at ExxonMobil.

The grade can help converters produce blown MDO-PE films with 60-70% HDPE, for enhanced stiffness and high heat resistance.

MDO stretch ratios as high as 7:1 with very high stiffness can be achieved. Haze is less than 10% and gloss is higher than 60%. Used as a print web of a PE-PE laminate, it offers high heat resistance and stiffness - for a lack of extensibility.

In blown MDO-PE film applications, it offers high, uniform orientation, gauge stability, and low gels for easy processability, said the company.

➤ [www.exxonmobilchemical.com](http://www.exxonmobilchemical.com)

BOPP FILM

## Thinner BOPP for IML

Innovia Films has extended its range of BOPP IML films, with a thinner version.

Rayoform EUP50 - a high-yield, high-opacity, matt in-mould label (IML) film - is 50 microns thick, with a density of 0.55 g/cm<sup>3</sup>. It adds to the earlier EUP60 grade.

The material is in line with Design for Recycling recommendations from RecyClass, that say PP IML technology is fully compatible with coloured PP recycling.

"EUP50 allows you to downgauge significantly where a thicker film is not needed, but also has the added benefit of reducing distortion in thin wall containers and lids after moulding," said Alasdair McEwen, product manager for labels and graphics at Innovia Films.

➤ <https://www.innoviafilms.com>

PVDC FILM

## Coating for blister packaging

Solvay has introduced Diofan Ultra736, a high-barrier PVDC coating for pharmaceutical blister films.

The coating allows an ultra-high water vapour barrier that allows carbon footprint reduction, it says.

The coating was engineered to maximise the water vapour barrier without sacrificing its oxygen barrier, chemical resistance or transparency. It has good thermoformability, enabling smaller pack sizes with higher pill density compared with other coating solutions,



IMAGE: SOLVAY

according to Solvay.

"This new coating can help packaging film manufacturers achieve superior barrier properties with thinner structures, leading to a significant

carbon footprint reduction of the blister film," said Federico Baruffi, global marketing manager for packaging at Solvay Specialty Polymers.

➤ [www.solvay.com](http://www.solvay.com)

ADDITIVES

## UV barrier for food packaging

Tosaf has developed a film additive that protects food from UV degradation.

UV9389PE EU offers a high blocking effect against UV in the 200-380nm wavelength range, even at low thickness.

This protects foods from

discolouration, and loss of vitamins and flavours - thus helping to prevent food wastage due to premature spoilage.

The optical properties - especially transparency - of films using UV9389PE EU are almost fully retained,

says Tosaf. Further advantages are the high efficiency - even at low dosages - and the minimal influences on behaviour during production and further processing of the films, such as printing and lamination.

➤ [www.tosaf.com](http://www.tosaf.com)



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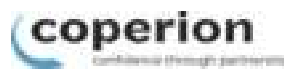


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## FILM EXTRUSION

# Film and extrusion portfolios on show

Reifenhäuser showcased its latest blown and flat film technologies – as well as extrusion components – at Fakuma.

For instance, the company showed its wear-resistant Reiloy screws and barrels, which claims to offer a longer service life thanks to precise matching of raw materials and additives. Alloys developed in-house can be optimised for the extrusion process, it said. The company also showed its extruder and die portfolio.

“From the plasticising unit to the die, we know all interfaces precisely and design them exactly according to customer requirements,” said Ralf Pampus, managing director of

Reifenhäuser Extrusion Systems.

For flat film lines, it showed its latest automation option PAM (precise, autonomous, mechatronic) for coextrusion adapters and dies. Using automated screwdrivers, PAM enables autonomous and mechatronic adjustment and control of the flexible lip via the line control system. Depending on the die design, autonomous adjustment of the dust bar, width adjustment and lip opening via adjustment of the lower die lip is also possible.

PAM is available for Reifenhäuser flat film lines and those from other companies.

Lars Bergheim, area sales manager

in the division, said: “Since we introduced the system last year, we have implemented PAM at several customers.”

In blown film, its Evo Fusion can help to increase the use of recyclate in film production. Using twin-screw technology, it can process previously unusable, low-cost recyclates. This is especially useful in applications such as trash bags or mailing bags. A special feature is direct extrusion, which eliminates the need for energy- and cost-intensive regranulation of the starting material. This allows fluff, other production waste and PCR material to be processed directly.

› [www.reifenhauer.com](http://www.reifenhauer.com)

## DOWNSTREAM

## Entry-level slitting machine

Laem IMS, part of IMS Technologies, has introduced a new slitter re-winder, which extends its portfolio for the flexpack industry.

The eSlit is designed for film manufacturers and converters who are looking for a straightforward, cost-effective way to process materials while maintaining high quality. Its focus on efficiency, ease of use, and cost savings makes it an option for those who want a simplified processing solution, it said.

In addition, the model aims to reduce complexity and the typical learning curve for slitting systems.

› [www.laem-ims.com](http://www.laem-ims.com)

## TOOLING

## Model die claims multiple options for development

At Fakuma, Comelt of Austria presented a model die that it said had many options for development.

“The model shows the manual and automatic adjustment of the flex lip, a restrictor bar or external deckling,” said Johannes Müller, director of sales and technology at Comelt. “For us, customisation is common practice – so our dies and feed blocks are adapted to requirements.”

The company’s product range includes mono, co-ex and multi-manifold slot dies as well as feed blocks, dies for sheet and blown film, and spinnerets. Slot dies cover a range of applications and are



available from 150 to 3,000mm.

“For multi-layer films, we deliver different, variable feed block systems – for the development and the production of new, innovative film structures in technical centres up to production scale,” he added.

Comelt has recently been working on maximising machine running times, and the manual – or automatic – adjustment of product

thickness and width during production.

“We have also developed new coating procedures for an optimised material flow combined with reduced sticking of polymers at the tools,” he said.

The dies also help to raise sustainability, according to the company.

› [www.comelt.at](http://www.comelt.at)

ANCILLARIES

# Manufacturing execution systems help cut energy

BMSvision showcased a number of its manufacturing execution systems at the recent Fakuma exhibition in Germany.

Its EnergyMaster system makes energy flows transparent and relates the exact energy cost to each product. In this way, excessive consumptions or low e-KPIs can be automatically detected and reported in real time.

The system is BAFA-approved in Germany, meaning 30-40% of the investment can be subsidised, said the company.

In addition, its PlantMaster system monitors production machines and processes in real time,



IMAGES: COMELT

providing managers with useful information. The digitalisation of the factory improves efficiency, profitability and competitiveness without a loss of quality, it says.

The company also showed a solution for big data analytics called BI Connect. The cloud-based system is easy to use and can be customised to

analyse data trends.

It also offers mobile solutions through its MyMES app, which pushes alarm messages through to users in real time. The Smart Bracelet is a wearable device that tells operators when a machine intervention is needed.

A new version of WebDU, which is typically used as a group terminal, was also showcased at the event.

➤ [www.bmsvision.com](http://www.bmsvision.com)

MIXING

# Foaming solutions cut costs

At Fakuma, Promix Solutions presented ways of mixing, foaming and cooling polymer melts. Its aim was to cut raw material costs, reduce carbon footprint and raise production capacity.

For instance, its P1 cooling mix technology can be used to improve mechanical properties and reduce densities of light foams such as XPS, XPP, XPE, XPET. It showed solutions for efficient cooling or tempering of viscous media and for inline viscosity measurement.

It also showcased its Microcell technology, which creates a microcellular foam structure in the polymer by adding atmospheric gases.

➤ [www.promix-solutions.com](http://www.promix-solutions.com)

BLOWN FILM

# Boost for polyolefin-dedicated film line

Colines has launched the latest version of its POD (polyolefin dedicated) blown film line.

It recently showcased its Poly-blown 2800mm five-layer POD line, a modular blown film line that “meets the highest market requirements in terms of output and quality”.

It is designed for the production of polyolefin films and suitable for processing post-consumer recycled (PCR) resins. The line has recently been redesigned and optimised.

Some highlights include: user-friendly GUI; good control of film

tension and winding speed thanks to brushless motors; low thickness tolerances; and high production capacities.

At a recent demonstration event, it produced a number of products from “highly rich metallocene formulations”. One was a 55-micron laminated film, with a 2300 layflat width, produced at 550-650 kg/h, depending on the format.

It also made 230-micron silo bags that were 5m in circumference - at a production rate of 650-750 kg/h, 25-micron agricultural stretch film at

400-500 kg/h, and 50-micron collation shrink film - at a rate of 700-800 kg/h.

The company recently ran a series of tests on the Polyblown five-layer POD extrusion line and managed to extrude shrink film using up to 75% PCR resin.

At the same time, the line set a new standard for energy efficiency, says Colines. With a recorded energy consumption of 0.32-0.38 kWh/kg, it claimed to outperform other available options on the market - reducing both operational costs and carbon footprint.

➤ [www.colines.it](http://www.colines.it)

# Download these new product brochures

Simply click on the brochure cover or link to download a PDF to your PC or smartphone

## DIING KUEN: BLOWN FILM



In this brochure, Taiwan-based Diing Kuen provides all the specifications of its blown film technology to produce mono, two three, five and seven layers.. The film lines are divided into four categories: HTRL horizontal top rotating; EBLR vertical top rotating; BFL fixed; and other types.

[CLICK HERE TO DOWNLOAD](#)

## AMUT: FOIL EXTRUSION LINES



Built on more than 50 years of plastics expertise, Amut's range of extrusion lines for production of foil and sheet covers a broad range of applications. They can produce mono or multi-layer sheet as thin as 150 microns and as wide as 3.3m at rates up to 4 tonnes/hr or more.

[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.

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## BRUCKNER: BOPP/BOPE FILMS



Brückner Maschinenbau says its BOPP/BOPE film lines offer benefits including high stiffness and sealing strength, excellent transparent barrier, outstanding puncture resistance and linear tear opening behaviour. Find out more in this brochure.

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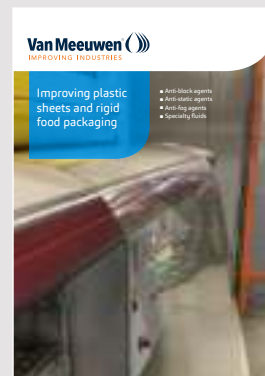
## HAN KING



Han King, based in Taiwan, has produced this brochure outlining its machines for blown film extrusion, covering five-layer film, three-layer co-extruded film, agricultural film, geomembranes; plus other products in stretch hood, lamination and bags.

[CLICK HERE TO DOWNLOAD](#)

## VAN MEEUWEN: ADDITIVES



Van Meeuwen's functional additive range for plastics film and sheet producers includes anti-blocks, anti-statics, anti-fogs and specialty fluids. Suitable for plastic packaging applications, products comply with EU food contact regulations.

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

## Vitopel

<b>Head office:</b>	Votorantim, Sao Paolo, Brazil
<b>COO:</b>	Luiz Claudio Raimundo
<b>Founded:</b>	1985
<b>Ownership:</b>	Private
<b>Employees:</b>	Around 600
<b>Profile:</b>	Vitopel do Brasil, founded in 1985, is a major supplier of bioriented polypropylene (BOPP) film in South America. It has a wide portfolio of products, including metallised, opaque, matte, and clear films - as well as synthetic paper. The company says it has a 40% share of the Brazilian BOPP market - and is also a major exporter. It has a nameplate capacity of around 94,000 tonnes/year of various types of BOPP film.
<b>Product lines:</b>	The company offers a wide variety of BOPP films for a range of uses, including graphics, packaging, labels and adhesive tape. Its V360 is a grade that is used to develop more sustainable solutions. Vplanet contains recycle, biopolymers or biodegradable agents. Vprotect is aimed at protection and security for complex packaging demands, while Vseal is for packaging temperature-sensitive products and high-speed processes. Vmatt is a matt film, Vfresh helps increase shelf life, while Vtape is used to make tape that seals shipping boxes.
<b>Factory locations:</b>	The company has four production lines on two different sites in Maua and Votorantim - both in Sao Paolo. It recently began upgrading its facilities, by installing new equipment from Brueckner of Germany - including upgrading its lines from three-layer to five-layer. In addition, it claims to have the only pilot biaxial film line in Latin America - which is used as a development facility.

To be considered for 'Extruder of the Month', contact the editor on [lou.reade@amiplastics.com](mailto:lou.reade@amiplastics.com)

## Film and Sheet FORTHCOMING FEATURES EXTRUSION

The next issues of Film and Sheet Extrusion magazine will have special reports on the following topics:

### December 2023

Screenchangers/melt filtration  
Foamed sheet  
Static control/web cleaning  
Polyolefin additives

### January/February 2024

Bioplastics  
Polyolefins for film/sheet  
Materials testing/quality control  
Medical materials/applications

Editorial submissions should be sent to Lou Reade: [lou.reade@amiplastics.com](mailto:lou.reade@amiplastics.com)

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Claire Bishop: [claire.bishop@amiplastics.com](mailto:claire.bishop@amiplastics.com) Tel: +44 (0)1732 682948

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## Film and Sheet October 2023

The October 2023 issue of Film and Sheet Extrusion magazine includes feature articles on recycling/granulation, extruder developments, biaxial film and mineral fillers. There is also a preview of exhibitors at PEWE North America.

[> CLICK HERE TO VIEW](#)



## Film and Sheet September 2023

The September edition of Film and Sheet Extrusion looks at the latest innovations in multi-layer packaging films. It also reviews developments in thermoforming and PVC plasticisers, and looks at how laboratory extruders can help bring new film concepts to market.

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## Compounding World November 2023

The November 2023 issue of Compounding World looks at the latest innovations in black and white pigments. It also explores some innovative developments in bio-based plastics, inline process control technology, and mixing systems.

[> CLICK HERE TO VIEW](#)



## Plastics Recycling World October 2023

The October edition of Plastics Recycling World takes a look at innovations in extruders for plastics recycling. It also includes a review of the state of chemical recycling investment and explores the latest in recycling additives and odour reduction.

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## Pipe and Profile October 2023

The October 2023 edition of Pipe and Profile Extrusion magazine looks at the latest in pipe inspection techniques and standards. It also explores developments in materials handling equipment, pipe for the oil and gas industry, and innovations in oriented PVC pipe.

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## Injection World October 2023

Injection World's October 2023 issue includes feature articles on in-mould labelling and decoration, the latest materials for E&E applications, and developments in materials handling, plus a preview of Fakuma 2023 in Germany.

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## GLOBAL EXHIBITION GUIDE

2023	<b>7-10 November</b>	Plastimagen, Mexico City, Mexico	<a href="http://www.plastimagen.com.mx">www.plastimagen.com.mx</a>
	<b>15-16 November</b>	Plastics Extrusion World Expo USA, Cleveland, USA	<a href="http://www.extrusion-expo.com/na">www.extrusion-expo.com/na</a>
	<b>22-25 November</b>	PlastEurasia, Istanbul, Turkey	<a href="https://plasteurasia.com/en">https://plasteurasia.com/en</a>
	<b>28 Nov-2 Dec</b>	IPF Japan 2023, Chiba, Japan	<a href="https://www.ipfjapan.jp/english">https://www.ipfjapan.jp/english</a>
	<b>13-15 December</b>	Arabplast, Dubai, UAE	<a href="https://arabplast.info">https://arabplast.info</a>
2024	<b>4-6 March</b>	Plast-Alger, Algiers, Algeria	<a href="http://www.plastalger.com">www.plastalger.com</a>
	<b>13-15 March</b>	Plastics & Rubber Vietnam, Ho Chi Minh City, Vietnam	<a href="https://plasticsvietnam.com">https://plasticsvietnam.com</a>
	<b>23-26 April</b>	Chinaplas 2024, Shanghai, China	<a href="http://www.chinaplasonline.com">www.chinaplasonline.com</a>
	<b>6-10 May</b>	NPE 2024	<a href="http://www.npe.org">www.npe.org</a>
	<b>11-12 September</b>	Plastics Extrusion World Expo Europe, Brussels, Belgium	<a href="https://eu.extrusion-expo.com">https://eu.extrusion-expo.com</a>
	<b>30 Sept-4 Oct</b>	Colombiaplast, Bogota, Colombia	<a href="https://colombiaplast.org/en">https://colombiaplast.org/en</a>


## AMI CONFERENCES

<b>14-16 November 2023</b>	Waterproof Membranes, Cologne, Germany
<b>21-22 November 2023</b>	Multilayer Flexible Packaging, Barcelona, Spain
<b>22-23 November 2023</b>	Recycling Flexible Packaging, Barcelona, Spain
<b>28-29 November 2023</b>	Thin Wall Packaging Europe, Cologne, Germany
<b>29-30 November 2023</b>	Stretch and Shrink Film North America, Charleston, USA
<b>12-14 February 2024</b>	Polyethylene Films, Tampa, USA
<b>27-28 February 2024</b>	Stretch and Shrink Film Asia, Bangkok, Thailand
<b>28-29 February 2024</b>	Specialty Packaging Films Asia, Bangkok, Thailand
<b>12-13 March 2024</b>	Agricultural Film Europe, Barcelona, Spain
<b>23-24 April 2024</b>	Innovations in Pouches, Barcelona, Spain

For information on all these events and other conferences on film, sheet, pipe and packaging applications, see [www.amiplastics.com](http://www.amiplastics.com)

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