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Compostable bioplastic made from milk proteins

Australian and Colombian researchers have found a way to convert milk into a bioplastic.

They have made a thin film from calcium caseinate – a derivative of casein, a milk protein – plus modified starch and bentonite nanoclay. Adding glycerol and polyvinyl alcohol improved the film's strength and plasticity. Biodegradability testing showed full disintegration within 13 weeks in normal soil conditions.

A microbial analysis confirmed that the quantity of bacterial colonies remained within permissible levels for non-antimicrobial biodegradable films.

"We recommend further antibacterial evaluations in further testing and development," said Youhong Tang, a researcher at Flinders University in Australia.

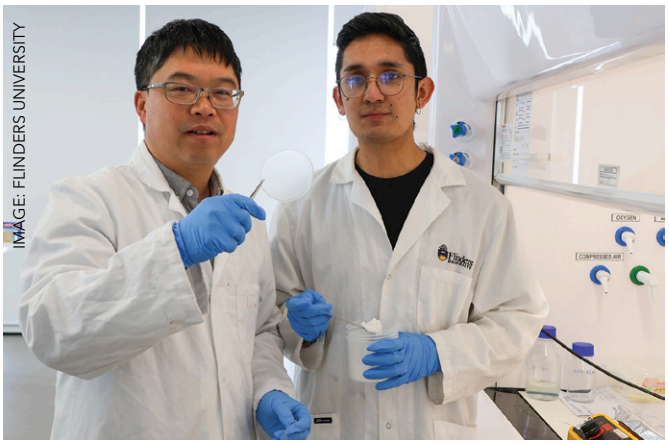

IMAGE: FLINDERS UNIVERSITY

Tang and Gomez have converted milk proteins into a bioplastic

The research was carried out with colleagues at the Universidad de Bogotá Jorge Tadeo Lozano in Colombia.

"We were experimenting with caseinates to make milk-based nanofibres and found we could cast polymers similar to common packaging materials," said researcher Nikolay Estiven Gomez Mesa. "The formulation was designed to use inexpensive ingredients that are biodegradable and environmentally friendly."

The research was published in the journal *Polymers*.

Converters urge EU to take action

EuPC, the trade body that represents European plastics converters, says the sector is at "breaking point".

The organisation has written to EU president Ursula von der Leyen with six recommendations that it says are needed to "save the industry".

It says that Europe will lose around 1 million tonnes of plastics recycling capacity by the end of the year, as well as a drop in plastics production and a dip in global market share.

The recommendations are:

- restoring fair competition by promoting EU-made circular plastics;
- cutting energy costs;
- ending loopholes in verification and enforcement;
- tackling fragmentation;
- promoting innovation and private investment; and,
- enhancing EPR for a fair circular market.

› **www.eupc.org**

Novolex shuts California plant

US-based Novolex is to close a Pactiv Evergreen thermoforming plant in California, affecting more than 125 employees.

A Worker Adjustment and Retraining Notification (WARN) note, posted by the state, said the move would affect 127 employees when the plant in Bakersfield closes in October.

Novolex – owned by private equity firm Apollo Funds – acquired Pactiv Evergreen in April for US$6.7 billion.

› **https://novolex.com**

Recycling business aims for full commercialisation

Nexam Chemical says it has reached a "full commercial breakthrough" of its Reactive Recycling business.

It recently signed up two customers that intend to scale up their use of recycled plastics. Both are fully operational, with deliveries reaching a steady run-rate, says Nexam.

In Reactive Recycling, Nexam mechanically recycles HDPE, PP or PET – using additives to maintain physical properties such as melt strength and toughness.

The process can be applied to areas such as flexible packaging and film, rigid packaging and industrial parts, it said.

"This shows that Reactive Recycling is a proven solution for customers who need stronger, more reliable recycled plastics at scale," said Ronnie Törnqvist, CEO of Nexam.

Nexam says the two contracts are worth around SEK15 million (US$2m) – around 10% of the company's total sales – with potential for further growth.

› **www.nexamchemical.com**

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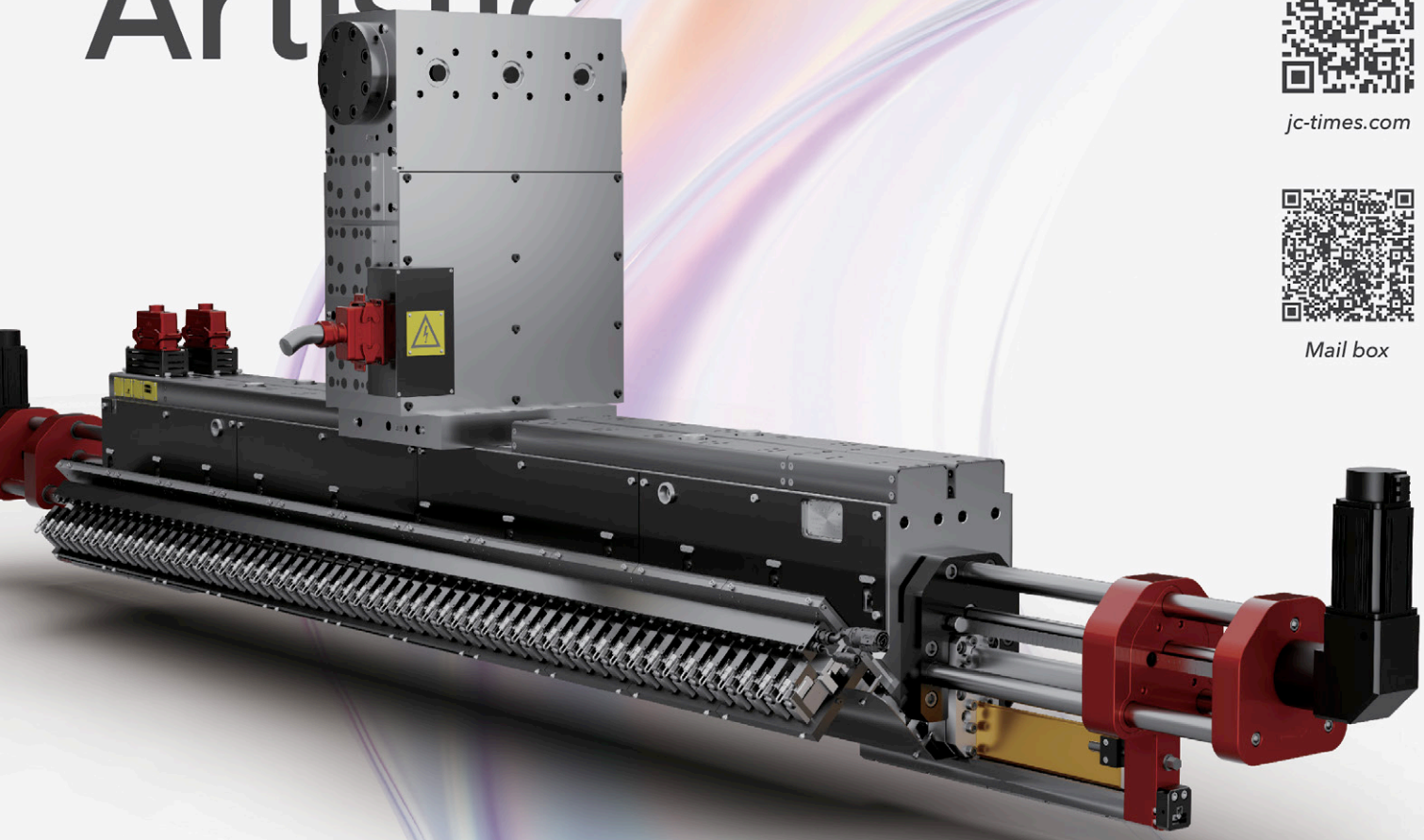

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IN BRIEF...

German machine manufacturer **Windmöller & Hölscher** (W&H) has acquired US-based Addex, a supplier of blown film extrusion equipment. Addex will continue to operate under its own name, though Brad Humbolt – sales director of corporate accounts at W&H in the US – becomes president in place of Bob Cree, who becomes director of special projects at the company.
www.whcorp.com

Amut of Italy has appointed Extrudamerica as sales agent in the mainland Northeast and Mid-Atlantic US. The company will help Amut connect with processors across the territory by identifying customer needs and offering technical consultation.
www.amut.it

Simona sales rise but profits fall in first half

Simona of Germany saw a rise in sales – but a dip in profits – for the first half of the year.

The company reported sales of €302 million – an increase of just over 1% compared to the same period last year. However, profitability (EBIT) fell by around 22% to just under €17m.

Simona saw a decline in two of the three regions in which it operates.

In EMEA, sales grew by 7% to €193m. This was driven mainly by increased sales volumes in its infrastructure business. At the same time, profitability in EMEA rose to around €3.5m – about 15% higher than the same period in 2024, according to the company.


IMAGE: SIMONA

Schönberg: "Simona expanded revenue and sales volume in the first six months, despite tariffs"

In the Americas, sales fell by 6% to nearly €86m (US$104m), due mainly to "sluggish demand in the mobility and advertising & building business lines". EBIT fell by around 8% to around €14.7m. The region's main business is in thermoplastic sheet for aircraft interiors.

In Asia-Pacific, sales fell by 12% to nearly €23m due to weak demand the chemical and photovoltaic industries.

"In an environment of uncertainty – in the wake of US tariffs and geopolitical conflicts – we expanded revenue and sales volume in the first six months," said Matthias Schönberg, CEO of Simona.

"This is a testament to growth in infrastructure applications in EMEA."

Simona expects full-year group revenue to reach €610-620m – a growth of 5-7%.

› **www.simona.de**

Strategic partnership in battery separator film

Asahi Kasei is to supply its Hipore lithium-ion battery (LIB) separator film to Toyota Tsusho in North America, after agreeing a strategic partnership.

The agreement entitles Toyota Tsusho to a preferential share of Asahi Kasei's Hipore output. From mid-2027, Asahi will supply Toyota with coated Hipore separator from its plant in Charlotte, North Carolina – which is currently being built. This will allow Asahi Kasei to mitigate the risk of market fluctuations and maintain high rates of operation. Toyota Tsusho will benefit from a stable supply of LIB separator.

"This alliance fits our global growth strategy to build and strengthen a supply chain in North America," said Ryu Taniguchi, lead executive officer at Asahi Kasei, who is responsible for the company's separator business.

Last year, Asahi Kasei announced that it would build a LIB separator plant in Port Colborne, Canada. Commercial production is scheduled to begin in 2027.

Kazuyuki Urata, COO of Toyota Tsusho's circular economy division, added: "This collaboration is an important step toward the acceleration of electrification in North America and a sustainable mobility society."

› **www.asahi-kasei.com**


IMAGE: ASAHI KASEI

Asahi Kasei is to supply its Hipore lithium-ion battery film to Toyota Tsusho in North America

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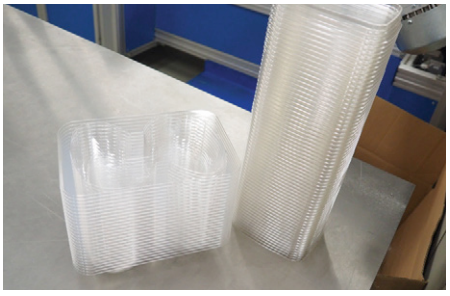

Bottom: Stacked packaging, coated with anti-block

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Nova starts up PE film recycling facility in US

Nova Chemicals has commissioned its first PE film recycling facility, dubbed Syndigo1, in Connersville, Indiana, US.

The facility spans 137,160m²and will produce over 45,359 tonnes/yr of recycled PE (rLLDPE) making it one of the largest and most sophisticated plastic film mechanical recycling facilities in the world, it said.

"Our Syndigo1 facility is a tangible example of what motivation, collaboration, and market demand can do together," said Nova Chemicals CEO Roger Kearns. "As of today, we're not only a petrochemicals producer but also a recycler of polyethylene. We're diverting plastic waste from landfills and turning it into new, quality products that help keep our food fresh or safely transport goods and materials to store shelves."

Today, three of four lines are in operation, and the facility will be fully operational by early 2026. Nova is currently working with several film manufacturers and distributors to incorporate recycled polyethylene into flexible packaging, with demand for post-consumer recycled plastic set to triple by 2030, according to McKinsey.

IMAGE: NOVA

Ribbon-cutting at the opening of the Syndigo1 plant in Connersville

Nova announced its intention to build the facility and work with Novolex to operate it in July 2023, intending to capitalise on its nearly 20 years of experience in operating plastic film recycling facilities.

In 2024, the facility's mechanical recycling process received a first-of-its-kind Letter of Non-Objection from the US Food and Drug Administration confirming its ability to produce post-consumer rLLDPE suitable for food-contact applications. In April this year it achieved the Recycled Material Standard certification from Green Blue, verifying that the Syndigo-branded material produced at the facility is 100% post-consumer recycled content.

› **www.novachem.com**

Greenhouse films to be taken back

Greenhouse films are now part of the Erntekunststoffe Recycling Deutschland (ERDE) system, a recovery and recycling method for crop plastics that actively contributes to sustainable agriculture in Germany.

After collection, the films are recycled by specialised European partners into high-quality recyclate meaning the initiative not only promotes resource conservation, but also offers farmers more end-of-use alternatives.

In addition to Plastika Kritis, which supported pilot collections last year, further manufacturers such as Groupe Barbier, RKW SE and Reyenvas, are now involved in the scheme. With around 700 collection points and over 150 collection partners, the take-back system is already well-established in Germany.

› **www.erde-recycling.de**

Trioworld expands US and India operations

Swedish flexible film producer Trioworld is to open a US manufacturing facility – while also expanding operations in India.

The new US plant – in Brownsburg, Indiana – is due to open in the autumn and create 33 new jobs.

It is expected to eventually double Trioworld's North American production capacity.

"This facility will give our customers a competitive edge through ongoing investment and technical film innovation that push sustainability," said Ricardo Cardoso, CEO of Trioworld North America.

The facility was built – and is owned – by Brennan Investment Group, which owns and manages approximately 57 million sq ft of industrial properties in the US.

The North American expansion comes a few months after Trioworld signed a strategic joint venture with Indian film manufacturer Filmtec – which it says will extend its global reach.

Andreas Malmberg, CEO of Trioworld, said: "This joint venture is a strategic step in our global expansion, enabling us to tap into the rapidly growing Indian market."

Filmtec specialises in 'ultra high-performance stretch films' and POF shrink films, says Trioworld.

› **www.trioworld.com**

› **www.filmtec.in**

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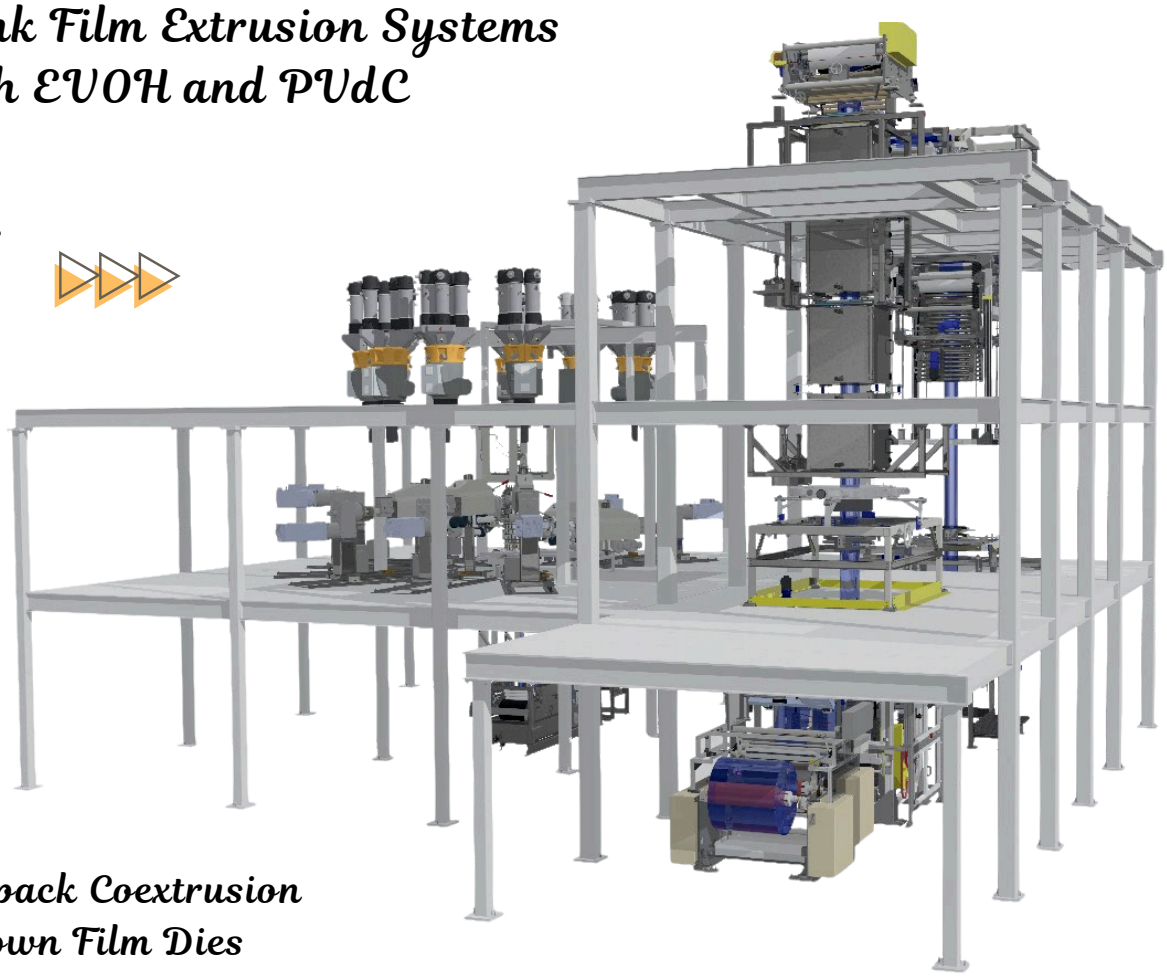

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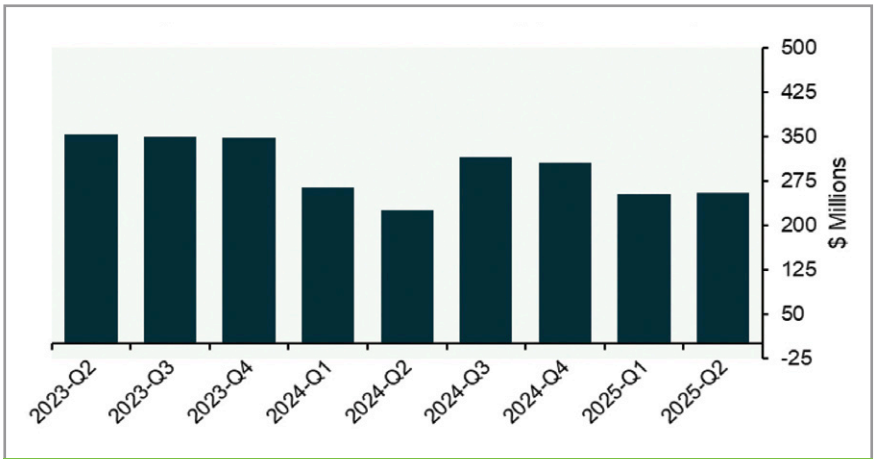
Machinery sales up in first half of 2025



Primary plastics machinery sales, North America
Source: CES

Plastics machinery sales in North America rose in the first half of the year.

Figures from the Plastics Industry Association's Committee on Equipment Statistics (CES) show total sales of around US$505 million for the period – more than 3% ahead of the same period last year.

"Shipments stopped falling in the second quarter – and increased by 3.5% in the first half of the year," said Perc Pineda, chief economist at the association. "It seems the plastics industry had a better handle on trade and tariff challenges across the value chain in the second quarter compared to the first."

Sales value in Q2 was around US$254m – up 0.7% from both the previous quarter and the same period in 2024.

This was driven by a 49% increase in twin-screw extruder sales compared the first quarter, and a doubling (up 115%) from the Q2 of 2024. In contrast, single-screw extruder sales fell 11% on the previous quarter, but rose 6.5% year-on-year. Injection moulding sales were down 3.1% on the previous quarter, but up 5.4% from Q2 in 2024.

On US plastics machinery trade, imports fell nearly 8% compared to Q1 but rose nearly 2% compared to the same period last year. Total exports rose 0.4% from Q1 but fell by more than 4% year-on-year.

In the second-quarter survey of CES members, 58% of respondents expected market conditions to remain steady or improve over the next 12 months – down from 62% in the previous quarter. However, the share reporting that quoting activity held steady or improved rose from 65% to 76%.

"The advance estimate of US real GDP showed a 3% increase in the second quarter," said Pineda. "The broad-based increase in household spending – across durable and non-durable goods and services – also points to room for growth in plastics manufacturing, particularly as imports decline."

The association says its Flexible Film Recycling Alliance (FFRA) has seen users of its Plastic Film Recycling Directory top 112,000 unique users since its launch in mid-January. The interactive tool helps US residents find nearby drop-off locations for recycling plastic film. It lists more than 20,000 drop-off locations listed across all 50 states and Puerto Rico.

› **www.plasticsindustry.org**

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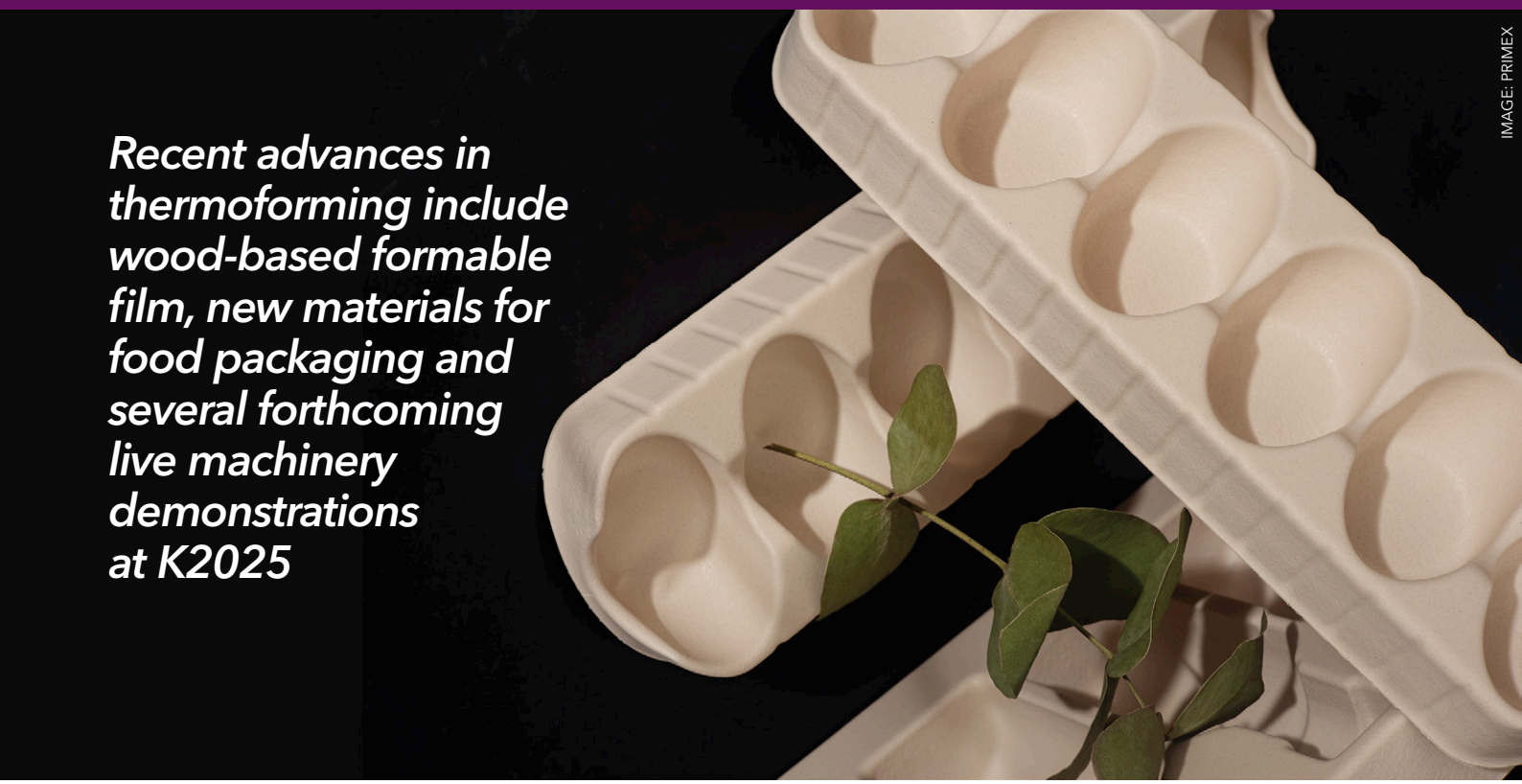

IMAGE: PRIMEX

Recent advances in thermoforming include wood-based formable film, new materials for food packaging and several forthcoming live machinery demonstrations at K2025

Pressing business: latest in thermoforming technology

Thermoforming continues to gain ground as a processing technique – with new applications including food packaging and medical products.

In one example, a cover for a medical cart has won the top prize at the **Society of Plastics Engineers** (SPE) thermoforming division's conference.

The component, from **Profile Plastics**, was made using multi-part pressure forming for a new medical cart. Six panels cover one cart of a two-cart system used for a non-invasive tumour treatment procedure. The cart also includes four vacuum-formed parts.

It used 0.187in- and 0.250in-thick PVC/acrylic material with custom, moulded-in colour and a temperature-controlled aluminium tool with negative cavity.

There were two main challenges: achieving a cosmetic appearance while using no visible fasteners; and incorporating sufficient air flow.

The original design was intended for injection moulding. PVC blocks along the edges provided panel-to-panel alignment and mating for a tight-fittng, clean transition between parts. Wall thickness at the edges was adjusted via CNC for better mating.

The design also included an intricate vent pattern to meet the air flow requirements. Vents with proper draft and spacing were formed-in and back-shaved, so there were no cutter marks on the A side.

The customer also needed a magnetic field in two locations to hold tools during use. The design included developing attachment points for magnets, determining proper magnetic field strength and controlling material thickness to prevent interference.

California-based **Ray Products** won two awards – for parts made for electric vehicle and battery applications.

One was a cover for an EV charging station, which needed to meet stringent outdoor requirements while providing a cosmetic finish without paint. The customer previously other methods such as injection moulding and even sheet metal for its equipment covers. These parts typically failed to meet the outdoor requirements or required secondary finishing processes.

Pressure formed acrylic/PVC was the solution for a durable, weather-resistant enclosure. The final 11-part enclosure was engineered for easy assembly with minimal attachment points, eliminating the need for secondary processes. Using pressure forming, several thousand units with consistent quality and part-to-part repeatability were made.

The second part was a low-speed EV door

Main image: Sulapac Prime thermoforms at lower temperature, which can save up to 20% in energy

Right: A medical cart cover won the top prize at the SPE thermoforming division's conference

assembly. Here, the goal was to take the current manufacturing of interior/exterior vacuum-formed parts and provide value-added services which included the door assembly. The OEM was looking to decrease sub-assembly work to increase vehicle output.

IMAGE: DALLAGER PHOTOGRAPHY

The door has four configurations, while the car itself has three body styles – and four different colours can be used on each body style. Over 75 components are assembled to make the door assembly, including window glass, sliders, handles and metal frames.

By working with the OEM to understand the manufacturing process – and using its expertise in fixture building, assembly, and inspection – the company developed a new door assembly cell. It created custom-built assembly platforms allowing one door to be assembled without the need to change fixtures. A Kanban system was implemented to provide customer flexibility with minimal warehouse space required.

Other award winners included: a bucket seat made with a 3D-printed tool; a tray to hold automotive gears, made from heavy gauge sheet; and a 'flip sink' for camper vans.

Speedy work

At K2025, **Kiefel** will present its Speedformer KTR 6.2 Speed tilting machine in a live demonstration.

The company says that the model optimises material consumption and line performance. At the show, it will produce cups from a range of materials including recycled PET.

Various rPET materials were tested in advance, in collaboration with film partner Coexpan. At Kiefel's booth, visitors will also learn about test results – and see how recyclability and high-quality design can be applied to cup production.

The machine has several new features – with patents pending – including: the SpeedGuard film guide; and the ProSpacing system, which ensures higher output even when handling varying product geometries.

A digital twin of the machine can also be seen (at the Siemens booth) to demonstrate the "practical advantages of holistic project support", says Kiefel.

Live demos

WM Thermoforming Machines will demonstrate two machines at K2025. The FX780 IM2, a steel rule die thermoformer, will include an in-line AI vision inspection system for quality control, as well as the new DLifter – an in-line elevator for efficient product discharge. The line will product expanded PP (XPP) menu boxes, which are designed for "strength, insulation and branding flexibility".

At the same time, the Twist 700 is a tilting machine with electrical cams, running with the new MSvS stacker – which WM says provides "speed, precision and flexibility". At the show, it will be producing R-PET transparent juice cups.

In addition, WM will be showcasing updates to its user interface and machine software, developed to simplify operation and increase overall process efficiency. It has also worked to integrate artificial intelligence into its systems "to support smarter, real-time decision-making directly on the production line".

Sharp performance

Suedpack plans to show a variety of products at Fachpack in September, including a range of recyclable thermoforming packs and trays.

It will present solutions for packaging sausages, cheese or meat. The portfolio includes thermoformable rigid and flexible films, peelable and multi-peel top webs from the PP and PE Pure-Line, as well as Peel PET floatable – a top web that can

Kiefel will show its Speedformer KTR 6.2 Speed tilting machine in a live demo at K2025

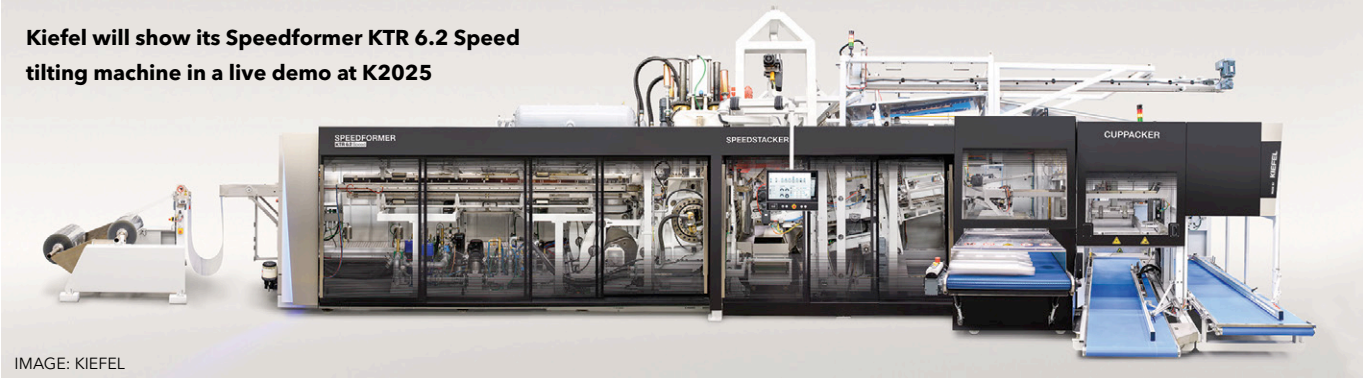

IMAGE: KIEFEL

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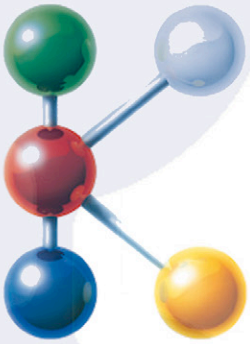

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be separated from an APET bottom web or tray during recycling thanks to its floating properties.

All material structures offer good barrier and sealing properties – even when the seal area is contaminated, it says.

The company has also updated its skin film range, which it says cuts material usage while extending shelf life. The transparent films can be sealed to PP, PE, and PET. They wrap tightly around fillets as well as bone-in or sharp-edged products such as T-bone steaks or seafood. The food retains its shape and does not leak, making it suitable for hanging displays at the point of sale, says Suedpack.

Flexpack manufacturer **Korozo** will showcase new thermoforming products at both Fachpack in Europe and Pack Expo Las Vegas in the US – over the next month.

A new FDA-compliant vacuum skin packaging (VSP) film, called 10K VSP, is aimed at fresh seafood. This delivers on the required oxygen transmission rate of at least 10,000cc/sqm/24 hours, which ensures oxygen levels remain high enough to prevent the growth of harmful bacteria, says Korozo.

"The appetite for meat, fish, and dairy products in Europe, the US and around the world continues to grow," said Kemal Yurum, protein segment market manager at Korozo.

IMAGE: KOROZO

Left: Korozo's new FDA-compliant vacuum skin packaging film, 10K VSP, is for fresh seafood

Formable film

Scanfill of Sweden has begun offering Degrafoil Flow 1.7 – a thermoformable film made of Flow 1.7, from Finnish company **Sulapac**.

Flow 1.7 incorporates around 20% wood flour from industrial side streams into different biodegradable biopolymers, including polylactic acid

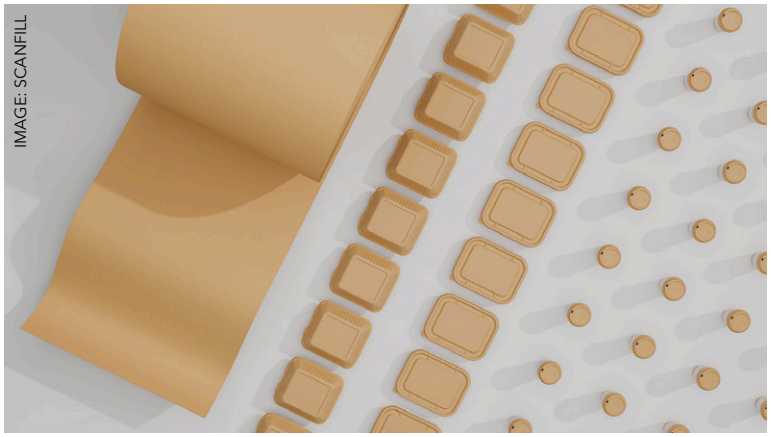
IMAGE: SCANFILL

Above: Scanfill's new thermoforming film is made from Sulapac's Flow 1.7 PLA-based material

(PLA). It supplies this to Scanfill as granules. The material can be used as a direct replacement for conventional polymers such as polystyrene and PET.

Scanfill says Degrafoil Flow 1.7 products have a smooth, fibre-like surface that "feels distinct from conventional plastic". The product can be coloured in many ways but is not available as a transparent grade.

It is available in widths up to 1450 mm and thicknesses 350-1200 microns.

"With Degrafoil Flow 1.7, our clients can respond to demands for renewable content and reduced carbon footprint while continuing business as usual," said Karl Banke, sustainability specialist and technical support at Scanfill.

Degrafoil Flow 1.7 is made at Scanfill's facility in southern Sweden following the requirements for food contact materials.

Bio-based sheet

The company also offers a line of bio-based wood-plastic composite sheet – called Prime Sulapac – which is now available in US through **Primex**.

The material is a combination of wood from industrial side streams and biodegradable biopolymers. This gives the aesthetic appeal of natural fibre products with the durability and functionality of plastics. It can be used for thermoforming and other applications.

Prime Sulapac sheets for thermoforming have a high bio-based content and are industrially compostable. The material has a low carbon footprint and can be mechanically recycled, helping to minimise waste. It leaves no persistent microplastics or toxic chemicals behind, says the company.

"Our key design principle is to create materials that are safe for people and the planet," said Joona Kontinen, growth and innovations manager at Sulapac. "To ensure this, we conduct rigorous testing – with internal standards often ahead of regulation."

Unlike many bio-based materials that require strict temperature control during manufacturing, Prime Sulapac has "a more forgiving processing window" for greater manufacturing flexibility and fewer production challenges, it says. Its lower thermoforming temperature requirements can save up to 20% in energy savings due to shorter heating times. This can cut production time and increase operational efficiency.

It has been used to replace traditional plastics such as PS, PP, and PET, for packaging inserts and other thermoformed products including point-of-sale displays, logistic trays, single-use food packaging, and blister cards.

Factory changes

Two thermoforming manufacturers are expanding capacity in Costa Rica.

Nelipak has broken ground on a new healthcare packaging production factory there. It will include: thin-gauge thermoforming for medical device trays and blisters and heavy-gauge thermoforming for deep draw tubs and trays.

Due to open in mid-2026, the 60,000 sq ft Class-A industrial facility will expand Nelipak's regional capacity and capabilities. The site will be ISO 13485 certified and include ISO-7 cleanroom manufacturing space, making sterile-barrier healthcare packaging. It will also allow for future building expansion.

"This investment underscores our long-term commitment to our customers in Latin America and the Caribbean," said Pat Chambliss, CEO of Nelipak.

In addition, **Placon** has opened a new warehouse and centre facility in Costa Rica. The 150,000 sq ft facility will act as the supply chain hub for the warehousing, transport and inventory management of Placon's medical-related packaging.

"Costa Rica has become a medical manufacturing hub for many of our customers," said Justin Stovall, EVP of commercial operations at Placon. "Our goal is to provide them with the packaging they need, closer to their regional operations."

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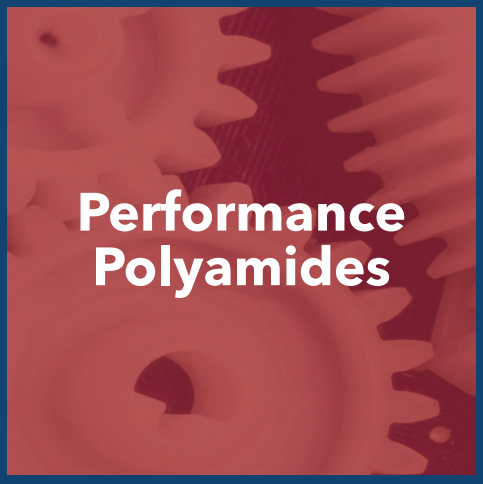

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Corporate sustainability efforts and consumer concerns are seen as driving some shifts in plasticiser use. Jennifer Markarian reports on offerings from suppliers

New options for making PVC flexible

A wide range of plasticiser chemistries are used to make PVC flexible and enable its use in many different applications.

Phthalate-based plasticisers are widely used, but many of the low molecular weight phthalate plasticisers have been phased out or are coming under more restrictions due to toxicological concerns. High molecular weight phthalate-based plasticisers do not have the same concerns and have been extensively studied and regulated for more than two decades, said **European Plasticisers**, a sector group of the European Chemical Industry Council (Cefic).

"High molecular weight phthalates represent around 85% of all the ortho-phthalates currently produced in Western Europe," the group said on its website. "Nowadays, the most commonly used high molecular weight phthalates are diisononyl (DINP), diisodecyl (DIDP) and di(2-propyl-heptyl) phthalate (DPHP). Use of low molecular weight phthalates is decreasing in Europe, and they account for less than 11% of the total production, with di(2-ethylhexyl) phthalate (DEHP, also known as DOP) representing the highest remaining but decreasing volume and DEHP is only used in specific applications."

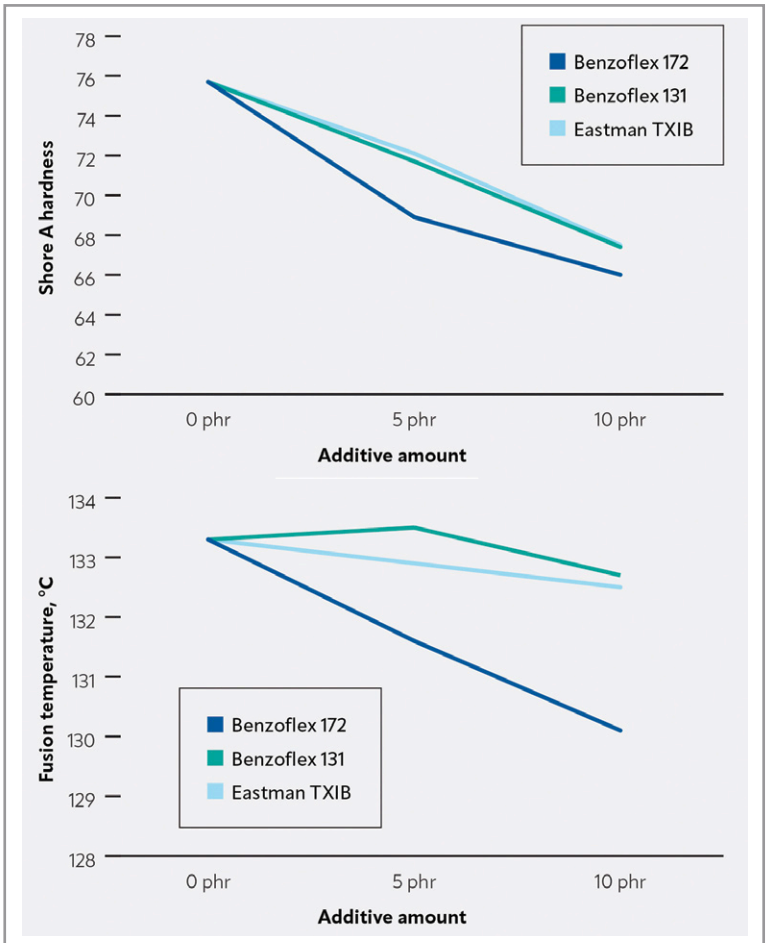
In the US, the Environmental Protection Agency's (EPA) final risk assessments for DINP and DIDP reaffirmed the safety of the substances as currently used in the vast majority of applications, said the **American Chemistry Council's** (ACC) High Phthalates Panel.

The evaluations had been requested in 2019 by the substances' manufacturers, and the final risk assessments were released this year.

"Specifically, EPA determined that uses of DINP and DIDP regulated under TSCA [Toxic Substances Control Act] do not pose unreasonable risk of injury to human health for consumers or the general population, or to the environment. This conclusion reconfirms DINP and DIDP manufacturers' full confidence in the safety of these chemistries as currently used," said the ACC Panel.

The group noted that in the final risk evaluation,

Main image: More alternatives to low molecular weight phthalate-based plasticisers are reaching the market



Eastman's new Benzoflex 172 compared with other Eastman plasticisers
Source: Eastman

EPA concluded that all 15 consumer uses and 28 out of 32 industrial and commercial uses EPA evaluated for DINP under TSCA are safe, which is approximately 97% of the produced volume. Similarly, for DIDP, in the final risk evaluation, EPA concluded that 43 of the 49 industrial/commercial/consumer uses for DIDP are safe, which is approximately 99% of the produced volume.

"These assessments of safety are key to manufacturer and consumer confidence: manufacturer-requested risk evaluations are an important tool for transparent, fair, and evidence-based risk evaluations and are the same level of rigour – the requirement to use the best available science and undergo expert peer review – as EPA-initiated risk evaluations," said the group. "While a small number of conditions of use were identified as posing unreasonable risk under specific, high-exposure scenarios, these conditions are not likely to exist in industrial and commercial settings where automation and personal protective equipment is routinely used. We look forward to continuing our engagement with EPA to help ensure that the risk management process reflects real-world conditions and supports the continued safe use of these important chemistries."

Non-phthalate options

Non-phthalate-based plasticisers of various chemistries have been introduced over the years, and manufacturers report increased use.

Aurorium, which offers the non-phthalate Citroflex product line, reported that it sees an increasing focus on bio-based and non-phthalate alternatives. "This trend is driven by tighter environmental regulations, rising consumer awareness, and the demand for more environmentally responsible materials. Regulatory bodies such as ECHA have restricted the use of certain phthalates in medical devices, food contact uses and other consumer products. As a result, the adoption of non-phthalate plasticisers has accelerated," the company said.

Aurorium's Citroflex B-6 plasticiser is used in PVC medical device applications as a drop-in replacement for DEHP, with the low-temperature flexibility that is necessary for many medical applications, such as blood product storage, the company reported. It has been used for more than 20 years in medical applications. Aurorium's Citroflex A-4 plasticiser, a partially bio-based, phthalate-free plasticiser, is widely used in medical tubing, food wraps and films.

The latest from **Eastman** is Benzoflex 172, a monobenzoate-based plasticiser for PVC plastisols or other moderately polar polymers like polyurethane. In plastisols, the new additive more efficiently plasticises and reduces viscosity compared to two of the company's traditional plasticisers: Benzoflex 131 and Eastman TX1B. Benzoflex 172 is better than other plasticisers at improving flexibility (ie, hardness reduction) in lab testing, which could allow lower use levels. The company said the new plasticiser also reduced fusion temperature, which is beneficial for PVC processing.

Capacity expansion

Evonik announced in late 2024 that it would begin expanding capacity for its isononanol (INA)-based plasticisers: Elatur CH, a di-isononyl-1,2-cyclohexanoate (DINCH) and Elatur DINCD, a cyclohexanoate. The company said that these products, introduced in recent years, have become established as "new standard plasticisers with Evonik Oxeno customers". The capacity expansions will be integrated into the existing network of C4 plants in Marl, Germany.

"With the expanded capacity, we can ensure our customers a high level of delivery reliability and quality from European production," said Roland

Pietz, vice president of the oxo alcohols and plasticisers at Evonik Oxeno.

Elatur DINCD has low-temperature flexibility and high UV resistance, contributing significantly to the weather resistance and durability of the products made from it. The plasticiser was launched in 2022 and is suitable for interior and exterior applications, such as floor coverings and roofing membranes.

Elatur CH (DINCH) can be used for applications involving close human contact, such as medical devices. It has low viscosity, low migration tendency, low-temperature flexibility and an excellent toxicological profile, the company reports.

The company notes that its high molecular weight general purpose DINP product, Vestinol 9, continues to be a crucial component of its portfolio and says it is dedicated to ensuring a high level of supply security for its customers.

Evonik Oxeno offers the option for its products to be produced and supplied using mass-balanced methods from bio-based, bio-circular, circular raw materials, or utilising green energy.

Mass balance

Mass balancing is gaining acceptance as a way of accounting for use of bio-based, renewable, or chemically recycled feedstocks. These feedstocks are combined with conventional, fossil-based feedstocks at the initial stages of chemical production, and the alternative feedstocks are attributed to the final product in an accounting method that is certified by a third party (eg, International Sustainability and Carbon Certification [ISCC] Plus).

In introducing new versions of its plasticisers containing sustainable content certified by ISCC Plus, Patrick Harmon, industry manager for industrial petrochemicals at **BASF,** said: "With these drop-in solutions, our customers receive a product with a reduced CO_2 footprint compared to conventional materials or one that saves fossil resources by using a feedstock made from plastic waste; in addition, no technical changes are required on their part."

BASF's TOTM and TOTM-I (tri-2-ethylhexyl trimellitate) are available as BMB products: Palatinol TOTM Advantage 50 and Palatinol TOTM-I Advantage 50. TOTM are important plasticisers for wire and cable insulation, as well as in construction, automotive and medical markets, BASF said.

The two new versions of Palatinol DOTP (di-2-ethylhexyl terephthalate) plasticiser are Palatinol DOTP Advantage 50 (BMB) and Palatinol DOTP Ccycled products. BASF said that its DOTP has broad food contact clearance from the US FDA for use in flexible vinyl and other plastic products. It has a favourable toxicological profile, with a designation from the third-party ChemForward Safer program as well as being listed in CleanGredients, a database based on Safer Choice criteria from the US EPA.

Evonik has been expanding production capacity for plasticisers

IMAGE: EVONIK

Reduced footprint

"Sustainability continues to be a driving force for converted PVC products, even during cost pressures and market competition," said Martin Hansson, business manager EMEA at **Perstorp**, which produces the non-phthalate Pevalen range of plasticisers. "We see brand owners preparing proactively for potential regulatory developments. The emphasis on integrating renewable and recycled content is shaping procurement and innovation strategies."

The company has focused on reducing the Product Carbon Footprint (PCF) of its products. Pevalen Pro 36 and Pevalen Pro 100 are certified under ISCC Plus and produced using the mass balance approach. Pevalen Pro 100, which is derived from 100% renewable and recycled raw materials, achieves a cradle-to-gate PCF close to zero kg CO_2e/kg, including biogenic carbon uptake, the company reported.

"This makes it a frontrunner for low-impact plasticiser applications," said Hansson.

The need for affordable and sustainable alternatives to current plasticiser offerings continues, especially in consumer-facing markets, said Ron Raleigh, senior business development manager for Plasticisers at **Cargill**.

Cargill's bio-derived Biovero plasticisers can be used in PVC. These speciality plasticisers are also being looked at as "greener" solutions in sealant technologies, said Raleigh.

Versalis introduced Nareglax plasticiser, a diester of azelaic acid with 2-ethylhexanol (DOZ). ❯

IMAGE: SHUTTERSTOCK

Above: Many plasticisers are suitable for food contact applications

The company said the azelaic acid component is produced by Matrica using European-origin vegetable oils, resulting in a 38% carbon content. The additive can replace dioctyl sebacate (DOS) and dioctyl adipate (DOA) in low-temperature applications in wires, cables, flexible hoses, films, and packaging. The company said it has good weather resistance and electrical insulation performance, plasticising efficiency, low volatility, and a low migration rate.

TekniPlex Healthcare introduced bio-based PVC compounds that the company says use resins and plasticisers manufactured with renewable energy and bio-attributed classification, certified by ISCC Plus. The compounds are drop-in replacements for traditional PVC medical-grade compounds and are produced in Northern Ireland.

"As the healthcare industry increasingly emphasises eco-friendliness and carbon footprint reduction, TekniPlex Healthcare's bio-based, medical-grade PVC compounds enhance sustainability profiles without sacrificing the reliable performance for which traditional PVC compounds are known," the company reported.

The company says the new compounds can reduce carbon dioxide output by up to 90% compared to conventional PVC resins and approximately 60% compared to traditional PVC plasticisers.

Synergist ability

Galata Chemicals has developed mixed-metal carboxylate-type heat stabilisers for use in flexible PVC compounds plasticised with the company's primary bio-based and bio-attributed Drapex Alpha 200 and Drapex Alpha 215 plasticisers.

One of the new synergistic stabilisers, Mark 3630, also boosted UV-light stability and plasticiser permanence in compounds containing the Drapex Alpha plasticisers.

"The combination of Mark 3630 with Drapex Alpha 200 significantly increased the time-to-exudation of PVC compounds compared to the conventional compounds with DOTP, DINP or TOTM and mixed metal carboxylate stabilisers," said Patrick Evans, global director of technology at Galata Chemicals.

Although it depends on the formulation, the high efficiency and synergism of the Drapex Alpha plasticisers and Mark 3630 often allow significantly reduced plasticiser and stabiliser loadings, said Peter Frenkel, a consultant for Galata.

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IMAGE: SHUTTERSTOCK

The nature of multilayer packaging is changing, with new approaches that must balance high barrier performance with increasing requirements for recyclability

Showing the benefits of multilayer packaging

Multilayer packaging is critical to many industries – especially food – and advances in materials and processing techniques continue.

Delegates at the recent Multilayer Flexible Packaging event – organised by AMI – heard about advances in film stretching, the creation of all-polyolefin structures and the use of bio-based materials.

Steve DeSpain, vice president of **Reifenhauser** in the US, told delegates that polyolefin film stretching can help to create new types of recyclable packaging.

He pointed to corporate goals – in which many brand owners aim to boost the recyclability of their packaging – and laws such as Europe's Packaging and Packaging Waste Directive (PPWD) as key drivers towards this.

"Brand owners will be forced to design packaging for recycling," he said.

He added that combining all-polyolefin laminates with barrier polymers such as EVOH could be fully recyclable – while a typical multilayer structure combining PET and polyolefin would be "banned from 2030" under PPWD.

Machine direction orientation (MDO) helps to raise the gas and moisture barrier of PE, even without a barrier layer, he said. This can help to reduce the cost of packaging through downgauging, material replacement and process improvement. However, combining this with EVOH can further raise barrier properties. According to DeSpain, a sustainable barrier can be created with less than 5% EVOH in a packaging structure.

"Machine builders and manufacturers have been pursuing the same goal for some time: not to use more material in fully recyclable all-PE solutions than in conventional PET-PE laminates," he said.

This is done by replacing 12-micron PET film with a 16-17-micron MDO-PE film.

"With the reduction to 18 microns, we have taken a significant step in this direction – with further downgauging potential for the future," he added.

Main image: Kuraray's Eval SC has replaced PVDC in vacuum packaging for meat

IMAGE: SHUTTERSTOCK

Above: NaturTec says compostable plastics could be used to create effective freezer bags

Last year, over a 72-hour period, it demonstrated the production of 18-micron MDO PE film in collaboration with LG Chem.

The new 18-micron film reduces the amount of material used by around 25% compared to previous thicknesses of 25 microns. This makes production much more economical. Despite the low thickness, there are no compromises in optical or mechanical properties, he said.

The film has a modulus of elasticity exceeding 1,400 MPa (MD) and exceeding 1,100 MPa (TD). Its haze, of below 5%, exceeds that of current products (6-7%), he said. At Drupa, it exhibited an 18-micron film that combined 59% HDPE, 39% mLLDPE-C6 and 2% additives – made on an Evo five-layer line with MDO Evo Ultra Stretch.

"The 18-micron film will come closer to the standard PET weight per metre, and get more competitive," said DeSpain.

Cold comfort

NaturTec says it is using its 'reactive extrusion' technique to create freezer bags from compostable bioplastics.

Anthony Keyes, senior formulations engineer at NaturTec, told delegates that reactive extrusion blends polymers and modifiers in a way that increases miscibility – and thus prevents phase separation.

"The controlled molecular architecture can generate new material properties," he said.

He pointed to the example of freezer bags – and the concept of 'freezer burn', in which food deteriorates in the freezer due to water vapour loss. The company created and tested many formulations, using a compostable bioplastic in place of traditional PE.

"Both thickness and formulation play a role in water loss," he said. "While WVTR is higher, compostable bags still can stave off freezer burn."

Armed with this research, the company has moved from lab to pilot scale – with an eye on a commercial launch for the multilayer bags. One potential all-compostable design uses PBAT, PLA and PHA.

The next steps are to test the line speed and the barrier properties of the new bags prior to full commercialisation.

Barrier boost

Kuraray has developed a range of EVOH grades aimed at a variety of packaging formats.

Its Eval SC range can be used for thermoforming films, biax film and triple-bubble shrink bags. The main benefit of the material is its high oxygen barrier – which complements the water barrier of PE.

Edgard Chow, director of TSD at Kuraray America, and Takeshi Sakano, Eval R&D leader at Kuraray in Japan, said that EVOH helps keep oxygen, off-flavours and odous out of packaging – while retaining flavour, aroma and MAP gases within.

As well as being mechanically recyclable – typically up to amounts of 5-6% – it has also undergone a proof of concept with chemical recycling, with "no adverse effect in the pyrolysis process at ExxonMobil", they said.

They added that Eval SC has "improved orientability without sacrificing oxygen barrier" compared to 'conventional' EVOH.

In one study, Kuraray compared 'legacy' designs (containing polyamide and EVOH) with new 'all-polyolefin' designs that include an Eval SC barrier layer. Here, it created a 7-layer thermoformable film (of both types) and carried out a single-batch forming study. In one case, the amount of Eval needed to create a satisfactory barrier – and have high transparency – was just 2.1% (compared to 18.2% for the original PA/Eval structure).

For tenter frame biax film, it ran on a 7-layer BOPP pilot line. The 20-30 micron film, which included an Eval layer of 1-4 microns, was aimed at formats such as lidding film and flow pack film for applications such as processed meat and cheese.

Another format is to incorporate both Eval and metallised layers for even higher barrier properties. Here, several polyolefin layers are combined with a co-extruded and oriented Eval layer, plus a metallised layer. The overall structure is recyclable, said Kuraray.

"The structure has high mechanical strength due to orientation, and an ultra-high barrier due to dense metal-EVOH bonding," said the presenters.

Eval SC was also used to create vacuum packaging for meat, as an alternative to a PVDC-based structure. It was created using the triple-bubble

process. The new version had similar organoleptic properties as the original after 75 days, as well as similar microbial properties.

"The new bag showed the same overall properties as the PVDC bag," they said.

Compatible mix

While the main direction of travel is to switch to all-polyolefin structures, many multilayer films still use combinations of polymers that are hard to recycle. For this reason, there are also efforts to boost the recyclability of these structures.

"The polymers used in multilayer films are immiscible," said MiaoMiao Xiao, a research scientist at **Ingenia Polymers**. "Recycling without separation – or failure to compatibilise – leads to lower quality recyclate."

Compatibilisers overcome the effects of having a polar polymer – such as PA or PET – in a non-polar matrix such as a polyolefin. It reduces the particle size of the polar phase and increases its adhesion with the non-polar matrix, she said.

An example is its Incircle IP1601, which "enables the recyclability of PE/PA, PE/EVOH and PE/PA/EVOH films". Xiao said it outperforms traditional maleic anhydride grafted PP-type compatibilisers – with better compatibilisation of PP/PA6/EVOH.

"It enables recycling of PP barrier film scrap into other applications, in both flexible and rigid packaging," she said.

The recyclate was used in film processing. Without compatibiliser, the PP/PA6/EVOH could not be processed into good quality films – as they all contained holes and lacing – but with IP1601 the films had much higher quality. Another benefit included comparable tensile strength with neat PP.

■ *Multilayer Flexible Packaging* ran in Chicago, USA in May 2025. Forthcoming events covering similar topics include *Stretch and Shrink Film North America* (9-10 December 2025) and *Polyethylene Films* (2-4 February 2026). Both events run in Tampa, USA. For more details, contact Angelina Ruocco (**angelina.ruocco@amiplastics.com**) on +1 610 478 0800.

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Starting small: advances in laboratory extruders

Recent developments in lab extruders include a table-top model with a camera system, an upgraded cast film line and lab-scale compounders for formulation development

IMAGE: FARREL POMINI

Main image: Farrel Pomini will exhibit its lab-scale CPeX at K2025

Creating new film formulations and running them at small scale makes perfect sense – especially as a full-sized line will consume large quantities of time, money and material. For this reason, starting small is a wise approach.

At K2025, **Farrel Pomini** will exhibit its CPeX Laboratory Compact Processor – a lab-scale processor that uses the company's continuous mixing technology.

With a nominal throughput of 30 kg/hour, it enables rapid product development, application testing and time-to-market reduction, says the company. Being supplied with both standard and XL rotor configurations – the first time this has happened on a single machine – allows for maximum flexibility of testing parameters and the ability to evaluate performance, says the company.

While the standard rotor is for all-purpose mixing and compounding – and is standard for concentrates – the XL rotor is for special applications and temperature-sensitive materials.

Other key features include: fully integrated wiring and piping that is 'connect and go' and suitable for any industrial voltage; single-screw flex wall volumetric feeder; and Scada functionality for remote analysis.

Small size

Feddem will present its Fed 18 MTS lab-sized twin-screw extrusion at K2025.

With the Fed 18 MTS, Feddem is expanding its extruder portfolio with an extra size. The lab extruder is designed to meet the requirements of formulation and product development and enables precise, reproducible results in a small space. The modular design allows flexible adjustment of the process length from 32 L/D to up to 52 L/D – without changes to the frame, cooling system or control system.

All supply lines are pluggable, dosing devices are integrated into the extruder in a space-saving manner without additional racks and can be easily moved to the side for maintenance and cleaning, says the company. This allows the extruder to be quickly converted and used in many ways. Optional add-on units such as the FSB side feeder or FSV side vacuum degassing provide practical scale-up options.

It recently supplied a model to Polyram of Germany, as part of a lab modernisation project. It will mainly be used for the development and quality assurance of thermoplastic elastomers (TPEs).

Making a mark

Labtech of Thailand recently launched the Mark II version of its lab-scale single-layer cast film extrusion line.

It combines the LCRX-300/Mark II cast film unit with a Lex25-30/Mark II single-screw extruder. The company says it offers several advantages over the previous model, including: a space-saving design to maximise workspace efficiency; cost reduction

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Right: Feddem's Fed 18 MTS has expanded its extruder portfolio with a lab-sized version

IMAGE: FEDDEM

for new setups; and shorter production timelines.

The Lex25-30/Mark II features a lean body mounted on a steel frame positioned beside its electrical cabinet. With four casters, it can easily by repositioned while maintaining stability. It includes a 25mm screw (with L/D ratio of 30), a four-zone temperature control system and coat hanger flat die.

Camera inspection

At last year's Fakuma exhibition, **Collin Lab & Pilot Solutions** demonstrated its Teach Line flat film line – incorporating a new camera system for film inspection.

"Using a camera and software, the line continuously determines optical defects via a definition of up to 10 defect classes by means of up to 14 defect criteria," said Corné Verstraten, CSO at Collin.

With its compact design, the table-top line combines the usual functions of a flat film line with those of a small finishing calender.

The system is suitable for finishing and laminating films and for casting masses with low viscosity using a vertical die.

The upper of the three rolls is moveable – via pneumatic cylinders – and finishing films is possible. The gap width can be precisely adjusted, and the unit can be used for casting thin films.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.farrel-pomini.com**
- **www.feddem.com**
- **https://labtechengineering.com**
- **www.collin-solutions.com**

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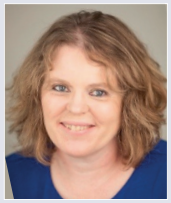

Jane Gardner
Managing Director
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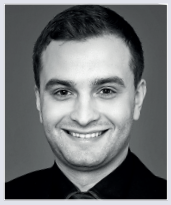

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Extruders' guide to K 2025

Part 1: Materials and ancillaries

The world's largest, most international plastics trade fair opens next month, in Dusseldorf in Germany. K2025 will host the latest innovations in plastics materials, machinery and services. However, it's a huge event that's best approached with a plan: our pre-event coverage will help you get the most from your time there.

In this issue, we look at some of the planned introductions in materials and ancillaries that are likely to interest film and sheet extrusion companies. Over the next nine pages you can find details on some of the latest developments in resins, additives, and a variety of ancillary products. In our next issue, we will present details of new primary machinery.

Messe Dusseldorf, which organises the show, says the plastics industry has faced a "global crisis" since K2022. In response, it says K2025 will showcase a "plethora of new and further technological developments" – as digitalisation and artificial intelligence (AI) emerge as key themes.

Machine-to-machine communication has long been an issue in mechanical engineering. Connected machines have been available on the market for several years, providing a large volume of process data. At K2022, a key discussion topic between machine manufacturers, processors and end customers was who ultimately owns this data. The EU Data Act has provided clarity here, as it obliges machine manufacturers to make data generated during operation available to the machine user in a simple and comprehensible machine-readable form. OPC UA standards, which have become widespread in recent years, are ideal for this purpose, says Messe Dusseldorf. The advantages of such connected machines are also increasingly being recognised by customers. Developments in this area go hand in hand with increasing demands of this kind.

This development is being given a boost by AI – with several solutions and products expected at K2025. Examples include: automatic design and process optimisation; predictive maintenance; and optical quality control.

Further technical innovations will be seen in the field of 'digital twins', which can store machine data and information in a structured, machine-readable way over the entire service life. They are particularly suitable for fulfilling the requirements of the Digital Product Passport (DPP), which was introduced with the EU Ecodesign for Sustainable Products Regulation (ESPR) coming into force in July 2024, says Messe Dusseldorf.

If you are planning to attend the show but are yet to finalise your travel and accommodation, it is not too late. But you should act fast. There are some useful weblinks at the foot of this page and plenty more in the '**First Look**' article in the July/August issue of *Film & Sheet Extrusion*.

The *Film & Sheet Extrusion* and AMI magazines team will be at the show for the full eight days and will be gathering information for our post-event coverage in the November/December edition. We will also be reporting on the latest news and innovations as they happen via our @PlasticsWorld feed on X. If you want to be sure you keep in touch with developments join the more than 24,000 people already following us.

Dates: 8-15 October 2025
Venue: Dusseldorf Fairground, Dusseldorf, Germany
Hours: 10:00 to 18:30 daily
Advance tickets: One-day €60, three-day €125.
Note: ticket price no longer includes free local transport
Organiser: Messe Dusseldorf
Website: www.k-online.de

Use the following links to go direct to essential show information:

- **K2025 hotel booking**
- **K2025 online ticket purchase**
- **K2025 exhibitor search**
- **K2025 iOS/Android apps**

Baerlocher has developed a PFAS-free version of its Baerolub lubricant family.

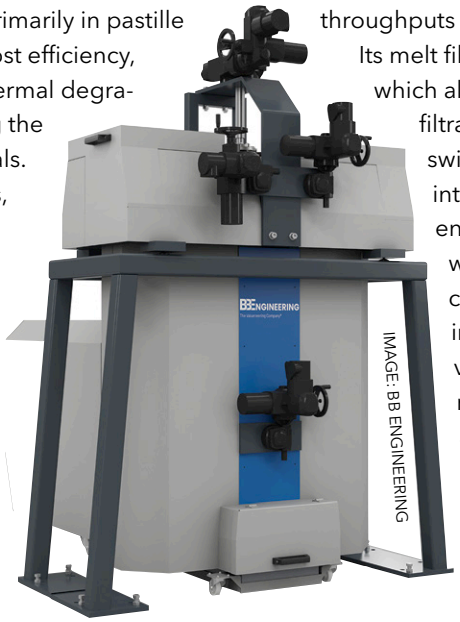
Baerolub AID masterbatches claim to deliver high performance while complying with regulations. They are available globally – and aimed at polyolefin film and pipe converters.

"The new European Packaging and Packaging Waste Regulation (PPWR) and US federal- and state-level legislation set clear deadlines for PFAS replacement and enhanced recycling strategies," said Andreas Holzner, global head of special additives at Baerlocher. "We are collaborating globally with manufacturers to meet these challenges."

At K2025, it will also show its Baeropol T-Blend family of products for use in plastics recycling – converting post-consumer plastic waste into recyclate for new products such as packaging.

Supplied as a neat additive primarily in pastille form for ease of handling and cost efficiency, Baeropol T-Blend suppresses thermal degradation and gel formation, raising the performance of recycled materials. Alternative forms, including rods, granules and masterbatches are also available.

› **www.baerlocher.com**



Right: BB's Cobra filter allows continuous polymer filtration with a throughput up to 4,000 kg/h

At K2025, **BASF** will show two new additions to its NOR portfolio of additives for agricultural plastics.

Tinuvin NOR 112 enhances greenhouse film performance against harsh agrochemicals; and another NOR addition is a new hindered amine light stabiliser (HALS) currently in development – with more details revealed at the show.

Tinuvin NOR 211 AR and 112 AR are cost-effective options that can handle strong sunlight, heat, and chemicals. Tinuvin NOR 356 is known for its durability and performance. These help film manufacturers ensure long-lasting protection, easy processing and compliance with organic farming standards.

BASF will also show how additive technologies are enabling transformation across multiple industry sectors. These include: a closed-loop agricultural packaging solution with Cleanfarms and McKenzie/Snyder, showing the role of Irgastab in enhancing recycled content; a partnership with Shouman that shows how Tinuvin NOR 211 has helped grow in Egypt's plasticulture; and a collaboration with Takazuri to deliver climate-resilient roofing solutions in Eastern Africa using post-consumer materials and tailored additive packages.

"These advances are the result of strong partnerships and shared ambition that show what is possible when innovation meets collaboration," said Achim Sties, senior vice president for plastic additives at BASF.

› **www.basf.com**

BB Engineering (BBE) will present a range of PET recycling technologies at K2025, including extruders and melt filters.

The company's single-screw extruders are suitable for a range of polymers such as PP, PET, rPET, PA and PE, and are well suited for applications in film production and PET recycling. With screw diameters of 30-360mm, the systems cover a wide processing spectrum and enable throughputs of 3 to 6,000 kg/h.

Its melt filters include the Cobra filter, which allows continuous polymer filtration. It features automatic valve switching and integrated inline intermediate cleaning. This enables continuous operation with high filtration quality – a clear advantage when processing recycled plastics with varying properties. With a maximum filter area of 24 sq m and a throughput of up to 4,000 kg per hour, it boasts high efficiency and stable process conditions.

BBE also offers VacuFil, an integrated system for PET recycling via liquid-state polycondensation. It combines large-area, gentle melt filtration with precise IV control, for consistent quality of the rPET melt. The modular system concept allows flexible adaptation to different material qualities and areas of application in the recycling pro- cess. Its capacity is 150-4,000 kg/h. The central component of the system is Visco+, the liquid-state polycondensation unit for targeted viscosity adjustment. Continuous adjustment of the IV results in a homogeneous melt with optimal processing properties – for end products in the film and packaging industries.

› **www.bbeng.de**

Benvic says it is reshaping its legacy PVC compounding business to meet the needs of the circular economy – and will highlight new PVC compounds at K2025.

While PVC has proven itself as an effective

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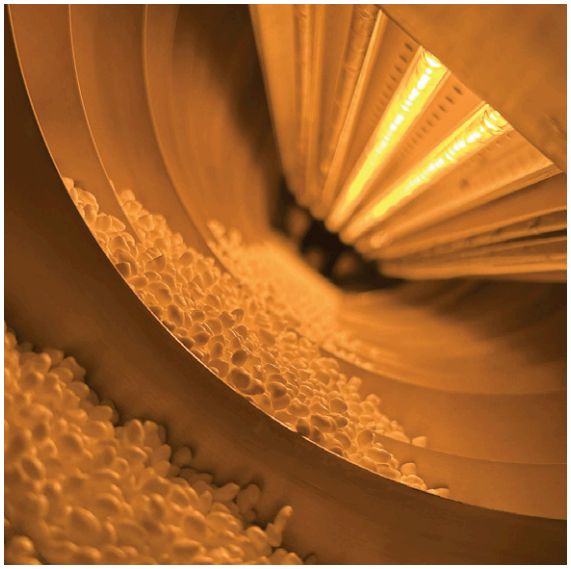
IMAGE: BIRD MACHINERY



Left: The Bird 5's targeted in-line pre-heating helped a client to upcycled mixed PET fractions

material in applications such as window profiles, cladding and pipes – it is "time to reassess and re-engineer its role for the future", says the company.

In terms of environmental impact PVC is not wholly sourced from ethylene and – because chlorine is such a crucial component – it can help to cut greenhouse gas emissions, it adds.

"However, its biggest and most important environmental contribution lies in its great potential for recycling," said Luc Mertens, CEO of Benvic. "By emphasising recycled content, we can mitigate carbon loss through landfilling and incineration – and cut greenhouse gas emissions."

Benvic aims is to establish an in-house mechanical recycling process that yields secondary raw material (SRM) with good traceability, thorough legacy additive assessments, colour sorting, and specialised testing.

Even this may not create an SRM that meets the rigorous demands of end applications, but Benvic says its recycler-compounder model can help it maintain product consistency and performance.

› **www.benvic.com**

Bird Machinery will unveil its latest advances in the heating and drying of plastics at K2025.

The company makes compact infrared rotary drum (IRD) devices to treat bulk materials, including pellets, regrind, flakes, and powders. This makes the technology accessible for smaller throughputs.

The technology claims to offer advantages over conventional hot-air drying methods for bulk materials, including: 90% time savings; up to 70% in energy savings; and fast changeover times, for high flexibility.

"We have adapted IRD technology from large-scale plants for smaller throughputs, allowing injection moulding to benefit from the advantages of infrared heating," said Urban Stricker, the company's founder.

For common materials such as PA, PC, PMMA and ABS, the company provides standardised Bird 5 series machines. Throughput capacity is 4-100 kg/h for deep drying to specifications below 200-1,000 ppm. The drying time for this continuous process is 3-30 minutes, depending on the material and task. This saves over 90% of time and uses up to 70% less energy compared to previous drying methods, says the company. Switching to different materials is done in minutes by changing the rotary drum.

Bird says its technology also helps in the preparation and pre-processing of materials for compounding and recycling. When combining multiple components, homogenising the melt can be challenging due to differing melting points – which Bird's targeted in-line pre-heating of specific fractions can solve.

For over two years, one client has been using a Bird device in the continuous production of thick PET films for vacuum forming. The films are made from a blend of 10-15% C-PET virgin material, in-house A-PET recyclate, and external mixed bottle flakes.

The differing melting points of the fractions make extrusion very difficult. C-PET can contain up to 70% crystalline content. The higher this percentage, the higher the temperature required for melting. C-PET must be heated to 280°C, while A-PET melts at 240°C. If the overall melt temperature rises to 280 °C, A-PET content begins to degrade.

The in-house material is entirely amorphous, while the post-consumer flakes are partially amorphous. This can lead to exponential material degradation. If the amorphous components of the formulation start to decompose before the crystalline content has melted, the upcycling advantage of PET is lost.

Targeted pre-treatment of the C-PET virgin material with a Bird device reduces the melting temperature of the overall formulation by 3-6°C. This keeps the overall system below the critical 280°C, which improves transparency and material strength and reduces yellowing.

The client achieved a 20 kg/h increase in product yield by reducing filtrate – and the device paid for itself within a few months, says Bird. Other ongoing tests include reducing odours in recyclates.

› **www.birdmachinery.de**

Clariant says its AddWorks PPA product line is a new generation of PFAS-free polymer processing aids for polyolefin extrusion.

It addresses the industry's growing need for

Right: Delta Tecnic will present a range of masterbatch compounds at K2025

more sustainable alternatives to conventional fluoropolymer-based processing aids while maintaining strong performance standards, says Clariant.

The new range includes AddWorks PPA 101 FG – for the EMEA, Americas and SEAP markets – and AddWorks PPA 122 G, for Greater China and SEAP. Both products are commercially available.

"Our new AddWorks PPA product line represents a breakthrough in sustainable polymer processing," said Diederik Goyvaerts, global business development manager for polymer solutions at Clariant. "PFAS-free alternatives that match or exceed the performance of traditional processing aids helps our customers stay ahead of regulatory changes."

The formulations are free of PFAS, as well as inorganic, silicone or polysiloxane materials. This ensures broad regulatory compliance, including suitability for food contact and food packaging applications.

The new AddWorks PPA solutions deliver processing improvements, including better extrusion efficiency, elimination of shark skin defects and superior film surface smoothness.

AddWorks PPA 101 FG has a 100% active fine grain composition that can be easily incorporated via host resin, masterbatch or concentrate. AddWorks PPA 122 G comes in a convenient masterbatch form for easy handling, requiring the same dosing level as traditional polymer processing aid masterbatches.

Below: Clariant says that its PFAS-free AddWorks PPA enhances extrusion processability

The new processing aids are suitable for a range of applications, including polyethylene blown and cast film extrusion processes. Film converters will benefit from the improved surface quality and processing efficiency they additives provide, says the company.

› **www.clariant.com**

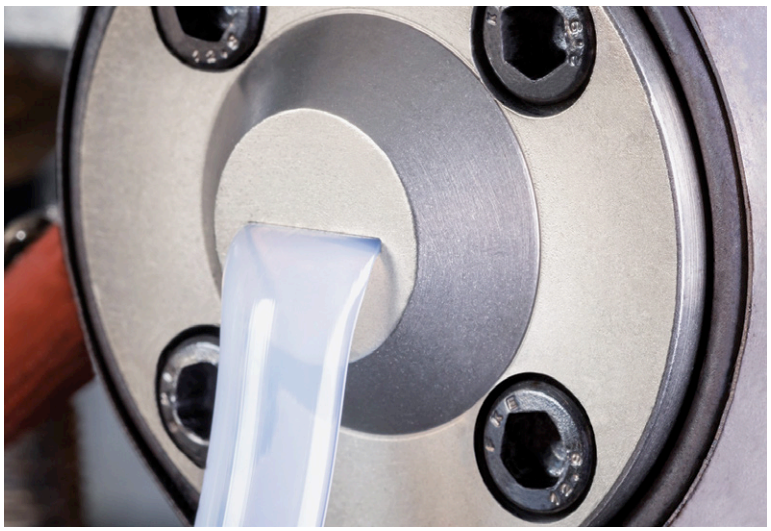


IMAGE: CLARIANT

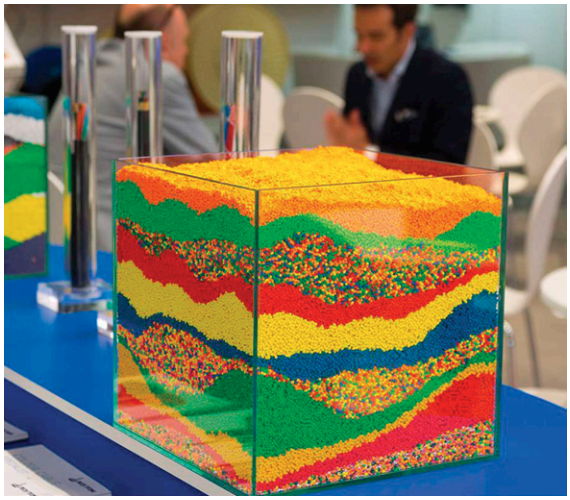


IMAGE: DELTA TECNIC

Delta Tecnic will show a range of masterbatch and conductive compound solutions.

It says its Super Small Pellet (SSP) is a "disruptive breakthrough" that redefines the standards of colour homogenisation and efficiency in plastic manufacturing. The pellet, much smaller in size that traditional formats, enhances colour uniformity and minimises visual irregularities in the final product, it says. By incorporating more particles per unit area, SSP ensures even coverage, which is advantageous in applications such as PVC films and profiles. Its ultra-small particle size makes it ideal for use with PVC powder formulations, ensuring good miscibility and colour uniformity.

Another solution to meet the demands of environments where static electricity poses a critical risk is its conductive PVC. The company will showcase its dissipative and semi-conductive materials formulated with carbon black, NTC or graphene, which prevent problems in sensitive spaces such as operating rooms or manufacturing plants. It will also present masterbatch with metallic fibres that enable the production of dissipative products in colours other than black.

It also offers masterbatch for recycled PVC, which transforms recycled products by providing them with an attractive, uniform finish – allowing their reintroduction into the market and reducing carbon footprint. With a formulation adapted to the features of recycled PVC, the masterbatch corrects the colour irregularities typical of recovered materials. Colours can be customised in both standard shades (such as white and black) and specific formulations.

› **www.deltatecnic.com**

At K2025, **Erema** will launch its Agglomera recycling system for processing heavily contaminated post-consumer waste.

It handles film rejects with high levels of fluctuat-

ing moisture from sorting systems on a large scale to produce agglomerates with high bulk density that can be used as a feedstock for chemical recycling and other applications.

"It's our job to build machines that support chemical recyclers in the recovery of low-grade waste fractions," said Klaus Lederer, business development manager for chemical recycling at Erema.

Agglomera processes contaminated waste streams with a low bulk density (from 30 kg/m³) and moisture contents of up to 12% – by combining the Erema preconditioning unit (PCU), its Counter Current technology and a special extruder screw. Even when the composition of the feed material varies – such as in terms of polymer, geometry and moisture – the combination ensures stable process control. Material is homogenised, degassed, preheated and fed into a short extruder without upstream drying.

"Conventional agglomeration systems quickly reach their limits if the feed material has a low bulk density or fluctuating parameters, but this is not a problem for Agglorema," said Lederer.

From the extruder, the partially melted material strand is fed through a melt pipe into the water-cooled melt mill. Here, it is formed into agglomerates with bulk densities of 280 to 380 kg/m³ and a defined particle size.

Agglorema can be used to prepare feedstock materials for chemical recycling and mechanical recycling. Agglomerates derived from mixed polyolefin fractions can be used to make simple components, he said.

Erema will also show its PredictOn system, which monitors and record changes in the plasticising unit. It allows early detection of potential issues to prevent unscheduled downtime. Integrated into the machine display (HMI) and the BluPort digital customer platform, it raises the overall efficiency and productivity of recycling systems, says Erema.

Ultrasonic sensors detect wear to the extruder screw and barrel in real time without direct contact with the melt. Dimensional changes are displayed on the machine HMI using a traffic light colour system, and long-term data can be viewed online on the BluPort platform.

PredictOn will be demonstrated on an Intarema TVEplus DuaFil Compact, processing different input materials.

› **www.erema.at**


IMAGE: EXOLON

Above: Exolon's Inspria GP rECOplus2 sheet contains 25% PCR material

Exolon is expanding its polyester sheet portfolio with two new BPA-free copolyester products: Inspria GP and Inspria GP rECOplus2 – both based on Eastman Tritan.

The rECOplus2 version contains 25% post-consumer recycled content. Both grades are approved for direct food contact and comply with the upcoming 2028 EU regulation banning Bisphenol A (BPA) in food contact materials.

Manufacturers of components and equipment for food contact – such as food moulds, machine covers and clear inspection windows – need suitable alternatives to traditional plastics. Exolon says that Inspria GP offers a material that meets both technical and regulatory requirements.

For chocolate moulding applications, Exolon presents Inspria GP rECOplus2, a sustainable option containing 25% post-consumer recycled material that maintains the mechanical properties and processing benefits of the base product.

In addition, its new generation of Optica solid sheets is designed for applications requiring clear optical quality combined with durability. The Optica series offers distortion-free clarity without haze, inclusions or surface defects, it says. The sheets are impact- and abrasion-resistant and provide shatter protection, making them ideal for safety glazing, forestry and agricultural machinery and anti-ballistic applications. They are available in coated and uncoated versions.

With Vivak, Inspria GP, Axpet and Curvalite, the company offers a strong portfolio of food-grade plastic sheets. These comply with the upcoming EU regulation banning Bisphenol A (BPA) in food contact materials. All three are odour-neutral, hygienic in processing and available in sustainable variants. Their high transparency, impact resistance and formability make them ideal for reusable packaging, chocolate moulds, point-of-sale displays and technical covers in food-related environments.

› **www.exolongroup.com**

FKuR will present an expanded portfolio of bioplastics and recyclates at K2025

Highlights include its soil-biodegradable Bio-Flex N grades for agricultural and farming products, which leave no persistent microplastics behind. In addition, it will showcase an expanded portfolio of post-consumer recyclates (PCR) and in-house-developed recyclate compounds, including Paluren – an LDPE from Palurec made from recycled of beverage cartons.

Key features of the new Bio-Flex N series include complete biodegradability in soil and certification according to 'OK biodegradable Soil' by TÜV Austria. Depending on the grade, certification has already been granted or is in progress.

The portfolio includes grades for blown film, injection moulding and extrusion. Bio-Flex N grades are suitable for products that remain in nature after use or cannot be collected again – such as mulch films, plant clips for vegetables, growth tubes for trees, and drainage pipes.

Key applications of the Bio-Flex blown film grades N 21310 and N 31310 include mulch films and plant and net labels. Thanks to its well-balanced property profile, Bio-Flex N 21310 is a suitable alternative to the industrially compostable grade Bio-Flex F 1140 when soil biodegradability is desired. In comparison, Bio-Flex N 31310 offers higher puncture resistance and toughness, says FKuR.


IMAGE: PALUREC

Right: FKuR now offers Paluren – an LDPE made from recycled of beverage cartons by Palurec

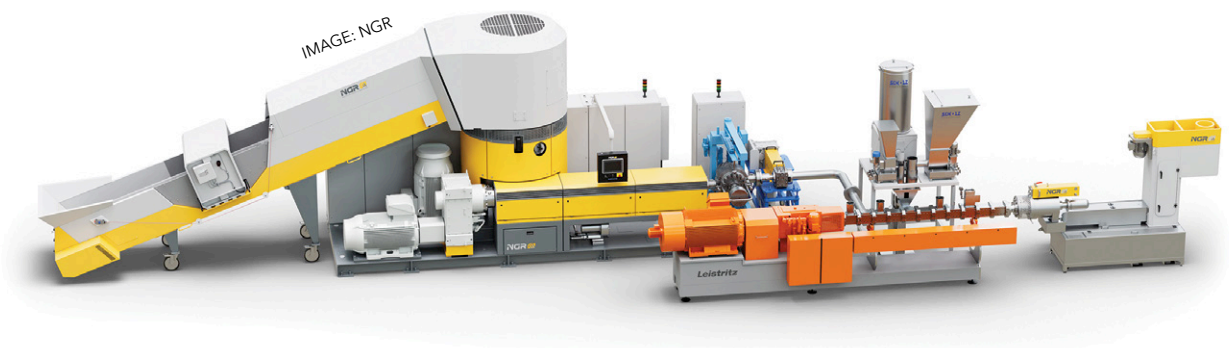
The company will also show products made from recyclable, bio-based Terralene compounds, as well as from the 'I'm green' bio-based PE and EVA grades from Braskem.

› **www.fkur.com**

Leistritz and **Next Generation Recycling** are to combine their strengths in plastics recycling and compounding to develop new recycling solutions – which they will showcase at K2025.

The collaboration comes as the new EU Packaging and Packaging Waste Regulation (PPWR) comes into effect in August 2026 – meaning that quality requirements for plastic packaging will rise. Recycling must become more efficient – which is where the partners say they can help.

The cooperation focuses on: recycling and compounding in a single step; high-performance;



Left: Leistritz and NGR are teaming up to develop new recycling solutions

and, production of high-quality regranulates. The collaboration will allow regranulates to be tailored to a specific application while reducing production costs and improving CO_2 footprint.

Material preparation is carried out using NGR's C:Gran technology, comprising a cutter-compactor and single-screw extruder. The material is then further processed in a Leistritz twin-screw extruder.

A joint recycling and compounding system at NGR's facility in Feldkirchen is designed for 300–500 kg/h and is available for customer trials.

› **www.leistritz.com**

› **www.ngr-world.com**

Maag will launch several new technologies at this year's K show – in extrusion, filtration recycling and control.

"At K2025, we will show how technical excellence and smart design are transforming plastics processing," said Ueli Thuerig, president of Maag.

The company will introduce double-stage filtration for polymer recycling. Its BRF coarse melt filter enhances downstream equipment protection and ensures stable operation, while the ERF fine filter gives good pellet quality with minimal material loss. The filters offer a powerful combination for efficient, low-cost recycling solutions, says the company.

Its new curved, continuous screen changer – CSC-R-DV – with integrated start-up position offers up to 50% higher throughput and energy savings, while shortening the production line. Its compact design reduces investment costs and fits into temperature-sensitive extrusion processes.

In addition, the company has commissioned a new centrifugal dryer lab in the US. The lab will enable Maag to optimise and develop centrifugal dryers for virgin polymer, recycling, and compounding systems. The lab will focus on improved energy efficiency, drying performance and noise reduction – as well as future product development.

For customers, the lab can be used for drying tests up to 72,000 kg/hr.

› **www.maag.com**

Modern Dispersions will introduce a range of new masterbatches at K2025.

One is a series of PFAS-free black masterbatches as an alternative to standard versions that contain fluoropolymer processing aids. The new PFAS-free versions are targeted at the film, irrigation tape and wire and cable markets.

The company has also launched a new black masterbatch grade called GM-540-7UVS, which meets the industry's GM13 standard for use in geomembranes. It is a 40% carbon black polyolefin masterbatch containing a specific additive package that protects the geomembrane from long-term heat and UV exposure.

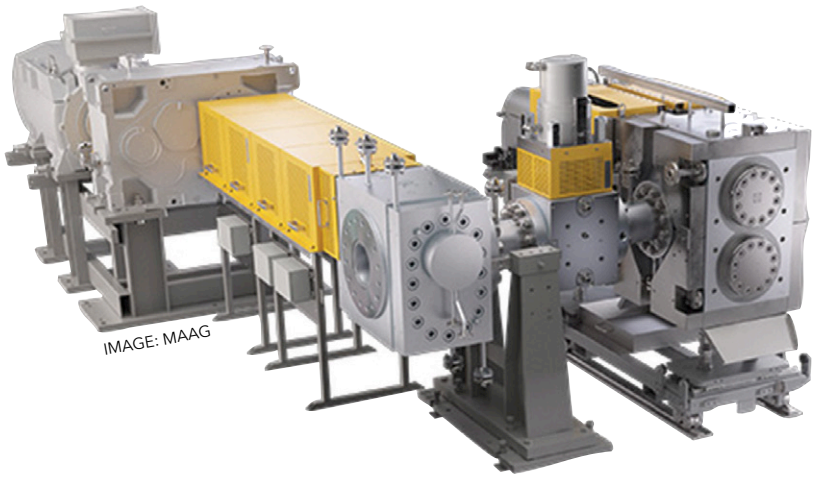
For the colouring of nylon, the company is offering its NY-40NG grade – is a 40% nigrosine dye masterbatch. The masterbatch offers deep jet-black colour with minimal impact on physical properties in nylon compounds. Key applications include automotive and electronics.

Modern Dispersions will show its colour concentrates, whose properties include improved batch-to-batch consistency and film grade organic and inorganic pigment dispersions. They are used to make products such as agricultural film and electrostatic dissipative housings.

› **www.moderndispersions.com**

Omya will present some of its minerals and speciality materials at K2025.

The company says that its calcium carbonate



Below: Maag says its CSC-R-DV screen changer offers up to 50% higher throughput and energy savings


IMAGE: PALSGAARD

Above: Palsgaard says its Einar 987 anti-fouling additive is safer than ethoxylated amines

solutions cut carbon footprint and improve the performance of plastic products. It offers pre-consumer recycled grades, including Omyaloop FC for general purpose applications and Omya Smartfill 55-AV for engineering materials and biopolymers. These grades reduce emissions by up to two-thirds and support compliance with EU sustainability directives, says Omya.

"Our mineral solutions reduce environmental impact while enhancing performance," said Marco Viel, vice president of polymers at Omya.

Its Omyasphere 900 series of hollow glass microspheres are engineered to reduce product weight while maintaining strength. These fillers are aimed at automotive, aerospace and electronics, offering improved flow, higher filler loading, and enhanced thermal and dielectric performance. They support dimensional stability and are suitable for advanced polymer and construction applications.

In addition, new Omyafilm developments enable the production of thinner films without compromising process stability or product quality.

Beyond minerals, Omya distributes other materials including bio-based additives through partnerships with material manufacturers. It recently launched Omya Performance Polymers Distribution (OPPD), which combines Omya's distribution network with Distrupol.

› **www.omya.com**

OQ will showcase some of the 17 new polymers that it has developed over the last year, for applications in packaging, durables and infrastructure.

"This expansion reflects our commitment to delivering solutions that align with what matters to our customers: durability, speed-to-market and operational-efficiency," said Abdulrahman Al Tamtami, vice president of global marketing at OQ.

The 17 new grades include: six PP impact copolymers for rigid packaging applications (including thin-wall packaging, housewares and durables), with good flow and stiffness-impact balance; and four PP random copolymers with enhanced transparency and organoleptic performance, aimed at housewares, closures, and food containers.

They are engineered to meet a range of industry needs, including: packaging that helps reduce food waste and energy consumption; water storage solutions; and transparent, reusable rigid packaging.

› **www.oq.com**

Palsgaard says its Einar 987 anti-fouling additive for the PE and PP polymerisation process is a safer alternative to ethoxylated amines.

The active compound of Einar 987 – which is supplied as a clear, viscous liquid – is a polyglycerol ester (PGE) blend of fatty acids from vegetable oils. As a non-toxic, food-contact-approved anti-fouling additive, it offers a drop-in solution to incumbent EAs that is regulatory-compliant.

"Polyolefin resin producers will benefit from this, as its anti-static properties help ensure the polymer powder does not cling to the reactor wall during polymerisation," said Laura Juhl, application manager for bio-speciality additives at Palsgaard. "This stabilises reaction temperature, sustains a high production performance and enables consistent product quality."

Einar 987 is effective at low dosages of 100-300 ppm and helps deliver long catalyst mileage without any compromise in performance. Palsgaard has already conducted several trials of it with resin producers.

› **www.palsgaard.com**

At K2025, **Steinert** will show how modern sensor technology and artificial intelligence can sort difficult material streams – including black packaging, thin films and contaminated food containers – with an accuracy of over 98%.

While part of this this will be on its stand at the show, it is also organising tours of its test and development centre in nearby Cologne, and the RePlano sorting plant in Bochum.

On three days of the event, shuttles will take visitors to the test centre. During the four-hour tours, visitors will see the AI-supported sorting programme Intelligent Object Identifier (IOI), which UniSort PR Evo 5.0 uses to separate food-grade packaging from other plastic packaging, as well as precise flake sorting down to 0.5 mm with MSort AK.

On Friday 10 October, a joint tour (with VDMA) will take visitors to the sorting plant of RePlano –

where sensor and magnetic technology is used on an industrial scale to sort pre-sorted packaging materials into recyclable plastics.

Tours can be booked on Steinert's website.

› **www.steinert.de**

WIS Kunststoffe will present several certified recyclates for food use, which were developed through technical collaboration.

A highlight of the show is a new process for making food-grade polypropylene (PP) recyclate from post-consumer food packaging. In collaboration with KraussMaffei Extrusion, WIS has developed the scalable process that has already received FDA approval for food-contact applications.

"The combination of process know-how, state-of-the-art equipment, and close collaboration was key to this," said Daniel Römhild, head of development at WIS.

A twin-screw extruder used in the process enables gentle processing and ensures high-quality recyclate output. The process can be integrated into existing workflows and creates opportunities for post-consumer recycling in the food sector, it says.

David Rapp, team leader for process engineering recycling at KraussMaffei Extrusion, added: "Our ZE BluePower twin-screw extruder offers gentle, efficient material processing – a critical factor for recyclate quality."

WIS Kunststoffe's portfolio also includes regranulates based on PP and PE that are heat-resistant, odour-optimised, and colourable. These meet the demands of various industries, including cosmetics, packaging, automotive and toys, it says. ›

IMAGE: STEINERT

Above: Steinert's MSort AK handles plastic flakes down to 0.5 mm at high throughput rates

Right: WIS will present certified recyclates for food use, made using a new process

WIS also offers regranulates that, meet the requirements of the US FDA for food contact applications. It says it is the first European recycler to receive FDA approval for recycled polypropylene (rPP) for "all types of food". This provides validation for applications in sensitive areas such as food packaging and medical technology, it says.

› **www.wiskunststoffe.de**

Zeppelin Systems will show its range of ancillaries at K2025 – including recycling, conveying, mixing, dosing and weighing products.

For recycling light fractions such as films, its Fluff-Tec ensures a homogeneous flow mass that can be processed efficiently while reducing storage volume.

Another key process step is deodorisation. With Fresh-Tec, it uses air flushing to remove volatile organic compounds from the recycled material. This allows high-quality recyclates to be reused, even in sensitive applications – which are certified according to FDA and EFSA.

Zeppelin Systems says digitalisation will also play a central role in plastics processing. It has developed scalable plant concepts that are matched to product, raw material and customer goals. Its understanding of materials and processes forms the basis for digitally networked systems. Solutions are conceptualised using tools such as Feed studies, 3D scans and end-to-end process automation.

IMAGE: WIS KUNSTSTOFFE

› **www.zeppelin-systems.com**

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.

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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.

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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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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.

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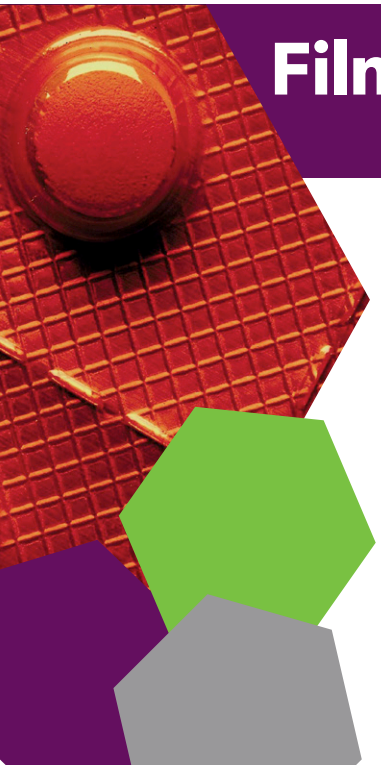
If you would like your brochure to be included on this page, please contact Claire Bishop claire.bishop@amiplastics.com. Tel: +44 (0)1732 682948

Pelsan Tekstil

Head office:	Istanbul, Turkey
CEO:	Ali Sisman
Founded:	2007
Ownership:	Private (part of Hassan Group)
Employees:	Around 1,000 (Hassan Group)
Profile:	Pelsan Tekstil, founded in 2007, is a manufacturer of breathable film technologies for the hygiene and medical sectors. It also develops products for the construction industry, where they are used as roofing membranes. It has a number of sister companies, making products such as nonwovens, insulation mats and artificial leather.
Product lines:	The company produces breathable films for three main end markets: hygiene, medical and insulation. These are all sold under its Breatech brand. In hygiene, its textile backsheet is made by laminating breathable film onto nonwovens. This is supplied to diaper producers, and gives a soft, cottony texture thanks to its textile surface, says the company. Similar products are supplied to the medical industry. In insulation, Breatech products are supplied as waterproof membranes for roofing, siding, shingle and curtain wall systems. The breathable, laminated products allow air circulation and remove water vapour and moisture to the outside. All products can be printed on one side or both.
Factory locations:	The company's main production is in Turkey, though it also has operations in Switzerland and Russia. Recently, it announced a new 80,000 sq ft plant in the US. The company is investing US$82 million to build a plant in Goldsboro, North Carolina, that is expected to create more than 200 jobs when it opens in 2027.

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



Film and Sheet EXTRUSION FORTHCOMING FEATURES

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

October 2025
Materials recycling/granulators
Extruder developments
Biax film ● PEWE
K2025 machinery preview

November/December 2025
Thin-wall packaging
Screenchangers/melt filtration
Foamed sheet ● Polyolefin additives
K2025 review

Editorial submissions should be sent to Lou Reade: lou.reade@amiplastics.com
For information on advertising in these issues, please contact:
Claire Bishop: claire.bishop@amiplastics.com Tel: +44 (0)1732 682948

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Film and Sheet
July/August 2025
The cover story in Film and Sheet Extrusion's July-August edition checks out the latest in bio-based plastics and their applications, while other articles cover pouches, downstream equipment and how to prepare for visiting the K Show.

› CLICK HERE TO VIEW

Film and Sheet
June 2025
In Film and Sheet Extrusion's June issue, expert views on stretch and shrink film are reported in the cover feature, while other articles are about developments in masterbatch, the latest in printing and what's new in extrusion dies.

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Compounding World
September 2025
In addition to the cover story on advances in pigments, the September issue of Compounding World provides a K2025 guide for compounders about machinery and equipment exhibitors. Other features cover stabilisers and thermal compounds.

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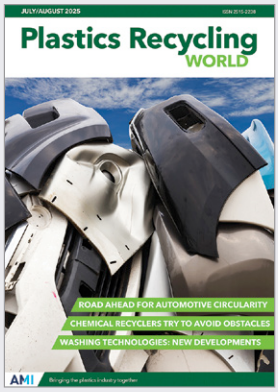

Plastics Recycling World
July/August 2025
The cover feature of Plastics Recycling World's July-August edition looks at EU regulation driving the use of recycled plastics in cars, while other features provide updates on chemical recycling and washing technologies.

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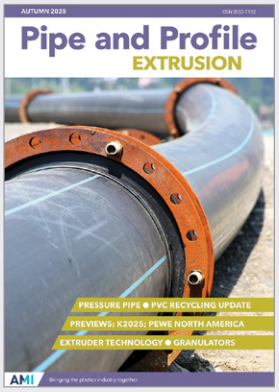

Pipe and Profile
Autumn 2025
Pipe and Profile Extrusion's Autumn edition has a cover feature that looks at what's new in high pressure pipe, and features on PVC recycling, new granulators and extruder technologies, plus previews of K2025 and the US Plastics Extrusion World Expo.

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Injection World
September 2025
This year's K Show figures largely in the September issue of Injection World, with a feature on packaging developments with all-electric machines and a preview of major machinery exhibitors. Plus thermoplastic elastomers and materials containing recyclates are also covered.

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

GLOBAL EXHIBITION GUIDE

2025	**8-15 October**	K2025, Dusseldorf, Germany	www.k-online.com
	12-13 November	Plastics Extrusion World Expo North America, Cleveland, OH, USA	https://na.extrusion-expo.com/
	3-6 December	PlastEurasia, Istanbul, Turkey	https://plasteurasia.com
2026	**9-12 January**	Plastex, Cairo, Egypt	www.plastexegypt.com
	20-22 January	Swiss Plastics Expo, Lucerne, Switzerland	https://swissplastics-expo.ch
	30 March – 1 April	Plast-Alger, Algiers, Algeria	www.plastalger.com
	31 March – 2 April	Plastics & Rubber Vietnam, Ho Chi Minh City	https://plasticsvietnam.com
	21-24 April	Chinaplas, Shanghai, China	www.chinaplasonline.com
	22-23 April	PlastTeknik Nordic, Malmö, Sweden	www.plasttekniknordic.com
	5-10 February	PlastIndia, New Delhi, India	www.plastindia.org
	7-13 May	Interpack, Dusseldorf, Germany	www.interpack.com
	19-22 May	Elmia Polymer, Jönköping, Sweden	www.elmia.se/en/polymer
	2-4 June	Interplas, Birmingham, UK	www.interplasuk.com
	2-5 June	Equiplast, Barcelona, Spain	www.equiplast.com

AMI CONFERENCES

16-18 September 2025	Single-Serve Capsules Europe, Malaga, Spain
18-20 November 2025	Polymers in Roofing, Brussels, Belgium
9-10 December 2025	Flexible Packaging Innovation & Recycling, Vienna, Austria
9-10 December 2025	Stretch & Shrink Film North America, Tampa, USA
2-4 February 2026	Polyethyene Films, Tampa, USA
3-5 March 2026	Biax Film Europe, Vienna, Austria
10-11 March 2026	Single-Serve Capsules North America, Tampa, USA
14-16 April 2026	Stretch and Shrink Film Europe, Spain

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

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