OCTOBER 2024

ISSN 2053-7190

Film and Sheet EXTRUSION

MATERIALS RECYCLING AND GRANULATORS

BIAXIAL FILM ● MINERAL FILLERS ● EXTRUDERS

PLASTICS EXTRUSION WORLD: U.S. SHOW PREVIEW

AMI

Bringing the plastics industry together

AMI | Events

Biax Film

19-21 November 2024 | Bangkok, Thailand

Join us in Bangkok at the leading forum dedicated exclusively to the biaxially-oriented film industry to explore innovations in film production and emerging technical applications

Speakers include

Santosh Yadav
Deputy Manager R&D, Film Capacitors
TDK Electronics (TDK India)

Markus Vollmer
CEO
Kampf

Kazuhiro Yamada
President
Onko-Takushin Battery Materials

Andreas Dirnberger
Business Development Manage
EREMA Group

Headline sponsor

BRÜCKNER GROUP

Founding sponsors:

atlas Jagenberg Group

kampf Jagenberg Group

ESOPP
Energy Saving Orientation Production Process

Also sponsored by:

KUHNE GROUP

erema group

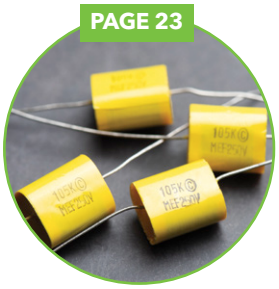
Event supported by:

The Specialist Business Magazine
Plastics & Rubber REVIEW

JOIN US IN BANGKOK

Film and Sheet EXTRUSION


PAGE 13


PAGE 23


PAGE 29

PAGE 35


PAGE 41


PAGE 45

COMING NEXT ISSUE

› Thin wall packaging › Screenchangers/melt filtration › Foamed sheet › Polyolefin additives

CONTACT US

AMI

Ground Floor, One Brunswick Square,
Bristol, BS2 8PE, United Kingdom
Tel:+44 (0)117 924 9442
www.amiplastics.com

www.twitter.com/plasticsworld
Registered in England No: 2140318

EDITORIAL

Editor-in-Chief: David Eldridge
david.eldridge@amiplastics.com

Editor: Lou Reade
lou.reade@amiplastics.com

Events and Magazines Director:
Andy Beevers
andy.beevers@amiplastics.com

DOWNLOAD MEDIA DATA

ADVERTISING

Advertisement Manager: Claire Bishop
claire.bishop@amiplastics.com T/ +44 (0)7905 848744

Head of Business Development: Paul Beckley
paul.beckley@amiplastics.com T/ +44 (0) 117 311 1529

Advertising Sales (China/Hong Kong): Maggie Liu
maggieliu@ringiertrade.com T/ +86 13602785446

Advertising Sales (Taiwan): Ms Sydney Lai
sydneylai@ringier.com.hk T/ +886-913625628

Advertising and Expo Sales (India): Yogesh Vyas
yogesh@exhibetter.com T/ +91 9920735930

Germany expects 15% drop in machine sales

Orders for German plastics and rubber machinery are likely to keep falling until the end of year, says the trade body that represents manufacturers.

"The weak demand is affecting all markets equally – but the European domestic market in particular," said Ulrich Reifenhäuser, chairman of the board of the VDMA's plastics and rubber machinery association. "Major markets such as China and the US are also weakening, though we see glimmers of hope at a lower level in Mexico and India."

From January to August this year, incoming orders fell by 16%. Because all existing orders have now been processed, this is directly reflected in sales – which fell 7% over the period, he said.

IMAGE: MESSE DÜSSELDORF/TILLMANN

Kühmann: "We have to be prepared for a 10-15% drop in sales this year"

Thorsten Kühmann, the organisation's managing director, said this would mean revising sales forecasts downwards.

"The expected lowest point in terms of incoming orders has not yet been reached," he said. "We have to be prepared for a 10-15% drop in sales this year."

He said orders could improve towards the end of the year as central banks cut interest rates.

"Due to the lag in production, it will take until the middle of next year for this to be reflected in sales," he said – estimating that 2025 sales may fall by as much as 5%.

› **www.vdma.org**

Sonoco looks to sell business unit

US-based Sonoco is considering selling its thermoforming and flexible packaging division – which it says will "accelerate its portfolio simplification strategy".

The division serves a range of customers in food, retail and medical markets. It had revenue of US$1.3 billion in 2023.

"We continue our strategy of focusing on fewer bigger businesses," said Howard Coker, president and CEO of Sonoco. "We expect this next step to further drive improved results."

Sonoco intends to focus on its industrial paper products, rigid paper containers and metal packaging businesses – believing it can "achieve even greater returns with this more focused portfolio".

› **www.sonoco.com**

Medical grade PVC is bio-based

TekniPlex Healthcare claims it is the first company to develop medical-grade, bio-based PVC compounds that are ISCC Plus-certified.

It says the compounds – including plasticisers – are equivalent to traditional medical-grade PVC in terms of chemical composition, functionality, and regulatory viability.

The compounds can reduce CO2 emissions by up to 90% compared with conventional PVC resins, and around 60% relative to traditional PVC plasticisers, says the company. They can be used as a drop-in replacement for a variety of extruded PVC applications including tubing solutions and films used for trays, pouches and bags.

"This is a significant step forward in healthcare materials science sustainability," said Meg Henke, global head of product management at TekniPlex Healthcare.

› **https://tekni-plex.com**

Microplastics research reports first results

A research project to understand the potential effects of microplastics on human health has completed its first stage.

Plastics Europe, which launched the five-year Brigid study in 2022, says it found microplastics in 95% of human faecal samples, with an average of 3.3 microplastics per gramme of stool.

It said there was no identifiable correlation between the consumption of plastic-packaged foods and the number or type of microplastics in a stool sample. However, a new hypothesis emerged indicating a potential correlation between the method of food preparation and the presence of microplastics.

The most common polymer types were PE, PET, and PP, and the most common particle shape was fibre.

"The finding that packaged food consumption does not influence the amount of microplastics in stool challenges common assumptions," said Virginia Janssens, managing director of Plastics Europe.

"This potential link highlights the need for further research."

› **www.plasticseurope.org**

Precision Grade Melt Filter

Continuous and uninterrupted production process, high pressure resistance and no pressure fluctuation.

Suitable for fine filtration of large area, good sealing characteristics to avoid leakage of material.

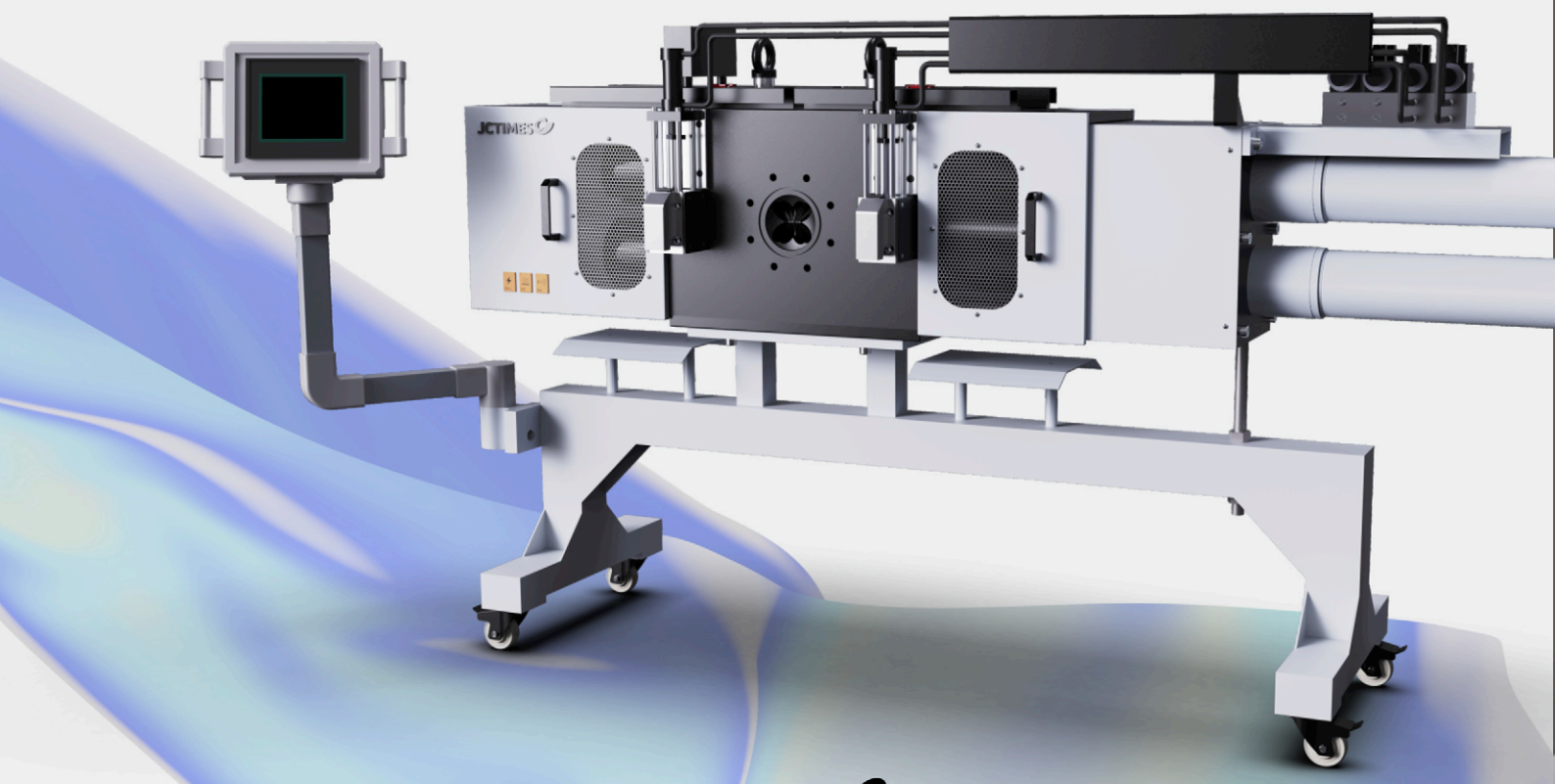
The backwashing function reduces the frequency of screen change and saves production cost.

Suitable for chemical fiber, blown film, cast film and tube manufacturing and recycling granulation.

For full technical support, professional training and marketing resources, please email sales2@jc-times.com.

WeChat

JC-times.com



JCTIMES

Euro project recycles bioplastics

A new pan-European project will attempt to boost the recycling of bioplastics. ReBioCycle, which began this month, will establish separate 'hubs' for mechanical, chemical, enzymatic and microbial recycling. These will be located in the Netherlands, Italy, Spain and Ireland.

The project aims to demonstrate the impact of obtaining the same or superior grade of three types of recycled bioplastics – PLA, PHA and composites – in higher-value applications.

European Bioplastics and its members – including TotalEnergies Corbion, Aimplas, Novamont, Sulapac and Kaneka – are among the 20 project partners.

"Current recycling technologies for recycling biodegradable plastics are limited," said Jan Pels, managing director of Torwash, which leads the Dutch hub. "With this project we are going to make them widely available – then nobody can claim that biodegradable plastics cannot be recycled."

ReBioCycle will separate the three types of bioplastics by adapting and upscaling existing sorting technologies. It will also propose a range of bioplastics recycling technologies at a relevant scale and demonstrate their effectiveness.

This will result in a position paper on the status of bioplastics recycling, to provide a contribution to various European action plans and strategies.

ReBioCycle has received €7.5 million in funding from the European Union's Horizon Europe research programme.

› **www.european-bioplastics.org**

Union ire at Berry closure

Canadian trade union Unifor has criticised Berry Global – which says it will permanently close a film manufacturing plant in Edmonton.

The factory makes plastic film for building greenhouses and wrapping hay bales in the agricultural industry. Berry bought the facility four years ago.

"We do not accept that this closure was necessary," said Lana Payne, national president of Unifor. "Suddenly shutting down the plant with little notice shows a true lack of communication and respect for our members."

The closure was announced on 11 September and the first round of layoffs took place two days later. The plant closure affects 58 employees.

› **www.unifor.org**
› **www.berryglobal.com**

PVC dialysis bags turned into hospital floor tiles in Thailand

SCG Chemicals is part of a project that will recycle PVC dialysis bags into flooring – to renovate four hospitals in Thailand.

The pilot installation will take place at Prince Suvarnabhumi Hospital and later expand to three more – for a total area of more than 9,000 sq m.

"Used PVC dialysis solution bags are a form of medical waste that is increasing in volume," said Chatri Eamsobhana, chief commercial officer of SCG Chemicals. "When properly collected and reintroduced into the system for advanced recycling, they can be transformed into new, valuable products."

Krittavith Lertutsahakul, managing director of project partner Princ, added that 25,000 dialysis patients in Thailand each require 1,460 dialysis solution bags per year – generating 1,740 tonnes/year of PVC medical waste.

› **www.scgchemicals.com**

IMAGE: SHUTTERSTOCK

Orion adds tyre pyrolysis in Poland

Orion is installing tyre pyrolysis oil (TPO) tanks at a plant in Poland to boost production of 'circular' carbon black.

After delivery, the TPO is pumped to furnace black reactors that transform the oil into carbon black. Orion says it is the only producer that has made carbon black from 100% TPO.

As well as providing carbon black to industries including plastics, it helps the tyre sector cut waste.

"Our partnership with TPO producers underscores our commitment to sustainability," said Pedro Riveros, senior vice president of global rubber carbon black at Orion.

› **www.orioncarbons.com**

Van Meeuwen®
IMPROVING INDUSTRIES

Improving plastic sheets and rigid food packaging

- Anti-block agents
- Anti-static agents
- Anti-fog agents

Optimize the presentation & creation of food packaging

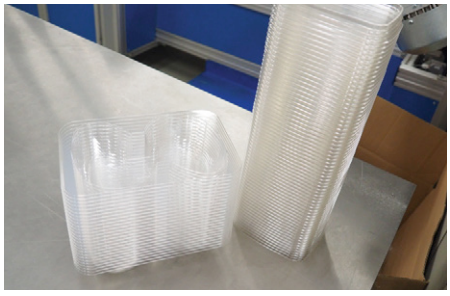
Consumers

Fogging most commonly occurs when there is a temperature difference. It can disturb the appearance of packed food. Van Meeuwen can assist you in creating clear sheet which is less sensitive for fogging. It will satisfy your customers and consumers.

Production process

Too much friction of the plastic sheet can lead to process failures and loss of quality. Anti-blocking agents reduce this friction, making it easy to separate packages from each other. It also ensures that exactly one cup or tray is picked up at automated filling lines.

Top: Partly coated with anti-fog



Bottom: Stacked packaging, coated with anti-block

Would you like to know more? Let's get in touch!

Van Meeuwen Additives
More impact with less

The Netherlands T +31 (0)294 494 494 • additives@vanmeeuwen.com • www.vanmeeuwen.com

European Commission moves forward on chemical recycling

The European Commission (EC) is inching closer to making a decision on which allocation method chemical recycling companies must use for the mass balance approach in calculating recycled plastics output from their facilities.

"We have been intensively discussing this internally," said Julia Roettgerding, Policy Officer in the DG Environment Circular Economy Unit, in a keynote speech at the Plastics Recycling World Expo in Brussels in September.

IMAGE: D ELDRIDGE

The audience listening to the keynote speech by Julia Roettgerding of the European Commission at the Plastics Recycling World Expo in Brussels

There have been lengthy discussions about mass balance with EU member states, which are continuing, she said. The EC's attempts to reach a decision have been further delayed as new Commissioners appointed after EU elections in June have set up their departmental teams.

When plastics waste is used with virgin feedstock in a petrochemical plant, mass balance enables a company to say a proportion of the plant's output is recycled (more details **here**). Some aspects of what the EC will permit have been decided, such as not allowing a company to transfer mass balance credits between sites.

Roettgerding said that in its discussions with member states, the EC supports the Fuel Use Excluded method for calculating the amount of recycled products, which provides a freer allocation than the Proportional and Polymers Only options. The EC's decision on the allocation method is crucial for chemical recycling companies whose investment plans are based on being able to allocate at a higher level of recycled products.

The EC is also working on connected elements such as chemical traceability. "It must be possible chemically to produce output from the input waste," said Roettgerding, as it is important to show a link between the waste feedstock and the product allocated as recycled.

Certification requirements in the value chain are being developed with a view to limiting the administrative burden, she said.

› **https://commission.europa.eu**

US plastics jobs grow by 1%

The US-based Plastics Industry Association has launched its 2024 Size and Impact report, the latest annual analysis of the country's plastics industry.

Highlights of the report included: sales of almost US$520 billion in 2023; and industry employment up around 1%, ahead of the manufacturing sector average;

As measured by gross output, the plastic products portion of the plastics industry was the eighth largest US industry in 2022 (the latest year for which information is available).

"The report shows growth in the industry's real economic value added – adjusted for inflation – an increase in its share of consumer demand, and a rise in annual payroll," according to Perc Pineda, chief economist at the association.

In addition, the association has launched the first Plastics Demand Estimate report, to serve as an indicator for the plastics industry supply chain in the US.

The report will be released to members on a monthly basis.

"While demand will continue to vary monthly, the year-over-year change in plastics demand at current prices and real demand, adjusted for inflation, has been more aligned in recent periods compared to 2021 and 2022," according to Pineda.

› **www.plasticsindustry.org**

US Plastics Pact update

The US Plastics Pact has released an updated report detailing ongoing action to eliminate "problematic and unnecessary materials" from the plastics value chain.

Activators will take measures to eliminate additional items on the list, which now includes: foamed PET when it interferes with sortation and density requirements per the APR Design Guide.

› **https://usplasticspact.org**

We take you to the top of extrusion

Macchi S.p.A.
Via Papa Paolo VI, 5
21040 Venegono I. (VA) Italy

Tel. +39 0331 827 717
E-mail: macchi@macchi.it
www.macchi.it

Macchi

60 1961-2021

PLASTICS EXTRUSION WORLD EXPO

NORTH AMERICA

November 13-14, 2024 | Cleveland, OH

Co-located with:

PLASTICS RECYCLING WORLD EXPO

COMPOUNDING WORLD EXPO

POLYMER TESTING WORLD EXPO

PROGRAM LAUNCHED

Hear from leading experts at our free conferences including:

Elizabeth Carroll

AMI

Annika Greve

TERRACYCLE

Kathryn Skaggs

Keller & Heckman

Desmond VanHouten

amcor

Chris Giles

Valéron Strength Films
An ITW Company

Shannon Crawford Gay

WM

REGISTER FOR **FREE**

Brought to you by:

AMI

Proudly supported by:

Film and Sheet EXTRUSION

Pipe and Profile EXTRUSION

IMAGE: AMI

Above: The free conference programmes are always a major draw at the Plastics World Expos in Cleveland

AMI confirms US expo programmes

The programmes have been announced for the four free-to-attend conference theatres at the AMI Plastics World Expos, which take place on 13-14 November in Cleveland in the US.

More than 100 industry experts will speak in the four theatres that are focused on plastics recycling, compounding, extrusion and testing. The two-day conference programmes feature a selection of technology talks, keynote presentations and training seminars, as well as business debates.

"The free conference programmes are always a major draw at the Plastics World Expos in Cleveland and provide a fantastic opportunity for attendees to explore key industry trends and emerging technologies," according to Andy Beevers, events director at AMI.

A wide range of topics and technologies will be covered in the conference sessions, including: PFAS challenges; graphene opportunities; market trends; AI for new product development; regulatory developments; enhancing bioplastics; factory digitisation; upcycling plastic waste; computer simulation; the future for plastics packaging; process optimisation; methods for boosting recycling rates; and applications in electric vehicles.

There are more than 100 speakers, including senior representatives from companies such as Accredo Packaging, ADS Pipe. Amcor, American Chemistry Council, AMI, Ampacet, Blue Diamond industries, EFS Plastics, Keller and Heckman, KW Plastics, Revolution Company, Routsis Training, Teknor Apex, TerraCycle, Valeron and WM Thermoforming.

The conference theatres run beside four focused exhibitions – the Compounding World Expo, Plastics Recycling World Expo, Plastics Extrusion World Expo and Polymer Testing World Expo – which feature more than 370 suppliers of machinery, materials and a range of industry services.

View the full programmes under the four tabs **here** and register for a free ticket to the conferences and exhibitions **here**.

› **www.amiplastics.com**

AMI | Events

Stretch and Shrink Film

December 2-4, 2024 | Charleston, SC, USA

Unwrapping sustainable innovations in the stretch and shrink film industry

Gain valuable insights from our speakers:

Dan Felton
Executive Director
Ameripen

Kari Bliss
Principal Sustainability
PADNOS

Kevin W. McIntosh
USA Sales Manager / W5 Engineering Senior VP Reliability Test Systems
Safe Load Testing Technologies

Grace Lancaster
Product Manager & Sustainability Analyst
Lantech

Paul Kearns
Director & Service Line Leader, Sustainable Packaging
Anthesis Group

Esteban Sagel
CEO
Chemical and Polymer Market Consultants

Sean Fischer
Regulatory Review Scientist
U.S. Food and Drug Administration

Cherish Changala
Vice President of Sustainability and Public Affairs
Revolution

BOOK YOUR PLACE TODAY

Sponsored by: ExxonMobil, SAFE LOAD testing technologies, COLINES ONE STEP AHEAD, SML, CLOEREN

Supported by: American Recycler, FPA Flexible Packaging Association

Second skin: innovations in recycling and granulators

Advances in granulators and recycling include new models for medical applications, a servomotor-driven edge trimming system and a way of adding predictive maintenance

IMAGE: HERBOLD MECKESHEIM

Main image: Various sizes of rotor from Herbold Meckesheim granulators will be seen at Fakuma

With companies all along the supply chain under pressure to cut their carbon footprint, it makes sense that plastics extruders are incorporating more recycling and regranulation into their operations.

The latest Smart Granulator control from **Conair**, called SG2, adds predictive maintenance to larger Viper granulators used in central size-reduction systems or in-line applications that process continuous, high volumes of scrap.

The SG2 control made its US debut on a Conair Viper 1736 granulator at the recent NPE exhibition. Like its predecessor, the SG1 – offered on Viper 12, 17 and 23 Series granulators – the optional SG2 control shares Conair's common control interface, housed in a 7in colour touchscreen HMI. It also shares a new PLC platform with power cabinet wiring that simplifies connection and sequential control of shredders, conveyors, evacuation systems and other equipment commonly used in central and in-line size-reduction systems.

"The new capabilities of the SG2 control open the door to exacting measurement of the factors that drive granulator maintenance, whether it's knife changes, bearing lubrication, or screen replacement," said Dave Miller, general manager of size reduction at Conair.

In operation, the SG2 control gathers performance data from sensors within the granulator – rotor RPM, motor load/amperage, cutting chamber and screen temperatures, and vibration levels. Then, it compares the data to established 'good' data reflecting desired equipment performance. If the live data is outside the desirable range, the SG2 alerts operators.

It uses alarms for situations that require immediate attention (such as a Low RPM or High Amp alarm indicating a possible material jam), or a combination of maintenance trackers, (such as knife status display) trend-line displays, or on-screen reminders to indicate upcoming maintenance needs.

When linked to SmartServices – Conair's cloud-based Industry 4.0 platform – Miller says the SG2 control in the Viper granulator can provide trending data about equipment health to the SmartServices dashboard, and send maintenance reminders to the proper personnel.
"It means you're never running with dull knives, worn bearings, or overloaded motors – all problems that can cause future unplanned downtime if not addressed," he said.

Digital control

Hellweg Maschinenbau has developed a number of digitally controlled grinders that claim to offer efficient, energy-saving plastics recycling.

These include: the MDSi 340/150 Smart Control machine-side grinder with fill level monitoring; MDSi 600/300 Smart Control Plus central grinder;

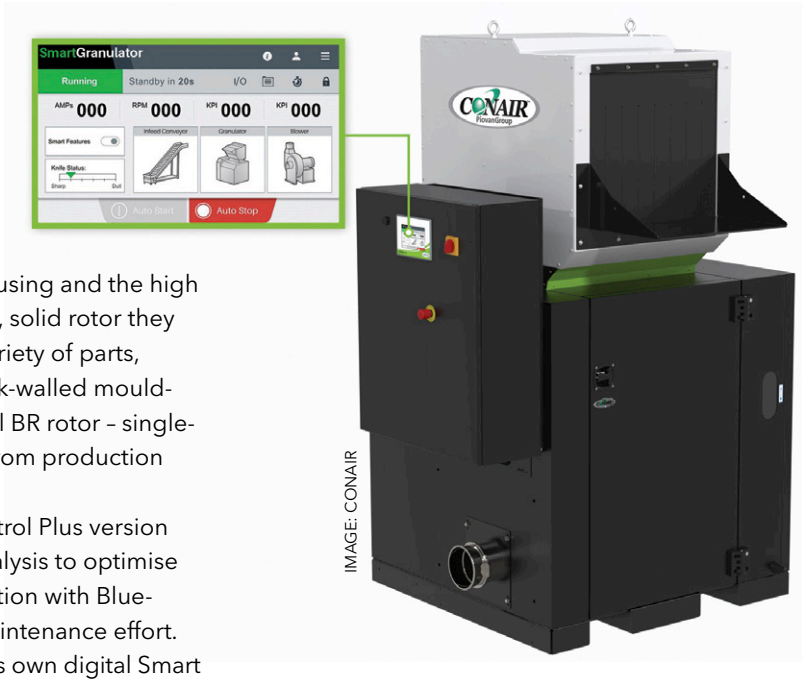


IMAGE: CONAIR

Right: Conair's SG2 Smart Granulator control adds predictive maintenance to larger Viper models

and MDSGi 1500/600 – one of a new series of wet grinders with forced feed that have low power consumption.

Hellweg's 300 series central grinders combine a compact design with high performance. Thanks to the sturdy machine housing and the high moment of inertia of the massive, solid rotor they enable powerful grinding of a variety of parts, including pipes and profiles, thick-walled mouldings and – when using the special BR rotor – single-stage shredding of solid lumps from production start-ups.

The MDSi 600/300 Smart Control Plus version includes power consumption analysis to optimise economy and automated lubrication with Bluetooth monitoring to minimise maintenance effort.

Each system features Hellweg's own digital Smart Control System which captures parameters such as power consumption, motor speed and bearing temperatures, as well as blade, screen and V-belt status. Because the control system can continuously optimise the relationship between motor load and throughput, it ensures economical operation while requiring little input from operators.

Smart Control is generally available for all models and sizes of Hellweg system, starting from the 150 series machine-side grinders for granulating small parts and sprues up to the 600 series heavy duty grinders designed for the toughest applications.

Below: Hellweg has developed a number of digitally controlled grinders

Leading edge

In addition, Hellweg says that its R 200/20 servo-motor-driven edge trimming system brings flexibility to the shredding of extrusion edge strips.

Developed with **Breyer Extrusion**, the new machine's touchscreen control allows processors to adapt this step to production conditions and optimise it for the specific applications. Designed for a working width of 200mm and cutting thickness of up to 20mm, the R 200/20 continuously pre-shreds one or two edge strips from film or sheet production. A downstream granulator processes the resulting chips, which are several centimetres in size, into regrind or flakes in the millimetre range as required. These can then be fed straight back into the recycling loop.

Thanks to the servo geared motor, cutting cycle times can be set using the touchscreen display. As a result, the cutting frequency of the R 200/20 Servo – and the length of the edge strip chips – can be selected at a constant cutting speed. Numerous, short chips relieve the load on lower power granulators, while the longer pieces relieve the load on the chipper. In each cases, electronically controlled edge trimming cuts wear and energy consumption. The high chopping speed results in a smoother process because the permanently advancing film web only runs over the stationary blade for a short time. This minimises counter-thrust and associated lifting of the entire edge strip.

IMAGE: HELLWEG

Redesigned pulveriser

Neue Herbold has renewed its ZM 800 Pulverizer with a number of new features.

One is the stream technique optimisation of the machinery housing. In the past, machines of this type were made with a round housing on a platform – but the new housing passage is supplied in a curved design. The background for the modification is that the material's angular momentum is used for the discharge, since the material is

MACRO®

Produces 7 layers

Layflat ranging from 150mm-700mm

Runs barrier shrink films based on PA, EVOH as well as mono-material structures

Quadex™ Labline

Unveiling our new Quadex™ biaxially oriented labline at our Canada headquarters this year.

YOUR VISION, OUR EXTRUSION EXPERTISE.

MACROENG.COM | +1 905.507.9000

SCAN QR CODE

IMAGE: HELLWEG

Above: Hellweg's R 200/20 edge trimming system is equipped with a servo geared motor

pre-accelerated for the later air conveyance. The modification helps to raise throughput rates, while energy consumption is unchanged.

Design and ergonomics were also important factors in the redesign. The standard machine extensions – such as vibro-feeder or mounting bracket for the vacuum feeder – blend into one compact machine concept with clear lines. Meanwhile, all parts are easily accessible.

Even the door lock has been optimised, and now operates more efficiently and with less space requirements. Cables, connections and sensors are gathered in a central processing unit. Control unit of water injection – through valves and sensors – is now placed in an accessible housing that is dust- and splash-proof.

Size reduction

Weima presented a number of systems – including granulators and shredders – at this year's NPE show in the US.

Its size reduction machinery included its WLK 10, WLK 800 F+, and WKS 2200 single-shaft shredders. These were seen on two booths – in the main hall, and in the show's Recycling Zone.

The WLK 800 F+ shredder is aimed at film, fibre and filaments. It is built to handle a wide range of materials and is focused on materials that are prone to wrapping. The shredder's hopper is designed so it can handle large volumes of material with ease. The WLK 800 offers easy access for maintenance and cleaning, ensuring uninterrupted operation and minimal downtime. ›

AMI | Market Reports

BOPP Films Global Market 2024

Flexible Films

Request your free report proposal >

Due to the evolving structure and demand for BOPP, high-quality data analysis is essential for developing winning strategies and maximising market opportunities.

Competition is fierce due to investment cycles, raw material price volatility, and supply fluctuations. Companies aim to stand out by specialising in value-added or commodity products.

Report scope

The report provides supply and demand analysis for BOPP films. Demand is further segmented by region according to the following film types: plain, heat sealable coex, opaque (white, cavitated, pearlised, and matt films) and coated. The report also explores the emerging BOPE films market along with the battery separator films market.

Leading producers

The report also includes detailed profiles of the top 50 BOPP film groups including information on HQ info, plant locations, ownership, size and capacity of lines, sales, product offering, and future investment plans.

Application scope

Analysis of BOPP film demand by the following end-use categories is given: confectionery, biscuits/bakery, pasta/noodles, snacks and other dried foods, tobacco, labels, tape and other (includes capacitor films, print lamination, gift wrap, ream wrap).

Data is supported by comprehensive analysis and commentary on economic and consumer trends driving growth and the development of the BOPP film market within each region.

Data points

The study provides data in tonnes for 2018, 2022, 2023, 2024 and 2028.

Statistical appendix

A detailed statistical appendix by country providing: capacity, production, demand, imports/exports.

Its variable-speed drive system allows for precise control over the shredding process, while its F+ rotor ensures consistent performance and reliability.

Entire expertise

At Fakuma this year, **Coperion** and **Herbold Meckesheim** will show their expertise in entire systems through virtual animation – including systems for recycling plastic. The processes involved can be experienced digitally with the aid of simulation.

Rotors from Herbold Meckesheim granulators will be seen in various sizes and for many applications. The cutting geometry is the main reason for the high efficiency the rotors, says the company.

Along with individual components, Coperion and Herbold Meckesheim deliver entire systems for plastics recycling. From mechanical processing – shredding, washing, separating, drying and agglomerating of plastics – to bulk material handling as well as feeding and extrusion all the way to compounding and pelletising, such plants cover the entire plastics reclamation process chain.

Customers can test a wide variety of plastic recycling processes and technologies under actual production conditions – in Coperion and Herbold Meckesheim's fully equipped test centres – before they invest. Herbold's 800m² facility in Meckesheim, Germany, includes a complete washing line for cold and hot washing as well as many size reduction solutions including shredders, granulators, pulverisers and plastic compactors for densification. In 2023, Coperion opened a recycling innovation centre in Weingarten, Germany with individually configurable recycling plants – allowing recyclate to be conveyed, fed, extruded, compounded, pelletised and deodorised.

Medical granulation

CMG has launched a new series of small granulators that can be used in the medical industry.

The new G17-MED series are several and all contribute to obtaining the highest degree of precision and cleanliness, regrind quality (homogeneous particle dimensions and absence of dust), efficiency of operation.

The new granulators are applicable to injection moulding and of blow moulding – but in the ET1 or ET2 configuration are suitable for extrusion. ❯

AMI | Events

Recycling Flexible Packaging

10-11 December 2024 | Vienna, Austria

Working to find circular solutions to the problem of flexible plastic waste

Gain valuable insights from our speakers:

Silke Einschuetz
Senior Consultant
AMI

Dr. Johann Mayr
Vice-President
Municipal Waste Europe

Rickard Jansson
Development Engineer
Swedish Plastic Recycling

David Walsh
CEO
Impact Recycling

Graham Houlder
CEFLEX Coordinator
CEFLEX

Paolo Glerean
Chairman
RecyClass

Dr Marcus Schulze
Head of Research and Development
Saperatec

Prof. Edward Kosior
CEO and Founder
NEXTEK

JOIN US IN VIENNA

Sponsored by:

DUPONT

advanced packaging association

Supported by:

CEFLEX

MEETING DESTINATION VIENNA

The new series is designed to obtain homogeneous regrind shape and dimensions, along with little to no presence of dust. One benefit of the new line is the ability to produce regrind with very small dimensions – which has no adverse impact on the quality of the finished medical product. Small capacity systems, including injection moulding machines and extruders, are equipped with small diameter plastification screws that cannot process granules with dimensions exceeding those of virgin granules. The G17-MED granulators produce regrind that is dimensionally comparable to the virgin pellet, says CMG.

The company has also developed a new cutting chamber for its Evoluzione series, in which a new rotor configuration allows rotating blades to cut material perpendicularly against fixed blades.

The blades are mounted directly on the end of the support bracket, which facilitates high inclination of the blades and allows for easy and quick maintenance and replacement as the cutting chamber is accessible from the front of the machine. The material does not rotate with the rotor, avoiding the dust and small particles that become waste material in the washing phase. The production of micro particles is reduced to a few percentage points, compared to 15% or more with a conventional granulator, says CMG.

The open rotor design occupies 30% of the space inside the cutting chamber and the ratio between the volume of the rotor and the cutting chamber is 30/70, while that of conventional granulators is 70/30. The cutting chamber also benefits from tangential development, guaranteeing smooth material ingestion without resorting to forced feeding systems.

Improved cutting

Austrian injection moulding and thermoforming specialist **Lechner** recently linked up with consultants from **Büchler** – which represents granulator manufacturer Getecha in Austria and Hungary.

Project manager Bernhard Lechner explained: "To optimise internal material processing in the two halls at our main factory in Bad Vöslau, we needed multiple standard granulators for efficient granulation of various scrap material from component manufacture and film processing. After requirement analysis, we selected two granulators of the RotoSchneider generation: a type RS 45090

AMI | Events

Multilayer Flexible Packaging

10-11 December 2024 | Vienna, Austria

Exclusive rate available for consumer brands

The latest innovations in multilayer flexible packaging film design and performance

Learn about new materials, innovations and more from:

Miruna Zala
Marketing Development Manager
Kraton Corporation

Akinobu Inakuma
Technical Manager MTS, Lab P&C MMA Business Group EMEA
Mitsubishi Chemical

Andrea Jenn
Consultant
AMI

Greg Courtney
Technical Service Specialist
NOVA Chemicals Corporation

Dr Markus Piwko
Industry Manager
Von Ardenne

Mazen Ziadeh
Technical Expert
Mitsui Chemicals Europe

Sebastian Ritter
New Business Development & Sustainability Manager EMEA
Toppan

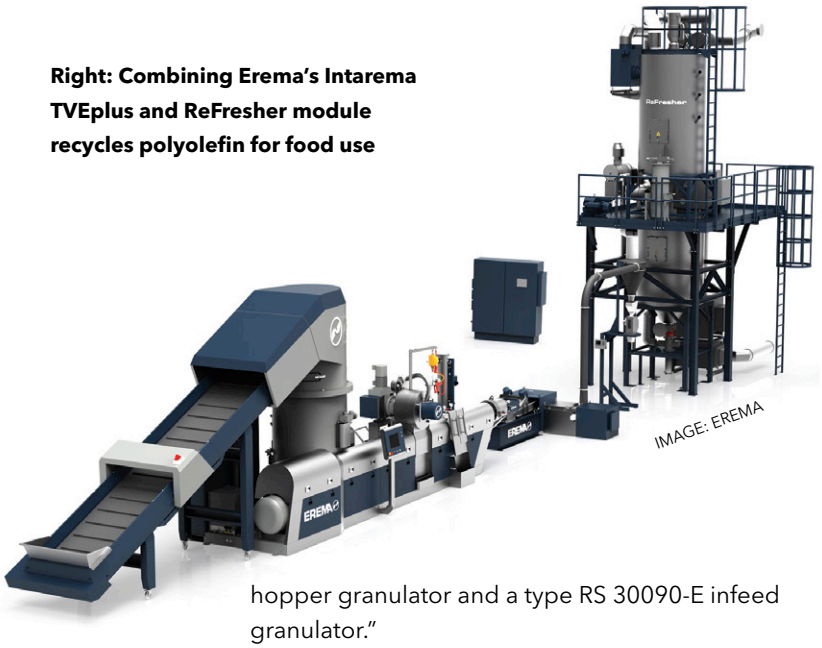
Dr. Martin Engelmann
Director General
German Plastic Packaging Association

JOIN US IN VIENNA - BOOK TODAY

Headline sponsor: Mitsui Chemicals Group

Sponsored by: TOPPAN, advanced packaging association, KUHNE GROUP

Supported by: MEETING DESTINATION VIENNA NOW • TOGETHER



Right: Combining Erema's Intarema TVEplus and ReFresher module recycles polyolefin for food use

hopper granulator and a type RS 30090-E infeed granulator."

The RS 45090 is used by Lechner as a central granulation station. It has a cutting width of 900mm and processes round, square, and heavily ribbed production scrap with an hourly throughput of up to 900kg.

"As the ideal addition to its RS 45090, Getecha also provides a side bypass hopper to feed through long parts. This saves us having to purchase another granulator," said Lechner.

The grinding chamber features a triple-blade rotor with oscillating weight and additional third stator blade. This robust configuration improves the processing of heavily ribbed components and prevents remnants from dropping too deep, significantly increasing overall efficiency of the granulation process. The inside of the hopper and the granulator housing are both equipped with hardened wear protection plates, which can be replaced when worn. Another important aspect is the integration of a new hopper granulator into the existing disposal/cycle processes at the customer's factory. To facilitate the use of an independent and self-cleaning vacuum conveyor station, Getecha engineers modified the suction tub of the RS 45090 and equipped it with a fill level sensor.

Lechner is using vacuum moulds to process PET and compound films with thicknesses up to 2.5mm for large-scale production parts. To dispose of scrap web and faulty parts, the company opted for an infeed granulator designed and sized to process scrap material and hybrid films together with cardboard packaging. The hourly throughput rate is up to 670kg.

Many of the latest granulators to hit the market feature improved cutting technologies, allowing for greater durability and precision in the size and shape of granules produced. High-performance materials and advanced geometries contribute to prolonged operational life, reduced maintenance, and enhanced performance.

Additionally, customisable settings enable operators to adjust parameters such as speed, cutting chamber size, and screen configurations to achieve optimal results with different materials.

Packaging benefit

Erema will highlight a number of film recycling technologies at Fakuma in October.

It says the EU's PPWR (Packaging and Packaging Waste Regulation) demands a significant increase in the proportion of recyclates used in packaging products by 2030. There is also the need to use more recycled materials in areas like the automotive industry.

"We see new legal requirements such as the PPWR as an opportunity to demonstrate our expertise," said Markus Huber-Lindinger, managing director at Erema. "The European recycling industry has the know-how to meet these requirements, which gives Europe a significant competitive advantage."

It says the combination of its Intarema TVEplus and its ReFresher module allows recycled polyolefin pellets from defined input streams to be reused in food packaging in proportions of up to 100%. By decontaminating the plastic and removing unwanted odours, it opens up other applications for recycled pellets, such as automotive and personal care products.

As demand for recyclate increases, so does the need to raise capacities using larger machines. For recycling PET, Erema supplies systems with throughputs up to 6 tonnes/hour. It has also built machines for recycling polyolefins with a throughput of over 4 tonnes/hour.

"This wide selection of technologies is necessary for efficient recycling, because the method must be matched to the polymer, degree of contamination, input material and the application that the recycled pellets will be used for," he added.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.conairgroup.com**
- **www.hellweg-granulators.com**
- **https://neue-herbold.com**
- **www.weima.com**
- **www.cmg-granulators.com**
- **www.coperion.com**
- **www.herbold.com**
- **www.getecha.de**
- **www.buechler.at**
- **www.lechner-kunststoffteile.at**
- **www.erema.com**

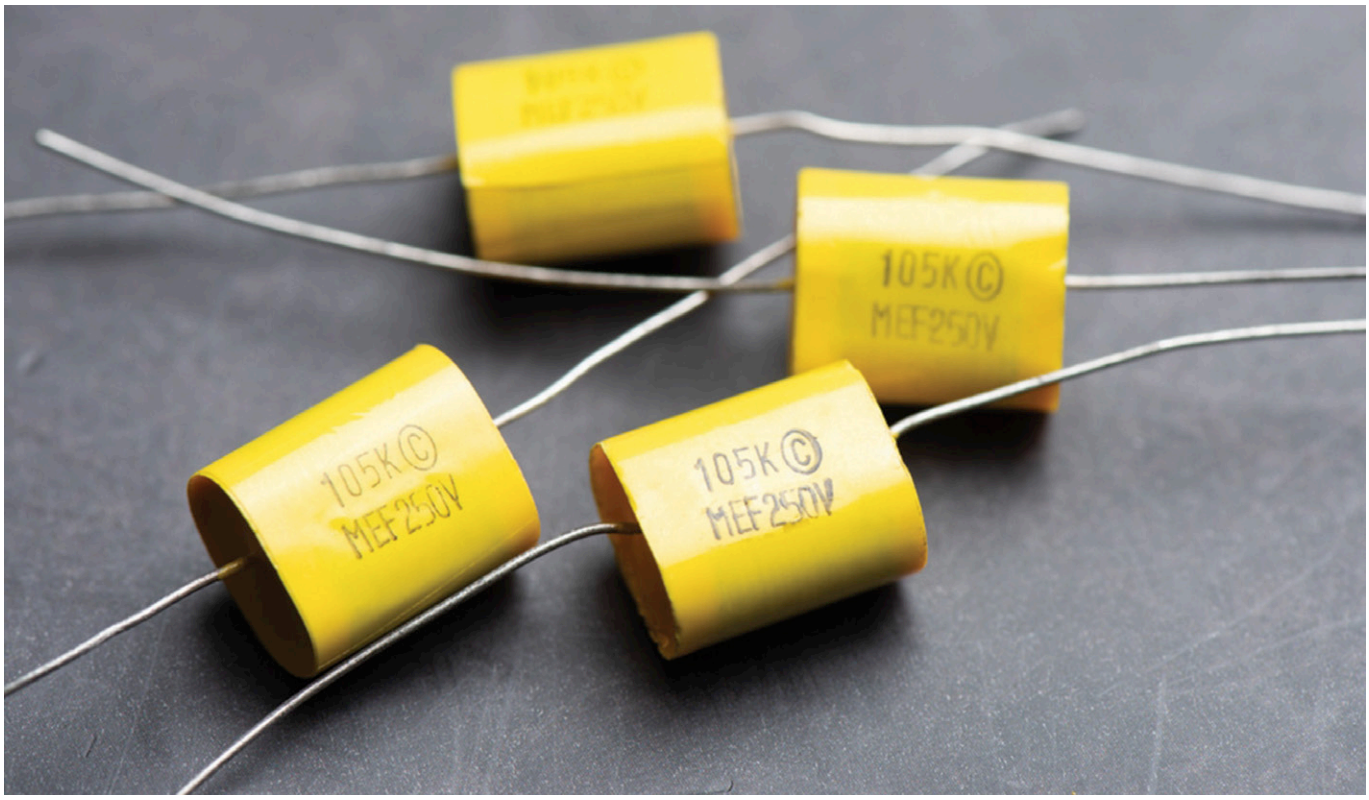


IMAGE: SHUTTERSTOCK

A growing global market for capacitor films

*The rise of the film capacitor is providing opportunities in the biaxially oriented films sector. Written by **Susannah Owen** and **Nicola Charlesworth** at AMI Consulting*

The global capacitor film market is seeing increased activity and enjoying significant growth thanks to the rise in new energy and growing demand for electric vehicles and devices. Despite its highly technical nature and barriers to entry, a new wave of investment is sweeping across regions like Asia and India, as producers look to cater for rising demand and secure their market share.

Capacitors are widely used across electronic devices, from consumer electronics to electric vehicles (EVs) and power grids. They are passive electronic components, devices which receive, store and release energy, also capable of levelling, blocking and filtering a current. A capacitor is made up of two conducting plates which are separated by an insulating material called the dielectric. It is the dielectric which dictates the performance of the capacitor and gives rise to different properties. Materials can include glass, ceramic, plastic film, air, vacuum, paper, mica, and oxide layers, all offering their own performance parameters and suited to different applications.

Ceramic and electrolytic capacitors dominate the overall capacitor market, while film capacitors still only account for a relatively small market share. That said, the use of polymer dielectrics has been increasing due to their lighter weight, lower cost and a more reliable and longer-lasting performance. They also offer excellent processability for forming thin film with a large surface area.

A polymer dielectric can be either plain film wrapped with metal foil (typically aluminium foil) or metallised film, wound into a cylindrical shape with two terminals attached. Usually, to save space, the capacitor is then flattened and encapsulated, or in the case of stacked film capacitors, metallised films

are wound onto a large cylinder and then cut into rectangular sections.

Growth of the film capacitor market has been driven by the rising demand for products like consumer electronics, new energy and EVs. Although a fragmented market, for many film capacitor manufacturers the strategy remains the same; to rapidly expand their product portfolios and production volumes.

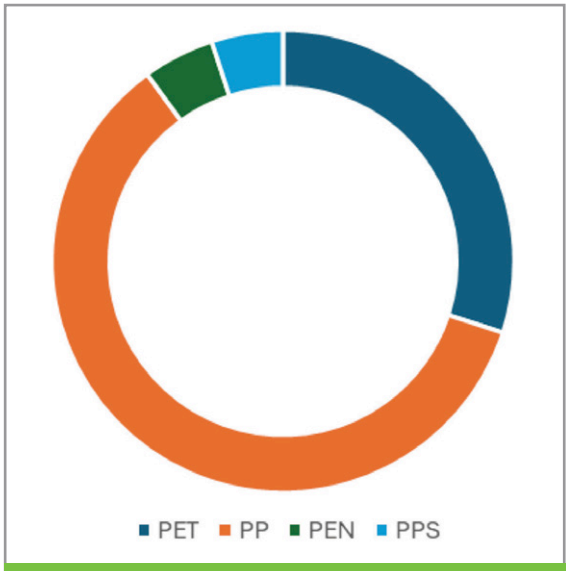
Major players include Panasonic, Nichicon, AVX and KEMET, which was bought by Taiwanese YAGEO Corporation in 2020, forming a global powerhouse for passive electrical components. In November 2023, it launched a new series of high-reliability metallised PP film capacitors with high operating temperatures for harsh operating environments.

Thinner films

Capacitor films are still considered to be a niche market within the biaxially oriented films arena, with demand unlikely to meet the same volumes as biax packaging films due to their small size and thin nature. Trends such as miniaturisation and the adoption of EVs and new energy continue to drive demand for increasingly thinner dielectric films. While the value addition of these thinner films affords producers a higher price, they are a challenge to produce and can lead to reduced voltage resistance.

Although demand is predominantly in Europe and China, North East Asia is a leading producer of these highly technical films.

Biaxially oriented PP and PET films together account for the majority of polymer consumption, while other substrates include high end engineering polymers such as PPS and PEN. Intrinsically, PP possesses the highest breakdown strength among polymeric dielectrics. It also has low dielectric loss factor, high volume resistivity and very good self-healing capability, enabling operation at high electric fields.



Global market for polymer dielectrics by film type
Source: AMI Consulting

Polyester is the second most commonly used dielectric polymer, offering slightly higher dielectric constant and operating temperatures than BOPP and is best used in DC or in relatively low-frequency or low-current pulse AC applications.

The development of higher temperature PP resins is ongoing and alternative materials are also starting to emerge. In 2023, Borealis announced a new ethylene-propylene-norbornene (EPN) resin for polymer dielectric film, jointly developed with TOPAS Advanced Polymers to overcome this limitation and to support the design of film capacitors for high temperature applications. Compared with BOPP, BOEPN is said to present lower shrinkage, lower DC conductivity and higher breakdown strength, also lifting temperature ratings by 20°C. ❯

Get more insights: attend Biax Film in November

Due to rising production of highly-technical films in Asia, AMI has moved the next edition of its well-established event, Biax Film, to Bangkok, Thailand on 19-21 November 2024.

The event delivers the latest updates from the biaxially-oriented film industry, this year with a particular emphasis on emerging technical applications. Here are some of the presentations you may find interesting:

Keynote: *Challenges of separator films for li ion batteries: past, present & future*
- **Fundamental technical knowledge**
- **Challenges & benefits in market & technology**
- **Trends & recent topics**

Kazuhiro Yamada, President, Onko-Takushin Battery Materials, Japan

Overview of capacitors for industrial and automotive applications
- **BOPP industry potential for capacitor applications**
- **Film capacitor case studies for advanced converters**
- **Capacitor requirements for advanced power converters**

Santosh Yadav, Deputy Manager R&D, Film Capacitors, TDK Electronics (TDK India), India

Developments to meet tomorrows' requirements for slitting and winding technical films
Oliver Conrad, Director of Sales, Kampf, Germany

Find out more and book your place at the event here: www.ami.ltd/book-BIAX

Production of biaxially oriented capacitor films requires a different extrusion system and a clean room, which in turn requires dedicated lines, generally narrower than for packaging applications and ≤5 metres. While the average thickness is 6 microns, this can go below 2 microns. Production is therefore limited to companies that are capable of producing very thin films with high mechanical strength, uniform thickness, homogeneous electrical and thermal properties and with low gels, and most companies produce the film for in-house use. This, combined with the high capital costs, limited number of OEMs and lengthy lead times has created some high barriers into the industry, and as a result the number of producers remains relatively small.

Although the early development of the BOPP and BOPET capacitor film industries were pioneered in Europe, today these markets are driven by the growth and development of the electronics industry which largely occurs in Asia. As such, production is centred in East Asia, namely China, South Korea and Japan, where often the metallising companies also manufacture the film capacitors.

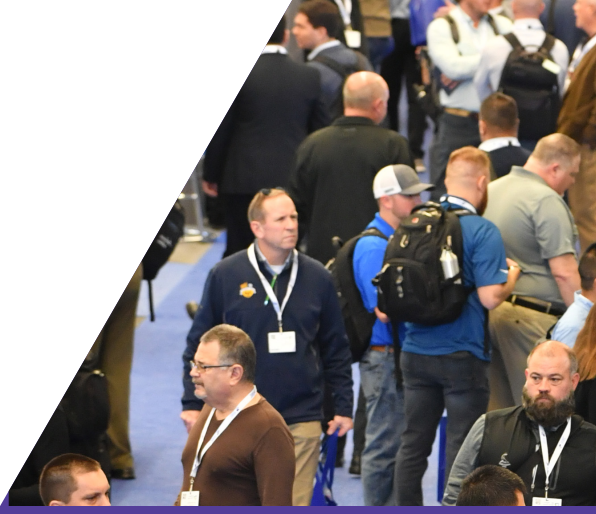
In North East Asia, capacitor film is in high demand for general electric and electronic products as well as the growing EV market, and producers in the region are able to supply the thin and ultra-thin films to cater to this need. With films typically 3 microns thick, resin demand is small but demand for the films themselves is growing strongly.

India is enjoying exponential growth in capacitor films thanks to the country's renewed focus on new energy sectors, an accommodating duty structure, and the industry's drive to reduce exports from China. Significant investment in local manufacturing is underway.

But it is China which remains the world's largest manufacturer of capacitor film, accounting for the majority of the world's market, although high-end capacitor films are still imported. Strong demand across products including remote video, medical care production equipment, servers and new energy markets has seen the Chinese capacitor film market enjoy double digit growth in recent years with BOPP capacitor film in particular offering strong performance characteristics and the industry is continuing to see strong investment by major players.

■ This content is an extract from a full market report, with accompanying data set, which was published in Orientate. Find out more **here**

AMI Plastics World Expos
NORTH AMERICA



November 13-14, 2024 // CLEVELAND, OH, USA

350+ exhibitors already confirmed including:

ADVANCED BLENDING SOLUTIONS · AdvanSix · Akdeniz Chemson · ARDL · Amfine Chemical Corporation · AMPACET · AMUT GROUP · Brabender · S.O.E. · Circular Polymers · AURORA Material Solutions · AZO · BÆRLOCHER · Barentz · bausano · BPM · Beaumont · Aditya Birla · BRUKER · Budenheim · BUSCH · BUSS · BYK · C.A.PICARD · CABOT · CAI · CANNON · Canon · chemigon · USA ROLLS · Chroma · CIMBAR · CLARIANT · CMG granulators · COLLIN · coperion · DAVIS-STANDARD · CPM · DOVER Chemical Corporation · Dynisco · ECON · EFS PLASTICS · ENTEC · ENTEK · EREMA · exelliq · EXTREME COATINGS · FARREL POMINI · FIMIC · FP PIGMENTS · Galata Chemicals · GP GENERAL POLYMERS · VECOM · GENOX USA · GLOBAL-PAK · gneuß · GÖTTFERT · GRAHAM ENGINEERING · HERITAGE PLASTICS · HCA HOLLAND COLOURS · NIMA · IMCD · IMERYS · ARLINGTON MACHINERY · intertek · JSW · kaneka · Krauss Maffei · NEOGRAF · KUHNE GROUP CREATING VALUES · KW · Leistritz · MAAG · Mochi · MAGRIS · METTLER TOLEDO · PIXARGUS · Milliken · MITSUBISHI CHEMICAL · Mitsubishi Chemical America · Mitsui Chemicals America · MIXACO · MIXACO USA LLC · mixron · MDI · NETZSCH · Proven Excellence · PRISM WORLDWIDE

SECURE ONE OF THE FINAL BOOTHS

COMPOUNDING WORLD EXPO

PLASTICS EXTRUSION WORLD EXPO

PLASTICS RECYCLING WORLD EXPO

POLYMER TESTING WORLD EXPO

REGISTER FOR A FREE TICKET

and many more – view the growing list **here**

Brought to you by:

Compounding WORLD

Plastics Recycling WORLD

Pipe and Profile EXTRUSION

Film and Sheet EXTRUSION

Injection WORLD

AMI | Events

Polymers in Flooring

November 12, 2024 | Cleveland, OH, USA

NEW EVENT FOR 2024!

Discovering the latest trends and innovations in polymer flooring with a focus on improving materials, production and design to open new markets

Hear from experts including:

Bruce Zwicker
Executive Consultant
Zwicker Advisory

Harlan Stone
CEO
HMTX Industries

Herb Upton
Senior VP of Pricing and Revenue
Shaw Industries

Paul Martin
Extrusion Expert, U.S.
Krauss-Maffei

David Eldridge
Editor
AMI

Sponsored by: DOW

BOOK YOUR PLACE TODAY

Machine learning: latest extruder developments

Recent innovations in extruder systems include a mid-range coextrusion adapter, a new blown film line series and a lab line to help shrink film customers remove PVdC

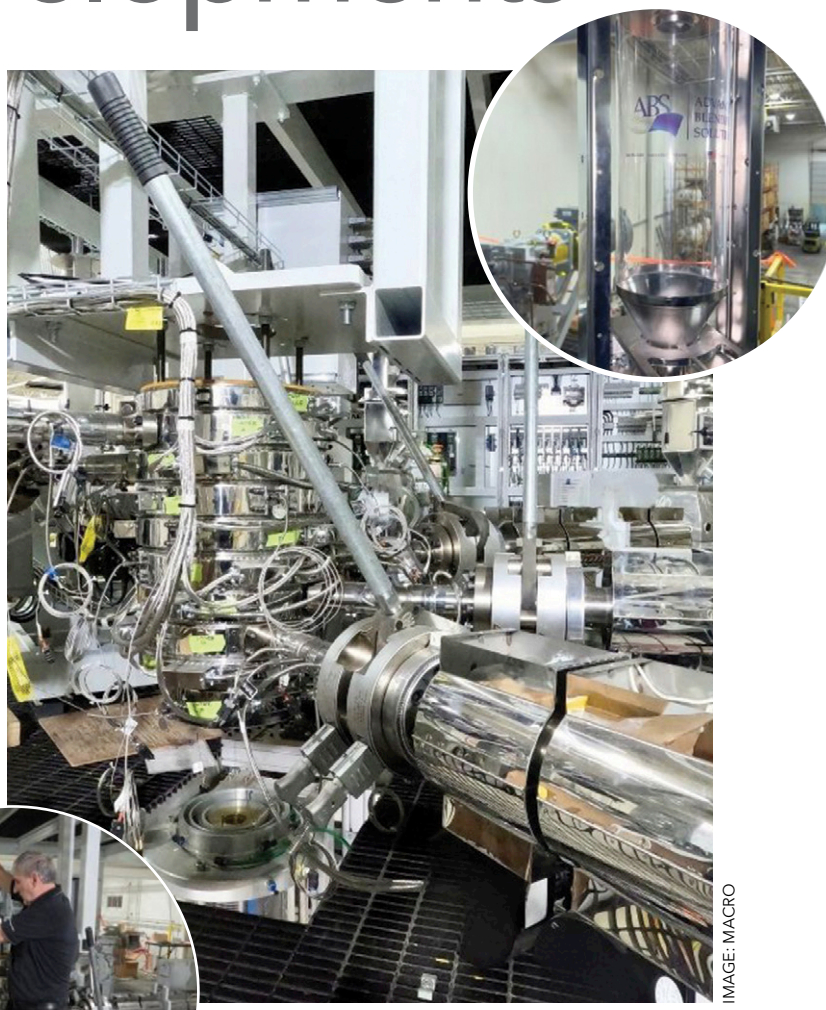


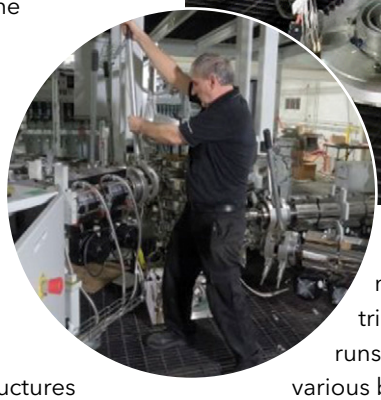
IMAGE: MACRO

Main image: Macro is installing a biax film lab line to help customers move away from PVdC structures

Extrusion systems for film and sheet are many and varied, ranging from dies that boost the flexibility of coextrusion to extrusion lines that help to boost output or manufacturing capacity.

Macro Engineering Technology of Canada is installing a biaxially oriented multi-bubble lab line for shrink film, to help customers move away from structures based on polyvinylidene dichloride (PVdC).

"We've had enquiries from producers who don't know if PVdC is going to be around for long – or if the shrink market will move to EVOH for some products," said Karen Xiao, vice president of technology at Macro. "We've already produced a few lines capable of running both PVdC and EVOH."



In anticipation of a switch – and to help customers to plan for the future – Macro says the new system is optimised to run structures based on nylon, EVOH and mono-material structures in two- and three-bubble formats.

"We want to help customers develop structures that are more sustainable on a small scale that can be easily scaled up to wider widths," she added.

More than 10 of Macro's customers have expressed interest in running trials on the line – which the company wants to be ready by the end of the year.

"PVdC has a superior moisture and oxygen barrier and is very difficult to replace," she said. "If you have to remove it from the structure you will need to re-engineer the film without compromising on the final film properties."

The line will produce film of up to seven layers. The line is equipped with a die with multiple lip sets ranging from 60 to 90mm and will run at layflat widths of 200-600mm, making it suited for both trials and small production runs. It is built to accommodate various barrier and non-barrier structures for film development purposes for non-shrink applications.

"We know enough about PVdC to extrapolate from those recipes to help customers design new structures," said Xiao.

Macro offers both a Quadex-2B two-bubble line and Quadex-3B three-bubble system.

Flat films

Indian packaging group Lorven has boosted production after installing a Varex II blown film extrusion machine from **Windmoller and Holscher** (W&H).

The three-layer machine, measuring 2800mm in

IMAGE: W&H

Above: W&H is expanding its headquarters in North America

width, can process a variety of materials including LDPE, LLDPE, HDPE and mLLDPE. It produces films that are stiff and flat – but with high productivity, thanks to advanced die and extruder technology. By minimising LDPE content, it claims to offer significant cost savings, says the company.

The machine has an output of over 900 kg/hr and is equipped with a new high-pressure cooling system to improve output and profile tolerances. Automated winders provide precise tension control, reducing the need for manual adjustments.

"Since integrating this machine, we've noticed an increase in productivity and operational efficiency," said Nitesh Kumar, managing director at Lorven.

Elsewhere, the German company is growing in North America – having recently begun expanding its headquarters in Lincoln, Rhode Island.

Andrew Wheeler, president of W&H in North America, said: "By doubling warehouse capacity and making space for our growing team, we are fostering further growth in North America."

The first phase will expand the warehouse by 12,000 sq ft and the office building by 5,600 sq ft with completion anticipated within 12 months. The second phase is the renovation of the existing 8,400 sq ft of office space, which should take six months. The entire project is expected to be completed by winter 2025.

As part of the expansion, photovoltaic panels are being installed to generate nearly all the building's electricity needs, which includes powering the HVAC system for the office space.

Stretch advantage

Colines of Italy recently supplied two nine-layer, 3000mm Allrollex film extrusion lines to Romanian stretch film manufacturer Teraplast.

Both lines are equipped with the AI-based virtual production assistant Mastermind, continuous filters to work with PCR resins, a robot-palletising system, and a cooling chiller.

Teraplast has also installed three stretch film converting machines from sister company Noel – two machines for pre-stretching stretch film and a multifunctional line for core, coreless, pre-stretched, and mini-rolls film. Thanks to the patented three-roller pre-stretch device, Teraplast can compete in pre-stretch market with the highest quality film, says Colines.

"We are very satisfied with the consistency and flexibility of Colines machines, and with the quality of the product achieved," said Nicolae Rosu, operations director at Teraplast.

Separate to this, Colines has developed a special technology kit allowing more efficient production of in-line coreless stretch film.

Production of coreless film rolls can save up to 15% in weight, helping to reduce CO_2 emissions and costs. Coreless stretch film continues to gain market share, with a share of more than 25% in Europe.

Its technology kit, with fully pneumatic system air-shafts – developed jointly with Noel – is based on a historic patent owned by the company. It allows Allrollex lines to guarantee the production of in-line coreless film at over 500 m/min, with further improvements coming soon for both 2in and 3in reels for all thickness ranges, it says.

The technology helps to raise production speed above that of competitors and resolves critical issues of low reliability and low speed of existing systems, it says, adding that the quality of the finished product is superior to that achieved using its Mastermind virtual production assistant. The kit can be equipped as an option on new Allrollex lines.

Five-layer line

At NPE, Italy's **Luigi Bandera** demonstrated Techno Flex PO5, a five-layer co-extrusion line that can process a range of polyolefin-based films to make shrink film, print lamination and gusseted film.

Key features of the line include: a four-component gravimetric loading and dosing system for the extruder; a five-layer co-extrusion head with 300mm diameter die; dual-flow cooling ring; and automatic film thickness correction control.

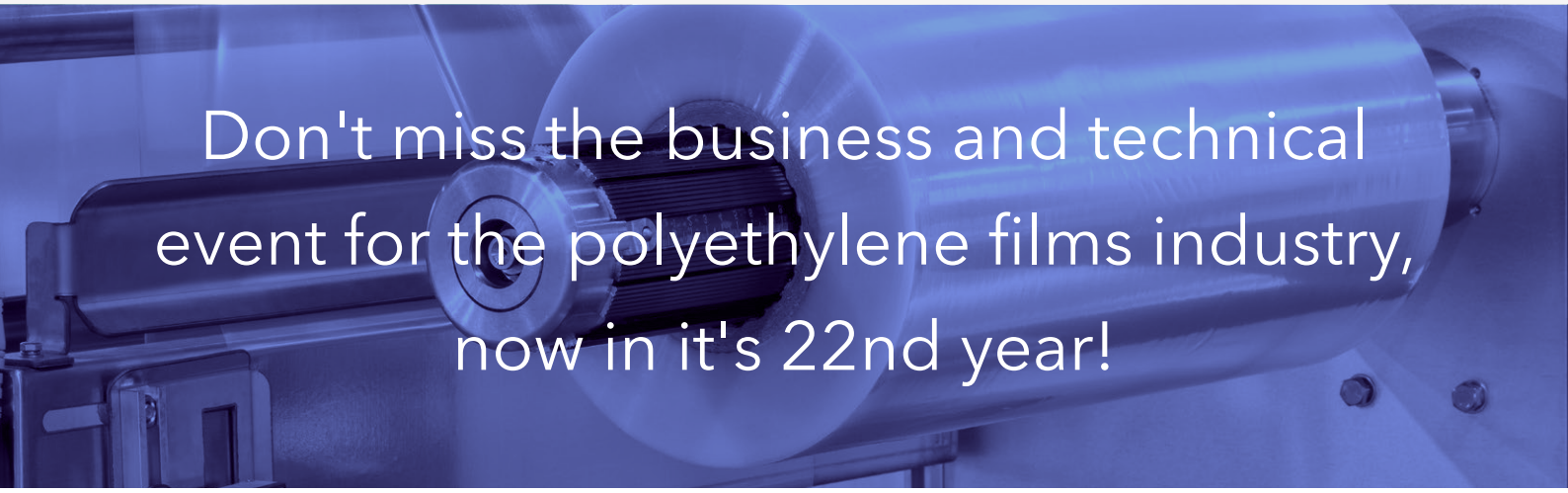
At the show, it also introduced its Trim Flex regranulation system, which it says condenses recycling (with Bandera's co-rotating twin-screw) and blown extrusion into a single step – bypassing pelletising for economic and process advantages.

This year, the company opened physical headquarters in Charlotte, North Carolina, consisting of a sales office for the US and Canada, a spare parts warehouse and an after-sales service with on-site

AMI | Events

Polyethylene Films

February 17-19, 2025 | Tampa, FL, USA



Listen to industry leaders including:

Jonathan Quinn
Chief Executive Officer
US Plastics Pact

Astrid K Torres
R&D Packaging Principal Engineer-Sustainable Materials
PepsiCo

Apurva Shah
Director of Strategic Partnerships
Charter Next Generation

Esteban Sagel
Principal
Chemical and Polymer Market Consultants

BOOK YOUR PLACE TODAY

Sponsored by:

INGENIA REDEFINING THERMOPLASTICS

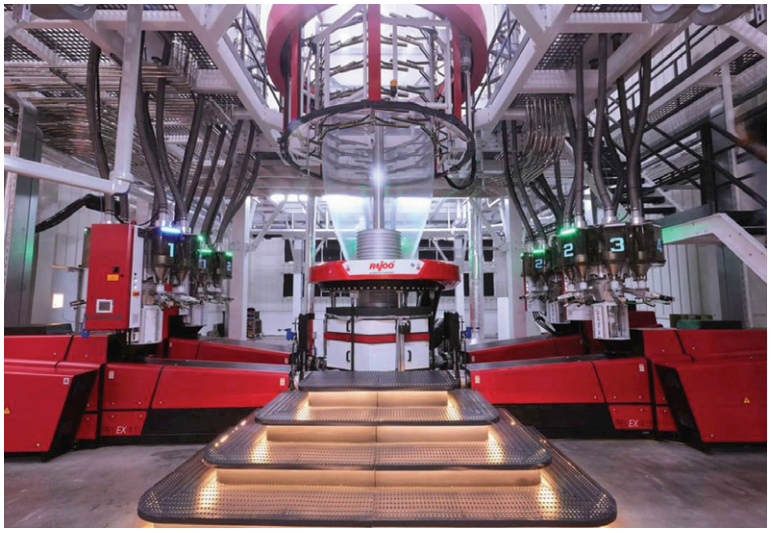
Event supported by:

American Recycler NewsVoice of Salvage, Waste and Recycling

FPA Flexible Packaging Association Connecting. Advancing. Leading.

recycling today

IMAGE: RAJOO



Above: Rajoo has introduced its Proex series of blown film lines

personnel. Bandera US is led by general manager Mattia Gambarotto.

Blown film launch

Rajoo of India has introduced its Proex series of blown film lines.

At a launch event – held at film producer Balaji Multiflex – the line produced film at 900 kg/hr in 22-micron thickness and 2800mm layflat width. A Relax extruder – with low shear heat design – demonstrates optimal energy efficiency and high yield, says the company. A CSD 4.0 die sits at the heart of the line, capable of delivering film thickness from 20 to 200 microns. The line achieved line speeds of 150 m/min.

"This high-performance blown film line shows that we can achieve world-class quality," said Pranav Bhalara, director of Balaji Multiflex.

Rajoo recently expanded production at its facility in Rajkot – allowing it to raise manufacturing capacity by 30%. The new production plant takes up 18,000 sq ft – with an extra 7,000 sq ft for quality control. The extended facility will produce domestically designed and assembled machinery, aligning with India's vision of becoming a global manufacturing hub, said the company.

Right: Reifenhäuser presented its Flex coextrusion adapter for cast film and sheet and applications

IMAGE: REIFENHAUSER

Flexible extrusion

Reifenhauser presented its new Flex coextrusion adapter for the extrusion of cast, sheet and coating applications at the NPE show earlier this year.

With the Flex model, Reifenhauser customers have a flexible, cost-effective system that complements the performance spectrum between the Fix and Pro models, it says.

Precise film profiling helps manufacturers of multilayer films to reduce production costs. With these coextrusion adapters, individual layer tolerances can be adjusted so that the minimum amount of raw material is processed, saving on material. The Flex variant completes Reifenhauser's coextrusion portfolio and allows high flexibility in production at low investment costs, says the company.

"The new coextrusion adapter enables producers to quickly switch between different film structures or layer thicknesses," said Tim Baensch, product manager at Reifenhauser. "It offers more flexibility than the Fix version but foregoes some Pro features in favour of an attractive price position."

The main selling point is that, compared to the Fix version, producers can use the Flex to make quick changes to the film profiling on the system themselves using adjustable profiling inserts. For processing sensitive materials such as PMMA or PC, the adjustable profiling inserts can be replaced with single-piece inserts once the perfect setting has been found. These enable better film quality due to their static geometry. Less demanding applications can also be run permanently with profiling inserts.

In addition, channel packages can quickly change the layer structure of the film (such as from ABA to ABB). Shear speeds are set automatically in relation to the percentage layer structure.

Compared to Reifenhäuser's top model Pro, film profiling on Flex cannot be carried out during the extrusion process or be fully automated. The reduced range of functions enables a lower price and more compact design, which is a benefit when retrofitting existing systems with limited installation space.

"Flex is ideal for producers who want to switch regularly, independently and quickly between different film profiles and layer structures on their line," said Baensch.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.macroeng.com**
- **www.wh.group**
- **www.colines.it**
- **www.luigibandera.com**
- **www.rajoo.com**
- **www.reifenhauser.com**

FOLLOW OUR SOCIAL CHANNELS

Get the latest plastics industry news and analysis

Be first to know when we publish a new edition

www.twitter.com/PlasticsWorld
https://uk.linkedin.com/showcase/plasticsworld

AMI | Events

Agricultural Film

11-12 March 2025 | Malaga, Spain

Exclusive rate available for film producers, farmers and farming cooperatives

Be a part of this event's 16th edition and join us in Malaga for two days of knowledge sharing, networking and development

Confirmed speakers:

Monique Bijlaard
Researcher in Crop Management and Physiology
Wageningen University

Pedro Gallardo
Agriculture Spokesman
Spanish Parliament

Pietro Picuno
Professor of Agricultural, Ecological and Biosystems Engineering
University of Basilicata

Katrina Purser
Senior Consultant
AMI

Sponsored by:

HydroDyn®

Supported by:

Agri Business Review

CPA

BOOK YOUR PLACE IN MALAGA

IMAGE: BRUCKNER

Wrapped up: biaxial film developments

Recent innovations in oriented film include a pilot line that will prevent landfill, a new MDO system, plus two BOPP installations in Turkey – and new BOPET lines in Pakistan and China

Biaxially oriented – and mono-oriented – film helps to improve properties including barrier, mechanical strength and physical appearance. As well as embracing new types of oriented material – such as polyethylene, in the form of BOPE – there is increasing need to produce higher quality film more quickly.

Turkish delight

Bruckner recently supplied new BOPP film lines to two long-standing Turkish customers.

Super Film – its oldest customer in Turkey – recently bought its fourth Bruckner BOPP line, having bought its first in 1994. Its first three original Bruckner lines are running at Super Film's facility in Gaziantep Industrial Zone.

The latest line will be installed at its new site in Lüleburgaz, near Istanbul, which opened in 2021. The facility – and the new line – will help the company to increase its annual flexible film capacity to 184,000 tonnes.

In addition, Bruckner has installed a 10.4m wide, 600 m/min BOPP film line at Polibak Plastik Film at its expanded Izmir site.

"The increasing demand for high-quality BOPP packaging film in Europe, the Middle East and Turkey left the markets starving for new capacity," said Enver Bakioglu, chairman of Polibak.

BOPET projects

Bruckner has also been supplying BOPET lines to customers in Asia. In Pakistan, BOPET film manufacturer Novatex recently installed its third production line, making films under its Krystofilms brand name.

Altaf Bilwani, a director at the company, said: "The main reason for partnering with Brückner for

Main image: Bruckner has installed 12 BOPET lines at Hengli in China within one year

Right: Ineos says its new line could prevent 1m t/y of plastic film going to landfill

the first time – besides the technology – was its reputation for reliability through the project execution process."

The 10.5 m wide film stretching line at the company's new Lahore site includes a high-temperature machine direction orienter – for consistent quality – and a sliding chain track system in the transverse direction orienter for constant high-speed operation and reduced maintenance.

Meanwhile, in China, Hengli Group has started up another 5.8m optical BOPET line at its new Fenhu site near Shanghai. This is the last of a 12-line package from Bruckner – all of which have been commissioned within one year.

"The fact that all 12 BOPET lines have been successfully commissioned is an important milestone for our customer," said Josef Haslinger, sales director for China at Bruckner.

A further package of 12 BOPET lines – for the Hengli site in Nantong, Jiangsu Province – is already being processed and installation of the first line has started.

MDO line

SML has set up a new version of its multi-purpose cast film line at its technology centre – which also includes a machine-direction orientation (MDO) unit.

"The line has the technical capacity to fulfil almost every customer requirement in cast film production," said Elias Mayrhofer, an R&D engineer at SML.

The line can produce cast PP, PE and PET, as well as mono-oriented films. Products range from film for metallised and laminated food and non-food packaging to easy-to-recycle stand-up pouches made from MOPE film and easy-tear MOPP film. The line can be further optimised to make specialist products, it says.

A key feature of the new film line is the MDO unit, which is designed for the manufacture of easy-to-recycle mono-material films such as MOPP, MOPE and MOPET. It allows machine direction properties such as film strength, stiffness and puncture resistance are increased, while film thickness and elongation are decreased.

One of the main features of the MDO unit is the process-optimised roller arrangement. Adjustment of the stretching gap takes place in a motorised fashion, making product changes simpler. As the stretching rollers have a diameter of 220mm, the stretching gap can be kept in a range of 50-200mm. The distance between stretching rollers can be reduced to a few millimetres. The position of the nip rollers in the stretching area is also adjustable. This ensures an ideal stretching process of the film, independent of the defined stretching gap.

IMAGE: INEOS

All the process parameters of the MDO unit are digitally recorded and can be comfortably set and adjusted with SML's new HMI.

Pilot prevention

Ineos has commissioned a pilot line that it says will help prevent more than 1 million tonnes of plastic film going to landfill each year.

The multi-layer blown film line with machine direction orientation (MDO) has been installed at the company's R&D centre in Brussels, Belgium. It allows customers to carry out full-scale tests without losing production capacity on their own lines. The first collaboration projects are already taking place.

"Flexible packaging films play a valuable role in society, but we recognise people's concerns about plastic waste," said Rob Ingram, CEO of Ineos Olefins & Polymers Europe. "Fully recyclable films are a big development and I'm excited about the possibilities created by our investment in this new MDO line."

The line, supplied by **Hosokawa Alpine**, heats and stretches polymer films to improve their physical and barrier properties, so they can be used in different product applications.

Jindal expansion

JPFL Films, part of Jindal Poly Films, has installed a new BOPP line at a plant in Nashik, Maharashtra, which it says will help it to expand production.

The 60,000 tonnes/year line, likely to be installed in 2026, will cost INR 2.5 billion (around US$30 million). It will produce rolls up to 1,700mm wide, with optimised efficiency for downstream processes such as metallising, it said.

›

TEXTILES RECYCLING EXPO

4-5 June 2025 • Brussels, Belgium

The new meeting place for the textiles recycling community

New for 2025

www.textilesrecyclingexpo.com

Brought to you by AMI

CLICK HERE TO BOOK YOUR STAND

IMAGE: INNOVIA

Above: Innovia trialled its new VL40 film grade at its site in Poland

"This investment is a strategic step to strengthen our market position and drive sustainable growth," said Vinod Kumar Gupta, CEO of JPFL Films. "With this expansion, we are enhancing our ability to meet and exceed customer expectations with a range of high-performance films."

BOPE approach

Another approach has been to increase the use of bioriented polyethylene – or BOPE – which, say suppliers, offers superior physical properties to traditional PE.

"Packaging recyclability is impacting consumer purchase decisions," said Rob Clare, applications development specialist at **Nova Chemicals**.

He was speaking at the recent *Multilayer Flexible Packaging* conference, organised by AMI. He said that key properties of high-performance, recyclable packaging include stiffness, superior optics and heat resistance. He cited examples of packaging that uses Nova's Surpass resin to achieve this.

Orientation can help to boost stiffness, optics and heat resistance, he said – helping it to replace PET in certain applications. He cited the example of a pouch with an all-PE design. This combines LLDPE with higher-performance grades – such as Surpass and Nova's Astute plastomer – to create a high-barrier package.

He added that improvements in converting lines have helped to turn BOPE packaging into a reality – with aspects such as more efficient cooling and sealing. He said that oriented PE films combined with a non-oriented PE sealant web in a laminate can allow removal of nylon layers for a mono-material forming web. EVOH can be included to provide an oxygen barrier.

Ice cream wrapper

Innovia Films has developed a white, ultra-low density BOPP film for ice cream flow wrap packaging.

The new film grade, VL40, was trialled and launched at Innovia's site in Plock, Poland.

"The film is a high-gloss white coextruded OPP film with a very wide heat seal range," said Piotr Piasny, general manager at Innovia Films in Plock. "We made some significant changes to our extrusion lines to be able to deliver this specific grade."

Its features include high puncture resistance – which is important to preserve the product and prevent food waste. The printability of the product helps to achieve superior graphic appeal, and the film provides an easy-to-open package.

The films are largely unaffected by climatic conditions but should not be stored above 40°C. Under suitable storage conditions, the film can be stored for six months without risk of deterioration.

PCR BOPP

Brazil-based **Vitopel** has developed its VPlanet brand, which it says is a new generation of BOPP film that enables recycling and the possibility of reusing materials within BOPP itself. For this reason, the VPlanet PCR line was developed, standing out by using post-consumer recycled (PCR) plastic.

With these PCR films, Vitopel enables a reduction in the product's carbon footprint and integrates the use of recycled materials into both the secondary packaging market and also for self-adhesive labels and tags.

Vitopel is certified to work with BOPP packaging for food contact, using resins made by chemical recycling through pyrolysis. It says it complies with regulations including FSSC 22000 and ISCC Plus.

In addition, the company has invested in new equipment to boost production of flexible metallised barrier films. The Bobst Expert K5 – which, it says, is the first to be installed in Brazil – expands its range of solutions for new product categories.

Products that will benefit include dairy products – such as processed cheese and milk powder – as well as oilseeds (like peanuts and hazelnuts) and coffee powder.

Vitopel forecasts a 40% increase in its annual production capacity of metallised films, which will help it expand its exports to key markets in Latin America and North America.

The metalliser, which can operate at speeds up to 1200 m/min, is expected to begin operation in the second half of this year. It will allow production of new metallised flexible BOPP films that can replace multi-material structures with a mono-material design that is more easily recycled.

■ AMI's Biax Film Asia conference will take place in Bangkok, Thailand on 19-21 November. For more details, contact Annabel Kerr on +44 (0) 117 314 8111 (annabel.kerr@amiplastics.com).

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.brueckner.com**
- **www.sml.at**
- **www.ineos.com**
- **www.hosokawa-alpine.com**
- **www.jindalpoly.com**
- **www.novachem.com**
- **www.innoviafilms.com**
- **www.vitopel.com.br**
- **www.amiplastics.com**

AMI | Events

Waterproof Membranes

5-7 November 2024 | Düsseldorf, Germany

Embracing the future of roofing through innovation, sustainability and collaboration

Get first-hand updates from industry leaders including:

Nick Palmer
Business Unit Manager – Energy & Infrastructure,
AMI

Kristaps Draudins
Managing Director
Controlit Factory

M. Asghar M. Hussein
Managing Director
Water Seal

Nicole Lens
Product & Systems manager – EPDM Expert
VM Building

DISCOVER MORE AND BOOK YOUR PLACE TODAY

COMPOUNDING WORLD EXPO INDIA

PLASTICS RECYCLING WORLD EXPO INDIA

14-15 May 2025

Bombay Exhibition Center NESCO, Mumbai, India

India's focused trade show for plastics compounding and recycling

NEW EVENT FOR 2025

Join as an exhibitor and...

- Build new leads and grow your sales pipeline
- Strengthen your brand's presence in India
- Present your latest products and services to a focused audience
- Connect with new and existing customers face-to-face
- Benefit from the crossover of the co-located expos

Click here to find out more

Brought to you by:

POLYMERUPDATE INTELLIGENCE ANALYTICS CONFERENCES

AMI

Industry alliance partner:

CPMA Chemicals & Petrochemicals Manufacturers' Association India

Association partners:

SPE INDIA

OPP Organization Of Plastics Processors Of India

PMMAI We Shape Plastics... Plastics Machinery Manufacturers Association of India

IPCC

INDIAN PLASTICS INSTITUTE

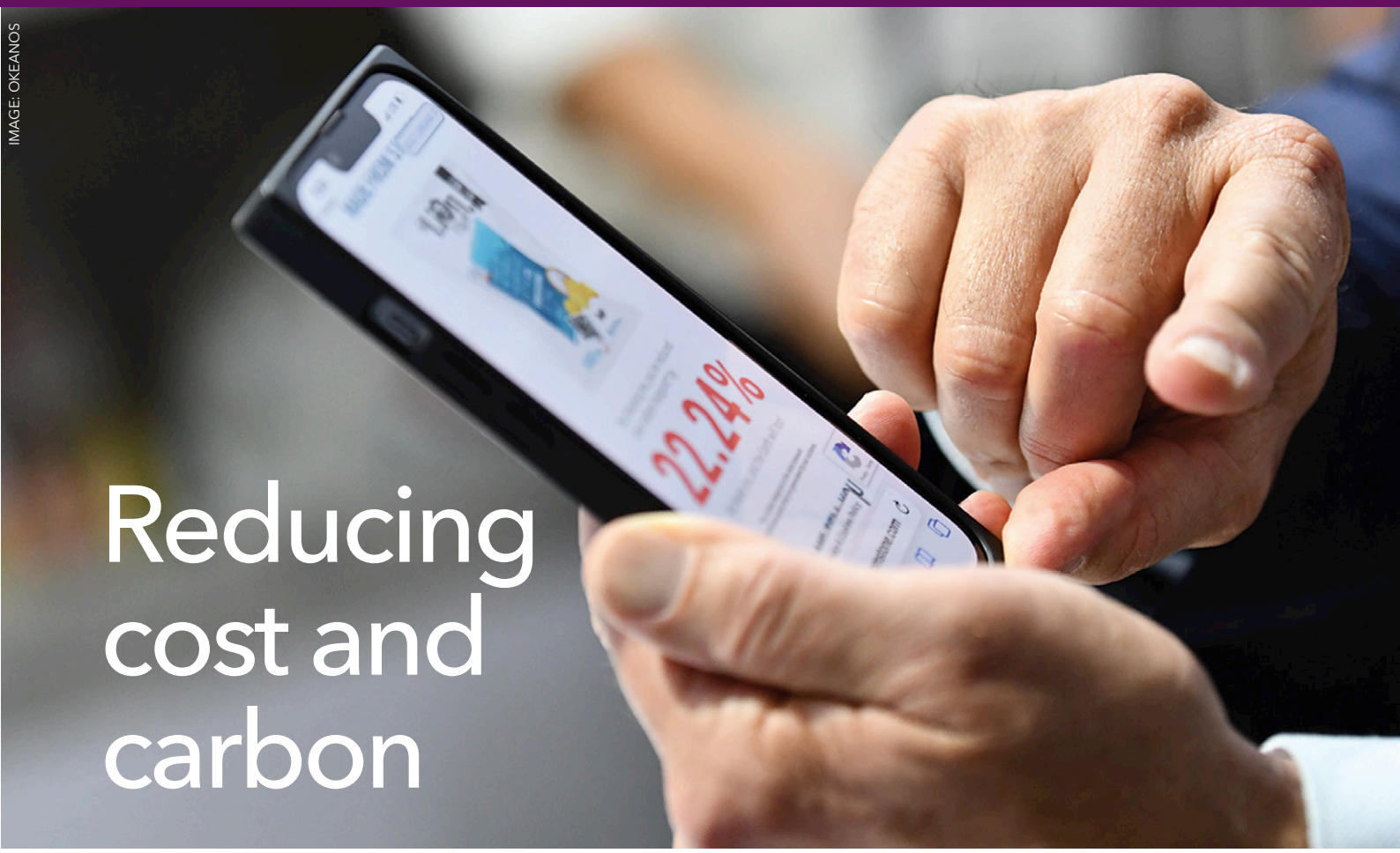


IMAGE: OKEANOS

Reducing cost and carbon

Minerals act as polymer substitutes to reduce cost and carbon footprint along with providing functional benefits. Jennifer Markarian reports on new products

Mineral fillers offer benefits for reducing the carbon footprint of thermoplastic compounds and end-use products. Suppliers are carrying out life cycle assessments (LCAs) as well as seeking to optimise their processes to reduce the environmental impacts of mining, purifying, milling and transporting, for example.

Calcium carbonate has a long history as a lower-cost filler in thermoplastics, and is seeing a revival as a part of plastics' sustainability story as a lower-carbon footprint replacement for petrochemical-based polymers.

Heritage Plastics, headquartered in Mississippi, US, has been a proponent of calcium carbonate concentrates for thermoplastics for more than 40 years.

"Achieving sustainability will require many different solutions, and the use of calcium carbonate to reduce greenhouse gas emissions is one of them," said Heritage Plastics director of technical services and development, Jason Riggs.

The company's first LCA of its product was conducted in 2008, and has recently been updated by a third-party consultancy, YellowYellow, based in Toronto, Canada. The 2023 LCA showed that each kilogram of Heritage Plastics HM10-type concentrate results in a 56% reduction in emissions compared to each kilogram of traditional LLDPE production.

Carbon dioxide (CO_2) emissions were calculated based on the manufacturing of three products in the HM10 minerals concentrate line (HM10 Max, HM10LC, and the HM10S Series), to arrive at an empirical value for the entire cradle-to-gate process. Each of the three products emitted 645 kgCO_2/tonne of product in 2023. LLDPE produces an average of 1,472 kg CO_2/tonne.

"The LCA was rigorous in its analysis of our three flagship products," says Riggs. "It considered emissions from both the constituent, turn-key components, and those resulting from the manufacturing operation at our plant in Sylacauga."

The LCA data is being used in a new emissions calculator developed for Heritage Plastics, which Riggs says will give their customers a way to communicate the sustainability associated with the use of calcium carbonate.

Incoa's new InCal surface-treated calcium carbonate mineral modifiers are produced from

Main image: Okeanos has developed QR code technology which tracks the journey of calcium carbonate used in packaging from "ground to grocery"

IMAGE: OKEANOS

Above: Potato chips packaged in mono-material multi-layer barrier film Made From Stone with scannable QR code technology for consumer transparency in sustainability

what the company says is an exceptionally pure limestone source. The company's production process creates a narrow particle-size distribution with a low top-cut and minimal specific surface area.

The modifiers are used to enhance processing and improve mechanical performance in a wide range of polymers, including PVC and polyolefins. The modifiers do not contain iron, which is a benefit particularly in PVC for preventing yellowing and ensuring stability. Recently Incoa has introduced an InCal version tailored for breathable films and another grade designed for biopolymers.

Incoa says that its modifiers help reduce the carbon footprint of plastic products in several ways, including lowering energy consumption during processing and replacing a portion of petrochemical-based polymer with the mineral. The company plans to expand production capacity this year or next in response to growing demand.

Calcium carbonate

Omya's latest product is a version of its Omya Smartfill functionalised calcium carbonate with a surface modification designed for compatibility with engineering polymers, including polyamides (PA) and polycarbonates (PC). When used in PA it increases ductility, and in glass-filled PA compounds, the functional filler increases the modulus and does not have a detrimental effect on impact, explains Karsten Schulz, business development director for polymers at Omya.

Omya found that approximately 5% of glass fibre could be replaced with 10-20% Omya Smartfill to reduce carbon footprint and cost without harming properties. In Europe, the product is produced in Italy using a 100% certified recycled mineral source, which is of interest to users who are seeking materials to increase recycled content. Omya Smartfill can also be used to replace a portion of the titanium dioxide used as a white pigment in PC, to reduce carbon footprint while maintaining colour and properties.

At NPE 2024, ingredient technology company **Okeanos** highlighted its Made From Stone (MFS) materials, which are compounds based on calcium carbonate with a proprietary coating. The company currently has eight compounds designed for different applications, with the goal of making the materials affordable and accessible for converters to immediately reduce carbon emissions of packaging and single-use products using 30-70% calcium carbonate in place of the polymer in the end products.

Part of Okeanos' technology includes supply-chain tracking to provide a product carbon footprint, which can be accessed via a QR code that brands can use on their products to communicate carbon footprint savings to consumers. The company has partnerships with compounders on five continents, with the goal of sourcing the raw materials locally and producing in-country, for-country. This approach also allows manufacturers and brands to create end-of-life solutions that match their country's infrastructure and regulatory environment. In the US, for example, Okeanos has designed its products to be compliant with Association of Plastic Recyclers (APR) guidelines and is working towards APR recognition.

Talc applications

Engineered grades of talc find extensive use as functional fillers to improve the mechanical performance of plastic parts in automotive applications in the quest for light-weighting.

Talc-producer **Imerys**, for example, supplies high-aspect ratio (HAR) talc, ultrafine talc, and microlamellar talcs for automotive parts. In late 2023, Imerys inaugurated a talc processing plant in Wuhu, China that is intended to supply China's growing automotive industry, particularly in electric vehicles. The plant was built in two years and is expected to reach full production capacity of 35,000 tonnes/yr by 2025. Imerys has 10 other plants in China, including a calcium carbonate processing plant adjacent to the new facility.

"With booming EV production in China, Imerys' capacity to provide a local source of critical minerals is crucial to local automotive part manufacturers," said Guillaume Delacroix, Imerys performance minerals, EMEA & APAC senior vice-president. "The new plant will be able to provide Chinese polymer producers with the same state-of-the-art talc products we currently supply to global automotive polymer leaders from our European production sites."

Talc supplier **IMI Fabi** reports demand for highly engineered talcs in automotive applications, such as those with high lamellarity, to provide high rigidity. Ultrafine talc grades are also in demand for high resilience combined with dimensional stability and high rigidity, says Piergiovanni Ercoli Malacari, product and application development at IMI Fabi.

IMI Fabi's latest development in mineral fillers is NatFeel, a high-purity, talc-based functional mineral for compostable biopolymers, such as polylactic acid (PLA), poly(butylene succinate) (PBS), and

AMI | Events

Thin Wall Packaging

26-27 November 2024 | Cologne, Germany

Embracing sustainable and circular innovations to meet the changing requirements of the food packaging value chain

Explore innovations across the sector, evaluate solutions and discover business opportunities with fellow packaging professionals.

Harness the knowledge of the industry. Speakers include:

Dr. Martin Engelmann
Director General
German Packaging Association

Marco Brusinelli
R&D Manager
Gruppo Happy (Magic Pack)

Peter Görlitz
Sustainability Manager Europe
Sonoco

Marcel Broers
CEO
Van Dam Machine

SECURE YOUR DELEGATE PLACE TODAY

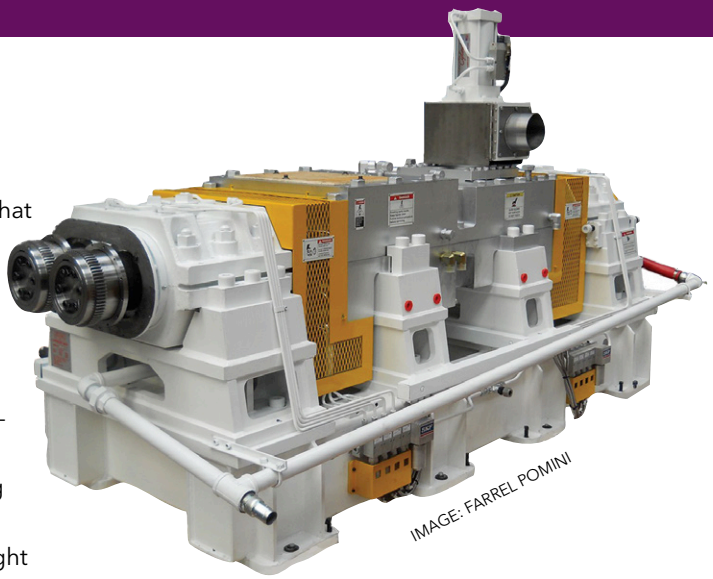


IMAGE: FARREL POMINI

Right: Farrel Pomini says its FCM mixer was used to compound wood pulp into PLA, to make rigid sheet

polybutylene succinate-co-butylene adipate (PBSA). In PLA, NatFeel has a nucleating effect that promotes crystallisation and increases the glass transition temperature, says Ercoli Malacari. This effect raises the use temperature above the boiling point of water so that the plastic compound can be used in hot food or hot beverage applications, including thermoformed coffee pods.

The high purity of NatFeel meets demanding food contact requirements and minimises the presence of elements (such as fluorine) that might affect compostability certification, says Ercoli Malacari. In PBS and PBSA, NatFeel serves primarily to increase stiffness, which makes it possible to use the plastics in rigid packaging.

The talc product also reduces polymer shrinkage while preserving dimensional stability (ie, limited or no deformation). In addition, if properly dispersed, the filler can increase barrier properties in films.

Fillers in recyclates

Mineral fillers can further reduce the carbon footprint of compounds containing recycled material, says Thorsten Hilgers, project manager thermoplastics at **HPF Minerals**. He notes that the Industrial Minerals Association Europe has published performance data for selected high-volume industrial minerals that provides average representative environmental footprint values for industrial minerals in Europe, based on ISO 14040-14044 standards.

"We are in the process of developing company specific – or rather product specific – footprints, taking into account our multiple efforts to implement sustainable measures," said Hilgers. "Comparing these data with other materials like metals or polymers it can be stated that the environmental footprint of these natural industrial minerals is rather small."

Functional fillers also add reinforcement. For example, the company's needle-shaped wollastonite Tremin 939 is used as a reinforcing filler in both recyclates and virgin polymers.

The latest from HPF Minerals is the Rescofil odour-absorbing filler for thermoplastic compounds containing post-consumer recyclate. At 5 wt.% in a PCR PP, for example, the filler successfully reduced odour below the "clearly noticeable" threshold level of three in olfactometric testing according to the VDA 270 standard.

HPF has also previously investigated the performance of its high-performance mineral fillers in bio-based PLA compounds. "Test results showed significant improvement in mechanical properties. Our needle-shaped and platelet-shaped additives significantly increase the stiffness. Our blocky additives improve impact strength. In addition, these effects can be further enhanced by a suitable surface coating of our mineral high-performance fillers," reports Hilgers.

Farrel Pomini has partnered with **FPInnovations**, a non-profit R&D organisation focused on Canadian forest products; West Fraser Timber company; and Good Natured Products, which produces bio-based rigid plastic sheet and parts, to develop wood-pulp filled bio-based and biodegradable plastic composites using Farrel Pomini's FCM mixer.

Peng Ye, applications development manager for Farrel Pomini, presented some results of the collaboration at NPE 2024. He reports that the wood pulp acts as a functional filler to improve compostability, improve heat deflection temperature, and lower cost and carbon footprint.

The FCM has been found to provide good mixing of the wood pulp into PLA, and the low temperatures in the FCM can prevent colour generation from any residual lignin that remains in the purified wood pulp, says Ye. The FCM also has efficient venting for any residual moisture in the wood pulp.

The researchers were able to reduce moisture levels from 3-4% in the incoming pulp to 0.05-0.1% in the finished compound. The FCM offers 15-30% energy savings compared to a twin-screw extruder, which can help reduce product carbon footprint, Ye reports.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.heritage-plastics.com**
- **https://incoa.com**
- **www.omya.com**
- **https://madefromstone.com**
- **www.imerys.com**
- **www.imifabi.com**
- **www.hpfminerals.com**
- **www.farrel-pomini.com**
- **https://web.fpinnovations.ca**

This year's Plastics Extrusion World Expo North America – held in November – showcases important technologies and includes a free two-day conference with leading industry figures

IMAGE: AMI

Co-located US events show latest extrusion technology

The North American edition of *Plastics Extrusion World Expo* returns to Cleveland, Ohio this November.

The free event – organised by AMI, the publisher of *Film & Sheet Extrusion* magazine – takes place at the Huntington Convention Centre in Cleveland on 13-14 November. The show is co-located with *Compounding World Expo*, *Plastics Recycling World Expo* and *Polymer Testing World Expo* – giving ticket-holders access to four shows, more than 80 conference speakers, and over 350 exhibitors from across the entire supply chain.

The expo features the largest concentration of plastics extrusion-related exhibits in the US. Exhibitors include manufacturers of extrusion machinery and equipment, as well as suppliers of materials, additives, and related services.

"When we ran these expos in Cleveland last year, they attracted more than 5,100 visitors," said Jenny Amaru, expos business manager at AMI. "This provides a great opportunity to meet and compare suppliers from around the world and learn from business leaders and technical experts in the conference theatres."

At the free conference sessions – featuring more than 80 speakers in four dedicated theatres – delegates can discover the latest innovations and best practices in plastics. (More details on the Plastics Extrusion World Expo conference are included in the listings section.)

On the evening of 13 November, attendees and exhibitors can attend a networking party at the Punch Bowl Social (tickets are US$60).

On the following pages, you can find out more information about exhibitors at the event, as well as details on relevant speakers in the conference stream. Within the *Plastics Extrusion World Expo* conference, the panel discussion on the future for plastic pipes – held on the second day of the expo – is of particular relevance to readers of *Film & Sheet Extrusion*.

- For more details on the exhibition, click **HERE**.
- For more details on the conference, click **HERE**.

Main image: Panel sessions are a well-established part of the conference programme at the event

Advanced Blending Solutions

Advanced Blending Solutions (ABS) designs and manufactures materials handling, blending, desiccant drying and control systems for the plastics industry, tailored to meet the needs of its customers. It says its systems enhance operational efficiency and performance in plastics manufacturing.

› **www.adv-blend.com**

Anping Songjia Wire Mesh

Anping Songjia Wire Mesh specialises in manufacturing extrusion screens – producing wire cloth in materials such as stainless steel, Monel, and Hastelloy. These are processed into various sizes and types of screen, including weld pack and aluminium bind pack screens. It provides custom design and production services to meet specific customer requirements.

› **https://chinameshfactory.com**

Arlington Machinery

Arlington Plastics Machinery specialises in buying and selling used equipment, auctions, consignments, liquidations and appraisals. Services also include testing, repairing and refurbishing machinery to customer specifications. Solutions like video demonstrations of machines in operation make it a suitable partner for those seeking cost-effective machinery.

› **www.arlingtonmachinery.com**

AssetWatch

AssetWatch offers predictive maintenance for plastics manufacturing facilities. Its platform combines wireless sensors, communication networks, advanced software, and expert engineering for real-time monitoring of equipment health. Monitoring features like vibration and temperature helps reduce downtime and maintenance costs.

› **www.assetwatch.com**

Bausano & Figli

Bausano & Figli, a designer and manufacturer of custom extrusion lines, offers twin- and single-screw extruders that are known for energy efficiency and durability. Innovations like Multidrive and Smart Energy reflect a commitment to sustainability, and its solutions cater to a range of applications including pipe and profile manufacturing and recycling.

› **www.bausano.com**

Berlyn ECM

Berlyn ECM is a manufacturer of plastic processing equipment, for industries including film and sheet, pipe and foam. Its products include extruders, screen changers, pelletisers and reclaim systems. Berlyn's equipment is designed to maximise return on investment. It also provides rebuild and refurbish services, ensuring long-term performance and reliability.

› **www.berlynecm.com**

Presenters show trends and technology

Visitors to the event can attend a free conference in the *Plastics Extrusion World Expo* theatre – where industry experts will present papers on industry trends, market opportunities and technology updates.

A number of technical presentations are of relevance to film and sheet extruders. On day one, **Mark Jones** of **SML** will explain PCR and stretch film from an OEM's viewpoint, while **Gerard Sposato** of **Davis-Standard** will explore advances in extrusion technology for sheet systems. In addition, **Andrew Roberts** of **AssetWatch** talks about improving extrusion efficiency with predictive maintenance.

There is also a panel discussion on the future of flexible packaging featuring – among others – **Chris Giles** of **Valeron** and **Jordan Katz** of **Grafix Plastics.**

Speakers at the event include (from left): Mark Jones of SML; Gerard Sposato of Davis-Standard; Andrew Roberts of AssetWatch; and Chris Giles of Valeron

On day two, **Tom Limbrunner** of **PTi Extruders** talks about optimising process and sustainability outcomes in heavy gauge sheet extrusion, while **Kevin Sheldon** of **USA Rolls** delves into understanding and eliminating roll-face deflection. There is also a panel discussion on PFAS chemicals in food contact legislation.

Other relevant presentations include papers on reducing material costs with microcellular foam extrusion (**Promix Solutions**), improving the performance of extrusion barrels (**Xaloy**) and using melt pumps and continuous filters to optimise the extrusion of recycled materials (from **PSI**).

For more information about the Plastics Extrusion World Expo conference and the full line-up of speakers, **CLICK HERE**.

NIMA

National Institute for Materials Advancement

Explore the future of materials with us – where science meets industry needs and innovation takes shape.

CUSTOM R&D

- Plastics
- Polymers and Polymer Recycling
- Electroactive Materials
- Thin Films
- Additive Manufacturing

TESTING SERVICES

Quick Turnaround

Cost Effective

Confidential

STOP BY **BOOTH T1635** AT THE POLYMER TESTING WORLD EXPO ON NOVEMBER 13-14 TO CONNECT WITH OUR TEAM!

JOIN OUR CONSORTIUM

As a member, you'll enjoy access to state-of-the-art facilities and advanced instruments, networking with industry and researchers, collaborative research projects with potential funding opportunities, and training and workshops on emerging technologies.

TYLER RESEARCH CENTER
PITTSBURG STATE UNIVERSITY
1204 RESEARCH ROAD | PITTSBURG, KS 66762
620-235-6120 | WWW.NIMA-PSU.ORG

AMI | Market Reports

Stretch and Shrink Film Global Market 2024

Stay ahead of your competitors with our comprehensive overview

Request your free report preview >

AMI | Bringing the plastics industry together

www.amiplastics.com

AMI | Events

Specialty Packaging Films

29-30 April 2025 | Bangkok, Thailand

Quality of audience was good, especially representation from brand owners and converters, as were the presentations, panel discussion and networking opportunities.

IPAK

BOOK YOUR PLACE TODAY

To speak, sponsor or exhibit contact:

Zoe Jarvis, Event Sales Manager
E/ zoe.jarvis@amiplastics.com T/ +44 (0) 117 314 8152

Bruno Folcieri

Bruno Folcieri is a specialist in granulators and shredders for plastic recycling and processing, offering robust and innovative solutions. Based in Italy, it focuses on developing machinery that efficiently reduces plastic waste into reusable materials. Its products are designed for durability, precision and their ability to handle a wide range of materials.

› **www.folcieri.com**

Busch Vacuum Solutions

Busch Vacuum Solutions has over 50 years of experience in providing vacuum technology tailored to the needs of the plastics industry. Its product range includes vacuum pumps and customised systems designed for each stage of plastic processing, from raw granulate production to recycling.

› **www.buschvacuum.com**

C4 Polymers

C4 Polymers is a specialist in developing high-performance polymers for various industrial applications. It says it is dedicated to innovation and quality, providing products that cater to the evolving needs of its clients across multiple sectors, from automotive to consumer goods.

› **www.c4poly.com**

CDS Custom Downstream Systems

Custom Downstream Systems (CDS) is a leader in designing and manufacturing downstream plastic extrusion machines. CDS provides turnkey solutions for polymer and rubber applications, including pipes, profiles, tubes, automotive parts, and medical devices. It produces durable, reliable machinery, tailored to meet specific customer requirements.

› **www.cdsmachines.com**

CMG Granulators

CMG Granulators is a leading manufacturer of granulators, shredders and recycling systems. It offers a range of solutions for post-consumer and post-industrial recycling. It serves various sectors, including thermoforming, extrusion and cable recycling. CMG's equipment is recognised for its durability, energy efficiency and compliance with Industry 4.0 standards.

› **www.cmg-granulators.com**

Davis-Standard

Davis-Standard is a leader in the design and development of extrusion and converting equipment technology. It supports a range of industries, including automotive, construction, consumer products, medical, and packaging. The company is committed to delivering cost-effective, environmentally friendly systems that offer a high return on investment.

› **www.davis-standard.com**

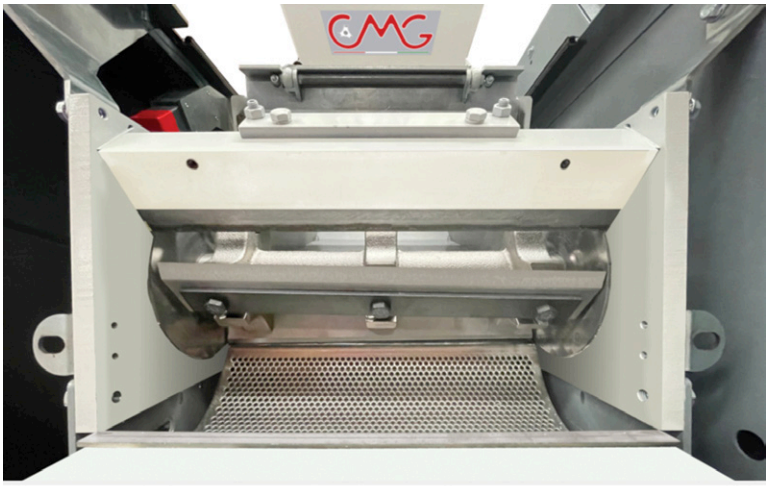


IMAGE: CMG

AboveCMG offers solutions for post-consumer and post-industrial recycling

Doteco

Doteco specialises in extrusion automation solutions for plastic film, sheets, profiles, and synthetic fibres. It offers gravimetric blenders, yield control systems, auto profile control and supervisory systems.

› **www.doteco.com**

Dynisco

Dynisco is a specialist in high-precision sensor-based technologies and polymer test equipment. It provides solutions for measuring polymer rheology, viscosity, pressure and temperature. Its sensors, controls and analytical equipment are designed to improve process safety and performance, ensuring products meet or exceed specifications.

› **www.dynisco.com**

Erkinel

Erkinel specialises in digital transformation and modernisation solutions for manufacturing facilities. By integrating Industry 4.0 technologies, these optimise production processes, raise competitiveness and cut costs. Erkinel offers services such as machine modernisation, factory digitalisation and customised solutions to raise efficiency and productivity.

› **www.erkinel.com**

Exelliq US Meadville

Exelliq US Meadville provides profile extrusion

IMAGE: GNEUSS

Above: Gneuss offers a broad range of solutions for plastics processing and recycling

tooling and downstream equipment. With expertise in extrusion technology, it offers reliable solutions for various industries, including automotive, construction, and consumer goods. It supports customers with extrusion tools and equipment, helping to optimise production efficiency and product quality.

› **www.exelliq.com**

Extrusion Consulting

Extrusion Consulting offers consulting services for the plastics extrusion industry. It helps clients with material selection, product testing, equipment evaluation and process optimisation. Its expertise also extends to business plan development and legal services.

› **www.extrusionconsultinginc.com**

Extrusion Control & Supply

Extrusion Control & Supply provides components and services for the plastics extrusion industry. Its offerings include extrusion screws, barrels, screen changers and feed sections. The company also supplies replacement parts and offers repair services to ensure optimal performance of extrusion machinery.

› **www.extrusioncontrol.com**

FACTS

FACTS Inc specialises in integrated control system upgrades for industrial applications, including extrusion, compounding and batch mixing. It offers complete extrusion lines, rebuild services for extruders, and downstream machinery, as well as online measurement systems, Scada, data collection and remote support – to optimise production efficiency.

› **www.facts-inc.com**

FB Balzanelli USA

FB Balzanelli USA is a leading producer of automatic and semi-automatic coilers for flexible pipes. With continuous development and advanced technology, FB Balzanelli says its coiling machines optimise the coiling, packing, and storing processes for various pipe types.

› **www.fb-balzanelliusa.com**

Federal Equipment

Federal Equipment is a trusted resource for buying and selling used processing and packaging equipment in industries such as pharmaceuticals, chemicals, plastics and food processing. It provides expert appraisals, asset management and equipment removal.

› **www.fedequip.com**

GA.VO. Meccanica

GA.VO. Meccanica specialises in core-saving and cutting machines for cardboard and plastic cores. Its patented technology eliminates waste by enabling precise cutting without mechanical adjustments. The machines can cut various diameters and materials with high accuracy, ensuring a fast return on investment.

› **www.gavomeccanica.com**

Gneuss

Gneuss provides innovative solutions for the plastics processing and recycling industries. With over 100 patents, it offers technologies such as its MRS extrusion systems, automatic screen changers, and sensors for processing contaminated materials. Its Omni recycling machines are customisable and designed for high-demand applications.

› **www.gneuss.com**

Graham Engineering

Graham Engineering Company (GEC) is a leader in single-screw extrusion technology, serving industries such as automotive, packaging and healthcare. With over 50 years of experience, it offers standard and custom solutions in areas including sheet extrusion, and turnkey systems.

› **www.grahamengineering.com**

GTS

GTS (German TwinscrewS) designs and manufactures various types of plastic extrusion screws. Specialising in single, conical, parallel, counter-rotating, and co-rotating twin screws, GTS delivers tailored solutions for diverse applications such as pipe, profile, sheet, and pellet production.

› **www.germantwinscrews.de/en/**

Integrated Control Technologies

Integrated Control Technologies (ICT) specialises in drive and control upgrades for ageing plastics extrusion lines. It enhances existing equipment with

modern control capabilities, offering advanced diagnostics, troubleshooting tools and easy process data collection. Its upgrades allow businesses to retain valuable components like gearboxes, barrels and screws, providing a cost-effective alternative to purchasing new lines.
› **www.integratedcontroltech.com**

Jay Extrusion Machinery
Jay Extrusion Machinery provides advanced plastics extrusion equipment. Its comprehensive range of machinery includes extrusion lines, ancillary equipment and custom solutions. The company says its machines enhance production efficiency and product quality.
› **www.jayextruder.com**

Kuhne North America
Kuhne North America, part of the Kuhne Group, specialises in sheet and flat-film extrusion, providing solutions from extruders to downstream equipment. It also offers custom solutions through its divisions, K-Tool and Kuhne Anlagenbau, ensuring high-quality, tailored equipment for plastic converters.
› **www.kuhne-group.com**

Laidig
Laidig designs and manufactures bulk storage and automated reclaim systems, particularly for materials with challenging flow characteristics. Its solutions handle a range of materials, including recyclable goods like plastic flakes and granulated vinyl. It specialises in customised systems for industries that need specialised handling and storage.
› **www.laidig.com**

LaserLinc
Using laser and ultrasonic technologies, LaserLinc's non-contact measurement and control solutions measure critical parameters such as outside diameter, wall thickness, and surface flaws in products such as pipes, tubes, and wires. Its notable solutions include the Total Vu HMI for process visualisation and FlawSense, a 360° surface flaw detection system.
› **www.laserlinc.com**

Lung Meng Machinery
Lung Meng Machinery is a Taiwan-based manufacturer of plastic converting machinery. It specialises in extrusion, printing, converting and recycling equipment. The company says its advanced technologies cater to the evolving needs of the plastics industry.
› **www.lungmeng.com.tw/en**

Macchi
Macchi is a leading manufacturer of blown film extrusion equipment. Specialising in co-extrusion, it offers a range of solutions – from monolayer to nine-layer co-ex lines – to produce films for various applications. The company says its equipment is renowned for its versatility, quality and reliability.
› **www.macchi.it**

Nan Yun Industrial
Nan Yun Industrial manufactures screws and barrels for injection moulding machines and extruders. It says its expertise in engineering design and advanced manufacturing processes ensures high-quality, precise components that meet industry demands.
› **https://www.nyi.com.tw/en/company.html**

NFM Welding Engineers
NFM Welding Engineers offers turnkey plastics extrusion systems with custom integrated controls, as well as field services and equipment rebuilding. Its technologies include co-rotating and counter-rotating twin-screw extruders and single-screw extruders for various applications.
› **www.nfm.net**

Parkinson Technologies
Parkinson Technologies is a manufacturer of large-scale web handling, winding and plastics processing equipment for the continuous web processing industry. Its brands include Key Filters, Marshall & Williams Plastics, Parkinson Winders, and Dusenbery Converting Systems. Its technology lab helps customers conduct R&D in film and sheet extrusion and orientation.
› **www.parkinsontechnologies.com**

Pixargus
Pixargus is a specialist in automated inline quality control systems, with expertise in surface inspec-

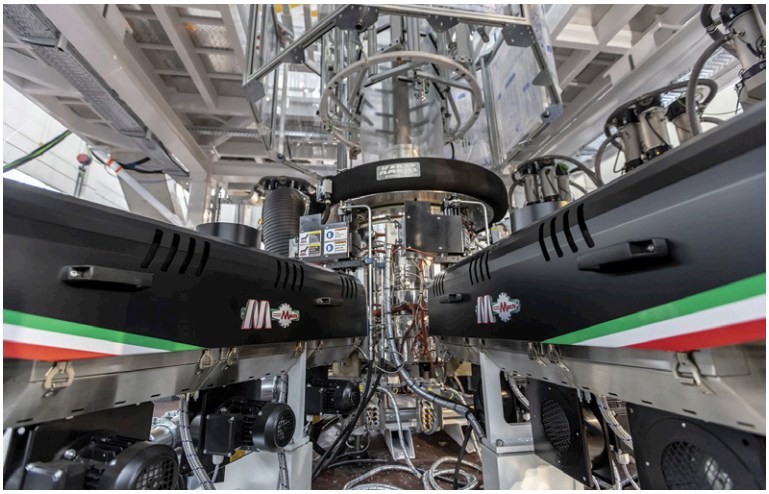


IMAGE: MACCHI

Below: Italy-based Macchi is a leading manufacturer of blown film extrusion equipment

tion and dimension measuring. Its systems detect the smallest defects and material deviations in extruded profiles, tubes, hoses and cables, as well as webs, films, and fibre composites. It also provides automated inspection of raw materials.
› **www.pixargus.com**

Plasco Engineering

Plasco Engineering designs and manufactures plastic extrusion lines for products including monofilament, strapping band and tape. It also offers project planning, turnkey extrusion lines, and process support to meet the needs of its clients.
› **www.plasco.com.tw**

Polymer Additives Group

Polymer Additives Group specialises in flame retardants and smoke suppressants, offering non-halogen options and advanced technologies that meet regulatory and performance demands. Reedy Chemical Foam provides chemical foaming agents for thermoplastics, improving efficiency in injection moulding and extrusion processes by reducing weight and energy consumption.
› **www.pagholdings.com**

Promix Solutions

Promix Solutions specialises in systems for physical foam extrusion, gas dosing, injection, and melt cooling, as well as nucleating agents and static mixers for extrusion and injection moulding. It offers both retrofit solutions and new installations, providing key components combined with extensive process knowledge and experience.
› **www.promix-solutions.com**

Below: Promix offers new and retrofit solutions for physical foaming equipment in extrusion

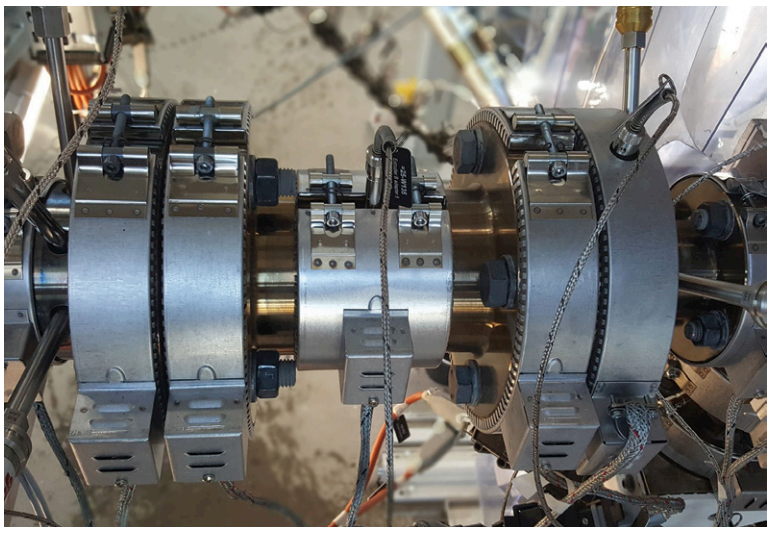


IMAGE: PROMIX

Proton Products

Proton Products is a leader in industrial measurement and control, offering technologies for

IMAGE: AMI

Right: Q-Lab returns to the show with its QUV accelerated weathering tester

applications such as wire and cable production and plastics extrusion. Its products include laser and ultrasonic measuring systems, digital length and speed gauges, and integrated process control systems.
› **www.protonproducts.com**

PSI

PSI provides screen changers, gear pumps and custom systems for polymer, rubber and hot melt adhesive applications. It offers various screen changers – such as continuous dual-piston and backflush models – as well as specialised gear pumps for extrusion and high-pressure applications. Its flexible design approach is tailored to meet the needs of customers.
› **www.psi-polymersystems.com**

PTi

Processing Technologies International (PTi) is a leader in sheet extrusion machinery. It offers turnkey extrusion systems for applications in packaging and industrial markets, including both mono-layer and multi-layer structures. Product lines include the G-Series for cost-effective solutions, the HVTSE DryerLess for PET/PLA sheet extrusion, and the Super-G HighSpeed Extruders for high-density manufacturing.
› **www.ptiextruders.com**

Q-Lab

Q-Lab's weathering and corrosion test chambers provide reliable, affordable solutions for industries such as automotive, aerospace and building materials. Products include the QUV accelerated weathering tester, the Q-SUN xenon arc test chamber and the Q-FOG cyclic corrosion tester. It also offers contract laboratory and outdoor test

services, including the world's largest weathering test site in Florida.
› **www.q-lab.com**

R&B Plastics Machinery
R&B Plastics Machinery designs and manufactures single-screw extrusion and blow moulding equipment. Its customised solutions are designed to meet specific manufacturing needs, with high-quality, efficient, and reliable machinery.
› **www.rbplasticsmachinery.com**

Reel Power Industrial
Reel Power Industrial develops solutions for winding, spooling and coiling flexible products. It designs and builds standard and custom reeling and coiling equipment, offering innovative and cost-effective solutions that improve profitability and reduce operational risks.
› **www.reelpowerind.com**

SBI Mechatronik
SBI Mechatronik develops and manufactures high-precision mechatronic systems, focusing on automation and robotics solutions. Its expertise includes the integration of mechanical, electronic, and software components to create solutions that meet specific customer needs. Its products serve various sectors, including automotive and aerospace.
› **www.sbi-mechatronik.com**

Scantech
Scantech is a specialist in low-energy X-ray transmission technology to measure lightweight materials. It provides online measurement and control systems using X-ray, laser, infrared and microwave technologies. Its products are used globally in production lines for products including extruded film.
› **https://scantech.com**

Schake Industries
Schake Industries makes spiral-rolled aluminium silos for various storage needs. Its silos are weather-tight, maintenance-free and resistant to contamination, rust and flaking. Available in diameters of 11ft 6in and 13ft 11in, these silos offer large storage capacities starting at 1,292 cubic feet. Other services include installation, cleaning, repair and relocation of silos.
› **www.schake.com/en/home.html**

SML North America Service
SML, a leader in manufacturing extrusion lines for plastics processing, offers cast film lines, sheet lines, coating and laminating lines and winders. SML also produces machines for optical and separator films for batteries, among other specialist applications.
› **www.sml.at**

IMAGE: SML

Above: SML is a specialist in many areas of film extrusion, including stretch film

Solberg Manufacturing
Solberg Manufacturing produces high-quality filtration, separation and silencing products. It serves industries including manufacturing, processing and environmental services. Its products are designed to protect equipment, ensure air quality, and optimise performance.
› **www.solbergmfg.com**

Soucy Techno
Soucy Techno specialises in producing black masterbatch, which it says offers consistent quality and competitive pricing. The company serves industries that require high-quality additives for plastic production. It says its expertise lies in delivering consistent, high-quality solutions to meet demanding needs.
› **www.soucy-group.com**

Superior Engineering
Superior Engineering is an engineering consulting firm offering design and installation services across various industries. Its expertise spans disciplines including mechanical, electrical, process, chemical and structural engineering – handling projects ranging from high voltage substations to residential construction.
› **www.superiorengineering.com**

Takachiho America
Takachiho America is a manufacturer of components used in new product development. Its

Right: TSM says its Opti-Mix blender ensures consistent homogeneity with precise dispensing

product portfolio includes dampers, slide rails and level indicators. TSM provides turnkey solutions tailored to customer needs.

› **www.takachiho-america.com**

THK America

THK America develops and manufactures mechanical components used for the automation and precision of machinery. Its range includes linear motion guides, ball screws, and actuators, used in industries like robotics, medical devices, and industrial machinery.

› **www.thk.com**

TSM Control Systems

TSM Control Systems specialises in material management solutions for plastics processing, including silos, railcar unloading equipment, material handling equipment and blending systems. Its Opti-Mix blender ensures consistent homogeneity with precise dispensing and can be connected to the Insight Industry 4.0 system for real-time materials management.

› **www.tsm-controls.com**

US Extruders

US Extruders develops custom single-screw extruders, offering solutions tailored to customer specifications. The company says it is committed to delivering machines that meet performance expectations, with a strong focus on customer support and satisfaction.

› **www.us-extruders.com**

USA Rolls

USA Rolls is a manufacturer of heat transfer rolls and ASME code certified steam drums in North America.

› **https://usarolls.com**

Uway Extrusion

Uway Extrusion engineers and builds custom extrusion systems with outputs up to 14,000 lbs/hr.

IMAGE: TSM

It says it is dedicated to making advances in plastics extrusion machinery, whether it is engineering and building systems to fit in-line with thermoforming machinery or integrating compounding directly into the plastic extrusion process.

› **www.uwayextrusion.com**

Virtus Equipment

Virtus Equipment recently welcomed ACM Extrusion, offering a range of plastic solutions including industrial size reduction machinery. With the partnership, it says it continues to offer a full range of industrial size reduction machinery including: heavy-duty, single-shaft shredders, plastics central grinders, beside-the-press granulators, and PVC pulverisers.

› **https://acm-extrusion.com**

Windmöller & Hölscher

Windmöller & Hölscher offers machinery and systems for manufacturing and converting flexible packaging. Its portfolio includes blown and cast film extrusion lines, flexographic and gravure printing presses and converting machines, as well as expert consultation and engineering, delivery and complete packaging production lines. Its machines are used in over 130 countries by more than 5,000 customers.

› **www.whcorp.com**

Below: W&H offers printing equipment as well as film extrusion lines

IMAGE: W&H

Xaloy

Xaloy offers a wide range of high-quality screw and barrel designs. Its technological expertise has led to advances in improving quality and throughput for plastics processors, including inventing the first tungsten carbide barrel.

› **https://xaloy.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.

› CLICK HERE TO DOWNLOAD

AMUT: FOIL EXTRUSION LINES

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

› CLICK HERE TO DOWNLOAD

COLINES: BARRIER FILMS

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

› CLICK HERE TO DOWNLOAD

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.

› CLICK HERE TO DOWNLOAD

HAN KING

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

› CLICK HERE TO DOWNLOAD

VAN MEEUWEN: ADDITIVES

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

› CLICK HERE TO DOWNLOAD

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

Lorven

Head office:	Telangana, India
Managing director:	Nitesh Kumar
Founded:	1993 (as Sunil Cloth Printers)
Ownership:	Private
Employees:	Around 500
Profile:	Lorven was established in 1993 as Sunil Cloth Printers, which produced mainly cloth and non-woven bags and sacks – including those made from PE – until 2010, when Lorven Flex & Sack was created. The company then began making laminated pouches and bags, which now form the basis of the company's business. These are used to package a variety of food items including dairy products and various oils and seeds.
Product lines:	The company's flexpack range is used to package a range of products. Lorven processes mainly polyethylenes, including HDPE, LDPE and LLDPE. Its PE/PP laminated pouches, for instance, are used for products like ketchup or handwash. It also offers EVOH pouch technology for a superior barrier. Its multi-layer films are used for products including milk, seeds, spices and both frozen and dry foods. It also offers tamper-proof pouches and foil-embossed versions for added shelf appeal.
Factory locations:	The company has three production units at its site in Telangana and is currently constructing a fourth (at Bandamailaram). It recently boosted production by installing a three-layer Varex II blown film extrusion machine – with an output of 900 kg/hour – from Windmoller and Holscher of Germany. The company also runs rotogravure and flexo printing lines.

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:

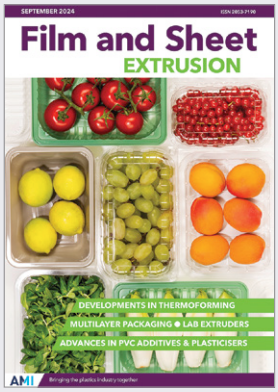
November/December 2024
Thin wall packaging
Screenchangers/melt filtration
Foamed sheet
Polyolefin additives

January/February 2025
Bioplastics
Polyolefins for film & sheet
Materials testing/quality control
Medical materials & applications

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

Keep informed: read our latest editions

AMI publishes five process-specific FREE plastics industry magazines. Simply click on the cover below to read each magazine. Or download the issue in the relevant Apple or Android app



Film and Sheet September 2024
Film and Sheet Extrusion's September edition has features covering efficiency gains in the thermoforming process, mono-material film developments, PVC additives and plasticisers, plus it has an update on laboratory extruders.

› CLICK HERE TO VIEW

Film and Sheet July/August 2024
Film and Sheet Extrusion's July-August edition has features that delve into film applications that use bio-based materials, developments in plastic pouches and new downstream equipment. Plus a preview of the Plastics Extrusion World Expo in Brussels in September.

› CLICK HERE TO VIEW

Compounding World October 2024
The October 2024 issue of Compounding World explores the world of graphene and carbon nanotubes, reports on new additives for recycling and looks at developments in alternative compounding technology.

› CLICK HERE TO VIEW

Plastics Recycling World September 2024
Plastics Recycling World's September 2024 edition includes a cover feature on innovative technologies for sorting mixed materials, an update on the HolyGrail 2.0 project and articles on rigid PE and PP packaging and new granulators.

› CLICK HERE TO VIEW

Pipe and Profile Autumn 2024
Pipe and Profile Extrusion's Autumn edition has features that explore applications for pressure pipe, recent developments in recycling and granulation, and new extruder technology. Plus a preview of the Plastics Extrusion World Expo in Cleveland in November.

› CLICK HERE TO VIEW

Injection World September/October 2024
The September-October edition of Injection World includes a cover feature on advances in injection moulded packaging, plus articles covering developments in TPEs and granulator technology. There is also a preview of Fakuma 2024 in Germany.

› CLICK HERE TO VIEW

Take out your own FREE subscriptions to any of the magazines. Click on the logos below to simply register on-line.

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

GLOBAL EXHIBITION GUIDE

2024	**8-10 October**	Plast Print Pack West Africa, Abidjan, Ivory Coast	www.ppp-westafrica.com
	8-11 October	Plastex, Brno, Czech Republic	www.bvv.cz/en/plastex/
	9-11 October	Plastics, Printing & Packaging, Dar-es-Salaam, Tanzania	www.expogr.com/tanzania/pppexpo
	15-19 October	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de
	13-14 November	Compounding World Expo US, Cleveland, US	https://na.compoundingworldexpo.com/
	4-7 December	PlastEurasia, Istanbul, Turkey	https://plasteurasia.com/en/
2025	**11-14 March**	Plastimagen, Mexico City	www.plastimagen.com.mx
	24-28 March	Plástico Brasil, São Paulo, Brazil	www.plasticobrasil.com.br
	15-18 April	Chinaplas, Shenzen, China	www.chinaplasonline.com
	27-30 May	GreenPlast, Milan, Italy	www.greenplast.org

AMI CONFERENCES

5-7 November 2024	Waterproof Membranes, Düsseldorf, Germany
19-21 November 2024	Biax Film, Bangkok, Thailand
26-27 November 2024	Thin Wall Packaging Europe, Cologne, German
3-4 December 2024	Stretch & Shrink Film North America, Charleston, USA
10-11 December 2024	Recycling Flexible Packaging, Vienna, Austria
10-11 December 2024	Multilayer Flexible Packaging, Vienna, Austria
17-19 February 2025	Polyethylene Films, Tampa, USA
11-12 March 2025	Agricultural Film Europe, Malaga, Spain
8-10 April 2025	Stretch & Shrink Film Europe, Malaga, Spain

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

www.amiplastics.com

DON'T MISS A SINGLE ISSUE

Register now for your free subscription at:

www.filmandsheet.com

And don't forget to tell your colleagues, customers and suppliers about the magazine. You can use the share button above (the ⍐ symbol in the browser) to help spread the word.