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COVER PHOTO: SHUTTERSTOCK

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Star Plastics merges with Trivalence in US

Thermoplastics compounder Star Plastics and Akoya Capital Partners have announced the merger of Trivalence Technologies into Star Plastics.

Trivalence Technologies, headquartered in Evansville, Indiana, US, manufactures custom engineered resin compounds using both recycled and virgin sources and collaborates with OEMs and moulding companies across various industries including automotive, electrical, construction, and medical.

The merger expands the scope and scale of Star Plastics' capabilities, enhancing its technical expertise, product offerings, geographic reach, and market diversification, while Trivalence Technologies' strong regional presence, complementary markets, customer relationships, and expansive product portfolio, are seen as a natural fit for the platform. Its manage-



Trivalence Technologies is headquartered in Evansville, Indiana

ment team will remain in place.

"We're excited to welcome Trivalence Technologies into the family," said Daniel McMullen, CEO of Star Plastics. "This merger represents a significant step forward in our strategy to create a diversified, global leader in engineered thermoplastics. Together, we'll be even better positioned to deliver innovative materials, responsive service, and sustainable

solutions to our customers worldwide."

To date, the Star Plastics platform also includes PA recycler Manassas Polymers, a strategic partnership with Lati, a relationship with Star Advanced Material in Shandong, China, to provide polymer compounding, sales and technical services in the Asia Pacific region, and a growing footprint in Mexico.

➤ www.starplastics.com

➤ www.trivalencetechnologies.com

Ampacet Design Library

Masterbatch supplier Ampacet has launched its new Digital Design Library through its website, which allows designers to seamlessly integrate material designs into 3D renderings within the product design-to-market suite KeyShot.

Available in multiple resins to meet diverse development specifications while accurately portraying the material's inherent reflective properties, the digital replicas help shorten design cycles.

Mercedes Landazuri, Ampacet Market Insight Manager, said: "By integrating our advanced colour and effects solutions with KeyShot's rendering capabilities, we're putting our innovative materials directly into the hands of designers, enabling them to push creative boundaries while accelerating speed-to-market."

➤ www.ampacet.com

Avient launches new oxygen scavengers



Avient has launched the first grade in its new ColorMatrix Amosorb Oxyloop portfolio of oxygen scavengers.

ColorMatrix Amosorb Oxyloop-1 is formulated to enhance the recycling capabilities of Polyethylene Terephthalate (PET) packaging, providing a trusted solution for brands seeking to extend product shelf life, meet sustainability goals, and contribute to a more circular economy.

The grade has earned the endorsement of the European Platform for Bottle Packaging (EPBP) for bottle-to-bottle recyclability for the coloured recycled stream and is compatible with recycled PET. Offering outstanding bottle clarity, it can be used in monolayer or multi-layer bottle structures as well as in transparent applications.

The absence of polyamide in the formulation can also minimise yellowing.

➤ www.avient.com

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Arkema to add new polyamide unit

Arkema has announced the construction of a new Rilsan Clear transparent polyamide unit at its Singapore facility at a cost of around \$20m.

The investment will triple Arkema's global production capacity of this polyamide and help meet growing global demand for sustainable high-performance transparent materials in markets such as eyewear, consumer electronics, healthcare devices, and home appliances. The new unit is expected to be operational in the first quarter of 2026.

"We are very proud to take this new step forward with this expansion dedicated to transparent polyamides

as it aligns with the evolving demand landscape, showcasing our commitment to global growth," said Laurent Tellier, Senior Vice-President High Performance Polymers & Fluorochemicals at Arkema.

"It marks the next step in developing our strategic platform in Singapore to support our valued customers in Asia and beyond."

Arkema is a leading producer of bio-based transparent polyamides, including its flagship grades Rilsan Clear Rnew G850 and G820 which contain 45% and 62% bio-based carbon origin respectively.

➤ www.arkema.com



IMAGE: ARKEMA

Arkema's Rilsan Clear transparent polyamide is used in medical devices and other applications

New Aimplas project

Aimplas has launched the Reciplus project, which aims to improve recycling of multilayer plastic materials which can pose a significant challenge at the end of their life cycle due to the complexity of separating and processing their various components.

In the project, different strategies are being explored to address the recycling of multilayer structures using innovative technologies such as physicochemical delamination with supercritical fluids.

Mireia Fernández at Aimplas, said it used chemical solvents under supercritical fluid pressure and temperature conditions, which reduces processing time and solvent usage.

➤ www.aimplas.net

Vynova winding up Dutch PVC production site

Belgian PVC and chlor-alkali company Vynova has announced its intention to cease PVC production at its site in Beek, the Netherlands, by November 2025. Located within the Chemelot industrial park, the Beek plant has been operational since 1972, employs around 100 people, and has a production capacity of

225,000 tonnes/yr.

"Our announcement follows a comprehensive review of our manufacturing footprint in light of ongoing economic, regulatory, and market challenges," said Christophe André, CEO of Vynova. "The European PVC market is under strong pressure due to global overcapacity, persistently

weak demand, and increased competition from regions with lower production costs and less stringent regulations. These conditions are unlikely to improve in the near term."

He said the closure will enable Vynova to strengthen its long-term competitiveness.

➤ www.vynova-group.com

Zenimid gets off the ground

Arkema and its affiliate PI Advanced Materials have announced Zenimid as the new brand name for their high-performance polyimide, marking a commitment to expand the product range's reach across various markets such as aerospace, automotive, and electronics.

The material, available in film, varnish, and stock

shape, is engineered to perform in the most demanding environments, offering exceptional dimensional stability, flexibility, heat resistance, chemical resistance, and electrical insulation.

"The launch of Zenimid brand reflects its evolution into a standalone brand known for cutting-edge

performance, innovation, and durability," said Hee-Joon Ham, Chief Financial and Strategy Officer at PI Advanced Materials. The strategic move is intended to enable clear communication of the product's value to customers and support its continued growth.

➤ www.arkema.com

➤ www.pimaterials.com

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Coperion technology brands

HydroGraph sets up compounding network

Canadian graphene producer HydroGraph has launched a Compounding Partner Program to facilitate widespread adoption of its Fractal Graphene, a turbostratic material manufactured using its patented detonation synthesis technology.

The initiative is designed to establish a qualified network of plastic compounders with demonstrated expertise in processing graphene-enhanced thermoplastic materials, with participants undergoing a qualification process to ensure suitability. Qualified partners will receive technical support and business referrals for commercial opportunities, with early adopters already piloting new formulations across automotive and packaging sectors.

"Establishing a select



HydroGraph uses tensile testing machines (pictured) to validate the effectiveness of Fractal Graphene. Pic: HydroGraph

network of certified compounders allows HydroGraph to ensure consistent processing of Fractal Graphene at commercial scale," said Kjirstin Breure, President and CEO of HydroGraph. "This initiative provides end customers with a vetted supply chain for sourcing graphene-enhanced compounds with

confidence."

Fractal Graphene is characterised by 99.8% carbon purity and consistent morphology, with its fractal structure enabling performance at addition rates 10 to 100 times lower than conventional graphene nanoplatelets, according to HydroGraph.

> <https://hydrograph.com>

IN BRIEF...

Plastics Europe has announced the appointment of Benny Mermans, Vice President Sustainability at Chevron Phillips Chemical, as its President, with immediate effect. He succeeds Marco ten Bruggencate, President of Dow's Industrial Intermediates & Infrastructure business, EMEAL.

> <https://plasticseurope.org>

European Bioplastics, the association representing the interests of the bioplastics industry in Europe, has relocated its main operations to Brussels, Belgium, and appointed Lorenza Romanese as new Secretary General.

> www.european-bioplastics.org

Lati has reaffirmed its position as a key technology partner in the automotive sector by securing its place in the A-PMR 2025 approved materials panel by Renault Group. The updated list features certified thermoplastic compounds specifically designed for critical applications in EVs and under the bonnet.

> www.lati.com

Agilyx acquires GreenDot shares

Agilyx has entered into a binding and fully financed agreement to acquire 44% of GreenDot, based in Germany.

Licensed across 29 countries, GreenDot currently reprocesses over 400,000 tonnes/yr of plastic.

Agilyx said it is building a

global platform to supply feedstock to the plastic recycling industry.

> www.agilyx.com

> www.greendot.com

ExxonMobil opens chemical recycling unit

ExxonMobil has expanded operations in Baytown, Texas, US, with a second chemical recycling unit.

Combined with the first, which has been in operation since late 2022, the company has processed more than 100m pounds (450,000 tonnes) of

plastic as of May 2025.

"We're ready for this expanded capacity - we've learned from the first unit what works well and what to do better. These lessons have been applied to the second unit and improvements will continue with each

new unit," said ExxonMobil.

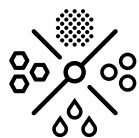
The company has also announced additional investments at Baytown and in Beaumont, Texas, US, which will increase overall capacity to approximately 500m pounds/yr.

> <https://corporate.exxonmobil.com>

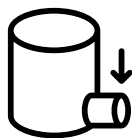


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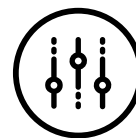
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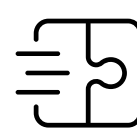
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Commission reveals allocation method for mass balance

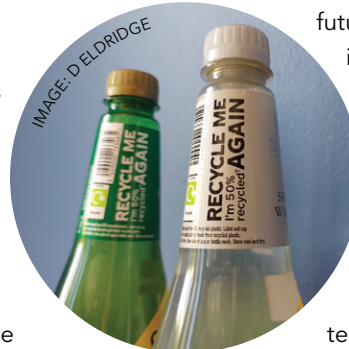
The European Commission (EC) has launched a public consultation on rules for calculating recycled content in single-use plastic beverage bottles, including chemically recycled content. This is an important step as the mass balance approach used by producers of chemically recycled plastics can be applied using different methods to determine the percentage content of recycle.

"The methodology for calculating this [recycled content] is based on the 'fuel-use excluded' allocation rule, which means that waste used to produce fuels or energy recovery cannot be counted as recycled content, in line with the definition of 'recycling' in the Waste Framework

Directive," said the EC.

There had been slow progress in negotiations with member states on the issue, although the EC said last year it supported the Fuel-Use Excluded method, which provides a freer allocation than the Proportional and Polymers Only options (*Plastics Recycling World* September 2024). It said that agreeing on a clear calculation methodology "will create a level playing field and provide investment security for the sector in a technology-neutral way".

It said: "The calculation methodology will serve as a model for



future recycled content rules in other sectors, such as packaging, automotives and textiles. This approach is designed to give investors confidence in the long-term stability and potential of these technologies."

In order to achieve its recycling targets, the EU supports all recycling technologies although "mechanical recycling is typically preferred as it is less polluting and more energy-efficient than chemical recycling". But chemical recycling is sometimes a valuable alternative.

➤ <https://environment.ec.europa.eu>



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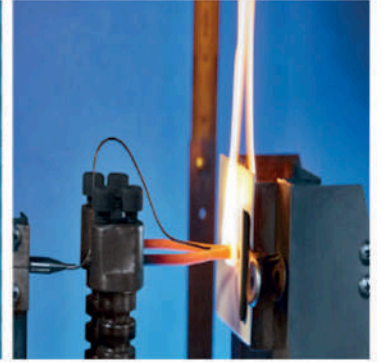
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IMAGE: SHUTTERSTOCK

Artificial intelligence makes its way into compounding

Faster and better data collection is growing in importance as AI tools find use in optimising plastics compound formulas and processes. Jennifer Markarian investigates

Artificial intelligence (AI) and machine learning (ML) are finding new uses in plastics compounding. Earlier applications included predictive maintenance and digital tools to automate tasks for more efficient and effective operations. Newer, user-friendly applications include natural language interfaces and ML models that translate data from in-line testing into product and process intelligence. With the rise of these technologies, the importance of data collection and data analysis is growing.

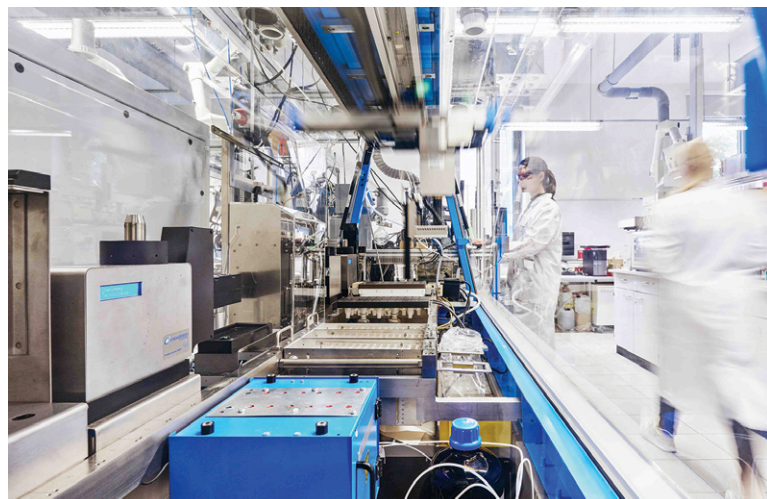
Take, for example, automated testing instruments for lab measurements. These instruments reduce manual labour and human error, make labs more efficient and enable easier data collection, which is critical for using data to improve processes. "Automated tensile testing

generates a vast amount of precise data. This data is the foundation for effective AI/ML applications in process control and quality assurance," said Khaled Boqaileh, CEO at **LabsCubed**.

LabsCubed, headquartered in Ontario, Canada, offers a suite of automated physical property testing systems, including the CubeTen automated physical property testing system for plastics. These systems enable automated measurement of tensile strength, tear resistance, flexural modulus, and hardness. The capability to run these different tests without switching machines or setups reduces downtime. The software can be configured to automatically generate reports and flag anomalies in test data, enabling rapid response to out-of-spec materials. The modern testing system aligns with

Main image:
Compound formulation is set to benefit from the growing use of AI

IMAGE: ANNA SCHROLL



Above: At the University of Jena, synthesis robots are investigating the recycling of polymers

the Industry 4.0 vision for intelligent manufacturing, said Boqaileh.

ML algorithms can be used to identify correlations between compounding parameters and product properties, but large quantities of data are needed, including metadata with details of the environmental conditions at time of data collection. While older testing equipment being used in the industry may not be capable of capturing or communicating this data, LabsCubed's system is designed for Industry 4.0 and can be integrated with lab information management systems (LIMS) and manufacturing execution systems (MES). In the future, with such systems, data can be fed into AI/ML models that predict potential quality deviations during the compounding process, and processing parameters can then be adjusted to maintain output quality.

Data analysis

LabsCubed offers its AI Portal which uses a natural language interface to communicate data analysis results to users. Users can find trends or errors in data by asking the chatbot, for example, "Show me the highest stress value."

Other AI-based features in development will further improve testing. For example, an AI-enhanced vision system inside the instrument can allow higher precision for elongation measurement. Predictive maintenance features will monitor machine health and automatically resolve minor issues.

Boqaileh said that AI-based data analysis is finding use in areas in applications with many variables, including 3D printing as well as development of biodegradable compounds and compounds with recycled plastics content. He noted that high quality data is crucial: "If data isn't good, the predictions aren't good."

Spectroscopy-based in-line measurement systems can provide real-time data that monitors

an entire production run, offering the potential for faster correction of deviations without the delay of lab testing and for identifying deviations that might be missed by a system that tests only selected samples.

As discussed in the August 2024 issue of *Compounding World*, **ColVisTec** is using its in-line fibre optic probes with ultraviolet-visible (UV-Vis), near infrared (NIR) and Raman-based spectroscopy to measure and control colour as well as identify impurities. These tools are particularly useful for compounding recycled materials, because they can detect changes in raw materials.

Equitech International's UV-Vis in-line spectrophotometer systems for colour measurement use a fibre optic probe inserted into the melt to provide real-time production data. After re-evaluating the technology last year for serviceability and manufacturability and enhancing designs related to probes, spectrometer, electronics, and software, the spectrophotometer will now be capable of delivering real-time results with lab-grade repeatability, as well as contain additional configurations and functionalities, the company announced.

Last year, Equitech's board initiated a comprehensive restructuring of operations. "Our goal remains to deliver advanced, cost-effective technologies that not only rival traditional lab-based monitoring systems in performance, but also meet the price expectations of our customers," the company said. A partnership with the University of North Carolina Charlotte (UNCC) "opens the door for future integration of emerging AI technologies from UNCC into Equitech's product development pipeline". In addition, a strategic agreement with M&M Technology gives Equitech access to scalable manufacturing space, skilled personnel, and engineering and technical resources to support future scaling efforts.

Recycled content

The challenge of obtaining consistently good properties in plastics compounds using inherently variable raw material streams from post-consumer recycled (PCR) plastics is an opportunity for AI-based solutions.

Partners in the SpecReK project, with additional funding from the German Federal Ministry of Education and Research (BMBF), are investigating how to use real-time testing of recycled materials combined with AI models to improve products. The collaborators include **BASF, Endress+Hauser, TechnoCompound, the University of Bayreuth and Friedrich Schiller University Jena.**

"We do not currently have the necessary analysis

tools to determine during processing exactly which components are contained in the mechanically recycled plastics," said Bernhard von Vacano, head of the Plastics Circularity research program at BASF. "This information is needed, however, to evaluate and improve the quality of waste plastics."

The input materials can contain different types of plastics as well as different additives or contaminants, for example. In the project, these will be identified in real-time during processing by spectroscopic methods, primarily based on Raman spectroscopy, which will provide "fingerprints" of polymers, blends, and specific components. This information will be combined with instrument and processing data. AI will be used to recognise patterns in the measurement data and recommend corrections, such as components to be added or adaptations to the recycling process, to improve the quality of the recycled plastic output.

BASF said that the SpecReK project is running on schedule for the planned, three-year period through August 2027. The current focus is on sensor concepts, data processing and building the data sets needed for the ML framework.

"With the increasing demand for high-quality recycled materials, and given the current legal framework, it will be crucial to perfectly understand the material properties and composition of mechanically recycled plastic waste and to optimise the process. In this way, we will strength-

en the circular economy," von Vacano said.

At the **Fraunhofer Institute for Structural Durability and System Reliability LBF**, the COM-PASS (Constant Optimisation of Materials and Products for Sustainable Solutions) project aims to improve the consistency of quality of polyolefin recyclates. There are still open slots for industry

partners in the three-year research project, which will begin when the consortium is completed, potentially in early 2026. The institute said that measurements of recyclate quality would include rheometry as an indicator for mechanical properties and processability, oxygen induction time to indicate residual stabiliser content, and differential scanning calorimetry (DSC)

and thermogravimetric analysis (TGA) to assess thermal stability and process capability. It was suggested that targeted blending of qualitatively different recyclates from different sources could be used to create consistent quality in a cost-efficient manner. In addition, in-line rheology and spectroscopy may be used to measure the resulting blends. ➤

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IdeoPak, a US-based consultancy, offers custom testing services for packaging and has patented technology for real-time monitoring of post-consumer recycled (PCR) materials, including in-line testing of volatile organic content (VOC) and organic and inorganic contaminants in PCR. At AMI's Plastics Recycling conference in Long Beach, California, in June, IdeoPak described its Continuous Monitoring Technology partnership with US-based **Revolution Sustainable Solutions**, which reprocesses recycled resin into a range of film and sheet products as well as offering post-industrial and PCR resins to global brands and OEMs. An IdeoPak patented sensor array is currently in the testing phase at a Revolution facility.

Quality assurance

The technology is designed to detect heavy metals (eg, cadmium, chromium, lead and mercury) and odour-causing VOCs, with a primary goal of providing assurance of quality and compliance to brand-owners or other end-users through on-line testing and reporting of PCR-containing plastic products that they are using. A converter or compounder can simultaneously use the system to

monitor their process and take corrective action if it goes out of specification.

"The system is designed for remote auditing, which provides transparency and accountability to end-users," said Keith Vorst, Partner at IdeoPak. "As companies are aiming to use more PCR, they are looking for a greater level of comfort in the quality of that material, beyond simply relying on an FDA 'letter of no objection' or a lab report of a selected sample. Our on-line testing system is set up for frequent testing, with a measurement taken by the sensor array typically every 15 minutes. A manufacturer's customers can log in to the system and generate a report of the test results of the plastic product they've purchased, to confirm that it is within specification for heavy metals and chemicals of concern."

The array of sensors includes X-ray fluorescence to measure heavy metals, as well as photoionisation detection, flame ionisation detection, and electrochemical sensors to measure VOCs. Lab tests (eg, chromatography and inductively coupled plasma mass spectrometry) are used to train the sensors and models to identify the odour profile of a given contaminant. ➤

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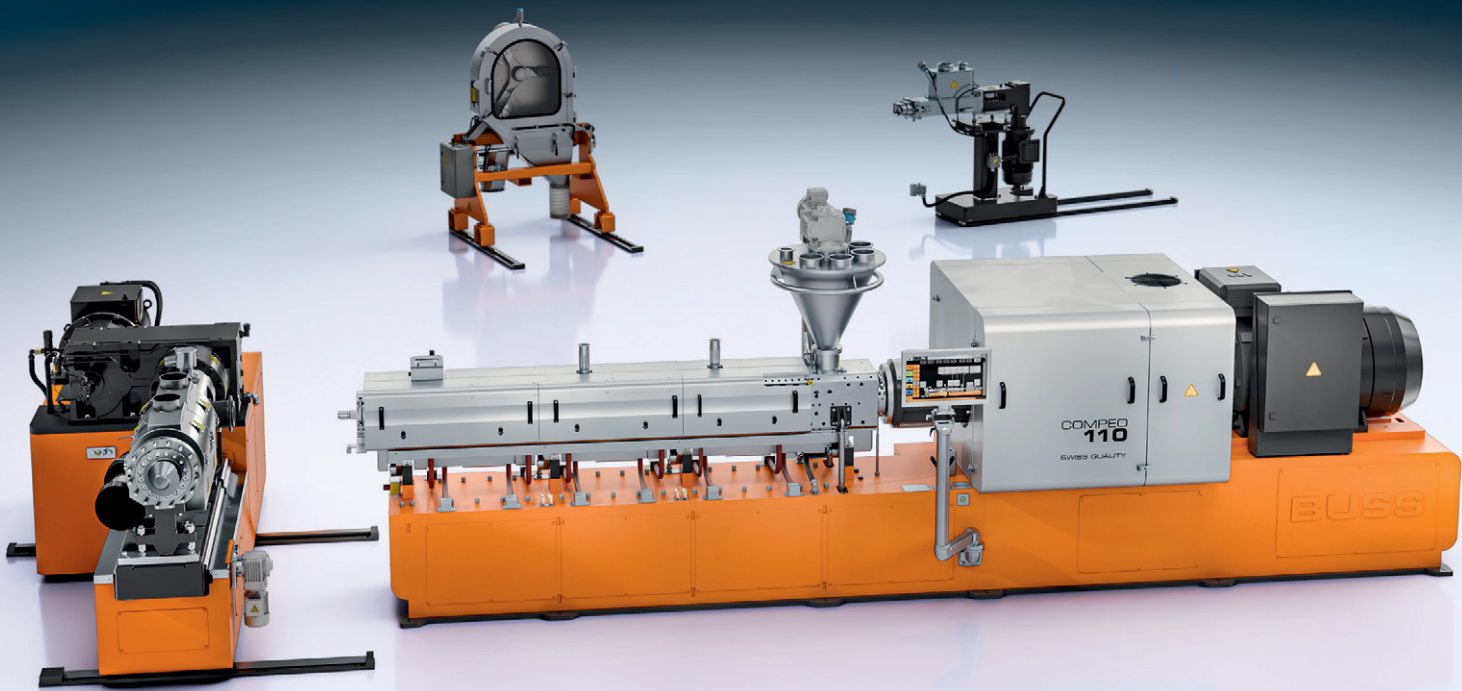
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"The system can be used in-line on any processing line to measure volatiles from melt - injection moulding, sheet converting or pelletising, for example. We think this will fill a data gap that currently exists in PCR processing," said Vorst.

AI in formulation

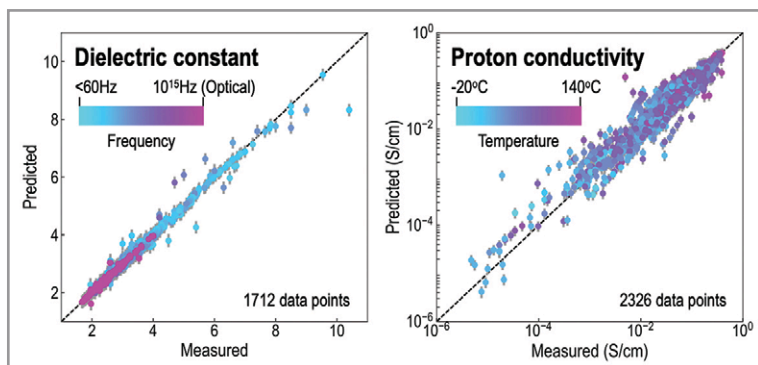
Digital tools for formulation development have been in existence for some time, but it may be that their time in plastics compounding has finally arrived.

Premix Group is using a new AI platform to speed its product development process for optimising formulas for electrically conductive compounds. The R&D team developed PERTTI 3.0 in-house, trained on the company's data. The tool can predict what properties a given formula would have. It can also be used to simulate the cost of different approaches and identify the best solution for each project.

"Machine learning itself isn't new," said Ville Mylläri, Product Development Manager of Premix in a blog on the company's website. "What's changed is the accessibility. With the rise of open-source tools, even specialised manufacturers like us can now build powerful AI models with relatively low cost and high flexibility."

Mylläri added: "A model for conductive plastics is unique, and the architecture needed to be optimised and tested carefully. The over 40-year history and the huge database of Premix made it possible to develop such a comprehensive model."

Because the platform is built using open-source frameworks and a modular architecture, it can be adapted to different polymer types and use cases. The company said it sees this tool as key as it



Matmerize's PolymRize AI polymer software is used in the design of polymers for electronics and energy applications at Asahi Kasei

Source Matmerize

continues to diversify its material portfolio and expands into manufacturing in the US, where it opened a new compounding plant in North Carolina in June.

"Our next steps involve expanding the supported polymer families and scaling the model to support our new regions," Mylläri said. "The goal is not to replace human expertise, but to give our product developers faster, smarter tools to deliver better outcomes for our customers."

Machine learning could, in the future, be expanded to optimise processing parameters for the compounding process, he added.

Matmerize, a spin-out from the Georgia Institute of Technology in the US, created the PolymRize cloud-based polymer informatics software platform, which uses AI algorithms to identify optimal materials and formulations. The platform can be used by companies to build secure, custom, proprietary models based on the

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company's data or using pre-built stock models.

For example, **Asahi Kasei** is using PolymRize to accelerate development of sustainable polymer formulations for applications such as fuel cells, batteries, dielectrics, electronic and electrochemical devices. The software can be used to predict properties that are important for these applications, such as ionic conductivity, optical and dielectric properties.

CJ Biomaterials, a producer of polyhydroxyalkanoate (PHA) biopolymers, successfully tested the AI platform last year. CJ Biomaterials was able to estimate the performance of new materials with greater efficiency using the predictive analytics platform.

Material design

Erthos, a sustainable material design company headquartered in Toronto, Canada, launched its AI-based Erthos Studio, based on its proprietary ZYA machine learning platform, last year. The technology aims to accelerate the widespread adoption of bio-based plastics by collaborating with consumer packaged goods brands and materials companies to design bio-based formulations.

The platform generates formulations based on design inputs such as mechanical properties, cost, disintegration rates, and greenhouse gas emissions. This approach reduces development cost and can create a ready-to-scale, custom bio-based material in just three to six months, the company said. The company's co-founder, Nuha Siddiqui, will be presenting the technology and its application at AMI's **Bioplastics event** taking place on 26-27 August in Cleveland, Ohio.

Celanese launched a digital assistant platform called **Chemille** for materials selection that uses an AI-based tool for searching the Celanese material portfolio using various filters, such as application, polymer type, or filler type.

"Chemille offers a comprehensive range of engineered material options, ensuring our customers do not overlook the best choice for their application," the company said. "With in-depth knowledge of the entire Celanese materials portfolio, Chemille provides precise recommendations tailored to the exact specifications and requirements of any customer in any industry. Users can input specific properties they need, such as thermal resistance, mechanical strength, or chemical compatibility. Chemille will then identify the most relevant material solution based on these criteria."

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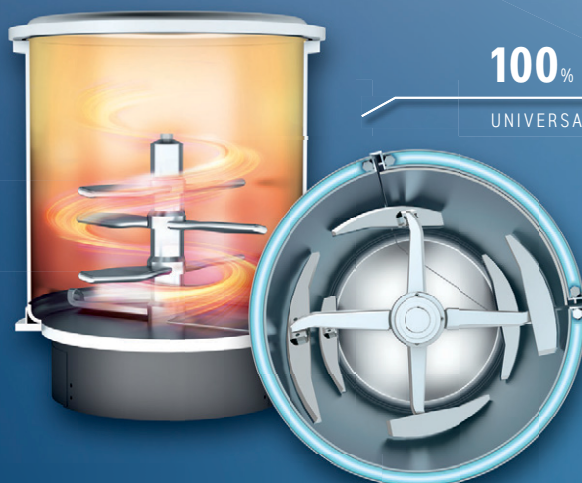
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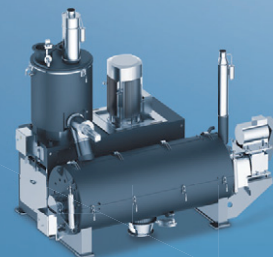
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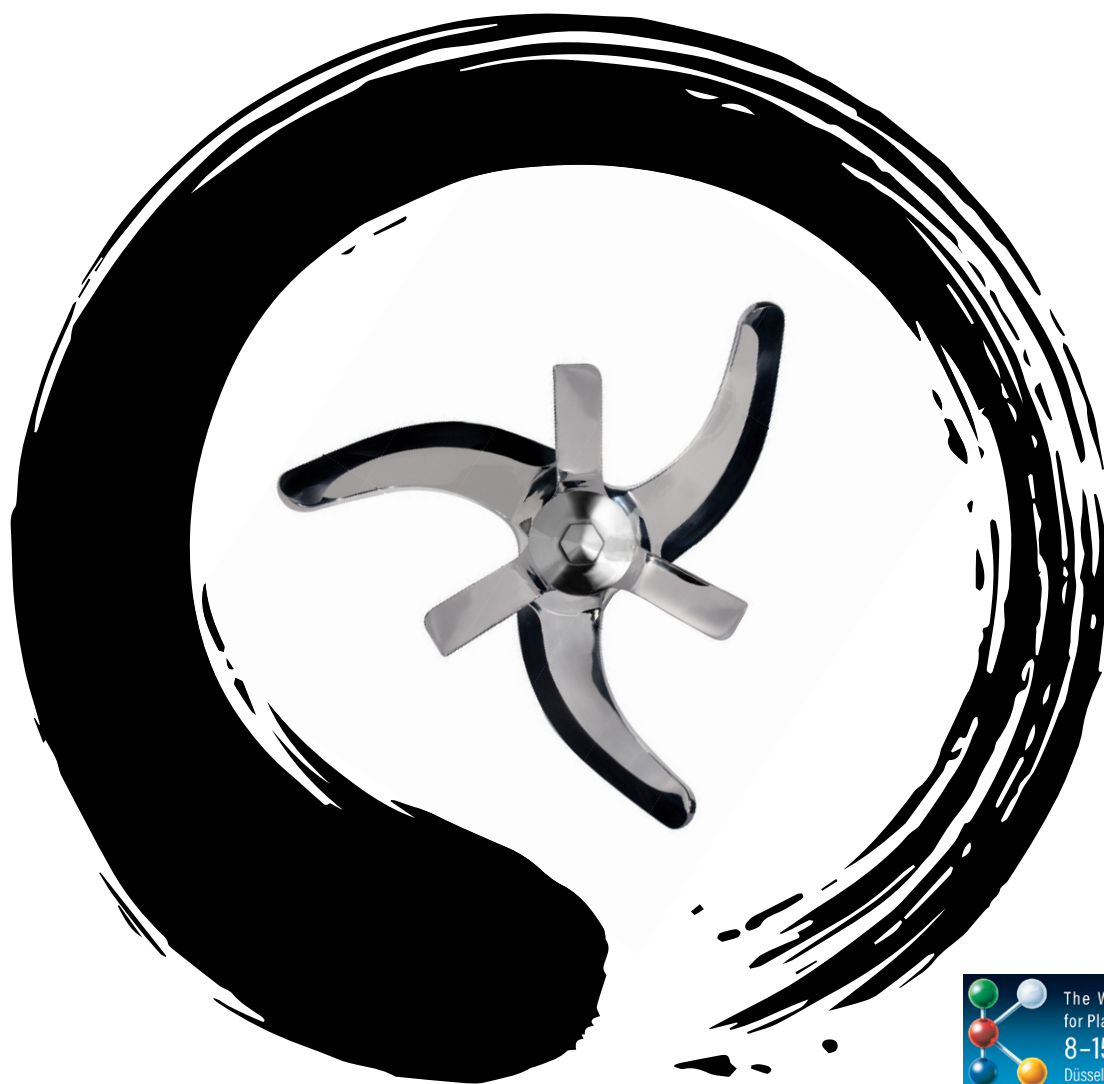
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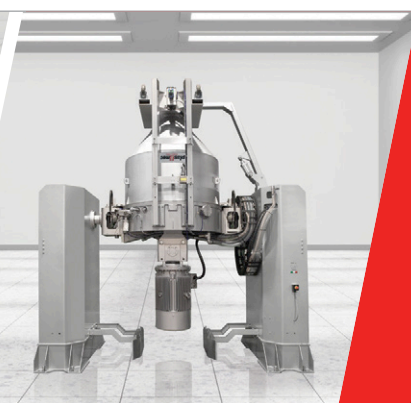


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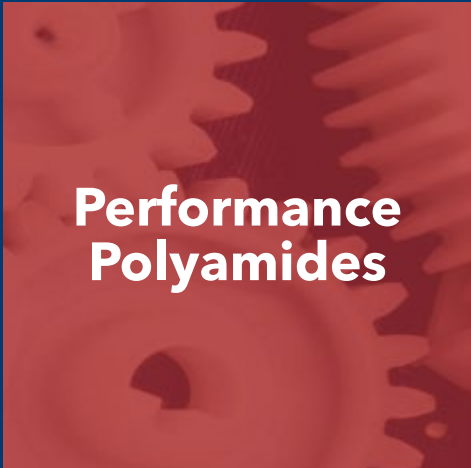
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Meeting the demands of EV applications

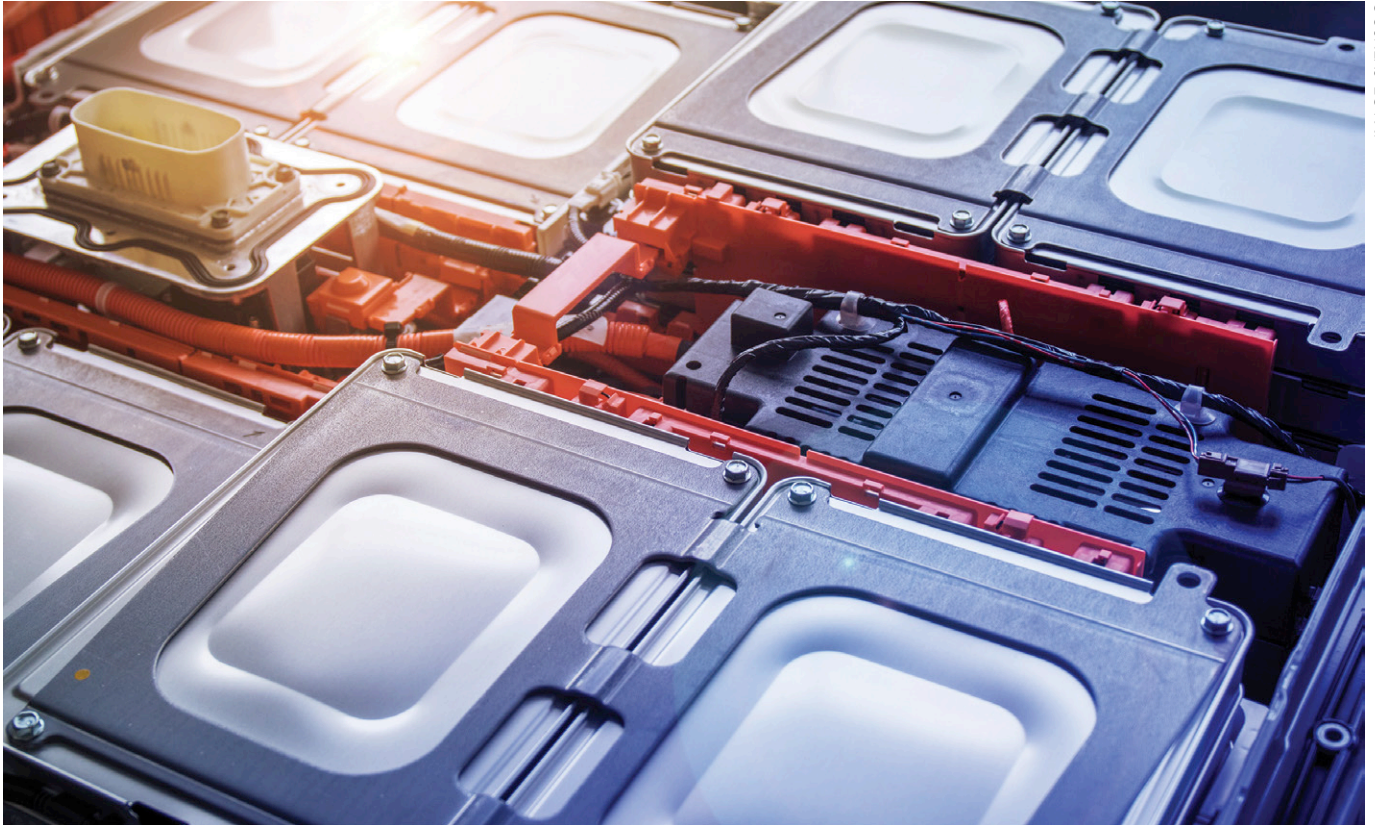


IMAGE: SYENSQO

As the roll-out of electric vehicles increases, more compounds are being developed in connection with battery and hybrid powertrains. New materials are covered by Chris Saunders

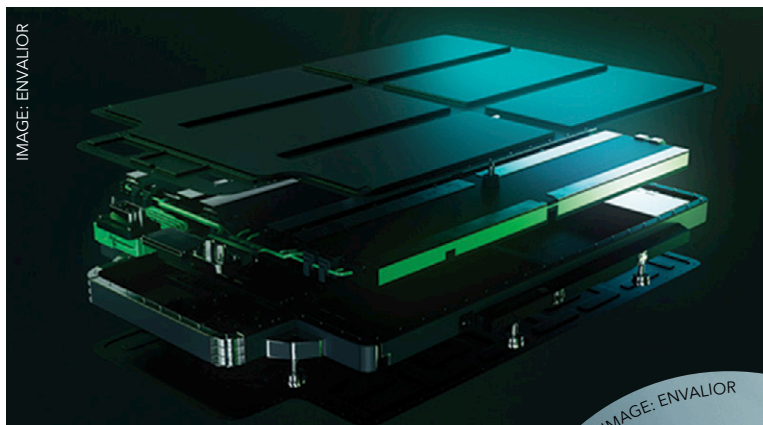
With power efficiency improving, charging infrastructure becoming more accessible, and electric vehicles (EVs) becoming more affordable, e-mobility is finally making inroads into the mass market. Plastics and composites are now fundamental to EV design, offering significant advantages in lightweighting, thermal safety, electrical performance, circular design, and battery technology. While traditional powertrains rely on materials capable of withstanding higher temperatures, such as PA6, PA66, PA12 or polyphthalamide (PPA), EV platforms operate under significantly lower thermal demands prompting calls for more cost-efficient, application-specific materials that simplify processing, reduce part weight, and lower costs without compromising on performance. Nonetheless, compounds based on

engineering thermoplastics are needed in demanding applications.

Mocom develops compounds that have the necessary thermal, electrical, mechanical and chemical resistance to meet these requirements. Its high-performance Altech NXT PP bridges the gap between PA and standard PP, enabling weight savings in many applications without sacrificing performance, the company says. Meanwhile, high-performance materials such as Tedur PPS remain essential for high-demand applications like valves, thanks to their excellent dimensional stability and creep resistance. Most recently, Mocom has expanded its Tedur portfolio to include high-impact, glass fibre-reinforced grades as an alternative to PPA GF.

The company says connectors and piping

Main image:
Syensqo's
Amodel PPA
HFFR-4133 OR
retains its
bright colour
even under
prolonged heat
exposure,
ensuring
compliance
with industry
standards



Above and right: As ranges extend, EVs must now work with even higher operating voltages

systems are also evolving. Quick connectors traditionally made of PA66 GF can be replaced by Altech NXT PP, which is characterised by good recyclability, lower density, and suitability for 2K injection moulding, according to Mocom. The same applies to cooling water pipes. Mocom says it aims to offer a range of viable alternatives, such as flexible Alfater XL TPV lines, a recyclable replacement for EPDM rubber with lower greenhouse gas consumption.

Envalior's latest range of compounds for e-mobility applications, to be displayed at K2025 later this year, includes several innovations targeted at the changing needs of automakers. "As EV ranges extend while charging times go down, electric vehicles must now work with even higher operating voltages of up to 800V and above," said Tim Arping, Director of Segment Innovation and Advanced Development at Envalior. "This places greater demands on the materials used in e-powertrains, meaning they have to meet higher specifications in terms of electrical and tracking resistance. Envalior's R&D capabilities focus on developing optimised solutions for the future of e-mobility, taking a comprehensive approach to material development that considers the needs of the entire system."

The company's compounds address specific application requirements while maintaining processing efficiency for high-volume production. "Materials for high-voltage connectors, for example, must not only offer high and stable electrical performance, good dimensional stability, and safe flame retardancy, but also prevent electrochemical corrosion, avoid ionic migration, and provide robust mechanical properties to survive thermal cycling and other ageing effects

over the entire lifetime of the vehicle," continues Arping. "In collaboration with global automakers and their major suppliers, we've tailored our R&D and production capabilities to maximise innovation efficiency, material quality, and customer value."

Envalior says its tracking-resistant, hydrolysis-stabilised, and heat-resistant compounds maintain exceptional safety and reliability performance, even as operating voltages rise and component creepage distances may be further reduced. This enables components to accommodate

increasingly complex system architectures, supporting a higher integration density to allow for smaller, lighter, and more sustainable product designs.

Strength and resistance

Among Envalior's recent e-mobility developments are Xytron PPS grades to support robust e-powertrain components, a new Pocan PBT grade for high-voltage connectors, the high-CTI Pocan E portfolio for e-mobility applications and Stanyl PA46 for high-speed bearings. The company's latest material, Pocan BFN4221Z, is reinforced with 20%-by-weight short glass fibres giving it a high elongation break of 2.9% (ISO 527-1,-2) and good Charpy impact strength (ISO 179/1eU) of 45 kJ/m². It says components made from the new material are more resistant to cracking, and the material is particularly resistant to thermal shock making it ideal for overmoulding metal components that are exposed to rapid and large temperature changes. It is also significantly more resistant to tracking with a stable Comparative Tracking Index (CTI) of 600 (IEC60112).

Envalior says it also addresses evolving regulatory requirements through its range of PFAS-free flame retardant options, ensuring proactive compliance and reduced regulatory risk, and offers specific solutions for hybrid, hydrogen-powered, and battery EVs, supported by resilient supply chains and local compounding capabilities that ensure continuous material availability.

At the Battery Show North America in Detroit last October, **Celanese** highlighted its latest advancements in engineered material solutions for EVs, focusing on safety, efficiency and sustainability. One material showcased was Zytel HTN FR53G50NH, a high-temperature polyamide designed for battery module end plates and other structural components which offers superior stiffness, reduces warpage, and improves noise, vibration, and harshness performance, all while



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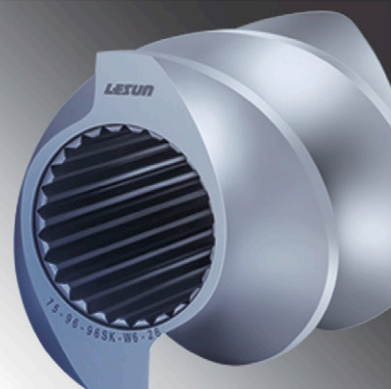
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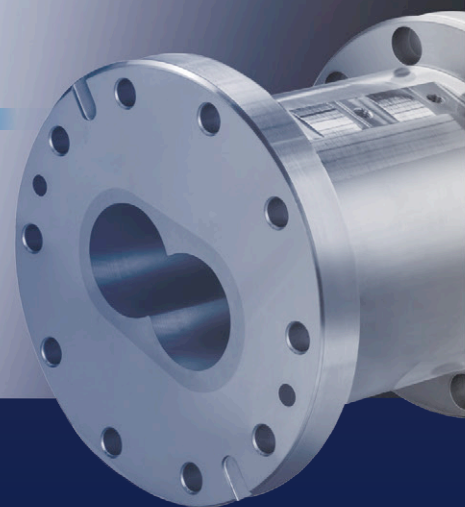


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Zytel PA 80G43EF is an electrically friendly polyamide with exceptional stress crack resistance, designed for over moulded automotive electrical and electronic applications such as transmission control units, connectors, and sensors. It can replace thermoset epoxy without requiring retooling, making it an efficient and cost-effective solution while the full portfolio includes various electrically friendly grades with higher volume resistivity and dielectric strength compared to standard inorganic stabilised grades.

Fortron PPS 1140L4, introduced earlier this year in the EMEA region and now available in North America, is engineered to withstand high temperatures and resist hydrolysis, making it ideal for battery coolant systems and other thermal management modules in EVs. It supports thinner wall designs, enabling more compact and efficient components, and serves as a drop-in replacement for other PPS materials. "As the automotive industry fast-tracks toward electrification, Celanese is proud to support this transition with materials that not only meet the highest standards of performance



Left: BASF's Ultramid Advanced N3U42G6 enables miniaturisation and saves installation space

but also contribute to a cleaner, greener future," said Tom Kelly, Senior Vice President of Engineered Materials at Celanese.

Connectors

BASF is complementing its PPA portfolio with Ultramid Advanced N3U42G6, a polyamide 9T with non-halogenated flame-retardant, which minimises electro-corrosion of metal contacts in E&E parts. The PPA increases the safety and durability of

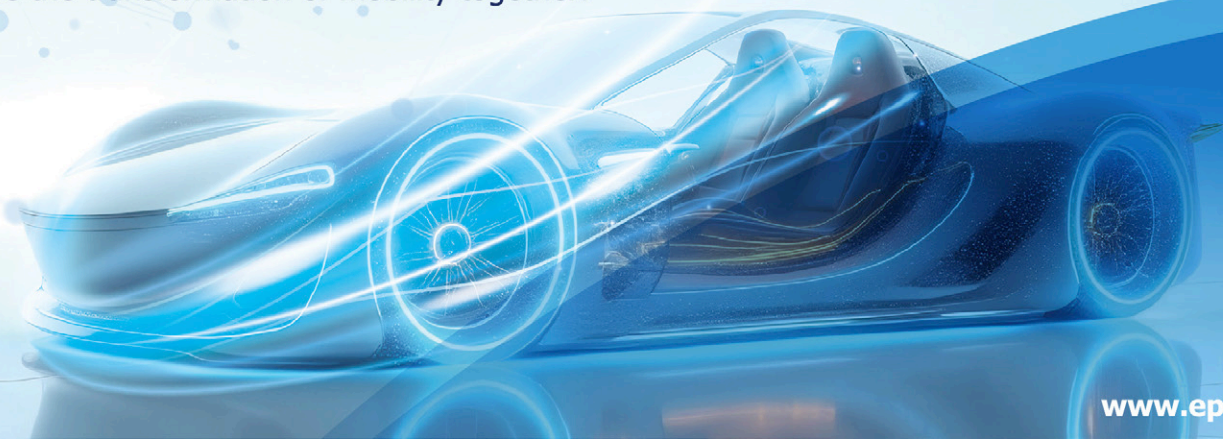
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Right: Brian Baleno, Head of Marketing Automotive at Syensqo, shows a sample of an Ajedium PEEK film slot liner

high-voltage connectors in inverters, DC-DC converters, and batteries. Due to its high strength and stiffness over a broad temperature range, outstanding chemical resistance, and dimensional stability, the new grade enhances the robustness and reliability of thin-walled HV connectors meeting growing industry needs for halide-free E&E components used in warm and humid conditions. It is available in uncoloured and pre-coloured variants such as the e-mobility standard orange RAL 2003 with high colour stability.

Automotive supplier **Kostal Kontakt Systeme** uses Ultramid Advanced N3U42G6 in several components in its high-voltage connector KS22 Class 4 for high-current modules as it enables miniaturisation and saves installation space while providing very high electrical insulation which beats aliphatic polyamides, especially at elevated temperatures, and has a high elongation at break so that there is no stress whitening. The material extends the lifetime of E&E components as it is halide-free, thus preventing contact corrosion and subsequent failure of sensitive electrical parts exposed to heat and moisture. The PPA achieves fire protection class UL94 with V-0 at 0.25mm, and due to its low moisture uptake and high heat distortion temperature of 265° C, is especially suited for connectors post-processed with surface mount technology (SMT).

“Our new non-halogenated grade combines the excellent properties of our superhero Ultramid Advanced N with better colourability, long colour stability and outstanding anti-corrosion effect”, said Volker Zeiher from Technical Development Engineering Plastics at BASF. “With this optimised



IMAGE: SYENSQO

PA9T, our customers can develop innovative, best-in-class E&E components supported by BASF’s proven flame-retardant expertise and material know-how for electronics manufacturing. Ultramid Advanced N3U42G6 is part of BASF’s tailored flame-retardant PPA portfolio for the E&E industry that advances the development of challenging parts in consumer electronics, automotive battery systems, and electric powertrains.”

Earlier this year, **Syensqo** launched its latest innovation, Amodel PPA HFFR-4133 OR, a high-performance flame retardant PPA distinguished by its vibrant orange colour, which aligns with the industry’s growing emphasis on safety and visibility for critical electric vehicle components. The material retains its bright colour even under prolonged heat exposure, ensuring compliance with industry standards such as ISO 6469-3, IEC 60664, and relevant UL specifications.

Deedee Smith, Head of Transportation Marketing at Syensqo, said: “Our latest innovation not only enhances safety but also offers our clients a pre-coloured orange resin, eliminating the need for in-press colouring and streamlining the manufacturing process.”

Amodel PPA HFFR-4133 OR has a V0 rating, making it a suitable choice for high voltage automotive applications. It joins a portfolio of battery solutions including Xencor LFT XTreme PPA LGF-1045 ECHO BP, developed for components requiring thermal runaway protection, and Amodel PPA AE-8945 HFFR, developed for high voltage pyro fuses.

Syensqo’s Ajedium polyetheretherketone (PEEK) slot liners, a finalist in the 2025 Automotive News

Toyoda Gosei closes the ELV loop

Toyoda Gosei has developed a new technology to recycle high-quality plastic from end-of-life vehicles (ELV) to meet demand for recycled plastic in the automotive industry.

Using the technology, the company has developed a recycled plastic with performance equivalent to that of new material even with 50% ELV PP.

To achieve this, it has collaborated

with fellow Japanese company **Isono** to procure quality raw materials for recycling and leveraged its original material modification technology, meeting the quality standards for automotive parts for practical application.

This technology accelerates horizontal recycling for reuse in the same parts and contributes to CO₂

reduction. According to a company survey, this is also the first time in the world that recycled plastic containing 50% ELV plastic has been used in interior parts such as glove boxes that require impact resistance, beginning with the Toyota Camry where it has been used in various components since 2024. The company said it aims to expand applicable products.

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PACE Awards, and KetaSpire PEEK magnet wire insulation, have been selected by **Mavel Powertrain** for a high-voltage electric motor for a premium sports car manufacturer. The combination enhances electric motor efficiency, supporting operations at over 800 V, and allows for more copper in the motor design, which improves electrical output and thermal management. "We are proud to partner with Mavel on a project that demonstrates the tangible improvements in efficiency that our solutions bring to electric vehicles," said Brian Baleno, Director of Global Business Development and Program Management at Syensqo. "This development is an important stride towards increasing the viability and capabilities of BEVs, plug-in hybrid electric vehicles, and hybrids."

As well as this application, Syensqo supports advancements in e-motor technology with Amodel PPA and Ryton PPS for busbars and connectors, and Xencor PPA LFT for slot wedges.

The lightweighting of electric vehicles makes them more susceptible to vibration, and compounds have been developed to minimise or eliminate noise, vibration, and harshness (NVH).

Tisan Engineering Plastics said it supports these efforts by formulating thermoplastic materials that provide strength, performance, lighter weight, flame retardancy, better efficiency, and cost reduction for parts that are used in electric vehicles. Within its Tisamid polyamide compounds portfolio, Tisamid PA 66 - with 30% GF, hydrolysis and heat stabilised, and improved flame retardant properties - is an example for use in battery holding applications. The compound provides improved mechanical strength and excellent flame resistance certified by UL V0 approval up to 0.8 mm, but also maximum glow wire performance (GWFI = 960° C).

In addition, as electric vehicles are used in very harsh environments, polymer compounds are expected to have resistance to those environments. Loss of insulation properties due to water absorption is a point of concern for electrical parts or high voltage parts such as electronic control (ECU) and power control units (PCU) and sensors. In this field, Tisan produces Tisester PBT which has a low water absorption rate and is suitable for use in high-stress parts, as it maintains its insulation properties even in the harsh environments of automobiles. Tisester PBT compound with GF, heat

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Right:
Nichicon's high heat capacitor elements are made using Sabic's Elcres HTV150 dielectric film

stabilised and flame retardant is suitable for thermal management systems and electric motor parts.

At PCIM Europe 2025 in Nuremberg, Germany, **Sabic** displayed a range of high-performance materials including EV converters and fast chargers. The company's exhibit featured **Nichicon** capacitors made with ultra-thin Elcres HTV150 dielectric film. These advanced film capacitors for AC-DC inverters can operate at high temperatures up to 150° C with minimal derating of applied voltage.

"Higher voltages are a common theme across electrical applications from connectors and capacitors to wire and cable," said Sergi Monros, Vice President, Sabic Polymers, Specialties BU. "While high voltages can increase operational efficiency, they present challenges. Our specialty materials perform well under exposure to high voltages, high temperatures, and harsh conditions, helping customers deliver next-generation electrified components."

Exposure to elevated temperatures can significantly lower the rated voltage of polymer film capacitors. For example, rated voltage for capacitors made with biaxially oriented PP film may be reduced by up to 50% at 125° C or above, requiring thicker gauges to compensate. However, recent testing by Nichicon showed that capacitors made with this particular film experienced minimal derating (4.8% at 130° C and 14% at 150° C).

Sabic displayed several other components at the event, including a hybrid metal-plastic DC-DC converter housing for EVs that significantly cuts weight and costs compared to an all-aluminium design and a fast charging unit featuring multiple Sabic materials.

Tetra Pak's polyal, a combination of polymers and aluminium components recovered during the recycling of beverage cartons, is being used in the latest Grande Panda by Fiat. Tetra Pak says it has been exploring commercial applications for polyal in collaboration with various partners for some time, with Fiat agreeing to use it in the Grande Panda's central console, dashboard, interior front and rear door panels. The components are made using a polyal-based compound called Lapolen Ecotek, produced by **Lapo Compound**, and the placement of the material in such visible interior parts, rather than in hidden areas, demonstrates its aesthetic potential.



Fiat chose the material for its shimmering effect, created by the aluminium content, and because Lapo Compound was able to precisely match the specific shade of blue

required. The car is already on the market in most European countries, and will be available outside Europe by the end of the year. Giuseppe Crisci, General Manager at Lapo Compound, said: "Our product innovation has successfully met this technical challenge for Fiat, which is testament to our dedication to sustainable innovation that supports a journey toward a more circular, responsible future."

Additives

Additive suppliers have been supporting compounds going into electrical applications. Bruggolen TP-H2217 from **Brüggemann** belongs to a new class of electrically neutral heat stabiliser designed to meet advancing electric and electronics (E&E) and e-mobility requirements. It increases the continuous service temperature of reinforced polyamides to up to 8,000 hours at 170° C, and sets a new standard for thermal stabilisers without compromising the CTI or flammability rating (UL 94). Brüggemann offers solutions for highly efficient flow enhancement tailored to the needs of various polyamide types. These include Bruggolen P1507 for aliphatic, Bruggolen P1810 for semi-aromatic, and Bruggolen P2201 for flame-retardant polyamides. The addition of these flow enhancers enables lightweight, thin-walled and complex part design without compromising mechanical performance. The excellent flowability supports glass fibre loadings up to 60%.

As EV platforms expand globally, compounders face increasing demands for faster cycle times, low emissions, and material compatibility, especially when formulating with polyamides and PC/ABS blends. **CAI Performance Additives** has developed two additives that address these challenges through targeted performance enhancements.

ST-PA9 is a multifunctional additive that significantly increases melt flow in both neat and reinforced PA systems, including PA6, PA66, and 30% glass-filled grades. In recent automotive applications, the additive has been used to improve processing speed and dispersion in PA-based EV components, with benefits including: 173% MFI increase in PA6 with 30% GF; enhanced

impact resistance and elongation; and retention of mechanical strength across a wide thermal range. The company says its performance exceeds that of conventional flow agents like EBS or silicone-based lubricants, and it integrates easily into twin-screw compounding at loadings as low as 0.3%.

Targeting PC/ABS alloys in automotive interiors and housings, CAI's ST-4210 acts as a high-efficiency compatibiliser and interface agent, especially in GF-reinforced ABS. It improves interfacial adhesion, mechanical performance, and dimensional stability. Already adopted by major EV OEMs in China, ST-4210 has demonstrated: notched impact strength (110.5 J/m compared with 75.1 J/m); flexural strength and modulus; control of odour and VOC emissions in finished parts. The additive also contributes to better processability in complex mold designs without compromising appearance or performance, said the company.

CAI has also expanded its VOC and odour removal masterbatches with LDV 8010, a porous ABS-based additive designed for PC/ABS and ABS systems. Already proven in automotive interior applications, especially EVs, it effectively removes VOCs without impacting mechanical or visual

performance, and supports typical loadings between 0.5% and 2.0%. For polyolefin systems, LDV-1035T delivers powerful deodorisation in PP, TPO, and talc-filled compounds, including recycled grades. It is ideal for use in automotive trim, under-hood applications, and recycled resins where odour control and emission reduction are critical.

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

New options for making PVC flexible

A wide range of plasticiser chemistries are used to make PVC flexible and enable its use in many different applications, from swimming pool liners and toys to medical devices and electrical cable insulation.

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

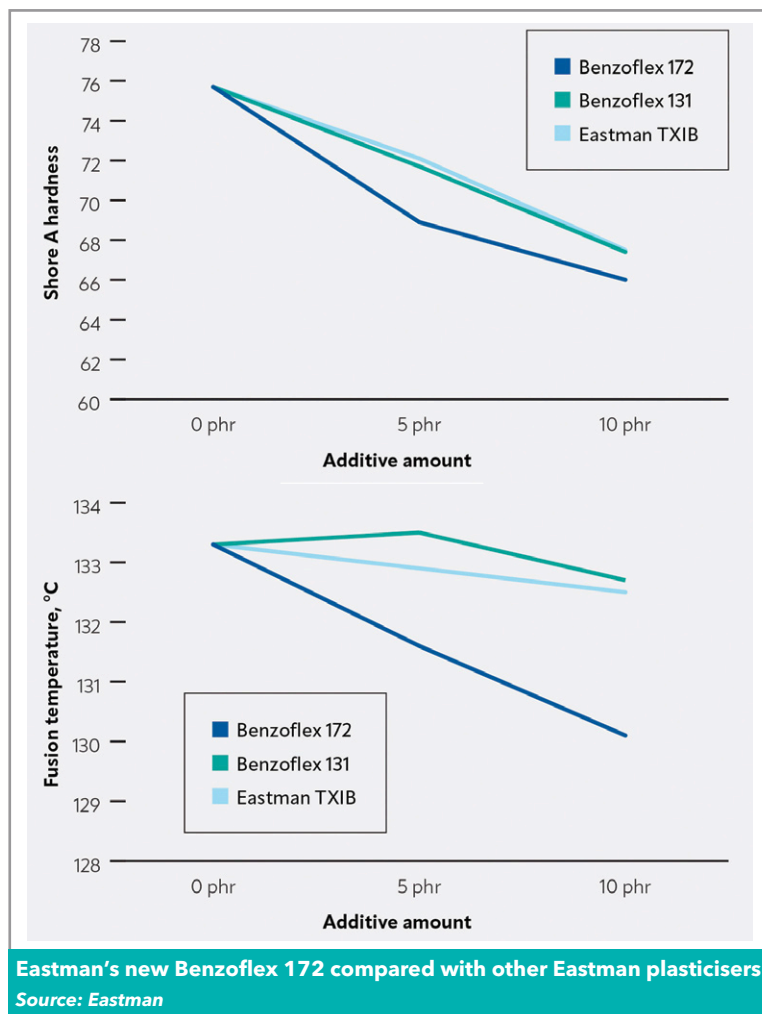
"High molecular weight phthalates represent around 85% of all the ortho-phthalates currently produced in Western Europe," the group said on its website. "Nowadays, the most commonly used high molecular weight phthalates are diisononyl (DINP), diisodecyl (DIDP) and di(2-propyl-heptyl) phthalate (DPHP). Use of low molecular weight

phthalates is decreasing in Europe, and they account for less than 11% of the total production, with di(2-ethylhexyl) phthalate (DEHP, also known as DOP) representing the highest remaining but decreasing volume and DEHP is only used in specific applications."

In the US, the Environmental Protection Agency's (EPA) final risk assessments for DINP and DIDP reaffirmed the safety of the substances as currently used in the vast majority of applications, said the **American Chemistry Council's** (ACC) High Phthalates Panel. The evaluations had been requested in 2019 by the substances' manufacturers, and the final risk assessments were released this year.

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

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



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

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

real-world conditions and supports the continued safe use of these important chemistries."

Non-phthalate options

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

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

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

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

Capacity expansion

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



Evonik has been expanding production capacity for plasticisers

IMAGE: EVONIK

"With the expanded capacity, we can ensure our customers a high level of delivery reliability and quality from European production," said Roland Pietz, Vice President of Oxo Alcohols & Plasticisers at Evonik Oxeno.

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

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

Elatur TM, a trimellitate, was launched in 2023 and is used for applications including high-temperature cables and vehicle interior parts.

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

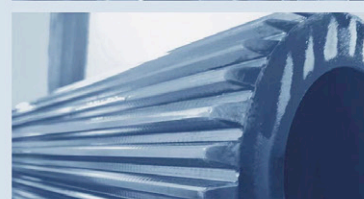
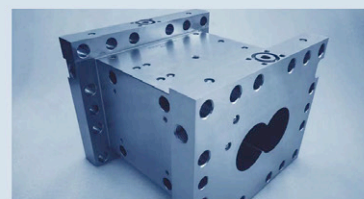
Evonik Oxeno offers the option for its products to be produced and supplied using mass-balanced methods from bio-based, bio-circular,

circular raw materials, or utilising green energy.

Mass balance

Mass balancing is gaining acceptance as a way of accounting for use of bio-based, renewable, or chemically recycled feedstocks. These feedstocks are combined with conventional, fossil-based feedstocks at the initial stages of chemical production, and the alternative feedstocks are attributed to the final product in an accounting method that is certified by a third party (eg, International Sustainability and Carbon Certification [ISCC] Plus). Large chemical companies say that this approach is important in the early phases of transforming the chemical industry, because the current volumes of alternative feedstocks are not large enough to fill the capacity of a chemical plant. A benefit to users is that the resulting chemicals are the same no matter the source of the feedstock – thus they are a "drop-in" solution.

In introducing new versions of its plasticisers containing sustainable content certified by ISCC Plus, Patrick Harmon, Industry Manager for Industrial Petrochemicals, at **BASF**, said: "With these drop-in solutions, our customers receive a product with a reduced CO₂ footprint compared to conventional materials or one that saves fossil resources by using a



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feedstock made from plastic waste; in addition, no technical changes are required on their part. Reducing the use of fossil resources, lowering greenhouse gas emissions, and reducing plastic waste is highly relevant for today's manufacturers and consumers."

The new products in BASF's sustainable North American plasticiser portfolio are manufactured at its production sites in Pasadena, Texas and Cornwall, Ontario. The sites and the products are certified according to the ISCC Plus scheme. Biomass-balanced (BMB) plasticisers are made with renewable raw materials, resulting in products with a lower CO₂ footprint than their conventional equivalents. Cycled grades use circular feedstocks derived from plastic waste.

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

The two new versions of Palatinol DOTP (di-2-ethylhexyl terephthalate) plasticiser are Palatinol DOTP Advantage 50 (BMB) and Palatinol DOTP

Cycled products. BASF said that its DOTP has broad food contact clearance from the US FDA for use in flexible vinyl and other plastic products. It has a favourable toxicological profile, with a designation from the third-party ChemForward Safer program as well as being listed in CleanGredients, a database based on Safer Choice criteria from the US EPA.

Luxury vinyl tile (LVT) flooring maker NOX announced that it signed a Memorandum of Understanding with BASF to drive initiatives for supplying ChemCycling-based, Cycled DOTP to NOX US for production of high-performance LVT for residential and commercial applications. The company said it has also manufactured flooring using ISCC Plus-certified PVC made from renewable plant-based materials.

Reduced footprint

"Sustainability continues to be a driving force for converted PVC products, even during cost pressures and market competition," said Martin Hansson, Business Manager EMEA at **Perstorp**, which produces the non-phthalate Pevalen range of plasticisers. "We see brand owners preparing



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proactively for potential regulatory developments. The emphasis on integrating renewable and recycled content is shaping procurement and innovation strategies, pointing towards a more circular value chain."

The company has focused on reducing the Product Carbon Footprint (PCF) of its products. Pevalen Pro 36 and Pevalen Pro 100 are certified under ISCC Plus and produced using the mass balance approach. Pevalen Pro 100, which is derived from 100% renewable and recycled raw materials, achieves a cradle-to-gate PCF close to zero kg CO₂e/kg, including biogenic carbon uptake, the company reported. "This makes it a frontrunner for low-impact plasticiser applications," said Hansson.

The need for affordable and sustainable alternatives to current plasticiser offerings continues, especially in consumer-facing markets, said Ron Raleigh, Senior Business Development Manager for Plasticisers at **Cargill**. Cargill's bio-derived Biovero plasticisers can be used in PVC. These specialty plasticisers are also being looked at as "greener" solutions in sealant technologies, said Raleigh.

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

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

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

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

The company says the new compounds can

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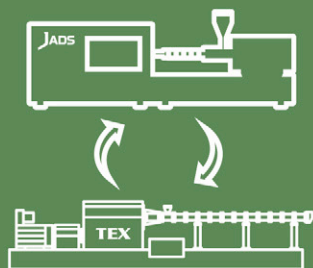
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The TEX Twin-screw EXtruder series will add a new model, the TEXaR11, to its lineup and will be unveiled at K2025. It is possible to extrude with a higher torque than the conventional TEXaR, making it possible to produce high-quality products at lower temperatures and with greater efficiency.

Mechanical recycling



We will demonstrate the process flow of material recycling using the small type of twin screw extruder TEX25a III, which has the world's highest level of torque density. You can actually see the flow of molding, crushing, melting, kneading, and remolding using our products in each section on the K2025.

Chemical recycling Thermal recycling



We provide extruders for the decomposition (incl. depolymerization) process as known chemical recycling, which returns polymers to their pre-polymerization state, as well as for dechlorination in pre-thermal decomposition process treatment and some oil production processes, and will continue to contribute to the development of sustainable plastics materials.

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Synergist

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

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

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

The synergistic stabiliser Mark 3620 was developed specifically for PVC cable compounds.

The company reported the additive more than doubled the Congo Red decomposition time of compounds with Mark 3620 and Drapex Alpha, while maintaining comparable volume resistivity in comparison to the cable compounds with conventional Ca/Zn stabilisers and phthalate plasticisers.

Although it depends on the formulation, the high efficiency and synergism of the Drapex Alpha plasticisers and Mark 3630 or Mark 3620 often allow significantly reduced plasticiser and stabiliser loadings, said Peter Frenkel, a consultant for Galata.

CLICK ON THE LINKS FOR MORE INFORMATION:

- > www.plasticisers.org
- > www.americanchemistry.com
- > www.aurorium.com
- > www.eastman.com
- > www.evonik.com
- > www.basf.com
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SECURE YOUR PLACE TODAY

K2025: ready for launch

After a three-year wait, the K show is back. In this special section, we look ahead to the global plastics industry's key event - and provide essential links to help you get the most from your visit

In just three months, the world's largest plastics show opens its doors again. K2025 runs from 8-15 October in Dusseldorf, Germany.

The show will fill all 18 halls of the venue - with more than 3,000 exhibitors from over 60 countries expected to promote their raw materials, additives, semi-finished products, machinery, ancillary equipment and services to the plastics industry. K2022 recorded 3,020 exhibitors from 59 countries on 177,516 m² of net exhibition space. It also welcomed 177,486 trade visitors - of whom 71% came from outside Germany.

Sustainability remains of growing concern in the plastics sector, so the circular economy will again feature heavily. As well as machinery - such as equipment for processing, recycling and waste management - there will also be many examples of new materials - such as bioplastics and formulations with higher levels of recyclate.

There is a return for the Science Campus - which allows business to exchange ideas and information with academia. This year, exhibitors - in addition to having their main stands - can take part directly. The Start-up Zone also returns.

'Plastics shape the future' is organised by

PlasticsEurope Deutschland and Messe Düsseldorf. It illustrates current and future developments. It consists of seven themed days - with discussions on innovative technologies and materials, keynotes and a political panel - plus a Career Day and Start-up Pitch.

This year's VDMA Forum is called 'The Power of Plastics'. VDMA and member companies will show how technology is vital for implementing circularity.

Building up to the show

In the run up to K2025, *Compounding World* will be publishing detailed previews of the innovations that will be presented.

Look out for our K Preview issues in September and October - followed by a K2025 review in the December issue. You can also follow the news on our [@plasticworld](#) feed on X.

Exhibitors can send press releases to david.eldridge@amiplastics.com. Full details of our special coverage of K2025 are in our [media pack](#).

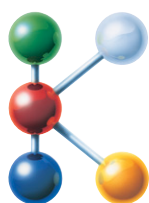
Dates:
8-15 October 2025

Venue:
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Hours:
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Use our selection of web links to make your visit to Dusseldorf – and K2025 – as productive and enjoyable as possible



BUY YOUR TICKETS

You can save queueing (and some money) by buying entry tickets in advance. A three-day ticket now costs €125, while one-day tickets are €60 (€20 concessions, such as students or pensioners) when bought in advance. Order tickets by clicking **here**. A catalogue costs €30: but a voucher online and exchange it at the show.



IMAGE: SHUTTERSTOCK

GET K ON THE PHONE

Lots of useful K2025 data is now available on your smartphone or tablet – including exhibitor and product databases, exhibition plans, travel information, hotel listings, city guides and restaurant reviews – via the 'The K App'. To download the free app, visit the page **here**, which has links to both the AppStore (for iPads and iPhones) and Google Play (for Android devices).

BOOK YOUR ACCOMMODATION

Dusseldorf accommodation fills up fast during K and the best options go early. Find out what's still available and make your reservation as soon as possible at the official **website**.



IMAGE: SHUTTERSTOCK

CHECK OUT THE REST OF DUSSELDORF



IMAGE: SHUTTERSTOCK

After a hard day at K2025 you will have earned some relaxation time. Make the most of your evenings in the city by checking out the restaurants, pubs, bars, culture and entertainment on offer. This official guide has useful listings, as well as guides to the sights and neighbourhoods: <http://bit.ly/DusseldorfGuide>

Also worth a look is the Wikitravel page on the city: <http://bit.ly/wikiguide>

And if the Altstadt and its 260 pubs get too crowded, try heading to the **Media Harbour**, for its modern architecture and venues, which include restaurants, bars and clubs.



IMAGE: SHUTTERSTOCK

ORGANISE YOUR TRAVEL

Düsseldorf is well connected and getting around the city is easy thanks to its excellent public transport network. However, your admission ticket to the show does not include free use of local transport, as it did in the past. Instead, visitors can travel using the **eezy app**, which is like an 'e-ticket'. Details on transport can be found [here](#).

GET ROUND THE EXHIBITORS

With more than 3,000 exhibitors to choose from and a total exhibition area of more than 170,000m², it makes sense to plan your time at the show before you head off. The good news is that you can search for participating companies by name and by product using the online K2025 database.

To search by company, click [here](#)

To search by products, click [here](#)

You can also locate companies using the interactive floorplan which can be found [here](#)



IMAGE: MESSE DÜSSELDORF/TILLMANN



IMAGE: SSPB

SOAK UP SOME CULTURE

There's always plenty going on in Düsseldorf outside the Messe, as the city is home to more than 100 galleries and museums. One exhibition at Kunstpalast, which is running during K2025, celebrates the work of Hans-Peter Feldmann - including photographs, sculptures and expansive installations. Kunstpalast also presents the work of 30 female artists who were active in Düsseldorf during the 19th century - at a time when they were not allowed to study at the renowned art academy. Finally, Freaks of Nature (pictured) is a special exhibition at Schloss Benrath focusing on "the fascination of hybrid creatures".

TRY SOME RETAIL THERAPY

If retail is your thing - and especially designer goods - then Düsseldorf will not disappoint. Königsallee - known as 'Kö' to locals - includes many of Europe's leading fashion names and is likened with London's Knightsbridge or New York's Fifth Avenue. However, neither of those locations can boast a setting to match the tree-lined, man-made 'river' that runs through this premium shopping district. Catch the flavour [here](#).



IMAGE: DÜSSELDORF TOURISMUS: MARKUS LUGS



IMAGE: DÜSSELDORF TOURISMUS: U. OTTE

DON'T FORGET THE ALTBIER!

Regular visitors will already know that Düsseldorf's local brew is the Altbier, a malty copper-coloured ale of around 4.5% strength produced using a special top-fermented lagering method. The name translates as 'old beer' but is actually derived from the Latin word 'altus', which means 'high' and refers to way the yeast rises during brewing. Try it out in one of the city's numerous brew-pubs. Details of these and a short history of Altbier can be found [here](#).

Download these new product brochures

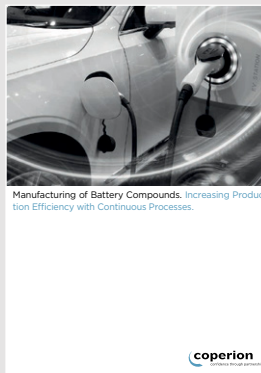
FEDDEM: COMPOUNDING TECHNOLOGY



In this company profile brochure, Feddem presents its compounding technology portfolio, including FED-MT co-rotating twin-screw extruders, plus FSB feeder, FSV side vacuum, and FSE side venting units.

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COPERION: BATTERY COMPOUNDS



In this brochure, Coperion and Coperion K-Tron provide details of their technologies for manufacturing high quality battery compounds.

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TA INSTRUMENTS: ANALYTICAL SOLUTIONS



An extensive range of polymer analysis solutions from TA Instruments enable R&D and processing staff to characterise materials at resin, compounding and converting operations, as shown in this 32-page brochure detailing technologies, applications and case studies.

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CABOT: SPECIALTY CARBON BLACK



This brochure from Cabot details the company's range of Vulcan specialty carbon blacks for formulation of low moisture absorption electrically conductive plastics for applications such as ESD packaging.

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KLK OLEO: GREEN ADDITIVES



KLK OLEO provides a series of products for industrial application. PALMOWAX and PALMESTER provide a green lubricant solution to polymer processing. TEMEST, PALMERE and PALMERA as green ingredients for PVC additives/plasticiser.

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SUKANO: BIO-MASTERBATCHES



Switzerland's Sukano offers a full range of bioplastic masterbatches and compounds to allow processors to maximise the performance of bio-based resins such as PLA and PHA and to simplify and speed up processing.

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

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Compounding World July 2025

The cover story in the July issue of Compounding World magazine takes a look at the different antimicrobial additives and processes available to compounders, while other features are on materials handling, colour measurement and odour/emissions control.

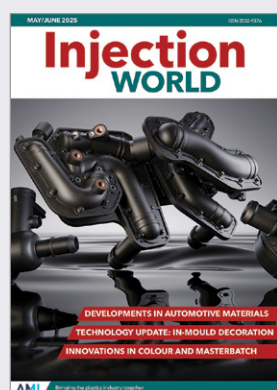
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Compounding World June 2025

The June issue of Compounding World highlights the industry's continuing sustainability focus in features on fibre reinforcement and mineral fillers, and also features additives that respond to regulatory pressures in the PVC sector.

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Injection World July/August 2025

The cover story of the July-August issue of Injection World explores technology and materials helping to advance the 3D printing sector, and new bio-based polymers and LSR materials are the focus of other features.

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Plastics Recycling World July/August 2025

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

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Pipe and Profile Summer 2025

Pipe and Profile Extrusion's Summer edition has a cover feature on medical tubing, exploring its multiple applications in healthcare, while other articles cover screw and barrel innovation, die developments and the latest in corrugated pipe.

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Film and Sheet July/August 2025

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

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Film and Sheet
EXTRUSION

Pipe and Profile
EXTRUSION

Injection
WORLD

Plastics Recycling
WORLD

GLOBAL EXHIBITION GUIDE

2025	10-11 September	RACE: Compounding World Expo, Mumbai, India	www.compoundingexpoindia.com
	8-15 October	K2025, Dusseldorf, Germany	www.k-online.com
	12-13 November	Compounding World Expo N America, Cleveland	https://na.compoundingworldexpo.com
	4-7 November	Ecomondo, Rimini, Italy	www.ecomondo.com
	4-7 December	Plast Eurasia, Istanbul, Turkey	https://plasteurasia.com
2026	9-12 January	Plastex, Cairo, Egypt	www.plastexegypt.com
	20-22 January	Swiss Plastics Expo, Lucerne, Switzerland	https://swissplastics-expo.ch
	5-10 February	PlastIndia, New Delhi, India	www.plastindia.org
	4-6 March	Asiamold, Guangzhou, China	www.asiamold-china.com
	10-12 March	JEC World, Paris, France	www.jec-world.events
	11-12 March	PlastExpo Nordic, Helsinki, Finland	https://pfsptec.messukeskus.com
	26-28 March	RePlast Eurasia, Istanbul, Turkey	www.replasteurasia.com
	30 March - 1 April	Plast-Alger, Algiers, Algeria	www.plastalger.com
	31 March - 2 April	Plastics & Rubber Vietnam, Ho Chi Minh City	https://plasticsvietnam.com
	13-17 April	Wire, Dusseldorf, Germany	www.wire-tradefair.com
	21-24 April	Chinaplas, Shanghai, China	www.chinaplasonline.com
	22-23 April	PlastTeknik Nordic, Malmö, Sweden	www.plasttechniknordic.com
	29-30 April	Textiles Recycling Expo, Charlotte, NC, USA	www.textilesrecyclingexpo.com

AMI CONFERENCES

26-27 August 2025	Bioplastics, Cleveland, OH, USA
15-17 September 2025	PVC Formulation Europe, Düsseldorf, Germany
11 November 2025	Performance Polyamides, Cleveland, OH, USA
11 November 2025	PFAS North America, Cleveland, OH, USA
11 November 2025	Polymers in Flooring, Cleveland, OH, USA
18-19 November 2025	Cables Asia, Bangkok, Thailand

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

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