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IPL and Schoeller to merge

Rigid plastic products maker IPL is to merge with Schoeller Allibert, which manufactures reusable transport packaging.

The proposed merger creates a company with 27 manufacturing locations across Europe and North America and a combined annual revenue exceeding US$1.4 billion.

The merged company will be headquartered in Dublin, Ireland and led by current IPL CEO Alan Walsh. The transaction is expected to close in the third quarter of 2025, subject to customary closing conditions.

"The future of packaging lies in sustainability, innovation and adaptability," said Walsh. "This merger will allow us to combine our strengths on both sides of the Atlantic."

IPL makes rigid plastic products for the food, consumer, environmental and agriculture sectors and has significant manufacturing in the UK. It has around 2,500 employees at 16 manufacturing sites and reported revenue of US$822m in 2024. Schoeller Allibert manufactures returnable transport packaging, with customers in sectors such as automotive, food and pharmaceuticals, that are mainly in continental Europe. Headquartered in The Netherlands, it has around 1,600 employees at 11 production locations and had a revenue of €550m in 2024.

IMAGE: IPL

Walsh: "Merger of IPL and Schoeller will allow us to combine our strengths on both sides of the Atlantic"

Alejandro Cabal Uribe, CEO of Schoeller Allibert, added: "Our combined strength in packaging is well positioned to benefit from the tailwinds for the sector."

IPL is owned by US-based private equity firm Madison Dearborn Partners (MDP), and CDPQ. Schoeller Allibert is owned by Brookfield Asset Management and the Schoeller family. The new company will be 55% owned by IPL shareholders and 45% by Schoeller Allibert shareholders.

› **www.iplglobal.com**

› **www.schoellerallibert.com**

Italian masterbatch takeover

Spain-based Delta Tecnic has acquired Impact Formulators Group (IFG), an Italian producer of additive and colour masterbatches.

Based near Milan, IFG was originally created through the combination of Ultrabatch, Masterbatch and Eurocolor. It specialises in additive masterbatches – with properties such as UV stabilisation, anti-fog and anti-blocking – but also offers colour masterbatches, which is Delta Tecnic's focus.

Adding IFG will create a European masterbatch group with more than €100 million of combined sales, a manufacturing footprint of six plants in Spain, Italy and Mexico and a workforce of more than 270 people.

■ See our feature on Masterbatch on **page 33**. ›

› **https://deltatecnic.com/**

EuPC warns tariffs could cost jobs

The European Plastics Converters (EuPC) trade body has warned that EU tariffs on US polymer imports could threaten companies in Europe.

"These tariffs risk triggering a chain reaction of price hikes, reduced competitiveness and job losses across the EU," said Paolo Bochicchio, managing director of EuPC, which represents plastics converters.

"They could seriously undermine Europe's industrial and environmental goals."

It also suggested raw material costs will increase – hurting 95% of the largely SME-based industry – imports of cheaper finished plastic goods will surge, further weakening EU manufacturers, and investments in recycling and circularity will stall, hitting Europe's green ambitions.

EuPC urged policy makers in Brussels to stop the tariffs, support SMEs with cost offsets and secure stable raw material supply.

› **www.plasticsconverters.eu**

MCC opens IML production plant in Brazil

MCC Global has opened its sixth in-mould label (IML) facility – with a new facility in Brazil.

The plant – in Louveira, near São Paulo – is adjacent to existing MCC premises that was Flexcoat's label and lamination operations. It is currently the smallest of the company's six IML plants, but has plans to scale up "in the coming years"

Adding the new plant gives converters faster access to labels, localised support and new growth opportunities, says MCC.

The Brazil operation has begun with a "core team" and intends to employ 40 people by the end of the year – along with two working presses.

■ See our feature on In-Mould Decoration on **page 13**.

› **https://iml.mcclabel.com**

Techmer adds colour technology

US-based Techmer PM has acquired Colors for Plastics, a provider of colour concentrates and custom colour solutions.

Techmer says the acquisition enhances its capabilities and expands its product base. Terms of the transaction have not been disclosed.

"This acquisition allows us to leverage the Colors for Plastics team's knowledge and experience in colour technology, further strengthening our position as a leader in the industry" said Mike McHenry, CEO of Techmer PM.

Colors For Plastics was founded in 1972 and has two sites in the US (in Illinois and South Carolina). Current president Robert Dalleska will now become vice president at Techmer.

› **www.techmerpm.com**

Engel reports sales fall in 2024 financial year

Machinery maker Engel reported a fall in sales for 2024 – but said it "held its ground" against European injection moulding competitors.

The company said sales fell 10% to €1.5 billion for the financial year, though the company says it has expanded its market share.

"We have learnt to remain capable of action during crises – and prove that we can act reliably and with foresight even under difficult conditions," said Stefan Engleder, CEO of Engel.

While "structural uncertainties" continue in the automotive sector, he said interest was growing in solutions for lightweight construction and alternative materials. In technical injection moulding, he says Engel grew its market position through "expertise in applications technology". Its packaging division was more resilient, thanks to increased demand. The medical division remained stable, with interest in applications like auto-injectors helping to offset a slight decline.

IMAGE: ENGEL

Engleder: "We have learnt to remain capable of action during crises"

The company says it also launched initiatives to enhance automation and service.

"Our goal remains to ensure maximum system availability throughout the entire lifecycle," said Engleder.

Part of this involves employee development, he added – with nearly 400 apprentices worldwide currently completing their training.

■ Engel has acquired its long-standing sales partner Roegele in Spain, and established a new subsidiary, Engel Spain.

Until recently, more than 90% of Roegele's business was centred around Engel products.

"We see considerable potential in Spain – not only in packaging but also in technical injection moulding," said Engleder. "Following more than 50 years of successful partnership, this acquisition is a logical next step."

› **www.engelglobal.com**

Domo expands operations in India

Polyamide producer Domo Chemicals has increased its compounding operations in India. It said the expansion of its Mumbai facility will strengthen its position in the region – expanding its portfolio of materials based on polyamides and other resins.

"The new line shortens the delivery timeline for our Indian and other Asian customers," said Soumya Mishra, head of EM Business India at Domo. "It will be accompanied by increased technical support from our local R&D team to help our clients achieve their innovation ambitions."

IMAGE: DOMO

Polyamide producer Domo is raising compounding capacity in India

India's rapid industrial growth, especially in e-mobility and electronics, is fuelling the need for lightweight, flame- and heat-resistant and sustainable materials.

Domo's extra capacity will produce locally high-value engineered plastics based on polyamides and other resins, for applications such as electronic connectors, smart devices and automotive components.

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Preform and design lead to light PET bottle

German packaging specialist KHS says it has created one of the lightest PET bottles – thanks in part to preform technology from Husky of Canada.

Under the working title of Factor 101, it has produced a container that uses 5.89g of material to hold 591ml of product – equivalent to a 20-ounce bottle in the US. It originally launched its 'Factor 100' concept as a feasibility study in 2017, with a PET bottle weighing around 5g holding 500ml. Following several optimisations, it has now arrived at Factor 101.

To achieve a high 'top load' threshold, the container shape had to be adapted – as did the preform.

"The preform design needed to be developed further," said Fabian Osterhold, a packaging designer at KHS. "This is why we joined forces with the Husky."

KHS and Husky have teamed up to create "one of the world's lightest PET bottles"

IMAGE: JÖRG SCHWALFENBERG

The stretching factors from blank to bottle – and the resulting preform dimensions – were vital. The relation of length to wall thickness is especially relevant to injection moulding. In this case, KHS addressed the specifications and feasibilities of the stretch blow moulder and bottle design, while Husky made modifications to the preform.

"The focus was on the exact profiling of the preform made possible by KHS technology," said Osterhold.

Compared to the standard lightweight PET container that holds 500ml of still water – which usually weighs 7g on the US market – the KHS/Husky product requires 30% less material. It can also be made entirely from rPET.

Factor 101 was first presented live by Husky at NPE 2024 last year.

"The prime target markets are the US, the Middle East and South America – and the first projects are already in preparation," he said.

› **www.khs.com**
› **www.husky.co**

IN BRIEF...

In 2024, **Aimplas** carried out 299 R&D&I projects with 652 participating companies, surpassed €24m in revenue, and established itself as an innovation driver for over 3,500 companies.
https://www.aimplas.net/

BASF has developed high-flow Ultrason D 1010 G6 U40for E&E components. The blend based on PESU is optimised to allow easy injection moulding of energy-efficient parts in data and energy transmission, smart electronics, and e-mobility.
www.basf.com

Syensqo has announced the launch of HYRA, which stands for Hydrogen Related Applications, a brand extension that will be used to identify polymer materials in its portfolio. It will differentiate standard grades of polymers from those designed to respond to the specific requirements imposed by hydrogen operating environments.
www.syensqo.com

Export rise of 17% boosts Haitian results

Chinese injection moulding machinery maker Haitian reported "record results" in 2024. The company achieved a total sales revenue of RMB16 billion (US$2.2bn), a 23% increase compared to the previous year.

This included robust growth in both domestic and international markets. Domestic sales were RMB10bn (US$1.4bn) – a near-28% increase – driven by strong demand in consumer goods and home appliances in the first half of the year, and a recovery in the automotive sector in the second half. International sales rose 17% to RMB 6,016 million (US$835m), with strong growth in Southeast Asia, North America and South America.

Among key product lines, the servo-hydraulic Mars and all-electric Zhafir models saw strong demand, fuelled by expansion of the consumer goods, home appliances and electronics industries. In total the company delivered more than 53,000 units in 2024, a growth of 36%. This year, it plans to expand internationally, with new factories in Japan and Serbia set to begin production in 2025.

"We will continue to provide customised solutions and value-added services to expand our markets from single-machine sales to overall solutions," said Zhang Bin, CEO of Haitian International.

› **https://haitianinter.com**

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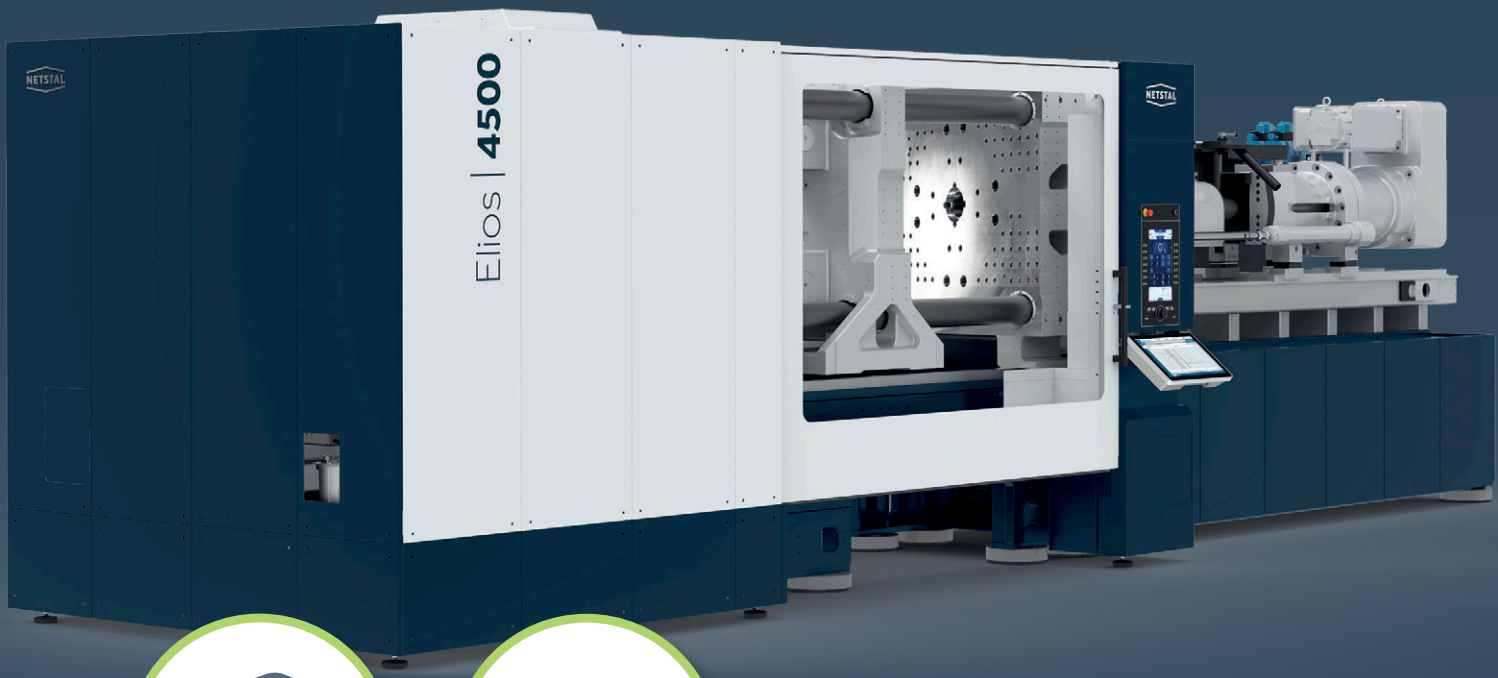

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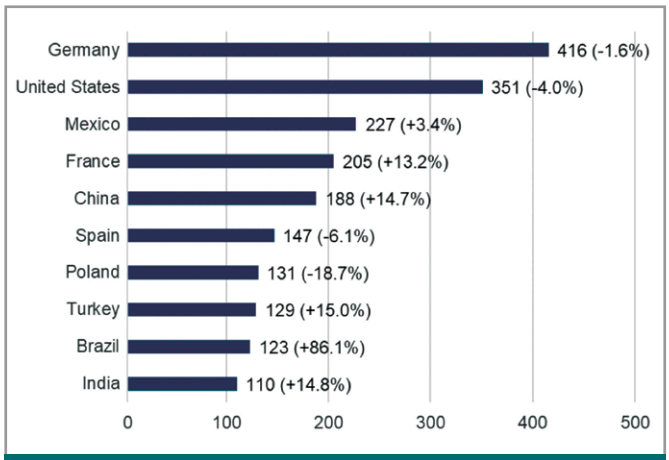

Main destinations of Italian plastics machinery, 2024
Source: AMAPLAST

Amaplast, the trade association for Italian plastics and rubber machinery manufacturers, says sales from its members fell slightly in 2024, despite rising exports.

Although Amaplast and the MECS Statistical Study Centre did not report the exact figure, they said sales were down by about 2% compared to 2023 – putting the final figure at around €4.7 billion.

The dip comes despite a near-2% rise in exports – reaching a total of just over €3.6bn. This is the fourth consecutive year in which exports have increased – helping to offset losses in the domestic market, said Amaplast. Exports make up nearly three-quarters of sales, it added.

Export highlights included increased deliveries to Mexico, France, China, Turkey, Brazil and India, but reductions to the US, Spain, Poland and Germany.

"Nonetheless, Germany remains the top destination for Italian exports," it said. "This appears even more encouraging when compared to the results of German manufacturers – who saw a 30% collapse in domestic sales and order intake in 2024."

Export markets that grew include Turkey (15%) and Brazil (86%) – which it called "an all-time record driven by strong demand for high-tech machinery" – while China and India both saw increased sales of 15%. Declining markets include Spain (6%), Poland (19%), US (4%) and Romania (20%).

Exports of extruders and injection moulding machines fell by 7%, while flexographic printing machines grew 5%.

Italian manufacturers have already seen encouraging signs this year, though a turnaround – or more pronounced stabilisation of indicators – may not be seen until the second half of the year, it said.

› **www.amaplast.org**

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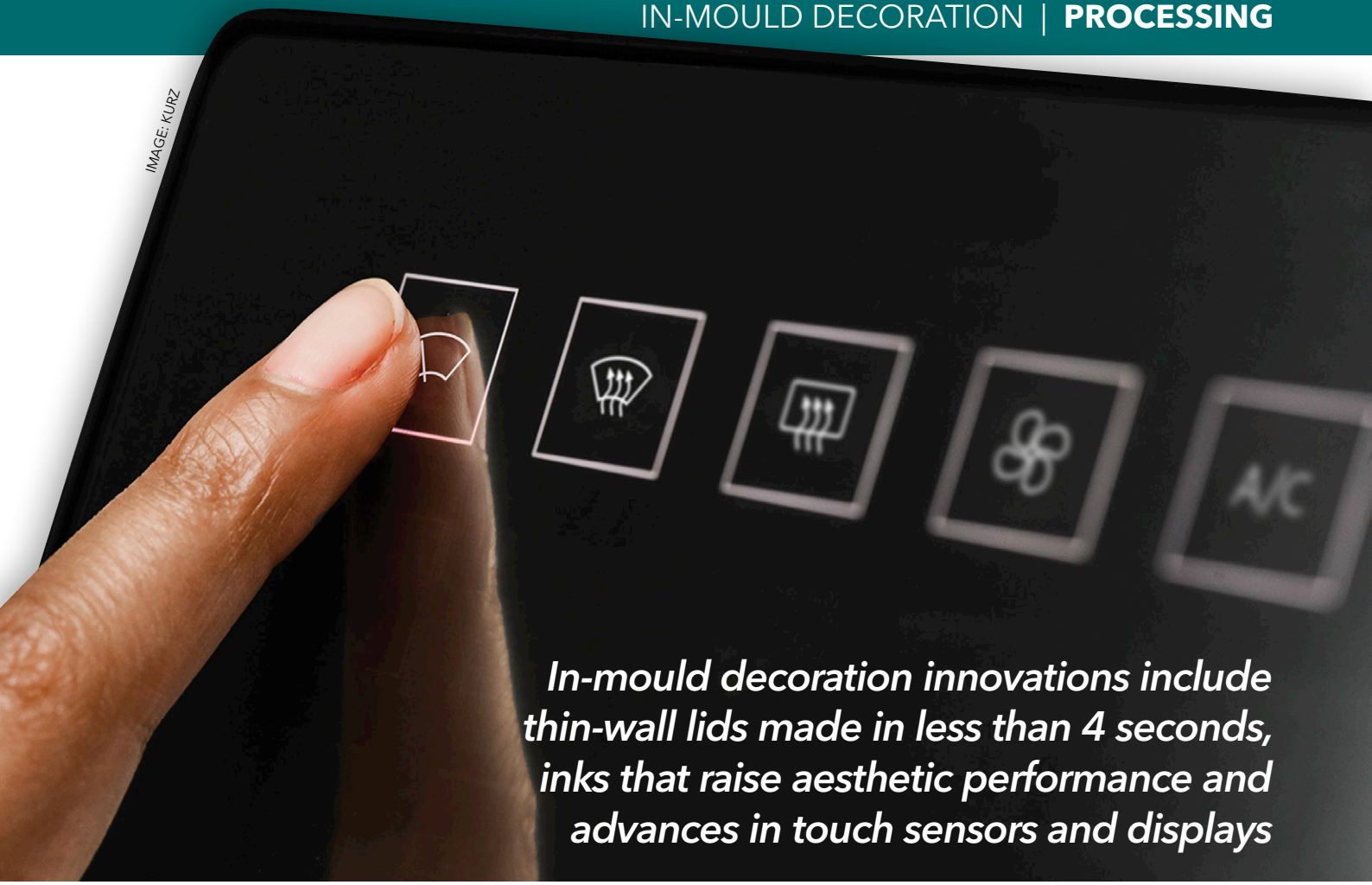

IMAGE: KURZ

In-mould decoration innovations include thin-wall lids made in less than 4 seconds, inks that raise aesthetic performance and advances in touch sensors and displays

Embedded benefits: in-mould decoration

In-mould decoration (IMD) is typically used to produce packaging labels. Because they are incorporated into the packaging, they usually have no need for adhesives – meaning they are usually straightforward to recycle.

German thin-film specialist **Leonhard Kurz** has showcased several new decoration technologies at recent exhibitions.

At Embedded World earlier this year, Kurz and its subsidiary **PolyIC** showed innovations in touch sensors, display integration and functional decoration – for applications such as automotive interiors and home appliances.

One was the Hidden Display, developed with display integration specialist for high Data Modul. When deactivated, the surface appears as an elegant decor – such as in wood or stone optics – and only reveals a full LCD display after activation. This is made possible by thin-film technology from Kurz, which is used to manufacture the hidden display. "The combination of highly developed sensor technology and appealing design opens up new application possibilities for operating and display concepts," said Wolfgang Clemens, director of product management and business development at PolyIC.

Kurz has also combined IMD with a new coating technology that reduces reflections. The finishing technique is suitable for a range of plastic materials and is suitable for functional and design innovations, says the company. New display stacks, developed with Elektrobit, are a possible alternative to conventional glass. Plastic replaces the front screen and is combined with IMD-decorated surfaces and integrated touch sensors.

The technology combines the design flexibility of plastic with the performance of capacitive touch systems. The front of the injection-moulded polycarbonate display panels is finished using IMD, while the back has conductive metal mesh sensors. Another collaboration, with AMS Osram, has led to a new way to integrate mini-LEDs into 3D surfaces has been developed. The interaction of IMD and functional foil bonding (FFB) enables the imple-

Main image: Kurz displayed a number of new technologies at Embedded World earlier this year

IMAGE: PROELL

Above: Proell's Noriphan HTR N 959 was used to create this climate control panel

mentation of intelligent lighting elements. Kurz says this could be used in applications such as ambient light design in vehicle interiors or customisable signal lights.

At last year's International Suppliers Fair (IZB) in Germany, Kurz showed several technologies for the design of decorative and functional surfaces for vehicle interiors and exteriors. One was a front panel that is radar- and LiDAR-permeable. It was manufactured and finished in a single work step, which was made possible by Kurz's IMD process. In combination with hybrid technologies such as laser ablation, hot stamping, or digital printing, it opens new possibilities for decorating and customising the front panel, says the company.

Recyclable option

The US-based **In-Mold Decorating Association** (IMDA) has released a white paper that stresses the recycling advantages of in-mould labels (IMLs).

It describes how in-mould technologies for labelling and decorating yield recyclable and sustainable plastic packaging for a variety of markets and applications. Topics include: an overview of in-mould labelling advantages in recycling; a discussion of in-mould technology's sustainability factors in production environments; design guidance for recyclability; and a case study featuring a packaging application.

Because the substrate used for IML and IMD processes becomes an integral part of the finished part, this simplifies sorting and washing at recycling facilities – as there is no need to remove a paper or film label and adhesive. Instead, the IML or decorative film is made from the same (or similar) resin as the part – such as food packaging – meaning there is no contamination of the recyclate with a different resin or adhesive. As a result, the IML or IMD-made item proceeds through the recycling process and is reground into pellets with the bulk resin. IMD processes also eliminate adhesives – which can affect the colour and mechanical properties of recyclate.

The white paper says claims about the recyclability of IML and IMD packaging are supported by third-party recommendations, designations, testing and certification. For instance, the Association of Plastic Recyclers (APR) has designated IML as a 'Preferred' labelling method for polypropylene (PP) and high-density polyethylene (HDPE) when labels of a compatible polymer are used because it is bonded with the wall of the package/part. APR adds that the lack of adhesive also helps recycling.

At the same time, 'Design for Recycling Guidelines' by RecyClass has designated IML for both PP containers and HDPE containers and tubes as "fully compatible with coloured PP recycling when the amount of ink is below 1% of the total weight of the full packaging".

The white paper is available free to IMDA members.

Ink options

At last year's Fakuma, Germany-based **Proell** introduced several inks for in-mould decoration (IMD) and film insert moulding (FIM) applications.

Its Noriphan HTR N 990/011 NC is a non-conductive black screen printing ink for FIM. The carbon black-free product is available for printed electronic applications.

The colour shade has high optical density, an electrical resistance in the giga ohm range and is radar transmissible. It can be used for decorative prints but is mainly for multi-layer pre-printing (under-layering) for metallic and polymer conductive pastes. It also meets increased requirements for thermal resistance and the demanding hydrolysis test in the automotive industry. The colour shade has been formulated and optimised regarding the interlayer adhesion and shows good adhesion in compound values in the final film/ink/injection material composition.

Another grade, Noriphan HTR N 959 IR transparent black screen-printing ink, is for functional touch panel applications. The shade has a black appearance in incident light. Under transmitted light the shades appear transparent. It is suited to IR and LIDAR transmitting areas in display and touch panel applications. At the same time, HTR N 945/546 is a special adjusted UV stabilised white, which can be used for BEV front modules. Front modules for electric cars will be decorative, multi-coloured and functional. The screen-printed ink layers are located between a film and coating compound, so the IMD/FIM screen printing inks are protected by the transparent films and hard coat layers. However, the weathering stress on a white screen-printed ink layer is high, so a special pigmentation is needed to stabiliser the colour shade.

Meanwhile, Noriphan N2K non-conductive

screen-printing ink for IMD/FIM is optimised for processing thin PC films (less than 175 microns). Films decorated with it show no curling effect, says Proell. The ink system is typically used for printed electronics. The deep black and opaquely formulated N2K 953 is suitable for the decoration of touch panels and shows high electrical resistance in capacitive applications. It meets the increased requirements regarding thermal resistance and the demanding hydrolysis test in the automotive industry.

Brazil opening

MCC Global has opened a new in-mould label (IML) facility in Brazil. The new plant in Louveira, near São Paulo, opened in April. It is adjacent to an existing MCC plant that was formerly Flexcoat's label and lamination operations.

The opening means that MCC now prints IML labels in six global locations, which it says gives converters faster access to labels, localised support and new growth opportunities.

"Customer centricity is one of our key pillars," said Mathieu Nieuwenhuyse, managing director of the IML business at MCC. "Our aim is to always be close to customers and, support them in their own language. Our Brazil-based sales representative has been instrumental in building our local presence over the last few years."


IMAGE: MCC

Above: MCC says its new IML facility in Brazil will bring it closer to customers

IML cups

At NPE last year, **Arburg** used injection compression moulding on an electric Allrounder 720 A Ultimate to produce thin-walled cups with an in-mould label (IML).

The 2,900 kN machine has a size 1300 injection

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unit that is optimised for high performance. Thanks to high-precision servo motors from sister company AMKmotion, high injection volume flows and injection speeds of up to 400mm per second could be achieved. The exhibit used a four-cavity mould from Brink to produce thin-walled IML round cups from polypropylene (PP). For process monitoring, the mould was equipped with six inductive position-measuring and embossing sensors. Four moulded parts, each weighing 10.8g and with a wall thickness of 0.37mm, were made in a cycle time of 3.95 seconds. The production cell also included a side-entry robot from Brink that inserted the labels, removeed the finished cups and stacked them on a conveyor belt.

The use of injection compression moulding on an electric machine helped to improve energy footprint by 20% and reduce part weight from 13.0 to 10.8 grams. The flowpath-to-wall-thickness ratio was 380:1. This would normally need a very high injection pressure – at the expense of energy requirements and mould wear. However, injection compression moulding required a much lower injection pressure and could work with mould temperatures of 20°C rather than 12°C.

The special 'Next Cycle IML' label can be separated from the PP of the cup during recycling, so the product can be easily recycled after use. In contrast to thermoforming, no pre-produced foils are used and no stamping waste is produced, says the company.

Arburg ran a similar demonstration at its recent Technology Days event, producing four IML lids – for rectangular margarine containers, each weighing 6.5g with a wall thickness of 0.35mm – in a cycle time of around 3.5 seconds. Thanks to Recypeel technology, from **iPB Printing**, the label can be completely separated from the plastic in the recycling process. Here, the top layer of the label – including the ink – separates during recycling, leaving behind pure plastic that can be reused.

CLICK ON THE LINKS FOR MORE INFORMATION:

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Moving ahead: advances in automotive materials

As well as developing new resins with higher temperature and chemical resistance, developers are also focused on materials with a greater proportion of recyclate

The automotive industry is at the forefront of injection moulding applications, with plastic components now commonplace in bumpers, exterior panels and interior components. This is because they can fulfil the necessary durability, mechanical performance and – increasingly – sustainable performance.

BASF has expanded its portfolio of Ultramid Advanced T1000 – for durable parts that require special thermal management. The polyphthalamide (PPA) range, based on polyamide 6T/6I, now includes optimised grades with high purity and hydrolysis resistance (HR). This addresses the increasing needs of the automotive industry for combustion engines and electric motors with inverters or fuel cells that have stable, long-term performance at high power output in the presence of different cooling media. The new HR and EQ grades combine high strength and stiffness at high temperatures with good creep strength and resistance against cooling media – outperforming standard polyamides and many other PPAs on the market, says BASF.

The hydrolysis-resistant T1300HG7 HR shows high chemical and dimensional stability in contact with media such as glycol, thermal oil and water at 130°C and more. This helps prolong the service life of automotive parts in the cooling system, such as thermostat housings and oil inlets/outlets. In tests, the PPA successfully proved that it can withstand a continuous use temperature of 130°C for 1,000 hours – and even 3,000 hours – in a mixture of ethylene glycol and water.

The pure T1300EG7 EQ contains hardly any electrically active ingredients, yet still resists heat ageing in contact with water, hydrogen or high-purity cooling media such as Glysantin FC G20. Its thermal stability stretches from - 40°C to 100°C. This makes it suitable for e-mobility and fuel cell applications such as end plates, media distribution parts or

BASF has added two specialist PPAs for parts that require special thermal management IMAGE: BASF

Opel's Grandland Electric SUV has an illuminated insignia made from Roehm's Plexiglas

humidifiers. These benefit from the material's stable mechanical properties across varying temperatures during the whole lifetime (minimum requirement of 25,000 hours) of the electric vehicle. EQ grades are subject to special quality standards that cover raw material selection, the production process and analysis of halogen content.

"We understand the increasing challenges of thermal management under harsh conditions for PPAs," said Marc Keller of global marketing PPAs at BASF. "With the new HR and EQ grades, we enable our customers to meet these challenges while maintaining performance and safety of their applications."

As well as the new HR and EQ grades, BASF offers T1000 LT grades for parts that require laser-welding.

Bright idea

The new Grandland Electric SUV from Opel includes an illuminated insignia made from Plexiglas PMMA, from **Röhm**.

Hella Lighting produced the multi-part rear light using Plexiglas moulding compounds. The three-dimensional lettering is injection-moulded in one piece. The letters are approximately 30mm high and long, and 10nn deep.

"The challenge is to achieve uniform thickness and avoid cracks and sink marks," said Samuel Tomka, head of the optical development department at Hella Slovakia.

The grade chosen has maximum optical purity and light-guiding properties, a high heat deflection temperature and mechanical stability.

Rafal Czokow, senior business manager in Röhm's moulding compounds business, added: "Thanks to its well-balanced melt viscosity, the moulding compound is well suited for injection moulding and offers great freedom of design."

Because the lettering is part of the rear light, it must follow international regulations for vehicle lighting. This is why the Opel brand is also illuminated in red (the required colour for rear lights). Thanks to a fine surface structure, the red light of the LEDs is emitted only through the front of the otherwise crystal-clear letters.

Hella makes the transparent cover from the same material because – as well as its transparency – it has good UV- and weather-resistance, so will not yellow over time.

Chemical resistance

Sabic has introduced its LNP Elcres CXL PC range of copolymers to address high chemical exposure in industries including automotive.

The new resins have high chemical resistance, exceeding the performance of amorphous materials like polycarbonate (PC) resins and ABS blends, it says. Testing revealed that LNP Elcres CXL copolymer resins were resistant to diverse chemicals including gasoline, antifreeze and brake fluid.

"These resins can help keep pace with the increasing risks of performance and aesthetic degradation posed by more-widespread use of chemicals," said Scott Fisher, general manager for technology in Sabic Polymers specialities business.

The portfolio includes opaque and transparent non-flame retardant (FR) grades, opaque, thin-wall FR grades and glass-reinforced options. The materials also have features such as non-brominated/non-chlorinated FR at thin gauges, low-temperature ductility (down to -60°C), high flow for easy processing and good colourability to meet aesthetic requirements.

Flame performance

The Fraunhofer Institute for Structural Durability and System Reliability (LBF) is looking for partners in a project to incorporate halogen-free flame retardants (HFFRs) into recycled materials – for use in industries including automotive.

The project, HFFR-Up2Cycle, will investigate these materials by simulating closed-loop processes for plastics containing flame retardants. It is aimed at OEMs, manufacturers of plastic components, raw material suppliers, compound developers and industry associations.

Due to the likely introduction of recycling quotas in many industries – and the associated increasing demand for recycled plastics – the project will focus on upgrading materials for use in high-quality HFFR applications. The tailor-made re-stabilisation of the recycled plastics used is intended to show how targeted upgrading of recyclates can help to achieve recycle quotas and circular applications

for plastics that contain flame retardants. The project investigates the flammability of processed and recycled PCR materials such as polyolefins (PP, PE), PET, PC/ABS, PA and flexible PU foam.

LBR aims to optimise the formulations to achieve the best flame retardant ratings – and mechanical and long-term properties. In addition, it will identify strategies to improve available recyclates coming from low value streams into selected higher value flame retardant applications. The selection and characterisation of commercially available PCR materials and the analytical evaluation of flame retardants in PCR polymers, including testing of closed-loop processes, are driving the project.

Fraunhofer is looking for partners with whom it can implement research findings, to close the gap between basic research and industrial development. Together, they want to develop customised solutions for current challenges in the plastics industry.

The project is scheduled to begin in July 2025 – if LBR can build a team of eight partners.

IMAGE: FRAUNHOFER LBF

Above: Fraunhofer LBF is incorporating halogen-free flame retardants into recycled materials

Exterior benefits

Lyondellbasell (LYB) has supplied Dacia with a recycled material that is used on exterior parts on its All-New Duster model.

Dacia's Starkle material is based on LYB's CirculenRecover polypropylene (PP) compounds, which incorporate recycled materials. Dacia has used it for external parts including bumpers, trims and body side mouldings.

"This innovative material not only elevates the aesthetics of vehicles but also aligns with our customers' sustainability goals," said Alexandre Martin, business development manager for

IMAGE: LYONDELL BASELL

Above: LYB has developed PP-based foaming material for the interior of the new Renault Rafale

transportation at LYB.

The material includes 20% recycled PP from mechanical recycling, derived from post-industrial waste diverted from the manufacturing process of goods such as flexible packaging. It reduces CO_2 emissions compared to using virgin materials.

Beyond achieving performance for automotive exteriors, CirculenRecover polymers offer a mould-in-colour special effect with particles to highlight the use of recycled content. This single-material solution eliminates extra steps, enhances design efficiency, and can help improve the potential recyclability of the parts.

Damien Laplane, cross car line and brand experience leader at Dacia, added: "This serves as a powerful demonstration that recycled materials can be aesthetically pleasing and high performing."

LYB has also collaborated with Renault and Antolin on its Hostacom TYC 2463F E2 foaming material for the interior of the new Renault Rafale.

The new PP compound allows interior parts with elaborate designs, enhanced surface textures, scratch resistance, and low emissions, says LYB.

Benefits of the grade include high flowability, an expanded processing window and high melt strength. A chemical blowing agent also allows for significant weight saving, while the semi-ductile nature of the material extends its use in various interior trim parts.

"This material innovation reflects our commitment to help craft vehicles that excel in both performance and sustainability," said Martin.

Using the material in serial production is the result of more than five years of collaboration between the partners.

Both these developments were seen at last year's Fakuma – where LYB also launched a new Schulamid grade for the automotive industry

Schulamid ET100 is a polyamide-based compound product for automotive interior structural solutions such as door window frames.

Benefits of Schulamid ET100 include: enhanced surface aesthetics; improved durability; suitable rigidity; and a customisable style.

Schulamid ET100 GF15 has already been implemented in window frames by Chinese OEM brands. LYB plans to expand the product line's development and promotion to encompass more automakers and applications.

Recycled grilles

Audi has begun mass-producing painted radiator grilles made with recycled content.

The grilles, made using polycarbonate (PC) and PET recyclates, are used on the new Audi A3 Sportback and Audi A3 Sedan. They were developed by Audi, plastics converter **Winning Plastics**, and materials supplier **Mocom**.

"Our objective is to systematically increase the use of recycled materials in Audi vehicles," said Frank Fischer of Audi's materials engineering department.

The radiator grille for the new A3 contains "a significant portion" of secondary raw materials for the first time – while meeting high standards in design, appearance, quality and mechanical performance.

Suitable recyclates were not available 'off-the-shelf', so Winning Plastics and Mocom developed a recycled compound that partially incorporated painted scrap components from Winning's production.

"Standard recycling methods for scrap parts leave too many contaminants and paint residues, making it impossible to reuse the material in a new radiator grille," said Werner Meschitz, head of innovations at Winning Plastics. "Mocom's innovative process, particularly in paint removal, ensures the required purity of the recyclate, enabling a closed-loop recycling system."

The process begins with scrap production parts – in this case, painted radiator grilles with cosmetic defects such as dust inclusions. These are shredded into 30mm pieces, then processed in a hammer mill. Here, the paint is removed through friction, and the debris vacuumed away. The 'clean' PC/PET material is then processed into regranulate and blended – at a nominal 27% – into the production of new radiator grilles.

Circular headlamps

Covestro has introduced a new line of post-consumer recycled (PCR) polycarbonates made from end-of-life automotive headlamps.

Developed in a joint programme initiated by the

IMAGE: COVESTRO

Covestro's new line of recycled polycarbonates is made from old car headlamps

German federal enterprise GIZ, with Volkswagen and NIO as key partners, the grades contain 50% recycled content and are commercially available for new automotive applications. Volkswagen and NIO are already validating the material for potential use in future vehicle designs.

"This new line of polycarbonate represents a significant step in supporting the automotive industry's transformation towards a circular future," said Lily Wang, global head of engineering plastics at Covestro. "PCR materials derived from end-of-life headlamps enable customers to meet increasingly stringent regulatory requirements."

Covestro has also been collaborating with partners such as Chinese recycler Ausell to establish closed-loop pathways for high-value plastics from end-of-life vehicles (ELVs).

The new PCR grades will help automotive companies comply with new rules including the EU's End-of-Life Vehicle Directive – which sets recycling targets – and China's Extended Producer Responsibility (EPR) programme, says Covestro.

Recycled quality

Mouldmaker **Simoldes Plastics** and materials supplier **Polykemi** have found that recyclate-based resins can perform as well as virgin materials in moulding tests.

The joint project began as a request from Simoldes' automotive industry customers, who wanted to raise the proportion of recycled plastic in their products. This led to closer collaboration between the two companies, who tested and evaluated how recyclate-based plastics behave in tools previously only used for virgin materials.

The parts in this project were interior door frames and panels. All tests showed that recycled plastics performed well in the moulds, without the need for any changes.

"Evaluations have shown that our processes work well with engineering thermoplastics based on mechanical recycled content – in the way we would expect with virgin materials," said Mariusz Nowak, project manager research and innovation at Simoldes Plastics. "With the reliable partners at supply chain, we're ready to begin serial production."

When virgin materials are replaced with recycled materials, Simoldes can show precise emission savings using Polykemi's analysis. The key to the reduction lies in making conscious material choices.

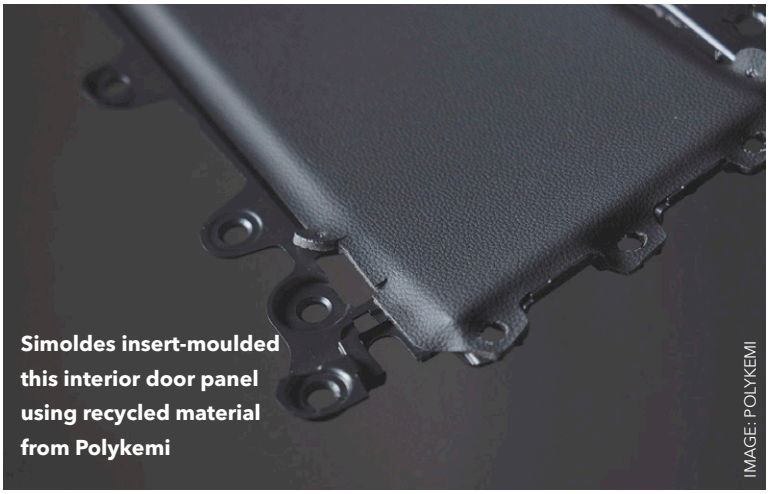
Jörgen Olsson, technical manager at Polykemi, added: "Our initial calculations show that Simoldes will lower its CO2 emissions by 54-68% per manufactured part."

The tests also evaluated how recycled materials cope with processes such as insert moulding. Results from tests involving ABS injection moulding using recycled materials and either textile or foil in the moulds were equivalent to those from injection moulding using new materials.

"The ability of recycled materials to cope with such a process is a testament to its high quality," said Olsson. "Old perceptions that recycled raw materials provide poor results and are more difficult to process can now be discarded."

Interior benefit

Simoldes is also working with **Elix Polymers** to incorporate more recycled materials into premium vehicle interiors. ›



Simoldes insert-moulded this interior door panel using recycled material from Polykemi

IMAGE: POLYKEMI

IMAGE: ELIX POLYMERS

Right: Elix Polymers is helping Simoldes use more recycled materials in vehicle interiors

In its Boost project, Simoldes aims to increase the use of renewable materials by 40% during the development phase of its products. This is where E-Loop products from Elix come in, as they have mechanical recycled content. A technical validation process has been carried with a PC/ABS material, which has 30% post-consumer recyclate content. The validation included mechanical, thermal, processability, odour and emission performance against the requirements for automotive interior non-visible safety products. The product has shown equivalent properties compared to the traditional prime materials, but the carbon footprint can be reduced by up to a 40%.

Highly demanding upper interior pillars with airbag have been injected in a unique lower injection process supported by moulds from Simoldes to produce textile-covered parts. Also, visible decorative parts for door panels with class A surfaces have been part of the evaluation programme. The parts have been presented to automotive OEMs.

IMAGE: SYENSQO

Above: Vartega's EasyFeed bundles can boost carbon fibre use in thermoplastic compounding

Carbon cycle

In another collaboration, **Syensqo** and **Vartega** will combine their talents to increase the use of recycled carbon fibre products in high performance applications such as automotive.

The partnership will use Vartega's process to convert Syensqo's dry carbon fibre and prepreg waste – from its North American sites – into Vartega's carbon fibre EasyFeed bundles. The recycled material will then be integrated into Syensqo's carbon fibre-reinforced Echo portfolio of speciality polymers, which is used in the automotive industry for structural parts, dampening rings and transmission-related applications.

"This gives composites waste a second life while enabling a significant reduction to the product carbon footprint," said Andrew Maxey, CEO of Vartega. "We are pleased to collaborate with Syensqo to advance this closed loop model."

Interior grades

Avient recently extended its Resound REC range of thermoplastic elastomers (TPEs) – which contain recycled content – with a range for automotive interiors.

Its new AF 7210 grades are aimed at applications such as mats, grips and console trays and supports proposed targets from the European Commission on the End-of-Life Vehicles (ELV) Directive – stipulating that a minimum of 25% of plastics used in vehicles sold after 2030 must come from post-consumer recycled (PCR) materials.

The new grades contain 51-59% recycled content, with a minimum of 37% from PCR sources, including closed-loop feedstock. They provide comparable performance to 100% virgin equivalents and meet various OEM specifications, says Avient – while offering an 8-18% reduction in product carbon footprint (PCF) compared to virgin grades.

"Using recycled and more sustainable materials has long been a focus in the automotive industry," said Matt Mitchell, director of global marketing for speciality engineered materials at Avient. "These

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IMAGE: AVIENT

Left: Avient has extended its Resound REC range of TPEs with a range for automotive interiors

new grades offer over the minimum 25% recycled content required by the directive, helping customers towards compliance."

The grades are available in hardnesses of 43-90 Shore A and can be used for overmoulding onto polypropylene (PP) substrates. They have good UV stability and meet standards for volatile organic compounds (VOCs) and fogging, making them acceptable for use in interior automotive applications.

Under the hood

Portugal-based **Cabopol Polymer Compounds** has introduced a new grade of its R-Lacoflex TPE – for automotive under-the-hood applications. The grade integrates up to 25% recycled material, sourced from post-industrial recycling. The company claims this offers a 29% reduction in carbon footprint value compared to previous materials.

"By integrating recycled content into our formulations, we are meeting the quality standards expected in the automotive industry and contributing to a greener future," said Anselmo Mendes, head of sales at Cabopol.

R-Lacoflex compounds were designed for critical components such as air guides for cooling systems, offering good heat and ageing properties, ensuring long-term reliability in demanding conditions.

SPE winners

Celanese recently won SPE awards in three separate categories.

In the chassis/hardware category, it won for its design of half shaft rear axle diaphragm boots. Neapco developed injection-moulded diaphragm boots to replace blow-moulded designs for the 2024 Ford E-Transit. High MFR, low-viscosity Hytrel TPC-ET from Celanese brought high flex fatigue resistance – as well as a 15% weight reduction and 17% material savings.

In powertrain, its Zytel PA66 was used in a coolant hub. Cooper Standard Automotive created a leak-tight hub for the 2025 Ford Mustang Mach E to improve EV coolant system efficiency. Integrating multiple tubes, fittings and connectors into a compact manifold reduced tubing length by 1.23m and system weight by 5%. It achieved a 50% reduction in packaging space and a decrease in coolant pressure drop. Zytel PA66 was used in the three moulded components of the laser-welded hub.

And, in safety, Grand Traverse Plastics designed a busbar cable support bracket for the 2025 Cadillac Celestiq. It prevents thermal runaway and high-voltage arcing by minimising cable motion

IMAGE: CABOPOL

Left: Cabopol new R-Lacoflex grade of TPE is aimed at automotive under-the-hood applications

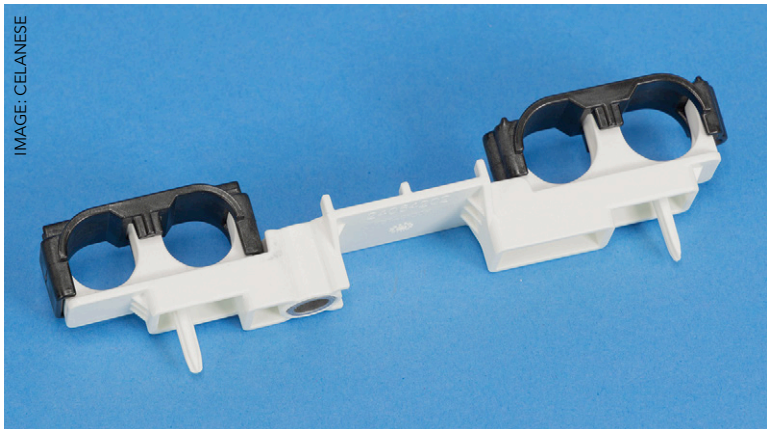
IMAGE: CELANESE

Above: Celanese won an SPE award for this busbar cable support bracket

and eliminates more than 10 fasteners, to simplify assembly. UL94 Celanex PBT and PPS enabled removal of a metallic retention feature and a snap-fit design.

The ergonomic design reduced assembly time and scrap costs by up to 99%.

"These innovations highlight the benefit of collaborating with us early in the design phase, resulting in materials and components that point towards a more sustainable and resilient automotive future," said Carl Sullivan, automotive market development director for Celanese.

Air intake

In addition, an air intake manifold made of 100% Renycle – a grade of recycled polyamide from **Radici** – won an SPE award in the Power Train category.

Air intake manifolds are typically made of nylon, which almost completely replaced metals. Here, the challenge was to use 100% mechanically recycled polyamide for the product – which was designed and manufactured by Marelli – while maintaining performance requirements such as high burst pressure.

Radici says the material has a 70% lower carbon footprint – measured using

LCA methodology – compared to the equivalent virgin material.

Critical component

Envalior – in collaboration with Ford – also won an SPE award for its contribution towards making a re-engineered exhaust gas recirculation (EGR) cold tube and diffuser.

By replacing stainless steel with Envalior's Xytron PPS material, the part has high chemical resistance and a 28% lower weight. The EGR cold tube and

diffuser can now withstand a highly acidic environment with pH levels of 2.2 and temperatures up to 200°C. The new design also eliminates the need for multiple components, including a gasket, O-ring and fasteners, resulting in a simplified part that directly integrates into the air intake assembly.

"This validates our commitment to material innovation and the collaborative expertise of our team," said Russ Bloomfield, application development engineer at Envalior.

Other partners in the project were Sogefi – the Tier 1 supplier for the EGR assembly – and Viking Plastics, which moulds the Xytron EGR tube supplied to Sogefi.

Metal overmoulding

Envalior also showcased a new material – at a recent event organised by the **South German Plastics Centre** (SKZ) – which it says can be used to overmould metal parts.

The material, Pocan BFN4221Z, is a PBT with 20% short glass fibre reinforcement. Advantages of the compound are its high elongation at break (2.9%) and good Charpy impact strength. The elongation at break is even higher than that of comparable PBTs with halogen-containing flame retardants, says the company.

Components made from the new material are more crack-resistant, while connecting elements such as snap fits are easier to design. Its high elongation at break and temperature resistance make it resilient to thermal shock, making it suitable for overmoulding metal components that are exposed to large temperature changes.

The high flame resistance of the compound is evident in the V-0 classification – which applies to all colours with test specimen thicknesses of just 0.4mm. Compared to PBT grades with halogen-containing flame retardants, the material is more resistant to tracking.

With its electrical insulation properties and low water absorption, the material is suited to direct current applications, such as in electromobility. Other possible applications include housings for power capacitors, connectors and plug connectors.

Composite picture

At JEC World in France earlier this year, **Engel** highlighted a fibre-reinforced injection moulded truck storage compartment flap.

The component – for Daimler Trucks, developed by Fraunhofer IMWS – is a winner of a JEC World Innovation Award. The flap has a visually appealing, full-width edge and a closed, all-around edge, both of which are created in a single step along with the core and structural formation. This places high demands on the precision of the injection moulding process and the machine's ability to deliver accurate, reliable results – even under high material stress.

IMAGE: ENGEL

Above: Engel showed a fibre-reinforced injection moulded truck storage compartment flap at JEC World

This component was made as a sandwich part on an Engel injection moulding machine and is the result of the thermoplastic sandwich moulding technology developed at Fraunhofer IMWS. In this process, semi-finished products consisting of a thermoplastic honeycomb core and fibre-reinforced thermoplastic UD tape laminates from project partner ThermHex are thermoformed and can be functionalised via injection moulding in the same process. The continuous, fully automated manufacturing process is designed for high-volume production. This is crucial for the automotive industry, which has large production volumes and short cycle times.

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Recent innovations in masterbatch include PLA- and PPA-based grades, several medical compounds and formulations incorporating carbon fibre and even graphene

IMAGE: XENIA

Perfect blends: recent advances in masterbatch

Masterbatch formulations help injection moulders to create products with extra properties – such as vibrant colours or enhanced physical performance – without needing to create their own formulations from scratch.

Recent innovations include both colours and additives that help moulders to enhance the properties of their products.

For instance, **Xenia** has added its new Whitened Shade option to its portfolio of carbon fibre-reinforced grades.

Carbon fibre-reinforced thermoplastics have typically been limited in aesthetics due to their dark appearance. Despite their mechanical properties, their deep black colour – from the carbon fibre – has restricted their use in industries where colour and design are essential. Xenia says the new grade overcomes this, enabling new design potential without compromising performance.

Xenia's R&D team modified the base colour of carbon fibre-reinforced composites to a lighter, more neutral tone. This allows the material to be coloured using masterbatches during both injection moulding and 3D printing with pellets.

The range of applications includes aerospace, motorsport and sporting goods – such as ski bindings and ski boots. It also has potential in the watch industry, such as for watch cases, and as frames in the eyewear industry.

The materials are available across all Xenia's carbon fibre-reinforced grades, allowing customers to select a polymer base and reinforce it with carbon fibre at levels of 5-40%. The material can be ordered in its natural black colour or in the customisable Whitened Shade version. It is available in a wide range of polymer bases.

Main image: Xenia has added a 'lighter' option to its range of carbon fibre-reinforced grades

CNT enhancement

Insight Polymers & Compounding has introduced new carbon nanotube (CNT) masterbatches in materials including polypropylene and PA66.

The CNT concentrates claim to improve tensile strength and stiffness by 20-100% while maintaining impact strength.

The masterbatches contain 15% CNTs by weight. They can be let down in the associated carrier materials with loadings of 2-7% by weight in the final compound. Results, including improvements in electrical resistance, impact strength, stiffness and strength, vary by polymer and loading.

The concentrates are available in PP, PETG, PA6, PA66, PA12 and PPS, but the company says it can customise compounds with specific polymers and loadings to develop a material for specific customer requirements. It also plans to add other polymers to its concentrate portfolio. ›

IMAGE: BROADWAY

Above: Broadway says its graphene-enhanced masterbatches can boost product properties

"Our [CNT] compounds exhibit the first significant measurable increase in mechanical properties of a thermoplastic compound," said AJ Pasquale, director of operations at Insight Polymers. "Their light weight and lower loadings translate to lighter, stronger end products."

Graphene grades

Broadway has introduced a range of graphene-enhanced masterbatches called Graphenexcel.

The company says it brings the advantages of graphene to plastics manufacturers. The launch is the result of strategic partnerships with graphene suppliers.

Graphenexcel uses the properties of graphene to improve the performance of polymers used across many industries, including automotive, defence, packaging, and consumer goods. Benefits include improvements in strength and durability and the chance for product lightweighting. It is a made-to-order additive masterbatch, with formulations targeted to customer needs. It is compatible with polymers including polyolefins and PET.

Graphene increases the tensile strength of plastics, adding strength and durability to moulded components. This is important in applications such as in automotive parts and protective packaging. Typically, in polypropylene (PP) and polyethylene (PE) applications, a graphene loading of 0.2-0.5% can give a 10-20% improvement in impact resistance and tensile strength.

Other benefits include: increased elastic modulus, for better performance in structural applications; weight reduction, through thin-walling; improved flow during processing, for more efficient manufacturing and better part consistency; and better fire retardancy.

"The combination of strength, conductivity, and versatility will redefine what is possible for our customers," said Stephen Rayner, technical director at Broadway.

Vibrant palette

Ampacet has introduced several new colour masterbatch grades to its portfolio.

One, the Kaleidoscope collection, is "a vibrant palette of transparent colours designed to be layered, unlocking an endless array of custom hues", it says.

"By layering these translucent colours, designers can add depth and visual excitement to a wide range of consumer products," said Mercedes Landazuri, market insight manager at Ampacet.

Compatible with polystyrene and polycarbonate in injection moulding, the eight Kaleidoscope grades have a low LDR and are ideal for applications such as housewares, consumer electronics, toys, appliances and lighting.

In addition, the company has introduced ProVital+ LaserMark, a set of masterbatches for high-contrast laser marking using Nd:YAG lasers on medical devices, in-vitro diagnostic equipment and packaging systems. LaserMark 1001513-EM is a high-definition laser marking solution for dark markings on transparent/translucent, white or light-coloured PE or PP parts; 1001514-EM is an antimony-free technology, for the same purpose.

The masterbatches have been pre-evaluated for biocompatibility according to ISO 10993 part 5, 10 and 23 (cytotoxicity, skin sensitization and irritation) and European Pharmacopeia (Ph. Eur.) 11th edition, monograph 3.1.3. They provide full consistency of formulation with a no-change policy for raw materials at CAS and commercial levels, with manufacturing under consistent process parameters and cleanroom production to minimise cross contamination risks, says Ampacet.

Colour solutions

Avient presented a range of colour and additive solutions at Chinaplas recently.

"We're committed to helping the plastics industry follow the latest regulations while enhancing product performance and making manufacturing more cost-effective," said Say-Eng Lee, vice president and general manager for colours and additives in Asia at Avient.

Solutions at the show included: Cesa non-PFAS process aids for various applications; Hydrocerol chemical foaming agents, which reduce material consumption, part weight, and cycle times in injection-moulded products, while maintaining surface finish and eliminating sink marks; and oxygen scavengers to enable recycling, ColorMatrix Amosorb 4020L.

It also showed two Colorant Chromatics services. Conductive Formulations, for controlled

dispersion and high-quality carbon black, enables high-temperature moulding with higher line speed and no drool for applications in the petroleum and the chemical processing industries. In addition, Transcend colorants – based on polysulphone and Peek – can withstand up to 1,000 autoclave cycles and high-heat sterilisation at 150°C.

The Peek grades were first launched at Medica in November 2024. The pre-coloured compounds were developed with the demands of the healthcare industry in mind, it says.

Deborah Sondag, global marketing manager for Colorant Chromatics at Avient, said: "These Peek pre-coloured compounds can give healthcare manufacturers the flexibility and reliability they need to produce high-quality medical devices."

They are aimed at applications such as dental scalers, surgical robots, medical stock and shapes, and portable cardiac monitoring devices.

HFFR for PP

Tosaf has added a new halogen-free flame retardant (HFFR) for polypropylene (PP), for both extrusion and injection moulding. This will enable more sustainable solutions to meet customer requirements and legal specifications, it says.

FR8719PP is designed to meet the flame-retardancy requirements of PP in injection moulding and extrusion. Even at low concentrations, it helps to prevent the spread of fire and meets stringent safety criteria in applications such as construction and automotive.

The high dispersion of FR8719PP in injection-moulded and extruded PP-based products is one reason for its high efficiency. A relatively low dosage means mechanical properties are largely retained. In addition, the low potential for dye build-up (DBU)

IMAGE: AVIENT

IMAGE: TOTALENERGIES CORBION

Above: TotalEnergies Corbion wants to extend the use of its Luminy PLA to durable applications

offers a processing advantage over other halogen-free solutions.

Tosaf has also developed a PPA-based colour masterbatch carrier system called PPAX.

It allows high processing temperatures, and can be used on products in many different bright colours. Unlike PA66-based masterbatches – which are often used as an alternative for cost reasons – the high thermal stability, good strength, stiffness and toughness values, low moisture absorption and high chemical resistance are retained in coloured injection mouldings. All 28 standard stock RAL colours in the PPAX product range can be laser marked and provide a high-contrast colour change.

Processors using PPAX can take advantage of PPA's high melt temperatures to shorten cycle times, without being limited by the color masterbatch. PPAX-coloured samples have also shown their high light-fastness and weather resistance.

"PPAX enables us to meet the requirements of industries in which electrical and electronic components are exposed to high thermal loads," said Rudolf Reinhart, product manager at Tosaf Color Service.

These include the automotive industry – with its focus on e-mobility – as well as manufacturers of kitchen appliances and white goods.

PLA extension

Polylactic acid (PLA) producer **TotalEnergies Corbion** has teamed up with compounder **Benvic** to create a range of compounds based on its Luminy PLA. It says the partnership will expand the use of bio-based materials in durable applications such as automotive, healthcare, appliances and electric & electronics.

Benvic's Plantura portfolio – which incorporates Luminy PLA – offers bio-based alternatives to conventional plastics such as ABS, PS and PP. By compounding Luminy with other bio-based materials, the partners hope to enhance the functionality and performance of PLA.

"We are excited to extend the use of sustainable PLA compounds," said Hao Ding, global marketing director at TotalEnergies Corbion. "We are confident we can accelerate adoption in key industries, demonstrating the benefits of PLA beyond packaging and food serviceware."

The partnership combines Benvic's expertise in compounding and TotalEnergies Corbion's PLA chemistry know-how. By working together, they aim to position PLA compounds as solutions for industries such as automotive and electronics.

Medical assistance

Americhem has developed the EcoLube MD line of PFAS-free internally lubricated compounds for medical devices and other healthcare applications.

EcoLube MD addresses the need for effective wear and friction reduction: it ensures compliance with current and future regulations, demonstrates environmental stewardship, and reduces environmental impact, says the company.

The pre-lubricated engineered compounds and alloys help manufacturers reduce the wear and friction of moving plastic parts, reduce noise during use and decrease the coefficient of friction for plastic-on-plastic and plastic-on-metal applications. Applications include minimally invasive surgical devices, syringe pumps, prosthetics and surgical robots.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.xeniamaterials.com**
- **https://insightpolymers.com**
- **www.broadwaycolours.com**
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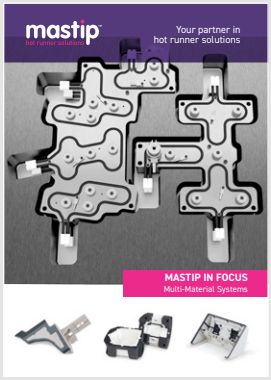
MASTIP: MULTI-MATERIAL MOULDING



This 10-page publication from hot runner technology company Mastip provides guidance on multi-material moulding and includes case studies on a variety of applications and the hot runner system set-up.

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POLYKEMI: CUSTOM COMPOUNDS

This 12-page brochure provides an introduction to Polykemi and its range of custom engineered plastic compounds. It includes details of production locations, subsidiaries, R&D capabilities and quality certifications.

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KORSINI

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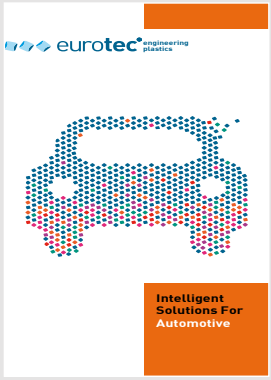

This brochure presents the full range of Eurotec's engineering polymer compounds for automotive applications, including interior, exterior and under the hood. Read all about Eurotec's innovative products and tailor made services.

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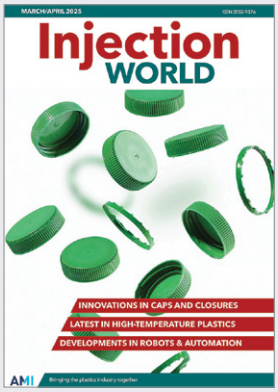

Injection World March/April 2025
The March/April issue of Injection World magazine reports on expert opinion in the caps and closures sector, performance polymers in high-temperature operating environments and the use of AI for automation and robotics in injection moulding.

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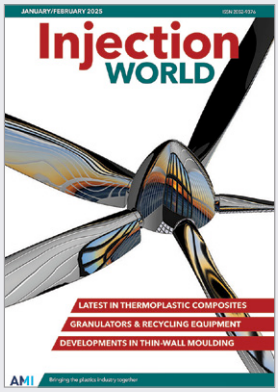

Injection World January/February 2025
The January/February 2025 issue of Injection World provides injection moulding companies with the latest on recycling and granulator technology, recent advances in thin wall moulding and an update on reinforced thermoplastics.

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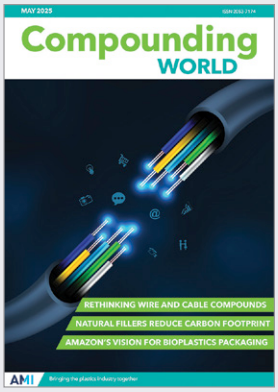

Compounding World May 2025
The May issue of Compounding World contains an interview about Amazon's drive for recyclable bioplastics packaging, plus features on developments in the fast-growing wire and cables market, alternative filler materials, and new 3D printing compounds.

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Plastics Recycling World March/April 2025
Plastics Recycling World's March-April edition investigates additives that benefit recycled plastics, and looks at the latest in melt filtration and PET recycling, plus there's a preview of the conference at GreenPlast 2025 in Italy.

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Pipe and Profile Spring 2025
Features in Pipe and Profile Extrusion's Spring edition find that polyolefin materials are as critical as ever in numerous pipe applications, melt filtration is a hot topic in recycling, and control/ measurement is advancing.

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Film and Sheet May 2025
Film & Sheet Extrusion's May edition issue looks at new applications in the world of waterproof membranes, the use of recycled content in sheet, and the latest dryer and mixer offerings.

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GLOBAL EXHIBITION GUIDE

2025	**27-30 May**	GreenPlast, Milan, Italy	www.greenplast.org
	8-15 October	K2025, Dusseldorf, Germany	www.k-online.com
	3-6 December	PlastEurasia, Istanbul, Turkey	https://plasteurasia.com
2026	**9-12 January**	Plastex, Cairo, Egypt	www.plastexegypt.com
	20-22 January	Swiss Plastics Expo, Lucerne, Switzerland	https://swissplastics-expo.ch
	5-10 February	PlastIndia, New Delhi, India	www.plastindia.org
	10-12 March	JEC World, Paris, France	www.jec-world.events
	7-13 May	Interpack, Dusseldorf, Germany	www.interpack.com
	2-4 June	Interplas, Birmingham, UK	www.interplasuk.com
	2-5 June	Equiplast, Barcelona, Spain	www.equiplast.com

AMI CONFERENCES

17-18 June 2025	Masterbatch, Malaga, Spain
17-18 June 2025	Plastics in Electric Vehicles, Germany
16-17 July 2025	Polymer in Footwear, Portland, OR, USA
19-20 August 2025	Rigid Packaging Forum North America, Cincinnati, USA
26-27 August 2025	Bioplastics, Cleveland, USA
15-17 September 2025	PVC Formulation Europe, Dusseldorf, Germany
16-18 September 2025	Single-Serve Capsules Europe, Malaga, Spain
11 November 2025	Performance Polyamides North America, Cleveland, USA
1-3 December 2025	Fire Resistance in Plastics, Dusseldorf, Germany
2-3 December 2025	Polyolefin Additives, Cologne, Germany
2-3 December 2025	Polymer Engineering for Energy, London, UK
3-4 December 2025	Refillable and Reusable Packaging, Berlin, Germany
11-12 February 2026	PVC Formulation North America, Cleveland, USA
10-11 March 2026	Single-Serve Capsules North America, Tampa, Florida

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