APRIL 2025

ISSN 2053-7174

Compounding WORLD

MEDICAL-GRADE COMPOUNDS FIT THE BILL

PROCESS AIDS UPDATE / PREVIEW: RACE INDIA

IMPACT MODIFICATION / POLYAMIDE ADDITIVES

AMI

Bringing the plastics industry together

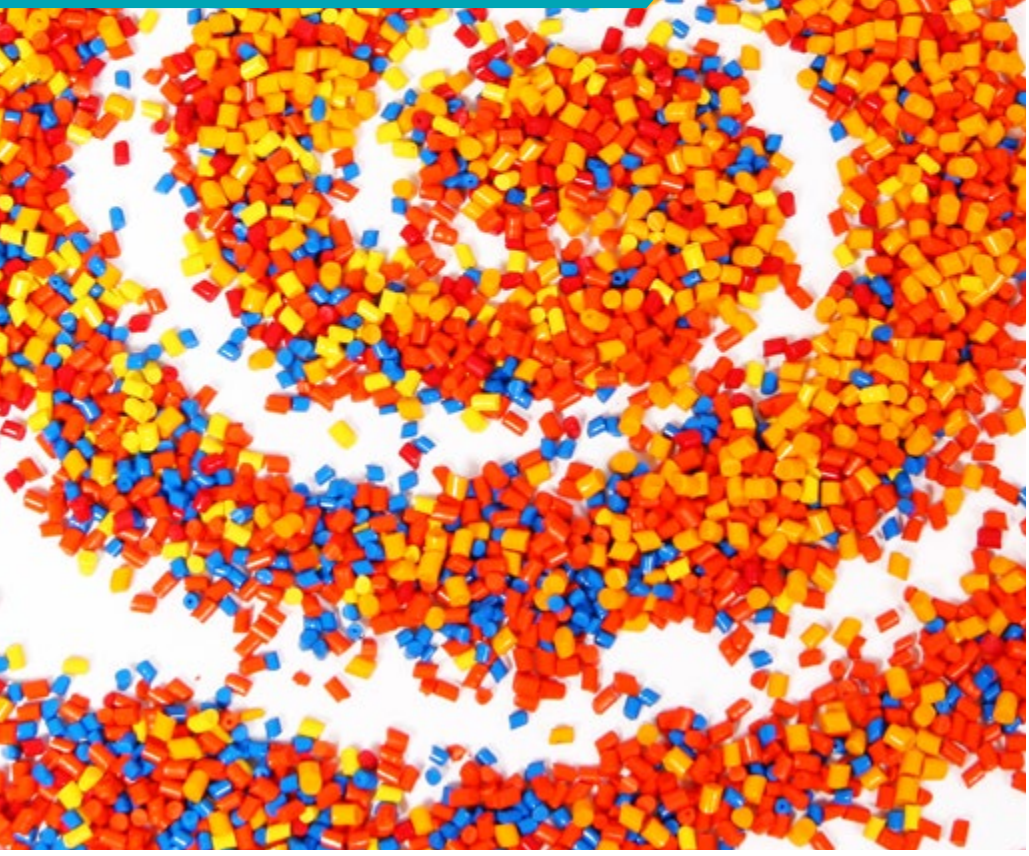
AMI | Events

Masterbatch

17-18 June 2025 | Málaga, Spain

EXPLORE THE AGENDA

Examining new technologies and market opportunities for the masterbatch industry



Hear from experts including:

Hanne Jones
Senior Consultant
AMI

Valeria Branca
Project Manager
EXPRA

Geoffroy Tillieux
Sector Group Manager
EuMBC

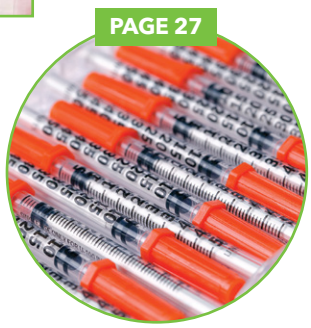
Luis Roca Blay
Leader of Compounding
AIMPLAS

Andrea Remelli
Commercial Director
Rifra Masterbatches

Sponsored by: Cargill™

SECURE YOUR DELEGATE PLACE TODAY

Compounding WORLD



COMING NEXT ISSUE

› Wire & cable › Natural fillers & fibres › 3D print compounds › Compatibilisers

CONTACT US

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

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

DOWNLOAD MEDIA DATA

EDITORIAL

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

Senior Staff Writer: Chris Saunders
chris.saunders@amiplastics.com

Contributing Editor:
Jennifer Markarian – jma@amiplastics.com

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

ADVERTISING

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

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

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

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

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

GCR opens large-scale recycling plant in Spain

GCR Group has opened a new state-of-the-art polyolefins recycling plant in Castellet i la Gornal, Spain, with an annual capacity of over 100,000 tonnes of post-consumer recycled granules and 30,000 tonnes of pre-consumer recycled granules. The high-quality rPP, rHDPE, rLDPE and rLLDPE materials are sold under the Ciclic brand name to customers in the flexible and rigid packaging, personal care, automotive and building and construction sectors.

Production is currently being ramped up and the plant is expected to be at full production in the third quarter of this year, said Sandra Fernandez Freixa, Marketing & Sustainability Director at GCR.

The 130,000 tpa capacity of the plant in Castellet i la Gornal is likely to be expanded in a second phase.

IMAGE: GCR

The facility has 130,000 tpa capacity of recycled polyolefins

The new plant is equipped with technologies, including Erema processing lines, Tomra optical sorting units, and one of the largest hot washing capacities (over 75,000 tpa) in Europe. Other features include PCR deodorising and closed loop water purification.

GCR was formed as a recycling company in 2001 and branched out from recycling to masterbatch production in 2008. The group's Granic masterbatches combine ultrafine minerals like calcium carbonate, talc, or silica, with PE and PP carrier resins, and can account for up to 70% of the final plastic content.

GCR's total production capacity is over 500,000 tpa, including its headquarters facility in La Bisbal del Penedés.

› **https://gcrplasticsolutions.com**

Lanxess additives sales fall

In fiscal year 2024, Lanxess says it significantly boosted its earnings despite the difficult global economic situation, its EBITDA increasing by 19.9% to €614m from €512m in 2023. Although nearly all business units were able to increase their sales volumes, group sales decreased by 5.2% to €6.37bn.

The sales decline was mainly due to lower sales prices stemming from reduced raw material and rising energy costs. Sales in the Specialty Additives segment decreased 5% from €2.3bn in 2023 to €2.2bn.

Lanxess said it remains confident of achieving growth in 2025, even if a broad-based recovery in global demand is not in sight.

› **https://lanxess.com**

NatureWorks improves Ingeo composting

Biomaterials manufacturer NatureWorks has expanded its Ingeo product line with the Ingeo Extend platform, designed to enable faster rates of biodegradation and disintegration and achieve new levels of productivity.

The new grades are designed for compostability up to eight times faster than existing PLA grades and can also be blended with other Ingeo PLA grades to enhance their properties. The company says by replacing a fossil-based plastic, Ingeo reduces the carbon footprint of packaging by an average of 73%.

IMAGE: FLO GROUP

"Brand owners and film producers are increasingly asking for lower cost biaxial films for compostable food packaging and Ingeo Extend 4950D biaxial films are ideal to replace small-format food packaging made from persistent polymers such as polypropylene," said Roger Tambay, Chief Growth Officer for NatureWorks.

Small-format packaging films are more suited to composting than recycling, he said, and the Ingeo Extend 4950D grade can meet this demand.

› **www.natureworksllc.com**

MIXACO®
MASCHINENBAU

NEW HM+KMH

5 Star Mixing

Performance at HIGHEST LEVEL Always!

- Homogenizing, wetting, coloring, heating, agglomerating, bonding, etc.
- Outlet contoured and thus free of dead space
- Integrated aspiration for perfect evacuation of dust/moisture
- Size-dependent cooling system with targeted water routing in base & side wall
- Multi-stage mixing tools for high friction & perfect homogeneity
- Additional options such as ATEX version, weighing, injection, remote maintenance, etc.

MIXACO
Dr. Herfeld GmbH & Co. KG
Niederheide 2 - 58809 Neuenrade - Germania
Tel. +49 2392 9644-0 - Fax +49 2392 62013
info@mixaco.de

MIXACO USA LLC
1784 Poplar Drive
Greer, SC 29651 - USA
Tel. +1 864 331 23 20 - Fax +1 864 331 23 21
info@mixaco.com

MIXACO.COM

made in germany

Clariant expects growth

According to Clariant's 2024 results announcement, sales were $4.66bn, down 3% on 2023, while group EBITDA increased by 8% to $738m over the same period.

Care Chemicals sales decreased, while increased volumes in Personal & Home Care and Industrial Applications contributed positively.

Conrad Keijzer, CEO of Clariant, said: "For 2025, we expect modest growth, underlying margin improvement, and continued delivery of cost savings, resulting in improved cash generation."

Despite challenging market conditions and macroeconomic risks and uncertainties, he said the group remains on track to meeting its medium-term targets.

› **www.clariant.com**

PTi announces latest twin screw extruder

PTi's SGTSE MultiRESN 90mm twin screw extruder with die assembly

IMAGE: PTI

US extrusion machinery supplier PTi said it is evolving its High Vacuum Twin Screw Extrusion (HVTSE) brand to align with the current line-up of extruders, with the emphasis placed on its significance as a Super-G Twin Screw Extruder with Multi-Resin capabilities (SGTSE MultiRESN).

PTi's HVTSE line has been a frontrunner in dryerless extrusion technology for some time. The SGTSE MultiRESN model has been in production for over two years, but constant improvements have been implemented over time to help meet industry demands and processing capabilities.

Maintaining the premise of fully intermeshing co-rotating, self-wiping screws, with high vacuum venting for the elimination of the crystallising and drying processes, the company says the new model outperforms its contemporaries in terms of operating performance, energy efficiency, and sustainable utilisation of resources.

It is capable of processing a variety of virgin, post-consumer, post-industrial resins and flake, including PET, PLA, PP, PS, PE and blends, without first having to crystallise, dry, or change screws.

PTi says energy-efficient designs target sensible production rate ranges with increased efficiency ratings of over 20%, while the newly-configured square barrel design results in heat-up times being reduced by as much as 30%. Furthermore, the starve-fed system means blends, colours, and quick change-overs can be accomplished "on the fly" and in as little as 20 mins, reducing downtime, maintenance, and startup times.

› **www.ptiextruders.com**

Songwon enjoys sales upturn in 2024

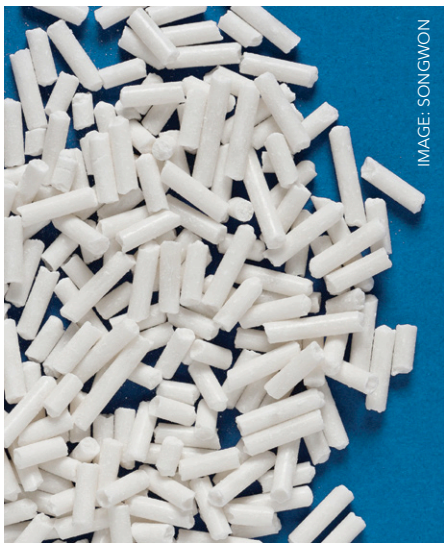


IMAGE: SONGWON

South Korean speciality chemical supplier Songwon reported consolidated sales of $692m in 2024, a 3.9% rise compared to 2023, ending the year with a net profit of $31.5m, 29.4% higher than the previous year.

The Industrial Chemicals division saw an increase in revenues of 4.3% compared to 2023, while the Performance Chemicals division (which includes PVC stabilisers and plasticisers) reported an increase of 2.7% over the same period.

Songwon said 2024 was another challenging year for the industry, with uneven demand across segments following the downturn in 2023 caused by unfavourable market conditions and price competition.

The company experienced a particularly slow start to the year when fluctuating market conditions created significant headwinds. However, demand began to improve in the second quarter and a strong finish to the year helped offset any losses.

Looking ahead, the Songwon said it anticipates continued political instability and increased uncertainty across various regions and intends to persist with its current strategy.

› **www.songwon.com**

CHINAPLAS 2025
Shenzhen, Guangdong/China | Hall 10 Booth 10K25
April 15-18, 2025

COMPOUNDING WORLD EXPO & PLASTICS RECYCLING EXPO
Mumbai, India | Hall 4 Booth 316
May 14-15, 2025

EFFICIENCY²

VALUE-ADDED PLASTICS RECYCLING

Perfect Match. The competencies of Coperion and Herbold Meckesheim complement each other perfectly. Coperion is the technology leader for extrusion and compounding, bulk material systems, feeding and pelletizing systems. Herbold Meckesheim is specialized in the mechanical recycling of plastics and plastic waste.

www.herbold.com www.coperion.com

HERBOLD MECKESHEIM

coperion

Sumika starts expansion of French recycling facility

Japanese group Sumika Polymer Compounds has launched a €15m expansion project at its Saint-Martin-de-Crau plant in France. A subsidiary of Sumitomo Chemical since 2007 and now present in nine countries, the company manufactures thermoplastic and elastomeric compounds, mainly for the automotive industry.

The expansion includes a new 5,000 m² building to transform 10,000 tpa of plastics waste into recycled polypropylene granules. The company plans to recruit 30 people over the next three years to supplement the current team of 55.

"To anticipate the increase in the need for high-performance plastic compounds, induced by the new European regulations on the treatment of end-of-life vehicles, we are launching an innovative plant for recycling automotive plastic waste," said Ludovic Seynave, President of Sumika Polymer Compounds Europe.

IMAGE: SUMIKA

A new building at the Saint-Martin-de-Crau plant will recycle PP waste

This will be a state-of-the-art facility, he said, which will efficiently transform polymers from end-of-life vehicles into high-quality raw materials, meeting the technical and environmental requirements of the automotive and manufacturing industries.

› **www.sumikaeurope.com**

Tronox to shutter TiO_2 plant

Titanium dioxide (TiO_2) pigment manufacturer Tronox has announced that following a strategic review, it now intends to idle its 90,000 tpa TiO_2 plant in Botlek, the Netherlands, which currently employs 240 workers.

The company said the closure will not impact its ability to serve customers.

"Our announcement today is the result of an extensive review of our asset footprint driven by the ongoing global supply imbalance caused by Chinese competition as well as an increasingly challenged operating environment over the last two and a half years," said John D Romano, CEO at Tronox. He said that idling the Botlek facility enables the optimisation of Tronox's remaining facilities and improves the company's overall manufacturing costs.

› **www.tronox.com**

Krahn Chemie lines up new CEO

IMAGE: KRAHN CHEMIE

Martin John will join the management team of German chemical distributor Krahn Chemie Group on 1 May 2025 before taking over as Chief Executive Officer on 1 June.

Part of the Otto Krahn Group, Krahn Chemie is headquartered in Hamburg, Germany, and achieved a turnover of €300m in 2023. It currently employs 270 people.

John {left) will replace Rolf Kuropka, who has successfully led Krahn Chemie as CEO for over 13 years and who will continue to support the group in an advisory capacity.

› **www.krahn.eu**

New Evonik products

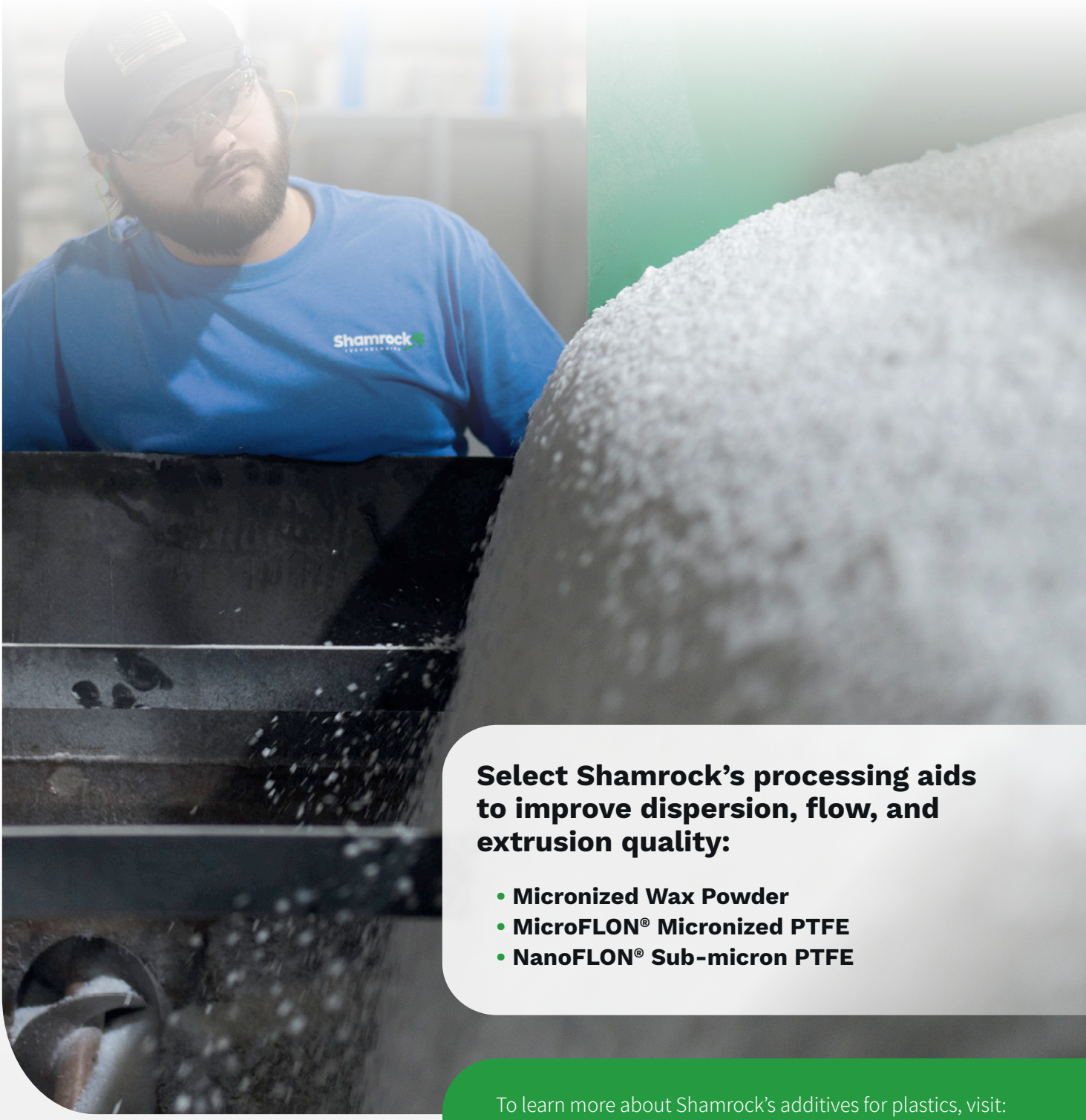
German specialty chemicals company Evonik has announced a comprehensive suite of Purocel products and catalysts technologies that it says improves the quality of pyrolysis oil.

According to the company, Purocel 505 has already demonstrated three times higher chloride removal than conventional organic chloride sorbents, while Purocel 510 is regenerable, and Purocel 515 assists with the polishing of pyrolysis oil and gas.

› **www.evonik.com**

Shamrock
TECHNOLOGIES

Process Perfection



Select Shamrock's processing aids to improve dispersion, flow, and extrusion quality:

- **Micronized Wax Powder**
- **MicroFLON® Micronized PTFE**
- **NanoFLON® Sub-micron PTFE**

To learn more about Shamrock's additives for plastics, visit:
www.ShamrockTechnologies.com

Regulatory Compliant PTFE

Micronized Wax Products

Shamrock Recycles

IN BRIEF...

US bioplastics producer **Danimer Scientific** has filed for Chapter 11 protection at the US Bankruptcy Court for the District of Delaware, citing stalled customer commitments, liquidity issues, and underutilised production capacity. It says it now plans to sell assets and wind down operations.
https://danimerscientific.com

SCIL has completed the acquisition of Heubach, bringing together its operational know-how and expertise with the German company's technological capabilities. The strategic acquisition creates an enlarged global pigment group and enhances SCIL's product portfolio, giving it access to assets at 19 international sites.
https://heubach.com

UK pigment and additive manufacturer **Venator** has rolled out the Eviden Product Carbon Footprint Platform, which provides full automation of the PCF calculation across its portfolio and enables the company to deliver accurate data on the carbon footprint of its products to its customers.
www.venatorcorp.com

Syensqo and Vartega collaborate in rCF

Syensqo and carbon fibre recycler Vartega are collaborating to create an ecosystem to foster the use of post-industrial recycled carbon fibre products in high performance applications.

"Syensqo's leadership in sustainable composites is demonstrated through their efforts to incorporate renewable feedstocks and reduce composites waste as evidenced through this collaboration," said Andrew Maxey, CEO of Vartega. "Vartega makes this possible by giving composites waste a second life while enabling a significant reduction to the product carbon footprint."

Vartega EasyFeed Bundles recycled chopped carbon fibre for compounding

The partnership will leverage Vartega's process to convert Syensqo's dry carbon fibre and prepreg waste from its North American sites into Vartega's high-quality carbon fibre EasyFeed Bundles.

The EasyFeed material will be integrated into Syensqo's ECHO carbon fibre reinforced specialty polymers portfolio, which is used in the automotive industry. Typical examples are structural parts, dampening rings, and transmission-related applications.

› **www.syensqo.com**
› **www.vartega.com**

BASF sales decline by 5%

Full year 2024 figures from chemical giant BASF Group show a 5% decline in total sales amounting to €65.3bn compared to €68.9bn in 2023, while EBITDA was €6.7bn, compared to €7.2bn in 2023.

The company said that in its core businesses, EBITDA before special items grew significantly, primarily due to higher volumes. But this was offset by a decline in its standalone businesses attributed to competitive pressures.

Profit after taxes and non-controlling interests amounted to €1.3bn compared to €225m in 2023, while income from investments increased to €598m. This was primarily due to higher earnings contributions from non-integral investments.

"We are well on track to achieve the targeted annual savings of €2.1bn by the end of 2026," said Dirk Elvermann, CFO. By the end of 2024, the group had achieved €1bn savings, of which around €100m was attributable to the cost-saving program for its Ludwigshafen complex in Germany.

› **www.basf.com**

LyondellBasell and Covestro close Dutch unit

LyondellBasell (LYB) and Covestro are to permanently close the propylene oxide styrene and monomer (POSM) production unit (PO11) at the Maasvlakte site in the Netherlands, which has been operational since 2003.

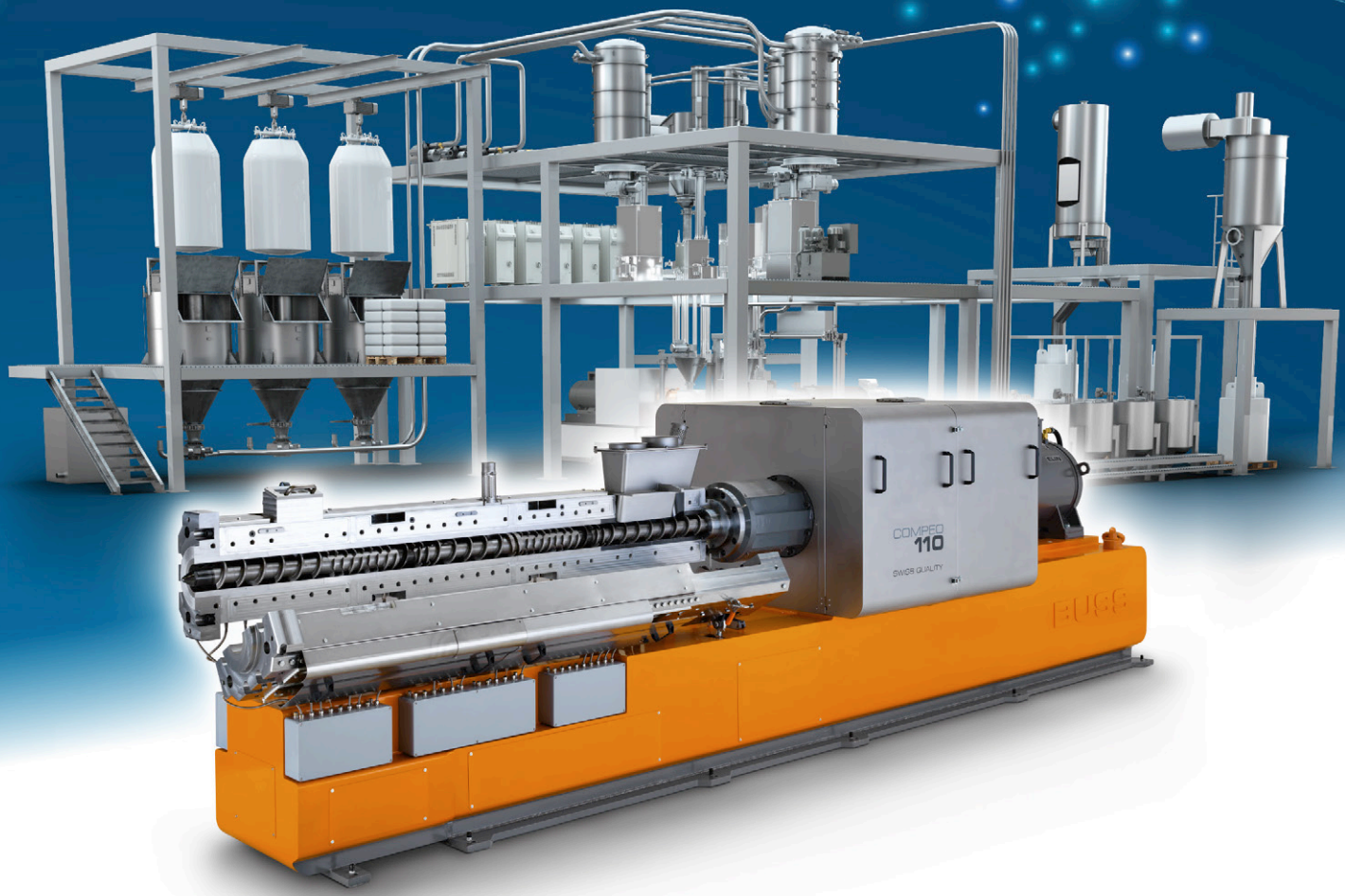
The companies say the decision is driven by the continued pressure on Maasvlakte's profitability due to market overcapacity, a strong increase of imports from Asia, and high costs of European production.

"Due to global overcapacities, persistently weak demand, and high costs in Europe, we have jointly decided with LYB to close the PO11 plant," said Hermann-Josef Dörholt, head of the Performance Materials Business Entity at Covestro.

› **www.lyondellbasell.com**
› **www.covestro.com**

COMPLETE SYSTEM

COMPEO compounding technology – the heart of customized systems.



Complete Compounding Solutions

BUSS is a worldwide leader in providing complete solutions for demanding compounding applications. With a long history of meeting the needs of a diverse customer base, BUSS offers expert consultation, planning, engineering, and innovative products. The COMPEO as the heart of the compounding line ensures maximum performance and unrivaled flexibility resulting in superior product quality.

www.busscorp.com

BUSS
excellence in compounding

RACE™

RECYCLING AND COMPOUNDING EXPO

COMPOUNDING WORLD EXPO INDIA

PLASTICS RECYCLING WORLD EXPO INDIA

14-15 May 2025 | Mumbai, India

REGISTER FOR FREE >

GRAB YOU FREE TICKET BEFORE
30 APRIL TO AVOID ADMISSION CHARGES

SECURE YOUR FREE TICKET TO:

- Explore materials and solutions for current and future projects
- Join discussions on industry challenges and opportunities
- Elevate your knowledge with our free conference programme
- Network with like-minded international professionals
- Benefit from the crossover of the co-located expos

Brought to you by:

POLYMERUPDATE INTELLIGENCE ANALYTICS CONFERENCES

AMI

Industry alliance partner:

CPMA Chemicals & Petrochemicals Manufacturers' Association India

Association partners:

spe INDIA

OPP Organization Of Plastics Processors Of India

PMMAI We Shape Plastics...

IPCC

INDIAN PLASTICS INSTITUTE

IMAGE: SHUTTERSTOCK

Regulatory-compliant chemistries serve as lubricants and processing aids, reduce wear and friction, and create low-retention surfaces. ***Jennifer Markarian*** *finds out more*

Smoothing the surface

Additives based on a range of chemistries can be used in masterbatches and compounds to modify polymer surfaces for improved processing and performance. Regulatory changes – in particular, increasing restrictions on per- and polyfluoroalkyl substances (PFAS) – are beginning to drive shifts to alternatives.

Restrictions on PFAS-based chemistries are having a significant impact in the polyolefin film extrusion industry, where fluorine-containing polymers have been well-established as processing aids, said Michael Weber, Technical Service and R&D at **Constab**, a member of the Kafrit Group. He pointed to the European Union's Packaging and Packaging Waste Regulation (PPWR), which bans food-contact packaging containing PFAS at concentrations at or above certain limits beginning in August 2026. These limits include 50 ppm for PFAS including polymeric PFAS and 25 ppb for PFAS measured with targeted PFAS analysis (excluding polymeric), among other specific obligations.

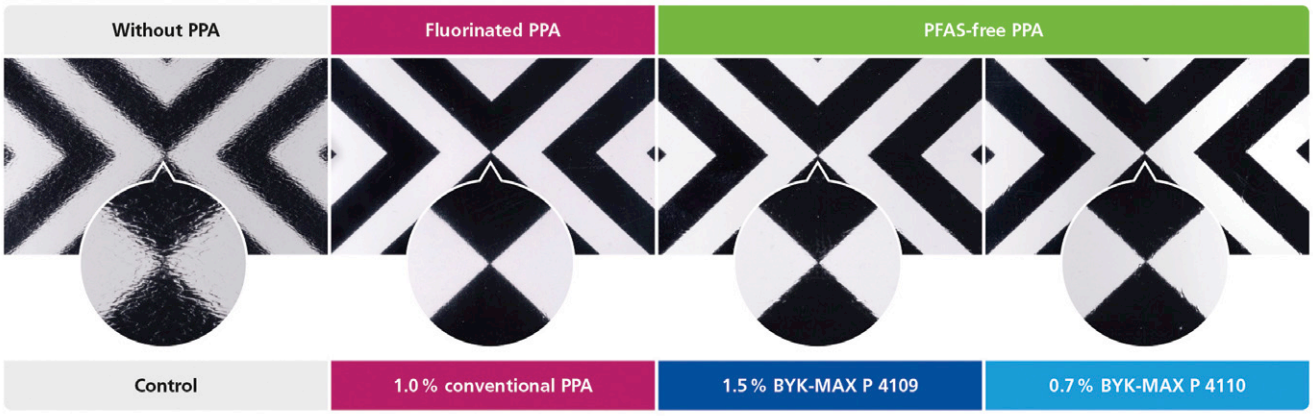
Weber said that while PE resin manufacturers in Europe and the US are now offering PFAS-free LLDPE grades to comply with the new regulations, converters still face the challenge of finding effective PFAS-free additive masterbatch solutions. He added that it is challenging to match the efficiency of fluorine-based processing aids, especially in metallocene-LLDPE film extrusion for food packaging.

"Constab has identified various synergistic PFAS-free additive solutions to help film producers meet these challenges," said Weber. The company offers a range of solutions globally, including a low-cost standard option, Constab PA 00892 LD, and a high-temperature resistant masterbatch, Constab PA 00891 LD. Options based on nano-scale particles or siloxane chemistry are available, and conventional PFAS-based formulations also remain available.

In 2024, a new generation of EverGlide PA, which is manufactured by US based **Polymer Dynamix** and is available from **Mitsui & Co** in Europe and **Mitsui Plastics** in the US, was introduced into the market. This product is based on a patent-pending technology that chemically emulates fluoroelastomers without the use of PFAS, siloxanes, polyethylene glycols, or metallic stearates. Its high thermal stability makes it suitable for various extrusion processes, the company reported.

"EverGlide PA provides performance and compliance to food contact standards around the world. It can clear melt fracture similar to other process aids; however, its ability to protect dies from buildup is where the technology really stands out," said Moritz Winkler, Senior New Business Development Manager at Mitsui & Co. "It has a

Main image: Avient says its Cesa Non-PFAS Process Aid for polyolefin extrusion and film formulations is comparable to traditional fluoropolymer-based processing aids

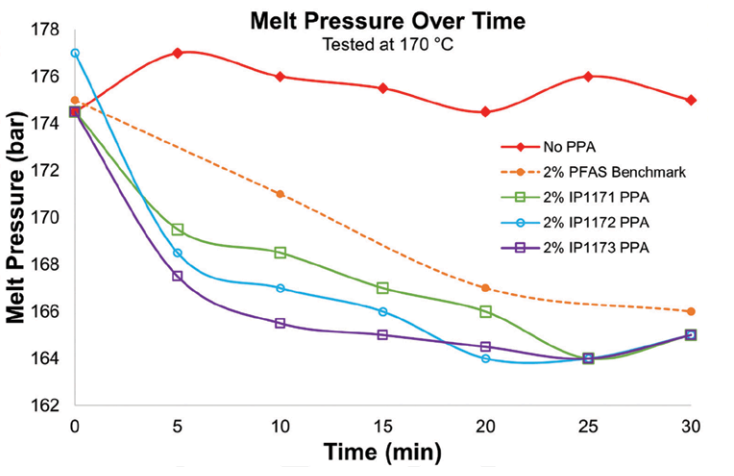


New BYK processing aids: comparison of visual assessment of transparent film on black and white test card ***Source: BYK***

robust global supply chain, to give assurance that the product will be available in high volumes."

BYK introduced two new polymer processing aids (PPAs) for preventing melt fracture and reducing die build-up during extrusion. The additives, BYK-MAX P 4109 and BYK-MAX P 4110, are PFAS-free and are effective for high production speeds and fast product changeovers, the company said.

"Since their launch in May [2024], BYK-MAX P 4109 and BYK-MAX P 4110 have been extensively tested by a wide range of customers in polyolefin extrusion applications. These applications include blown films, cast films, filaments, and even foamed polyolefins. The products have been met with high satisfaction, particularly due to their effective performance at low dosages of 0.5% to 1%," said Joerg Garlinsky, Global Head End Use Thermoplastics Industrial at BYK. He said that the additives reduce melt viscosity, increase throughput, and prevent issues such as melt fracture and die build-up.



Ingenia Polymers says its new processing aids reduce melt pressure and improve gloss, while preventing die buildup
Source: Ingenia Polymers

Non-PFAS options

BYK and its research and technical service team are actively developing a next generation of PFAS-free and silicone-free processing additives for PE and PP. "These additives are designed to meet food safety regulations across a wide range of applications and markets. The second generation of these products is nearing market introduction, with initial test customers already using them," said Garlinsky.

On a corporate level, the company announced in October that it intended to ship the last batch of products containing PFAS by the end of 2025 and that it would be introducing PFAS-free alternatives for all its additives for various industries that had formerly contained PFAS.

Avient has expanded availability of its new Cesa non-PFAS processing aid for polyolefin extrusion applications to Asia, the company announced in June 2024. The new processing aid provides performance benefits (eg, reducing melt fracture and lowering torque) at the same dosage levels as traditional fluoropolymer-based additives. Applications include PE and PP extruded films for flexible packaging, cast PP films and PE tubing for various food packaging applications.

Avient's Cesa Non-PFAS Process Aid for Extrusion is currently manufactured in China, Thailand and the United States. It is available for customers in Asia, the US, and Canada and meets China GB 9685-2016, US FDA, and EU food-contact safety regulations, the company said.

Ingenia Polymers has added to its line of non-PFAS PPAs with additional grades that fill specific requirements in film and lamination applications. The company said that IP1171, which was the first to be introduced for film, works well to prevent melt fracture and die buildup across a broad range of resin architectures and shear rates. A

"ENSŌ" IN MIXING

looking for perfection

Chinaplas 2025
Chinaplas
国际橡塑展
Visit us at Booth
10G67
2025.4.15 - 18
Shenzhen World Exhibition & Convention Center (Bao'an)

in equipment manufacturing for

PVC DRY-BLEND, MASTER BATCH, THERMOPLASTIC RUBBER, POWDER COATINGS, METALLIC BONDING and WPC

plasmec
Excellence in Mixing

PLAS MEC S.R.L.
Via Europa 79,
21015 Lonate Pozzolo (VA) – Italy
phone +39 0331 301648
comm@plasmec.it
www.plasmec.it

In cooperation with

FIERA MILANO

#newlifetoplastic

Green plast

greenplast.org

27-30 MAY 2025 • MILANO

EXHIBITION AND CONFERENCE
FOR A MORE SUSTAINABLE
PLASTICS AND RUBBER INDUSTRY

new grade, IP1172, provides improved die buildup performance, especially in film processes with higher shear rates. IP1173 has food contact approval in Japan, in addition to all of the other key regions across the world. IP1175 was designed to prevent die buildup in higher temperature applications, such as extrusion lamination.

Ingenia has also extended the use of its non-PFAS PPAs to blow moulding and pipe extrusion. These applications have historically used resins formulated with fluoropolymer-based PPAs added by resin producers. "As the regulatory landscape continues to change, demand for non-PFAS PPA is growing in this space," said Dale McCormick, Business Manager at Ingenia Polymers. "As processors require PFAS-free formulated resins that are not yet available, barefoot resins are the interim solution. Adding Ingenia Non-PFAS PPA Masterbatch allows for reduced melt pressure and improved gloss, while preventing die buildup."

Improving PET flow

Cargill said that its IncroMax 100 additive has been found to solve issues of part sticking and scratching and to substantially improve polymer flow in the injection stretch blow moulding of PET preforms and bottles.

"Polyesters like PET have relatively high natural surface friction and low shrinkage, which can cause mould release failures in injection moulding as well as marring during production. Additionally, most applications for PET require transparency and high processing temperatures, which limits the additive technologies that can be used to solve the issues inherent to polyester resins," said Nathan Noyes, Category Marketing Director, Polymer Additives, at Cargill.

IncroMax 100 is a low-dose, internal additive that creates non-plasticising flow improvement to help eliminate uneven mould fill in corners, handles, and other complex design features, explained Noyes. "Processing can also be completed at lower temperatures and pressures, for shortened cycle time or increased output with reduced energy consumption. Most surprisingly, the migrating additive [IncroMax 100] has also been found to increase top load strength in stretch blow moulded bottles, due to more uniform stretching. These benefits have been observed equally in virgin and up to 100% recycled PET, as well as bio-polyesters."

"We have seen continued rapid growth in the overall biopolymers market over recent years due to swelling consumer sentiment towards sustainable materials, corporate responsibly initiatives, and regulation, especially around single-use plastics," said Noyes.

He explained that polyester-based biopolymers can exhibit high friction or adhesion, which can cause processability problems during film and sheet manufacturing or lead to articles sticking in the mould during injection moulding, for example. Poor scratch resistance and static buildup can also be problematic.

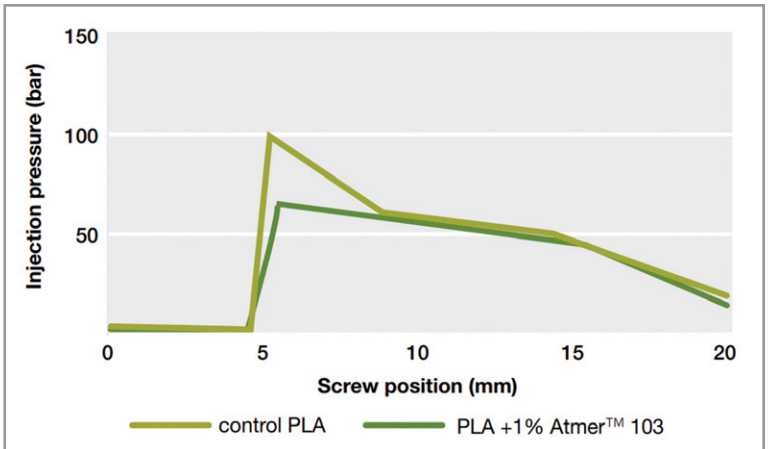
"Cargill offers a wide range of primarily bio-based additives from plant-derived feedstocks that can help with

the processing and handling issues caused by high friction and static control when compounding and converting bio-based or compostable polymers," said Noyes.

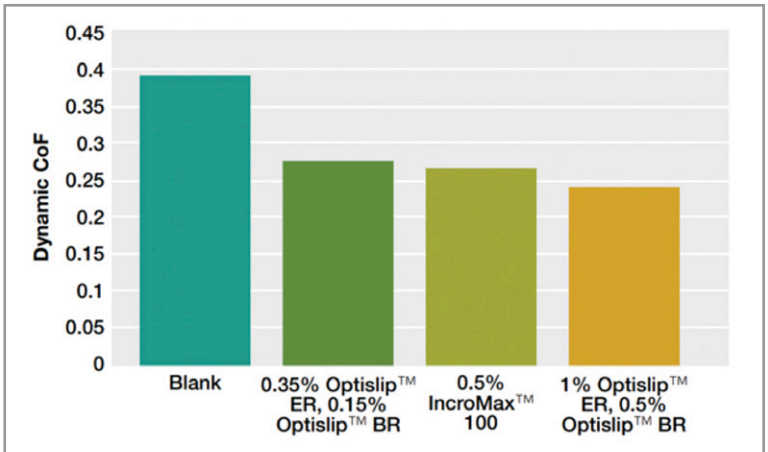
For example, a 1% addition of Atmer 103 additive works as a processing aid by improving the polymer flow during the injection moulding of polylactic acid (PLA) and PLA blends. This improved flow can allow a reduction in injection pressure or in injection temperatures and speeds, which allows a reduction in cycle time. It is also effective at improving processability during film extrusion, the company reported.

Cargill's Optislip range of bio-based slip and anti-blocking additives are also suited for use in a range of biopolymers, Noyes said. These additives form a lubricating layer at the surface that reduces the coefficient of friction (CoF) or adhesion between contacting polymer surfaces, or between the polymer and other materials. This lubrication allows easier processing and handling of the film during manufacturing as well as benefits to the end-use, Noyes said.

"We at Cargill continue to develop new surface modifiers and processing aids for polyolefins, biopolymers, and engineering plastics and welcome collaboration in this area," said Noyes.



Atmer additive improves flow which can allow a reduction in injection pressure or in injection temperatures and speeds
Source: Cargill



Reduction in CoF of Cargill's additives in a cast film made from a blend of PLA and PHA
Source: Cargill

Reduced friction

Shamrock Technologies specialises in micronisation and offers micronised PTFE powders to reduce friction and wear between surfaces. The company's EU Regulatory Compliant PTFE micropowder is compliant with REACH Annex 1. The company also introduced a 35-micron ultra-high molecular weight polyethylene (UHMWPE) as a halogen-free, PFAS-free wear additive.

Insight Polymers & Compounding said it is developing a portfolio of PFAS-free wear and friction technologies to replace PTFE and other legacy wear and friction modified materials, with additional announcements expected near the end of 2025. The company does not expect a "one size fits all" alternative to existing PTFE-containing compounds and fluoropolymers. "These materials have a long history of performance, and PFAS-free alternatives are expected to incorporate a diverse slate of solutions in order to replace PFAS-containing products," the company said. Applications may include seals, wear pads, bearings, gears and slides in a variety of market areas, such as oil and gas, appliance, automotive, electronics manufacturing, and medical and industrial vertical markets.

Americhem launched the EcoLube line of PFAS-free internally lubricated compounds designed to help manufacturers reduce the wear and friction of moving plastic parts, reduce noise during use, and decrease coefficient of friction for plastic-on-plastic and plastic-on-metal applications, the company said.

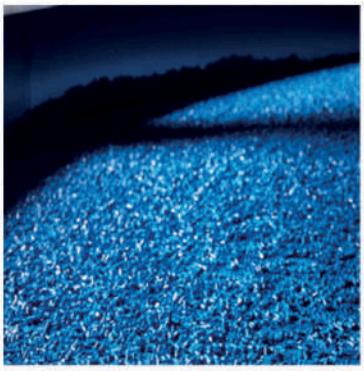
The product line uses a range of lubricant additives to meet the needs of specific applications in a wide range of polyolefin and engineering polymer base resins. Some of these lubricants are low-friction, non-migratory additives. Others are multifunctional, migrating, boundary lubricants to reduce CoF and wear rate by providing immediate lubrication at start-up and high speeds, the company said. The company can formulate compounds using data to predict CoF and wear-resistance rate for the materials of mating parts in a specific application.

The latest from Americhem is the EcoLube MD line of PFAS-free internally lubricated compounds for medical devices and other healthcare applications. These applications have specific require-

Tisan

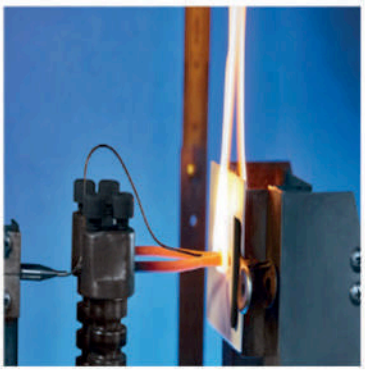
Beyond Standards, Toward Solutions

At Tisan, we don't just follow industry standards we redefine them. Through rigorous R&D, environmental responsibility, and a commitment to innovation, we deliver high-performance, future ready solutions for industrial needs



While setting new standards in fire safety, we continue to take responsibility for environmental and energy efficiency matters.

We meticulously design and rigorously test in our R&D laboratories to meet the industrial demands of the future.



Compounds Made of Engineering Plastics

MAH-g olebond

Maleic Anhydride Grafted Series

- +90 216 429 36 65
- tisan@tisan.com.tr
- Ekşioğlu Mah. Yavuz Selim Cad.86.Sk. NO:4 Alemdağ - Çekmeköy İstanbul/Türkiye

www.tisan.com.tr

AMI | Events

Polymers in Cables

June 10-11, 2025 | Tampa, FL, USA

View our first speakers

Exploring trends and innovations in polymeric material solutions for the North American market

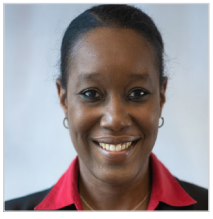
Hear from experts including:

Johanne Wilson
Business Development Manager ChemCycling
BASF

Kiran Santos
Application Manager
Premix

Paul Lorigan
Sales & Technical Director
Benvic

Detlef Klingberg
Technical Manager
Wacker Chemical Corp



Danniebelle Haase
Research Scientist
DOW

Sponsored by:

Nabaltec MHolland HUBER ADVANCED MATERIALS

SECURE YOUR PLACE TODAY

ments related to the strict regulations and change-management requirements in medical markets.

Low-retention additives

In labware, medical devices and biopharmaceutical manufacturing equipment, such as tubing and connectors, surface-modification additives enhance the ability of fluids to flow through and not be retained on the surface of a plastic component.

Techmer PM's patent-pending, non-fluorinated Techsurf Low Retention surface modification additive technology can provide an enhanced hydrophobic surface to improve fluid flow. Applications include biopharmaceutical processing equipment, such as single-use bioreactor vessels, connectors, and tubing, as well as drug delivery devices, microfluidic channels in diagnostic chips or cartridges, point-of-care diagnostic devices, and labware.

A hydrophobic surface has a low surface energy that repels water, so that aqueous fluids flow more easily. Fluorinated materials have traditionally been used to create this effect, because the strong electronegativity of fluorine atoms causes the surface to repel water, said Laurence Chow, Application Development Engineer at Techmer PM.

IMAGE: SHUTTERSTOCK

Siloxane and its derivatives have been used to create hydrophobicity, but these additives also face regulatory restriction in the EU and present a risk of negative interaction with some biologic drug substances. Amide-based additives can also improve hydrophobicity, but these migratory additives pose some risk in biopharmaceutical applications.

Techmer PM has designed its Techsurf Low Retention additives to create a hydrophobic surface with chemistries that will provide current and upcoming regulatory compliance. The additive family includes two fluorine-free chemistries (NF1

Americhem's EcoLube MD line of PFAS-free internally lubricated compounds has been developed for medical devices

EXPLORE THE AGENDA

AMI | Events

Plastics in Electric Vehicles

18-19 June 2025 | Cologne, Germany

Explore how the shift to electric vehicles is creating new opportunities for the plastics supply chain

Discover insights from industry experts including:

Yeliz Albrechtsen
Product Sustainability Engineer
Ford Otosan

Marco Barbolini
Product Manager, Propulsion Global
Röchling Automotive

Marco Grundler
Group Leader Materials & Compounding Technology
ZBT

Alyssa Carpenter
Director of Business Development
Team NEO

> *Engaging conference with experienced peers, would definitely go back next year!*
>
> Syensqo

Event sponsored by: eurotec® engineering plastics | Albemarle® | epsan

SECURE YOUR PLACE TODAY

and NF2) and a PFAS-compliant fluorine-based chemistry (A5). A5 is a fluorinated chemistry but is classified as PFAS-compliant because the PFOA and PFOS levels are below 25 ppb. The company can also provide a non-silicone based chemistry.

The additives are available as masterbatches in multiple carrier resin options or in fully formulated compounds. The materials are stabilised to withstand high radiant sterilisation exposures. The compounds do not require any injection moulding equipment process changes and do not affect moulded part tolerance requirements, Techmer reported.

Labware pipette tips are one application where low fluid retention is crucial. For this application, Techmer said that its additives have been validated with numerous surfactants and organic solutions.

In biopharmaceutical manufacturing processes using single-use bioreactors, a low-retention additive can limit the adherence of raw materials to the sides of the vessel, which can help optimise mixing efficiency, said Chow.

The additive technology has initially been developed in different grades of PP at various flow rates. The company said that it is working with other polymers to incorporate the technology for additional applications.

Avient recently introduced its Cesa Non-PFAS Low-Retention Additives, which the company said will be available soon. The additives are manufactured without intentionally added PFAS-based or fluorinated raw materials. The additive concentrates and pre-compounds enhance hydrophobicity in injection moulded PP components. In labware and pipette tips, for example, they eliminate the need for secondary low-retention coatings and enable precise fluid dispensing with "virtually no residual liquid left behind," the company reported.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **https://constab.com**
- **www.mitsuiplastics.com**
- **https://polymerdynamix.com**
- **www.byk.com**
- **www.avient.com**
- **www.ingeniapolymers.com**
- **www.cargill.com**
- **https://shamrocktechnologies.com**
- **https://insightpolymers.com**
- **www.americhem.com**
- **www.techmerpm.com**

AMI Plastics World Expos
NORTH AMERICA

November 12-13, 2025 // **CLEVELAND, OHIO, USA**

Confirmed exhibitors include:

Aaron Industries Corp. · ABS Advanced Blending Solutions · ACE Laboratories · ADG Solutions · AdvanSix · Advanced Cryogenic Ent · AGC · Cumberland · Sterling · Aimplas Plastics Technology Centre · ARDL · Altech · Kahl · American Cutting Edge Industrial Blades & Knives · American Industrial Product · Amfine Chemical Corporation · Ampacet · AMUT · Soleno · Anping Songjia Wire Mesh Co., Ltd. · AssetWatch · Avian Recycling System · AZO · Bärlocher · Barentz · BE&E · BPM Bay Plastics Machinery · Aditya Birla Birla Carbon · BoReTech · B&P Littleford · Anton Paar · Brenntag · Revamp Polymers Inc. · Bronkhorst · Bruno Folcieri · Buss excellence in compounding · Buss ChemTech · BYK · C4 Polymers · Tinius Olsen The First Name In Materials Testing · Cargill · Carolina PEC A Division of Carolina Filters, Inc. · CDS · Chroma Color Corporation · Cimbar Performance Minerals · Clariant · CMG granulators · Soucy Techno · Conair · coperion confidence through partnership · CSM Corporación Sierra Madre · Covia · CT Polymers · Cutmetall · Dedhia · SPG · Davis-Standard Where your ideas take shape. · DUT Dorstener Wire Tech · EBM Manufacturing, Inc. · ECON · ecopuro Global Solutions · EFS Plastics Making Plastics Sustainable · ENTEC · Calcean · Eisenbeiss Create Green Motion · ensign Equipment · ENTEK · ENTEX · EX31 Automation, LLC · Extreme Coatings Engineered Surfaces · Stadler Designing. Building. Solving. · Extrusion Consulting · exxel polymers inc. · Farrel Pomini continuous compounding systems · FB Balzanelli · Federal Equipment Company · FiberX · FIMIC Italian Melt Filter · GP General Polymers · Star Plastics · Finite Fiber A DOWCO, LLC Company · Galata Chemicals · Genox USA · Global-Pak · gneuß · Göttfert This is Rheology · ReNew Plastics · Revolution · Routsis Training Hands-on. Online. Ongoing. · Royce Global · RUNI Recycling Machinery Inc. · Ruen Yuan Taiwan Knives Group Start From 1980 · Sasol · sawgrass sustainable · Scantech · Schake Industries, Inc. · Sciences Computers Consultants · Sensor Systemtechnik Instruments · Shamrock Technologies · Shini USA Division of Budzar · Sikora Technology To Perfection · Silon · Steer · Struktol · Syncro Group U.S.A. · TA Instruments · TPEI Technical Process & Engineering Inc. · Tecnofer · thechemicalcompany · ThermoFisher Scientific · The Polymers Center

Brought to you by:

AMI

Co-located exhibitions:

COMPOUNDING WORLD EXPO

POLYMER TESTING WORLD EXPO

PLASTICS EXTRUSION WORLD EXPO

PLASTICS RECYCLING WORLD EXPO

BOOK YOUR BOOTH HERE

HELLUVA CONTAINER · HERITAGE PLASTICS · HORIZON SYSTEMS · HOSOKAWA POLYMER SYSTEMS · iD Additives · IMCD · INCOA PERFORMANCE MINERALS · Q-LAB

INDUSTRIAL MAGNETICS · innovative RECYCLING SOLUTIONS · INTEGRATED CONTROL TECHNOLOGIES · JSW JAPAN STEEL WORKS AMERICA, INC. · JEOL Solutions for Innovation · J-TEC MATERIAL HANDLING · kaneka · KUHNE GROUP

Kal-Polymers RECYCLING SINCE 1992 · KIBBECHEM · KAWATA · KICE · KISUMA · Leistritz EXTRUSION TECHNOLOGY · Zwick Roell Testing Systems

Kubota Brabender Technologie GmbH · KW · LAIDIG · LAWER · LIST Kneading - Mixing - Drying · LUDECA 40 YEARS Keep it running. · VERMEER SHREDDING + COMPRESSING

LUMINA · MAAG Group a DOVER company · MAGRIS Performance Materials · TechAmericas SERVICE · SUPPORT · SOLVED · MAS Plastic Processing Technology · matium · ZOLTEK Toray Group

MERIDIAN · mesutronic DETECTING WHAT MATTERS · METTLE FILTRATION PRODUCTS, LLC · mei MIDWEST ELASTOMERS INC. · Milliken · MIXACO USA LLC · mixron Think smart. Mix better.

MLC AN HBM COMPANY · MDI MODERN DISPERSIONS, INC. · MoistTech Corp. · NETZSCH Proven Excellence. · NEXAM CHEMICAL · NGR PLASTIC RECYCLING TECHNOLOGIES · WACKER

NFM · NICHE POLYMER · NORAC ADDITIVES · o.a. newton · OKYA · Orbetron · orion · PALMER HOLLAND · zimmer AMERICA recyclingsolutions

Performance Additives · PGI Plastics · pinfa North America Phosphorus, Inorganic & Nitrogen Flame Retardants Association · Piovan UnaDyn · plasmec Excellence in Mixing · PlastiCal · Virtus Equipment

PLASTICS MACHINERY GROUP · PLASTIWIN CAPITAL EQUIPMENT · pmc · Polychem Dispersions INCORPORATED · polykemi · POLYSTAR Containment · Polyvel inc.

PRET · Prime Materials · PRISM WORLDWIDE · PROCESS CONTROL CORPORATION · PROMAXX · PROTON PRODUCTS · PSI POLYMER SYSTEMS INC. · QORTEX

PURE LOOP MEMBER OF EREMA GROUP · R&B Plastics MACHINERY LLC · R.C. Plastics, Inc · Recycling Equipment Inc NORTH CAROLINA · TEXAS · REELPOWER INDUSTRIAL · Reliance Mixers.com · WELSET Innovation in Compounding

TOYOTA TSUSHO AMERICA, INC. · TRENDELKAMP · UNIBROM · USE EXTRUDERS · UWAY · VAN DYK recycling solutions the right sort · vartega · Vecoplan

x-rite · XALOY · ZEPPELIN WE CREATE SOLUTIONS · ZERMA

and many more. See the full list of exhibitors here.

Proudly supported by:

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

AMI | Events

PVC Formulation

15-17 September 2025 | Düsseldorf, Germany

Gain expert knowledge to optimise performance and sustainability in your PVC formulations

Confirmed speakers include:

Caroline Braibant
Senior Manager, External Affairs
VinylPlus

Saffron Johnson
Sustainability BD Manager
INEOS

Thomas Delfosse
Regulatory Affairs Advisor
ExxonMobil

SECURE YOUR PLACE

AMI | Databases

Compounders and Masterbatch Producers Worldwide

Unlock business potential with our comprehensive database of contact and production information for 2,500+ plants across seven regions:

- ASEAN countries: 279 sites
- China: 348 sites
- Europe: 742 sites
- India: 338 sites
- Middle East and Africa: 250 sites
- North America: 465 sites
- South America: 140 sites
- South East Asia: 276 sites

Click here to request your free sample

Contact me to discuss your database requirements

Evren Akfirat
Business Unit Manager – Databases

T / +44 117 314 8139
E / evren.akfirat@amiplastics.com

IMAGE: SHUTTERSTOCK

New medical-grade compounds fit the bill

*New compounds and additives aim to meet needs in medical markets such as fit-for-purpose performance, supply-chain security, and regulation, reports **Jennifer Markarian***

One challenge for plastic compounds going into highly regulated medical and pharmaceutical applications is that any changes to materials must be carefully controlled, and achieving approval for a new material is a lengthy process. Nevertheless, changes in regulations and supply chain issues must be addressed, and new products may have new requirements that make material changes necessary.

"Innovation is back in full swing," said Kelly Wessner, Vice-President of Sales, Key Accounts and Business Expansion at performance material distributor **Formerra**. "During the height of the pandemic, many healthcare manufacturers shifted focus to supply chain survival, securing raw materials and keeping production lines running. But now, we're seeing a resurgence in new product development. Areas like drug delivery systems, remote patient monitoring, and labware are seeing rapid advances. With supply chains stabilising, manufacturers are once again prioritising R&D, fast-tracking material evaluations, and pushing new devices to market. The next wave of healthcare innovation is happening now – and it's fueled by materials that enable better performance, safety, and sustainability."

Wessner suggests that sustainability is becoming a business imperative. "Medical OEMs [original equipment manufacturers] are looking for materials that reduce environmental impact without compromising performance," she said. "Sustainability efforts are pushing companies to rethink material selection from a long-term perspective. The future of medical plastics is as much about what works today as it is about what will be viable ten years from now."

A stable supply is always important, but even more so in medical compounds, where alternative

Main image: Polymer materials are strictly regulated in medical and pharmaceutical applications


IMAGE: TEKNOR APEX

Above: Non-phthalate plasticiser DOTP forms the basis for new Teknor Apex products for PVC applications

materials need to go through a long qualification process. The supply of medical ABS and SAN, for example, has been tightened due to changes in supplier footprints, said Wessner. "Healthcare manufacturers are now in the process of requalifying alternative materials, which can take anywhere from one to three years," she reported. "The challenge is to make sure that the alternative material meets regulatory requirements and performs reliably in life-critical applications. Companies that can navigate this transition with strong inventory strategies and deep technical support from their suppliers will come out ahead."

To mitigate supply-chain risks, manufacturers are looking to dual-sourcing strategies and diversifying material portfolios by sourcing from multiple regions, said Wessner. "Many manufacturers are looking at Southeast Asia as a key alternative to China. For example, we recently expanded operations in Malaysia to help medical OEMs secure supply closer to production hubs," she said. Another significant trend is material consolidation. "By reducing the number of unique materials used across various end products, companies can simplify logistics, cut costs, and streamline regulatory compliance," she explained.

PVC compounds

Flexible PVC has been widely used in medical applications, and new plasticisers seek to meet global market needs.

The latest from **Teknor Apex** is a new line of DOTP-plasticiser based products that extends the company's portfolio of next-generation medical PVC compounds for the global medical device market. The products include APEX 32044RV grades for moulding and APEX 33044RV grades for extrusion.

The non-phthalate plasticiser DOTP (dioctyl terephthalate), which can also be written as bis (2-ethylhexyl) terephthalate (DEHT), is growing in use in medical PVC compounds as an alternative to the conventional ortho-phthalate DEHP (di(2-ethylhexyl)phthalate, also known as DOP) plasticiser. DEHP has been commonly used in PVC medical devices and other applications, but due to regulatory restrictions, particularly in Europe, there is a shift to replace it with alternative non-ortho-phthalate plasticisers where possible.

"DOTP/DEHT is a drop-in replacement for DEHP as far as processability of the formulated compounds in moulded and extruded parts," said Derek Laffey, Global Healthcare Market Manager at Teknor Apex. "As with any formula change, existing medical applications would need to go through re-evaluation, but processors should need to make only minor processing changes, if at all. With the growing availability of DOTP supply and its good price/performance balance, it is a logical alternative." Legacy grades with DEHP continue to be available, as change is difficult for existing uses, but there is increasing interest in DEHP replacements, particularly for new applications, said Laffey.

"We are addressing the needs of global medical device companies that have global manufacturing or sell into global markets," said Laffey. "We are building a portfolio of medical grade PVC products that meet all known regulatory requirements globally, with supporting documentation. In addition, our next-generation compounds are available globally from our manufacturing sites in the US and Singapore and from our distribution partners with warehouses in Europe."

TPE applications

Teknor Apex recently introduced its Medalist MD-90000 Series, expanding on its already broad portfolio of medical-grade thermoplastic elastomers (TPEs). The new TPEs, designed for biopharmaceutical tubing applications, offer excellent clarity, flexibility, chemical resistance and biocompatibility for a wide range of medical applications, including drug delivery, fluid transfer and analytical instrumentation, the company said.

The new grades are made with new raw material technology that offers very low spallation with good clarity, which is particularly beneficial for peristaltic or roller pump applications, where the ability to see fluid flowing through the tubing is important. Spallation is particles of material coming out of the plastic matrix due to the repeated stress of the pump operation; low spallation reduces contamination risks during extended pump operation. In addition, increased durability and longevity of tubing reduces mainte-

YOUR ONE-STOP EXTRUSION PARTNER

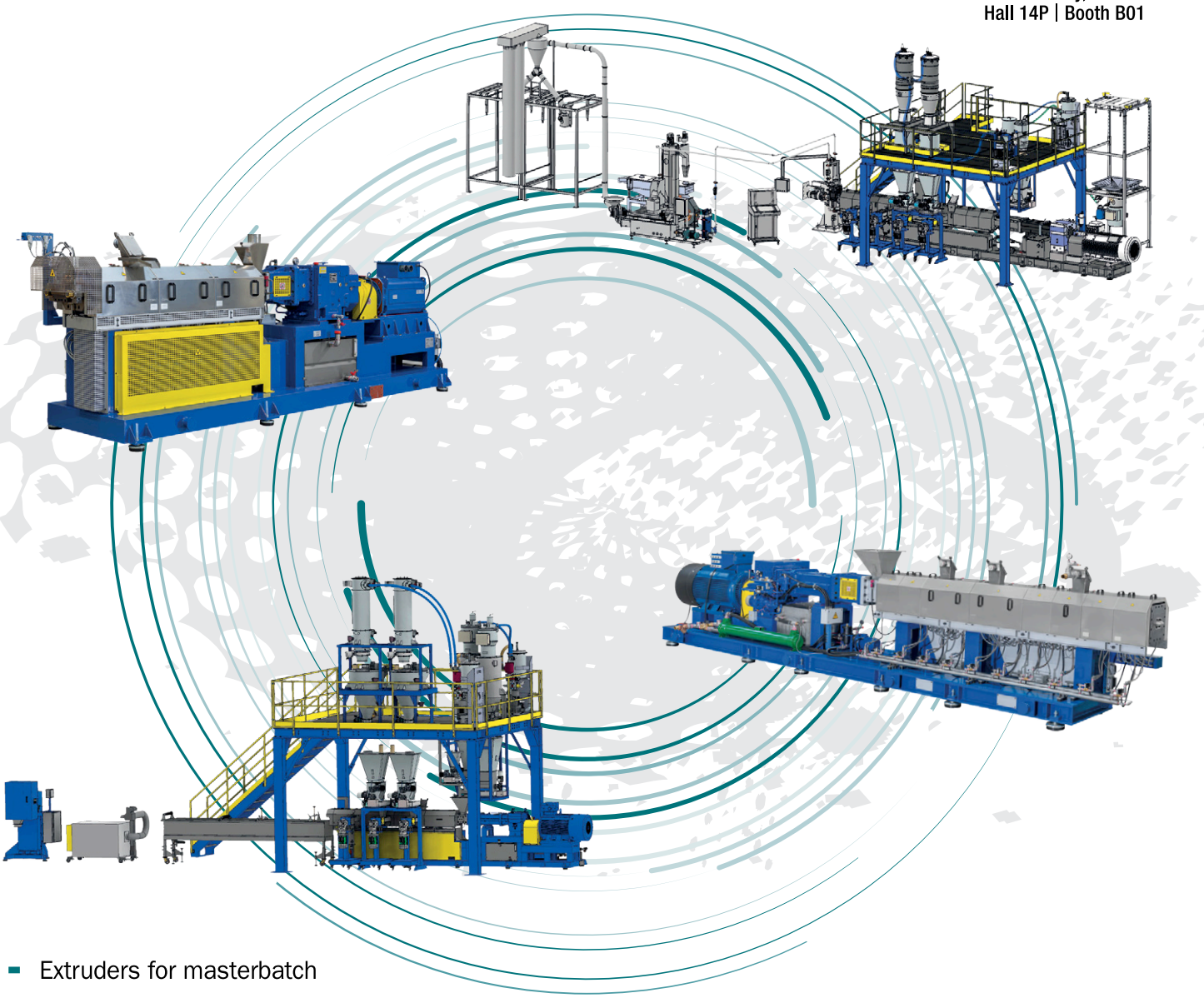
Over 40 years of experience in the design, engineering and production of corotating twin screw extruders. Creation of customized projects based on customer needs, thanks to a flexible structure and in-depth experience.

Visit us

PLASTPOL
20-23 May, Kielce
Hall 3 | Booth 3-D01

Green plast
greenplast.org

27-30 May, Milan
Hall 14P | Booth B01



- Extruders for masterbatch
- Extruders for compounding
- Extruders for recycling & compounding
- Extruders for biopolymers
- Turn-key lines for masterbatch, compounding and biopolymers
- Turn-key lines for recycling & compounding

We extrude your ideas into reality

COMAC

COROTATING TWIN SCREW EXTRUDERS
SINCE 1978

comacplast.com

AMI | Events

Bioplastics

August 26-27, 2025 | Cleveland, OH, USA

Exploring the latest in bioplastic technologies and applications for a greener tomorrow

Industry experts share their insights on advancing the bioplastics industry in North America. Key themes to be discussed include:

Bioplastics as solutions for a sustainable future

Innovative materials and applications

Addressing technical and business challenges

Click here to find out more and secure your place at the early booking rate

Sponsored by:

American Chemistry Council

AROPHA

CJ BIOMATERIALS

INGENIA REDEFINING THERMOPLASTICS

kuraray

nance requirements and downtime for pumps.

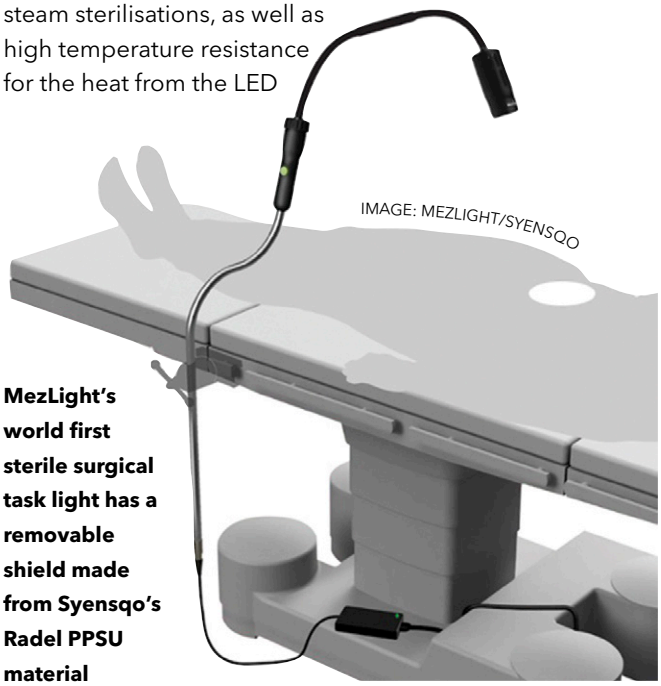
Testing shows that TPEs can be a cost-effective, high-performance alternative to silicone for tubing applications. "While silicone has been used traditionally, some applications may not need all the properties provided by silicone," said Laffey. TPEs also offer an alternative supply to mitigate supply chain continuity risks. Additional testing of the TPE grades is underway to evaluate the effects of sterilisation.

Kraiburg's latest is its Thermolast M series for medical devices. These soft TPE compounds, available globally, have hardness values ranging from 30 to 50 Shore 00 and/or 45 to 70 VLRH, making them suitable for prostheses and orthotic devices. The company said that while TPEs in this hardness range tend to oil out and produce sticky surfaces, the new, extremely soft compounds have a dry and velvety feel. The elastic properties of the TPEs allow use in applications with one-sided compressive loads, such as orthopedic damping elements.

Kraiburg said that the compounds are easily processed in standard injection moulding systems and may be used in 3D printing for customised products. The compounds have passed biocompatibility tests and are produced on a dedicated production line. The compounds comply with the ISCC PLUS requirements, which enables customers to use TPEs with a reduced product carbon footprint in strictly regulated markets, such as the medical sector.

New PPSU

Syensqo, formerly part of Solvay Group, said that its Radel polyphenylsulphone (PPSU) for medical applications is known for durability under repeated sterilisation. A new application for the PPSU is in the removable shield for a new and unique sterile, reusable surgical task light designed by MezLight. The design required the materials to have mechanical robustness and the ability to withstand multiple steam sterilisations, as well as high temperature resistance for the heat from the LED



MezLight's world first sterile surgical task light has a removable shield made from Syensqo's Radel PPSU material

IMAGE: GETTY IMAGES

Above: Avient has launched PEEK colorants and pre-coloured formulations for healthcare applications

component. PPSU was also used in the power control enclosure. The system has been successfully laboratory-tested to survive a minimum of 100 autoclave cycles.

A new compound from Syensqo is Radel PPSU Echo RP, which uses mass-balanced materials to help lower the carbon footprint of medical devices. The compounds align with sustainability initiatives in the healthcare industry and are available globally. The company reported interest from customers in Asia and the Americas as well as strong demand in the EU. "The mass-balance solution is a drop-in replacement, as the formulation remains the same. However, since the grade name differs, some level of registration may be required. We recommend customers verify based on their specific regulatory requirements," the company said.

Syensqo's Udel polysulphone (PSU) polymers are also used in medical devices and other applications, where they offer high strength and rigidity, resistance to cracking even at elevated temperatures, and the ability to be sterilised. The company announced in November 2024 that it had expanded PSU production at its Marietta, Ohio, US facility by more than 25%. "Since we embarked on this expansion journey for our sulphone polymers business three years ago, the trend towards higher performing materials with a balanced level of strong mechanical, thermal and chemical properties has continued to grow," said Peter Browning, President Specialty Polymers at Syensqo.

Colour stability

Avient's new Colorant Chromatics Transcend Biocompatible PEEK Pre-Colored Compounds and Colorants are compounds and concentrates for healthcare applications using polyether ether ketone (PEEK), which is a material with high heat and chemical resistance that is used in applications requiring multiple sterilisations and rigorous disinfection methods. The coloured compounds and colorants are targeted for applications such as dental scalers, surgical robots, medical stock and shapes, and portable cardiac monitoring devices. Maintaining good colour stability under these conditions can help reduce the frequency of single-use articles in these applications, the company said. The compounds have been formulated with materials that have been successfully tested for ISO 10993 biocompatibility, Avient reported.

Avient's Mevopur Healthcare Colorants and Formulations, as well as Mevopur Healthcare Functional Additives, are part of a portfolio made with raw materials pre-tested to meet healthcare standards, under controlled manufacturing conditions and with robust change control management beyond the Chemical Abstracts Service (CAS) identification number, the company reported. Recent developments in the portfolio include pre-coloured white and black formulations for PS and PP well plates used in polymerase chain reaction testing equipment.

"These white and black formulations help maintain optimised signal transmission and minimise crosstalk that could lead to faulty results in quantitative fluorescence testing. The materials are produced under a third-party certified ISO 13485:2016 quality management system and backed by comprehensive change control of raw materials, formulation, and manufacturing standards to enable consistent batch-to-batch quality," said Volker Dickfeld, Senior Marketing Manager Healthcare Global for Color & Additives at Avient.

Americhem announced in September 2024 the introduction of its ColorRx compounds and masterbatch in a variety of standard colours and base resins to the European market. Custom colour matching and development are also available.

"We're furthering our 'global reach, regional focus' by extending Americhem's capabilities to meet increasing European healthcare industry demand for high quality polymer materials. We stand at the forefront of medical device market trends, healthcare application innovation and sustainable solutions," said Barto DuPlessis, Vice President and General Manager, Europe. "Our masterbatch and compounding excellence for advanced surgical instrumentation, robotic-assisted surgery, drug delivery, catheters, hearing aids and more lines up perfectly with the needs of the European healthcare market."

The company said that ColorRx polymers will be produced in one of three ISO 13485 and cGMP compliant facilities throughout the world, and that the line offers RoHS and REACH compliant formulations.

IMAGE: AMPACET

Ampacet has introduced ProVital+ LaserMark masterbatches designed for high-contrast laser marking

PFAS concerns

The value chain is keeping close watch on new and upcoming restrictions on fluorine-containing materials, and masterbatch and compound suppliers have introduced new options.

"With regulations around the world potentially restricting or banning the use of PFAS and PTFE, healthcare OEMs are challenged with finding alternatives that can match their self-lubricating performance," said Matt Miklos, Vice President/General Manager of Americhem's engineered compounds division.

New from Americhem is the EcoLube MD line of PFAS-free internally lubricated compounds specifically for medical devices and other healthcare applications. The compounds, which are available in a wide range of polymers, are designed to 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, the company said. End-uses can include minimally invasive surgical devices, syringe pumps, prosthetics, and surgical robots, for example.

Internal testing has indicated similar performance to the more traditional internal lubricants and wear-resistant additives in most cases. EcoLube MD has undergone ISO10993-5 testing for biocompatibility as part of the global medical compliance certifications, and the products are included in the company's stringent Process Change Management commitments.

Laser marking has become the preferred method in medical segments requiring high precision, durability and efficiency for marking, said masterbatch producer **Ampacet**. The company recently introduced ProVital+ LaserMark, which is a portfolio of masterbatches designed for high-contrast laser marking using Nd:YAG on medical devices, in-vitro diagnostic equipment and packaging systems. New products include a grade for dark markings on transparent/translucent, white or light-coloured PE or PP parts and an antimony-free grade for dark markings on white and light-coloured PE or PP parts, both available in the EU. The company said that the materials have 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."

CLICK ON THE LINKS FOR MORE INFORMATION:

- **www.formerra.com**
- **www.teknorapex.com**
- **www.kraiburg-tpe.com**
- **www.syensqo.com**
- **www.avient.com**
- **www.americhem.com**
- **www.ampacet.com**

AMI | Events

Polymers in Footwear

July 16-17, 2025 | Portland, OR, USA

Exclusive rate available to footwear manufacturers**

Using material innovations to redefine comfort, performance and sustainability in footwear

Discover insights from industry experts including:

Maximilian von Welczeck
Material and Trim Developer
Skechers

Andrea (Vanderhoff) Opp
Director of Technology and Sustainability
QORE

Levi A Kishbaugh
CEO & President
Trexel

Will Huang
Sales Director
Tien Kang

SAVE 15%* - EARLY BOOKING RATE ENDS MAY 16, 2025

*Discount not valid in conjunction with other offers. Discount ends May 6 2025.
**AMI reserves the right to reject applications for discounted places

Sponsored by:

INSITE Trexel QIRA susterra TIENKANG

IMAGE: PLASTIVISION

New showcase event in the heart of India

The dynamic plastics industry of India and wider South Asian region is the focus for a free exhibition and conference this May. We preview the exhibiting companies

The RACE: Recycling and Compounding Expo is a new free-to-attend plastics industry event taking place in Mumbai, India on 14-15 May this year. RACE will build on the success of the Compounding World and Plastics Recycling World Expos, held in Europe and North America over the past six years, and on the RACE plastics recycling conferences, held in India since 2019.

The launch comes at a time of rapid growth and development for both plastics compounding and plastics recycling in India. The exhibition will feature leading industry players and focused conference programmes, offering attendees the opportunity to learn about the latest technologies and trends, compare suppliers, and make valuable connections.

The event is being organised by Mumbai-based information and data provider Polymerupdate in conjunction with AMI, publisher of *Plastics Recycling World*.

The Compounding Theatre promises to be a highlight, bringing together industry leaders and innovators to share their expertise on cutting-edge trends and technologies in plastics compounding and masterbatch. This two-day event offers a unique platform for attendees to gain invaluable insights from experienced professionals in the field.

High-profile companies represented by the speakers include KK Kompounding Tech Giant, Plastiblends, JJ Plastalloy, Aimplas, APAR Polymers, Kingfa Science & Technology, Prasad Group, Autotech-Sirmax, along with keynote addresses on global trends.

Main image: The RACE Recycling and Compounding Expo will take place at Mumbai's NESCO exhibition centre which is also used for Plastivision

RACE: Recycling And Compounding Expo

The expo and conference take place on 14-15 May 2025 at the Bombay Exhibition Center NESCO, Mumbai, India.

Opening Times: Wednesday 14 May, 10:00 AM - 6:00 PM IST. Thursday 15 May, 10:00 AM - 5:00 PM IST

Register: https://register.compoundingexpoindia.com

More information: www.plasticsrecyclingexpoindia.com

Aimplas
The Spanish research group has over 12,000 m² of facilities with cutting-edge technology. More than 35 pilot plants are available to test all plastic processing applications, including thermoplastic, thermoset, and composite processing. It says its laboratories have the highest number of accreditations for plastics according to the UNE-EN ISO/IEC 17025 standard.
› **https://www.aimplas.net**

Altero Recycling Machinery
Based in Spain, the company designs and manufactures complete pelletising lines for the recycling of waste plastics.
› **www.alteromachinery.com**

Apar Industries
One of India's Fortune 500 companies, Apar has established itself as a key player in the domain of specialised polymeric compounds. The company's product portfolio under the brand name APARPRENE has expanded to include a range of ROHS and REACH-compliant compounds, including TPE, TPV, TPR, PVC compounds, PP compounds and cable compounds catering to diverse industries such as automobiles, irrigation, electrical, toys, food, and medical equipment.
› **https://apar.com**

Apex Technoplast
The injection moulding company has the capability to produce injection mouldings from 1g to 1.25 kg in weight.
https://apextechnoplast.com

Aquent Advance Material Technologies
The company produces functional polymers in collaboration with a technological partner from the US with quality at par with international standards. At its facility located in Silvassa, India Aquent supports customers' development process, supporting trials, tuning the product and making sure customers are successful.
› **www.aadibond.com**

Autotech Sirmax
Autotech Sirmax focuses on manufacturing engineering plastics and compounds, serving automotive and industrial applications. Its products are designed to enhance performance and sustainability in various applications.
› **www.sirmax.com**

Banyan Nation
The company says it is a pioneer in the circular economy for plastics, and a top player in India's FMCG bottle-to-bottle recycling industry. Banyan produces contact safe, traceable rPE and rPP resins at consistent technical, colour and odour performance.
› **www.banyannation.com**

Boorugu & Company
The company is an established trade house based in Hyderabad with over 20 years of experience in providing reliable solutions for the supply of plastic, PVC, coating and printing raw materials. It says it has a strong brand equity and technical support, providing consistent quality raw materials to its customers.
› **https://boorugu.in**

Bry-Air Asia India
The machinery company's products include plastics processing auxiliary equipment, such as desiccant dryers, chillers and conveyors.
› **www.bryair.com**

Buss
Buss says it is a global leader in high-end compounding and pelletising systems. The Buss Kneader is a highly versatile compounding extruder with excellent references in the plastics, aluminium and chemical industries for over 75 years.
› **www.busscorp.com**

Buss Chemtech
The process technology group offers products, development and project delivery in areas that include chemical recycling.
› **www.buss-ct.com**

Bry-Air Asia India supplies a variety of dryer technology. Pic: Bry-Air

Chembizasia
The company is a marketing and consultancy firm whose products include polymers such as PVC and PET.
› **https://chembizasia.com**

Concord United Products
The company is a supplier of wire EDM machines in the Indian market. Its machines are supported with an after sales service.
› **https://concordunited.com**

Coperion Ideal
The India-based business, part-owned by the Coperion compound-

ing technology group, is a specialist in pneumatic conveying systems and additive unloading and feeding systems.
› **www.coperion.com**

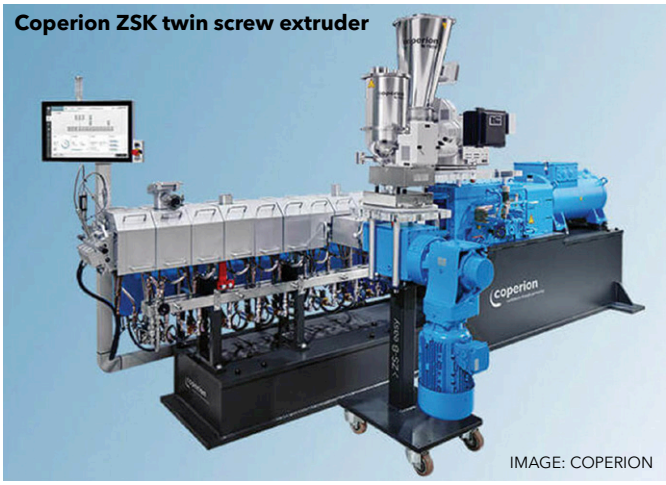
Diyani Engineering
The company, which has a presence in India and expanding operations in Dubai, provides comprehensive packaging and automation solutions for the polymer compounding and plastics industry. Its technology range includes weighing, bagging, material conveying, auxiliary equipment, packing line solutions, batching, and process automation.
› **www.diyani.in**

Dodhia Synthetics
The company is a manufacturer of synthetic yarns and fabrics, serving sectors like textiles and industrial applications, with a focus on quality and sustainability. It also recycles PET bottles.
› **www.dodhiagroup.com**

Econ Machinery
The company is a specialist underwater pelletising technology provider. Thermally insulated die plates are fixed on the heated carrier body.
› **www.econ.eu**

Entex Rust & Mitschke
Entex is a leading manufacturer of planetary roller extruders, single-screw extruders, pelletisers, tempering systems, and calender rolls. With a strong focus on innovation and modular design, Entex serves various industries, including plastics and rubber.
› **www.entex.de**

Erema
The group says about 7,800 Erema recycling systems are now in use worldwide. With subsidiaries in the USA, China and Africa, as well as around another 50 representatives on all five continents, the company has a reliable network to implement customised plastics recycling solutions for customers around the world.
› **www.erema.com**



Coperion ZSK twin screw extruder
IMAGE: COPERION

Gneuss Omni Recycling System

IMAGE: GNEUSS

Extrusion Tech
The company makes shredding technology suited to a wide range of plastics waste streams.
› **www.extrusiontech.in**

Fine Organics
The producer of oleochemical-based additives serves sectors like plastics, personal care, and food, with a focus on sustainable and innovative solutions.
› **www.fineorganics.com**

Flexochem Ventures
The company specialises in manufacturing diverse packaging solutions, including LDPE liners, zip lock bags, and jumbo bags.
› **https://flexochem.in**

Gneuss
The Gneuss MRS extruder is a key element of the Gneuss Omni Recycling Systems and has highly efficient devolatilisation for extrusion of hygroscopic polymer such as polyester and for the extraction of volatile contaminants.
› **www.gneuss.com**

Hindon India
Hindon is a sales and distribution company working in the polymer materials sector.
› **www.hindon.co.in**

Ishitva Robotic Systems
The company designs and builds waste sorting plants with automated materials sorting technology.
› **https://ishitva.in**

J&K Industries
J&K produces PVC compounds, TPEs and TPVs, filled PP, masterbatches and ZHFR compounds.
› **https://jnk-welset.com**

JRD Polymer
The company is a distributor of engineering polymers, chemicals, monomers and other productsfor automotive and other applications.
› **www.jrdpolymer.com**

JSW (Skills Engine Projects)
Japan Steel Works (JSW) and Skills Engine Project (SEP) collaborate in the Indian polymer market. JSW supplies twin-screw extruders for the production of compounds and masterbatches, while SEP provides turn-key processing technologies and automated materials handling systems.
› **www.jsw.co.jp/en**
› **https://skills-engine.net**

K K Kompounding Tech Giant
The compounder's product portfolio ranges across TPE, TPO, TPV, TPU, PVC, PP and other compounds.
› **https://kkthetechgiant.com**

IMAGE: KELSEY INDUSTRIES

Right: Kelsey Industries produces ABS materials along with other engineering and commodity polymer compounds

Kelsey Industries
The materials manufacturer produces reinforced commodity compounds, engineering polymer compounds, polymer blends and alloys.
› **https://kelseyindustries.in**

Kingfa Science & Technology
Serving the automotive and consumer markets, Kingfa is a producer of reinforced polypropylene compounds, thermoplastics elastomers, fibre reinforced composites and engineering plastics.
› **www.kingfaindia.com**

Kyokuto Boeki India
The company is a supplier of ancillary equipment to the plastics industry among other markets.
› **http://kbindia.co.in**

Leevams Incorporated
European partners of Leevams are suppliers of technology for shredding, grinding, pulverising, sorting, separation, washing, pelletising, pneumatic conveying and handling. EU partners include Erema, Hamos, Weima, Pierret and Kongskilde.
› **www.leevams.in**

Lucro Plastecycle
Lucro produces PCR rPE and rPP granules, as well as innovative flexible packaging solutions.
› **www.lucro.in**

AMI | Events

Plastics Recycling Technology

June 10-11, 2025 | Long Beach, CA, USA

Mechanical recycling in North America – developments in sorting, processing and applications to improve sustainability and profitability

Speakers include

Steve Alexander
President/CEO
Association of Plastic Recyclers

Patricia Drake
Director of Business Development, Circular & Low Carbon Solutions
LyondellBasell

Dr. Natarajan Ramesh
SVP, Polymer Technology
Revolution

John Manderfield
Innovation and Design Fellow
Altium Packaging

BOOK YOUR PLACE TODAY

Sponsored by: INVISTA™ | American Chemistry Council | DOVER Chemical Corporation A Subsidiary of ICC Industries Inc. | Starlinger RECYCLING TECHNOLOGY

AMI | Events

PFAS Workshop Europe

2-3 June 2025 | Brussels, Belgium

It has never been more important to understand how you'll be affected by potential PFAS bans across Europe

Confirmed speakers include:

Richard Shepherd
Senior Consultant
AMI

Alan Taylor
Technology Fellow
TWI

Yuriko Iida
Chief Global Officer
Emulsion Flow Technologies

Andrea Castrovinci
Professor of Polymeric Materials
SUPSI

SECURE YOUR PLACE TODAY!

Luk Plastcon
The company, which is a member of the Bajaj Group, produces white masterbatch and functional masterbatches.
› **https://lukplastcon.com**

Magic Falcon
With its main focus on plastics recycling, the company has suppliers in USA, Europe, Southeast Asia and the rest of the world.
› **www.magic-falcon.com**

Mixaco Dr. Herfeld
With the understanding gained from over 50 years of mechanical engineering, Mixaco says it has unique know-how in mixing technology. This knowledge flows into continuous development of its products and leads to innovations, it says.
› **www.mixaco.com**

Mixron
The company says it offers a wide range of advanced mixers for the polymer processing market. Its products are based on advanced technologies and constant investment, says Mixron.
› **www.mixron.it**

Multi Polyplast
The company produces plastic raw materials, masterbatches, additives and compounds.
› **www.multipolyplast.com**

Nanjing Lesun Screw
The group specialises in manufacturing screws, barrels, and shafts for extrusion machinery. Its high-precision products are designed to enhance the performance and efficiency of plastic processing equipment, ensuring optimal functionality and reliability for industrial applications.
› **www.lesunscrew.com**

Neoplast Engineering
Neoplast is a manufacturer of die heads, single screw and twin screw extruders, lean phase, compounding plants, dense phase, two roll mills, heater mixers, PVC mixers, pelletisers, conveying systems, and automatic plastic processing plants.
› **www.neoplast.com**

Nepra Resource Management
With a blend of experienced consultants and technologically driven platforms, Nepra says it offers a range of advisory and consultancy services tailored to meet sustainability and compliance needs.
› **www.nepra.co.in**

IMAGE: MULTI POLYPLAST

Left: Multi Polyplast produces masterbatches, additives and compounds

Nexam Chemical
Nexam's advanced reactive masterbatches upgrade recycled plastics like PET, polyolefins and polyamides. It says its solutions improve processability, strength and durability, allowing a higher degree of recycled material to be used and turning them into high-performance products.
› **www.nexamchemical.com**

Padmanabh Alloys & Polymers
The materials company produces mineral filled thermoplastic, mineral masterbatches, synthetic paper masterbatch, glass reinforced thermoplastic and other specialty masterbatches.
› **www.padmanabh.in**

Pashupati Polytex
Pashupati Polytex is a division of Pashupati Group that specialises in the recycling of plastic materials.
› **www.pashupati.in**

Penta Auto Feeding India
The company designs, manufactures and installs material handling and production automation systems.
› **www.piovan.com**

Plast Alloys India
The producer of PP compounds is a supplier to the automotive industry and other markets. It says that under the brand name PREFIL, it has built a strong reputation in the automotive and home appliance industries. It caters to a wide range of technical applications beyond general-purpose components.
› **www.plastalloys.com**

Polycycl
The chemical recycler says its patented technology

enables conversion of low grade plastics to chemical feedstocks and industrial blendstocks using a fully-continuous pyrolysis process.
› **www.polycycl.com**

Prasad Group

The technology group supplies a wide range of auxiliary equipment for plastics processing.
› **www.prasadgroup.com**

Premium Polyalloys

The producer of compounds and additive masterbatches supplies a number of sectors including consumer, automotive, packaging and more.
› **http://premiumpolyalloys.in**

Rajhans Plastic Machinery

The machinery company is a specialist in melt filtration, melt pumps and other technology.
› **www.rajhansindia.com**

Recircle

ReCircle says it has been involved in 300+ locations, with more than 300 waste collection partners and 45 processors in India.
› **https://recircle.in**

Santosh Recycling

The PET bottle recycler manufactures premium FDA-approved rPET flakes and granules.
› **www.santoshrecycling.com**

Siloxane Aggrandize Innovative Industries

The compounder provides polymer blends, TPEs and masterbatches.
› **https://saiindustries.co**

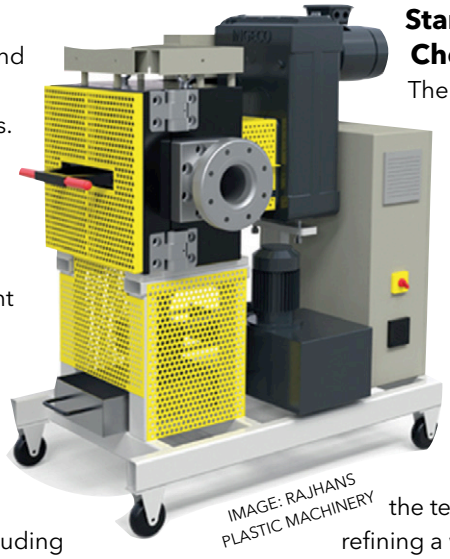


IMAGE: RAJHANS PLASTIC MACHINERY

Right: Melt filtration technology from Rajhans Plastic Machinery

Star-Better (Shanghai) Chemical Materials

The company specialises in the production and sale of polymer additives. Its flame retardants use alternatives to ATO and are designed for wire and cable applications among others.
› **www.starbetter.com**

Starlinger Recycling Technology

For more than 30 years Starlinger has been providing the technology for recycling and refining a wide scope of plastics such as PE, PP, PA, PS, BOPP and PET. Starlinger's recoSTAR product line offers machinery solutions for converting industrial, agricultural and post-consumer plastic scraps into a high-quality secondary resource, thus helping to close product loops in a variety of end markets..
› **www.starlinger.com/en/recycling-technology**

Steer Engineering

The compounding extruder group says it is a creator of advanced materials platform technology that effectively transforms and functionalises materials in the field of plastics, recycling and other areas.
https://steerworld.com

Steinert

The German family-run business is a leader in sensor sorting and magnetic separation for waste and materials recycling. In addition to 50 sales partnerships and joint ventures around the globe, the company has subsidiaries in Germany, Australia, Brazil and the USA.
› **https://steinertglobal.com**

Below: The UniSort Black Eye sorting system from Steinert

IMAGE: STEINERT

Supreme Petrochem

The group says it is the leader in polystyrene production in India, with a market share exceeding 50% and installed capacity of 300,000 tonnes/yr. It also produces expanded PS, PP compounds for appliances and automotive applications, plus colour masterbatch.
› **https://supremepetrochem.com**

Sytco Engineers

Sytco is a manufacturer of brakes, clutches, torque limiters, couplings, brake motors and allied custom build products.
› **www.sytcobrakes.com**


IMAGE: WELSET

Left: White masterbatch is one of the product ranges from Welset

Tirupathi Hydrocarbon
Filler masterbatches are among the products made by Tirupathi Hydrocarbon.
› **https://tirupathihydrocarbon.com**

Troester
The Compounding Division of Troester (X-Compound) is specialised in complete systems including conveying, melting, dispersing, mixing and degassing.
› **www.troester.de**

Vin Poly Recyclers
Vin Group offers its customers a range of plastic and rubber additives which it says can solve their problems and make products better.
www.vin.co.in

Welset Extrusion
The group is a supplier of colour, white and black masterbatches, anti-fibrillation/filler masterbatches, and a full range of additive masterbatches.
› **https://welset.com**

XINDA
The group manufactures and sells co-kneader, compounding extruder, recycling and pelletising technology.
› **www.xindacorp.com**

Zamindia
Representing Zambello Group in India, the company provides customised solutions for extrusion gearboxes, and also after sales service and spare parts support for technical service and preventive maintenance of gearboxes.
› **www.zambelloindia.com**

AMI | Events

Our conferences are designed to inspire ideas, promote meaningful conversations and build long-lasting relationships.

50+
FOCUSED EVENTS IN THE UK, EUROPE, NORTH AMERICA AND ASIA EACH YEAR

ATTRACTING OVER
5,000
PLASTICS INDUSTRY PROFESSIONALS

Why attend?

- Network with industry professionals
- Exchange ideas with like-minded and experienced people
- Gain valuable industry insights
- Discover new business leads
- Get inspired with innovative ideas

Each year, AMI events connect industry leaders from across the global plastics supply chain.

Want to see which events are coming up in our partner industries and your region? Take a look below and click on the event region to find out more.

- Agricultural Film – North America
- Bioplastics – North America
- Cables – Europe / Asia and Polymers in Cables – North America
- Chemical Recycling – Europe / North America
- Feedstocks for Plastics Recycling – Europe
- Fire Resistance in Plastics – Europe and Fire Retardants in Plastics – North America
- Masterbatch – Europe
- Medical Tubing and Catheters – Europe / North America
- Performance Polyamides – North America
- PFAS – Europe / North America
- Plastics in Electric Vehicles – Europe
- Plastics Recycling Technology – Europe / North America
- Polyolefin Additives – Europe
- Polymer Sourcing and Distribution – Europe
- Polymer Engineering for Energy – Europe and Polymers in Energy – North America
- Polymers in Flooring – Europe / North America
- Polymers in Hydrogen and CCUS Infrastructure – Europe
- Polymers in Footwear – North America
- Polymers in Roofing – Europe
- PVC Formulation – Asia / Europe / North America

Let us know which events you are interested in

Secure your K2025 promotion with AMI Magazines

AMI | Magazines

The world's plastics processing industry will once again congregate in Dusseldorf for the next set of innovation and supply for the global plastics industry

AMI Magazines are virtually the only media that have a portfolio of digital publications with a global footprint. These play a significant role in providing news, technical developments, product innovations, business transformations and global market trends defined by each market sector.

With over 75,000 avid subscribers across our industry titles, you can have the confidence that your message will reach your clients and prospective customers across the world that will be planning their visit schedule to the biggest international plastics event.

When it comes to K2025 promotion, AMI Magazines truly go the extra mile to provide probably the most coverage of any international media with 18 issues focusing on the who's who at the event. Issues include visitor guides, machinery and materials previews and special review issues to wrap up on what the plastics industry saw over the 8 event days.

2.8 Million annual page views

Over 100 countries engaged

Start planning today your advertising schedule to ensure the right clients are visiting you during the show.

Compounding World
August – Visitor guide
September – Machinery preview
October – Materials preview
December – Post event review

Plastics Recycling World
July/August – Visitor guide
September – Machinery preview
October – Materials preview
Nov/Dec – Post event review

Film & Sheet Extrusion
July/August – Visitor guide
September – Materials preview
October – Machinery preview
Nov/Dec – Post event review

Injection World
July/August – Visitor Guide
September – Machinery preview
October – Materials preview
Nov/Dec – Post event review

Pipe & Profile Extrusion
Autumn – Full event preview
Winter – Post event review

Offer ends 4th July 2025

Contact us for special bundle packages and advanced discount offers

Paul Beckley
Head of Business Development
paul.beckley@amiplastics.com
Tel: +44 7903 716061

Claire Bishop
Advertising Sales Manager
claire.bishop@amiplastics.com
Tel: +44 7905 848744

Engineering toughness: new impact solutions

IMAGE: SHUTTERSTOCK

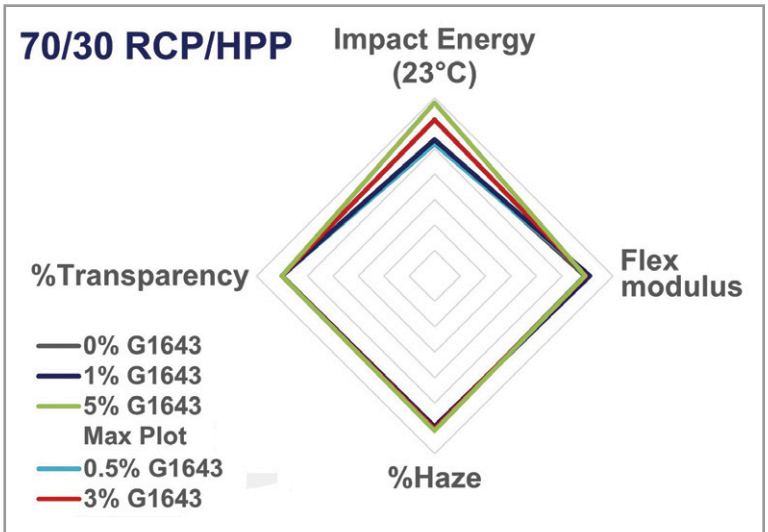
Products have been developed to improve impact resistance in a range of compounds, including those that incorporate recycled materials. Chris Saunders finds out more

The global market for impact modifiers is experiencing robust growth, driven by increasing demand for high-performance, durable materials that can withstand rigorous applications across the automotive, construction, electronics, and packaging sectors. Valued at $5bn in 2024, the market is projected to reach $6.9bn by 2029, with a compound annual growth rate CAGR of 5.7% (source: Research and Markets). Recent advancements focused on improving mechanical properties, sustainability, and processing efficiencies, have enhanced the versatility of polymer materials.

Kraton's G1643 is a high-flow styrene-ethylene-butylene-styrene (SEBS) copolymer designed for easy processing without an oil or plasticiser which has been deemed suitable for various processing techniques such as extrusion and injection moulding. As a highly transparent, non-crystalline elastic rubber in dense pellet form, it can be easily dry blended with thermoplastic resins. In addition, it is FDA-approved, ensuring compliance with strict safety and regulatory standards.

G1643 exhibits excellent compatibility with multiple PP types, including random copolymer PP and homopolymer PP. By enabling blending of RCPP and HPP, G1643 helps reduce formulation costs without compromising performance. Key benefits of G1643 at loading levels lower than 10% include: improved tensile properties with optimised stiffness-toughness balance while maintaining flow, tensile strength, and transparency, with high clarity and low haze; up to 1.5x increase in impact resistance; retention of flexibility at extreme temperatures; excellent resistance to weathering and high temperatures; and similar trends in performance benefits in neat RCPP modification at room and

Main image: Additives improve impact resistance in plastic products that need to be robust



Kraton G1643 high-flow SEBS copolymer used in a blend of random copolymer PP and homopolymer PP improves tensile properties with optimised stiffness-toughness balance while maintaining transparency
Source: Kraton Polymers

lower temperatures. Another benefit beyond impact modification is that the flexural modulus remains relatively unaffected up to 5wt% loading level, ensuring that the material retains its structural integrity. Kraton says these characteristics make G1643 an ideal material for applications demanding durability, flexibility, and impact resistance while maintaining transparent product design.

All Kraton products can be made with up to 100% ISCC PLUS Certified Renewable content based on a mass balance approach allowing for a drop-in for existing fossil-based SBC uses and lowering product carbon footprint. Kraton's Mailiao certification expands its portfolio of certified SBC manufacturing sites beyond Europe and North America into Asia, where its Taiwan facility can now produce up to 100% ISCC PLUS-certified renewable SBC under the CirKular+ ReNew Series.

New China plant

Testament to the strong demand trend in impact modifiers is the ongoing success of Chinese company **Jindaquan,** which recently opened a new factory in Huizhou, Guangdong Province. The new facility boasts a total of ten production lines including four which have been moved from its old premises in Shenzhen. Jindaquan has been engaged in the research and production of impact modifiers for more than 23 years. Its key product is the Argiope range, which is broadly divided into granule form, transparent granule form, powder form, and liquid form impact modifiers. The company says in many cases adding a dosage of only 0.2-4% could help boost impact strength and toughness by 40-60%. At present, Jindaquan products are mostly used in film and sheet applications, pipes, boards, and various household items. The company says it can also create customised formulations.

Another company highlighting collaboration with customers to fulfill their individual requirements is **Saco AEI Polymers**, which has compounding capabilities in both the US and UK. Its team has developed a series of maleic anhydride grafted additives sold under the Armidan and Linxidan tradenames. One of the most popular examples is Armidan NT7410, a high-performance product for PA 66. A key property is its high-melt flow which helps achieve excellent dispersion and morphological properties, while the low glass transition temperature ensures it achieves good impact properties not just at room temperature, but down to -40° C. It is easy to process and, depending upon desired performance targets, can be used at loading levels from 8-25%.

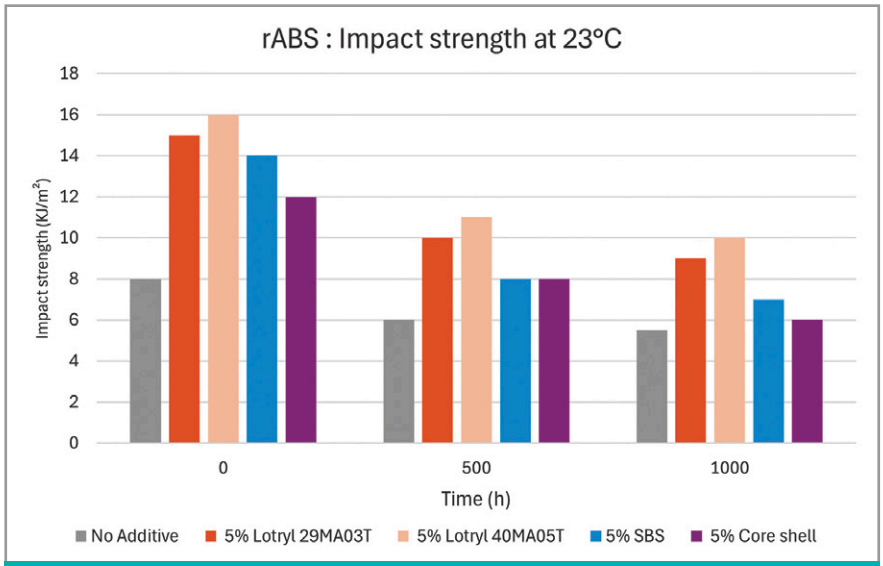
The company also produces a wide range of coupling agents used to improve the mechanical properties of filled systems. The Linxidan family covers a broad range of resins including PP and PE and have been designed to improve adhesion between a non-polar resin matrix and a polar filler, such as wood flour, glass fibre, or halogen-free flame retardants. The result of this increased adhesion is improved mechanical properties like notched impact, tensile strength, and flexural modulus, which translates to enhanced impact resistance.

Tisan Engineering Plastics produces maleic anhydride grafted polymers under the Olebond brand name. Grafting on polymer backbone is achieved with a unique processing technology and Olebond is produced as an effective impact modifier for the polymers, says the company.

Olebond 7403 IM grades are used as impact modifiers for PA. While Olebond 7403 IM-C grade achieves enhanced low-temperature impact properties and outstanding performance at low temperatures Olebond 7403 IM-Z shows good performance in PA 6 and PA 66 and Olebond 7403 IM-R is designed for normal room temperature conditions. Tisan says that due to the high degree of functionality of maleic anhydride, a small amount of Olebond is sufficient to create a positive effect and the increase the impact resistance values of polyamides.

Circularity trend

A major issue with recycled plastic materials is that they often have inferior properties compared to their virgin counterparts. Additives are therefore required to help the material meet required



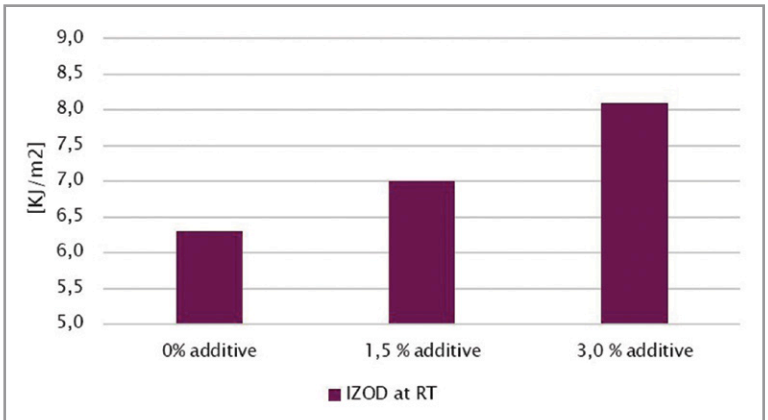
Lotryl additives show positive effect in ageing tests on recycled ABS material
Source: SKFP

mechanical and aesthetic specifications. **SK Functional Polymers** (SKFP), known for developing Lotader reactive and Lotryl non-reactive additives, has recently focused its efforts on improving the properties of recycled high impact PS and recycled ABS, which is becoming more readily available as regulation is leading to plastics recycling in end-of-life vehicles, and waste electrical and electronic equipment.

"Our customers consistently request us to support them in adjusting the rABS rheology to their needs," said Nico Esselin, Market Development Manager at SKFP. "If the rABS is injection moulded, the compound may require additives to increase its melt index. If the compound is processed by extrusion, the melt index may need to be reduced. At the same time impact resistance must always be boosted through the use of reactive additives."

More recently, SKFP has demonstrated its additives can have a positive effect on rABS ageing resistance, which in turn improves impact resistance. In test situations, rABS samples were submitted to 90°C for up to 1,000 hours with 5% additives loading. Before ageing, the best performing solutions were the ethylene-methyl acrylate (EMA) copolymer with the highest MA content (Lotryl 40MA05T & 29MA03T). These formulations remain the best performing even after 1,000 hours of ageing. Among the conclusions of the study were that EMA resins perform better than styrene-butadiene based modifiers, and Lotryl EMA copolymers do not lower rABS gloss. In addition to solutions for recycled styrenics resins, SKFP has also developed solutions to improve the properties of recycled PA, PET, PBT and their blends.

Evonik offers various additive technologies to help meet the needs of the plastics processing industry and enable the upcycling of post-consumer materials. The company promotes a range of additives for recycling applications under the TEGO Sorb & Cycle umbrella, which offer an effective reduction of malodour while mechanical properties can be enhanced using the TEGO Cycle CP grades. The company says it is already working to expand the portfolio, but one of the most striking aspects of the latest test results was an increase in impact resistance when using special organo-modified siloxanes (OMS). With OMS Evonik says it offers a complete toolbox of additives based on a surface-active siloxane backbone. The differentiation to silicone oil is the organic modification which allows the adjustment of



Enhancement of impact strength and elongation at break in recycled PP using TEGO XP 21002
Source: Evonik

compatibility to the targeted polymer so migration is avoided and important properties guaranteed.

Recycled HDPE, which is added to virgin HDPE in industrial applications like containers, intermediate bulk containers, pipes, and boxes, often faces issues with impact strength. Adding 1% TEGO XP 21002 to HDPE containing 50 % rHDPE improves impact strength at minus 30°C by up to 200% and increases the MFI from 6.5 to 15, says Evonik. The OMS impact-modification makes rHDPE suitable to be mixed in higher concentration to a virgin polymer or to be used as 100% recycled material in products that require this.

PP is one of the most important polymers used in automotive, packaging, and textiles. Here, TEGO XP 21002 can improve the impact strength of rPP by about 30%. "Next generation impact strength enhancers are still in experimental stage, but our results have been proven by first customers with a positive feedback," the company said. "The experimental grade is liquid, but using the Evonik Accurel technology allows us to offer high loaded concentrates based on different polymers."

At the VDI Plastics in Automotive Engineering event in Mannheim, Germany, last June, **Dow** showcased several new materials targeting a low-carbon future for mobility across the entire vehicle life cycle. This requirement has been exacerbated by EU regulations slated for introduction by 2030 requiring that 25% of the plastic used to build new vehicles come from recycling, of which 25% must be from end-of-life vehicles. Top of the list of sustainability-enabling materials was the company's Engage 11000 polyolefin elastomer series of impact modifiers for thermoplastic olefin applications such as bumpers and door panels, which help address the loss in properties from partial use of rPP in automotive compounds.

"With all today's challenges, we in the automotive industry need to act fast, seize new technologies, and collaborate with the right partners," said Andrea Benvenuti, Global MobilityScience Sustainability Application Team Leader. "We in the MobilityScience team are committed to supporting OEMs and Tiers in their sustainability and design aspirations with our technology and expertise, and to helping build the ecosystem needed to bring about circularity and decarbonisation."

Polycarbonate boost

Dow has also reported advancements in the application of its Paraloid EXL impact modifiers in post-consumer PC demonstrating that incorporating a slightly increased dosage significantly enhances the impact strength of PC containing up to 75% recycled content. This improvement is particularly evident after hydrolytic ageing at 90° C and 95% humidity for 14 days, under which conditions the impact strength nearly doubled compared to the standard formulation at room temperature. In addition, the test specimens' failure mode shifted from complete break to hinge break, indicating improved material toughness.

The stability of Paraloid EXL-2691J has been observed across various sources of post-consumer PC, demonstrating remarkably consistent impact strength. This was evident in three batches of recycled PC tested by the company which had been sourced from different origins, including automotive headlight bases, electrical device housings, and greenhouse sheets. In contrast, Dow said other modifiers showed more variation in impact strength. These particular impact modifiers, composed of methyl methacrylate-butadiene-styrene (MBS) with a core-shell structure, have been designed to not only enhance impact strength but also maintain the strength and modulus of the material and preserve mechanical properties during heat ageing. The modifiers are also effective in reducing the thickness sensitivity of PC and ensuring excellent processing stability. Dow says over the past decade it has reused hundreds of thousands of metric tonnes of post-consumer PC, and will continue to develop new solutions to support the recycling industry.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **https://kraton.com**
- **www.impact-modifiers.com (Jindaquan)**
- **www.sacoaei.com**
- **www.tisan.com.tr**
- **https://sk-fp.com**
- **www.evonik.com**
- **www.dow.com**

Enhancing performance in polyamides

IMAGE: VOELPKER

Innovations in additives for polyamide compounds include sustainable options, flame retardant developments and a solution for warpage. Chris Saunders reports on new products

The careful selection and use of additives play a crucial role in enabling polyamides (PA) to meet diverse demands across a wide range of applications including those in the automotive, electrical, industrial, and consumer industries. These additives are becoming ever more sophisticated, allowing the tailoring of properties which improves performance in demanding environments and ensuring polyamides remain a versatile and indispensable class of polymers in engineering.

Italy-based **Greenchemicals**, a specialist in flame retardant additives, has acquired Polichem, an Italian company specialising in the supply of PA additives, including nucleating, clarifying, mould release agents, impact modifiers, PA chain extenders, IV enhancers for PET, dispersing molecules, and high-performance stabilisers. Through the merger, Greenchemicals will also add Polichem's additives for improving the quality of mechanically recycled polymers to its portfolio. Greenchemicals, based in Desio, will take over operations of Polichem's production site and lab in Garlasco, both in the outskirts of Milan.

"We consider this acquisition highly strategic, representing a crucial synergy to consolidate our role in the formulation of plastic additives internationally," said Greenchemical's CEO Micaela Lorenzi. "We will widen our offer in terms of customised products for styrenics, polyolefins, and engineering thermoplastic polymers, focusing more and more on sustainability."

German special wax manufacturer **Voelpker**'s new photovoltaic plant was recently put into operation and is making a significant contribution to reducing the use of fossil energy sources and lowering the CO_2 footprint. The company offers montan wax and plant wax-based high-performance additive formulations for PA under the brand names Cevo and Cevo-R. Both Cevo 3110 and Cevo 3105 act as flow improvers and also contain stabilisers which promote a re-polymerisation of partly decomposed PA. This means they can, for example, be used to upcycle agglomerate material based on milled PA fibre waste. ›

Main image: Voelpker's Cevo 3105 reduces friction peaks to ensure polymer chains maintain their integrity over time

	Compound formulation						Flammability test
	PA6 L_V= 2,71 [%]	PA66 L_V= 2,64 [%]	Melamin-cyanurate[1] [%]	CEVO® 3105 [%]	Calcium-stearate [%]	Stabiliser[1] [%]	UL94[2] 1,6mm
PA6 1	86,6	-	12,5	-	0,4	0,5	V0
PA6 2	86,6	-	12,5	0,4	-	0,5	V0
PA6 3	89,1	-	10,0	-	0,4	0,5	V2
PA6 4	89,1	-	10,0	0,4	-	0,5	V0
PA66 1	9,0	80,1	10,0	-	0,4	0,5	V0
PA66 2	9,0	80,1	10,0	0,4	-	0,5	V0
PA66 3	9,0	82,1	8,0	-	0,4	0,5	V2
PA66 4	9,0	82,1	8,0	0,4	-	0,5	V0

IMAGE: VOELPKER

Above: With Cevo 3105 from Voelpker, the dosage of flame retardants can be significantly reduced

Cevo 3105 also has positive effects on shear forces and the flow behaviour of PA. High frictional temperatures during repeated rolling-sliding motion can alter the polymer structure and even lead to the rupture of bonds in polymer chains causing cracks and breakages. Cevo 3105 reduces friction peaks to ensure that polymer chains and sensitive additives can withstand mechanical stresses and maintain their integrity over a prolonged length of time. In addition, it acts as a flow improver and contains stabilisers which promote re-polymerisation of partly decomposed PA.

Flame retarded (FR) PA materials are widely used in demanding electrical and electronic applications. By using Cevo 3105 in PA, the flame retardant classification UL 94 V0 can be achieved while reducing the dosage as it helps to distribute the additive evenly in the polyamide matrix and has no negative influence on the dripping behaviour of the respective test rod. The Cevo range is complemented with bio-based structural twins Cevo 3105-R and Cevo 3110, which correspond structurally to the conventional examples and perform identically. However, the carbon in the Cevo R-series is renewable, making it an option for manufacturers keen to meet sustainability targets.

Flame retardants

US speciality additive supplier **CAI Performance Additives** says antimony trioxide (ATO) has long been used in PA formulations as a key FR synergist, but recent challenges have driven compounders to seek replacements (as discussed in *Compounding World* December 2024 edition). ATO shortages and price fluctuations due to geopolitical and raw material constraints are said to be the biggest factor, with conditions exacerbated by health and regulatory concerns as ATO is classified as a Category 1B carcinogen under Regulation (EC) No 1272/2008 [CLP] and listed in the US NTP 14th Report on Carcinogens. This means compounders, particularly those targeting UL94 V-0 flame retardancy, are facing rising costs and uncertainty around ATO availability, a situation fuelling a search for reliable, lower-toxicity alternatives that maintain fire safety standards while improving sustainability and cost-effectiveness. One such solution is ST-FR322, a FR synergist from CAI Performance Additives designed to replace 30-50% of ATO in PA formulations leveraging a unique intercalation structure.

The company says case studies demonstrate that ST-FR322 can successfully replace 50% of ATO while maintaining UL94 V-0 in PA 6 formulations, enabling compounders to reduce ATO dependency by half without compromising FR performance. This lowers costs while keeping the same processing conditions, and meets critical safety standards with a cleaner, more sustainable formulation.

Unlike traditional ATO-based systems, ST-FR322 offers proven UL94 V-0 performance, significant cost savings, lower toxicity and environmental impact, and reliable supply, all without the problematic regulatory concerns surrounding ATO, says the company. It is designed for easy integration into existing PA formulations and offers improved

Ascend turns to mass balance in PA 66

Last December, **Ascend Performance Materials** announced the successful production of acrylonitrile, hexamethylene diamine, adipic acid and polyamide 66 from feedstocks derived from used cooking oil, expanding its Bioserve portfolio.

The company says the resulting PA 66 has a 25% lower product carbon footprint than PA 66 made from fossil-fuel derived feedstock and notes that using an ISCC Plus-certified mass-balance approach allows for industrial-scale production of sustainable materials without sacrificing performance.

Ascend's production facilities in the US are all ISCC Plus certified to handle bio-based, circular and bio-circular materials.

"We are focused on finding technical solutions for our customers' challenges," said Alex Mihut, Ascend's vice president for performance chemicals.

"Using the mass-balance approach allows us to meet the growing need for sustainable materials at scale while continuing to offer reliable performance and quality."

AMI | Events

Polymer Sourcing and Distribution

19-21 May 2025 | Malaga, Spain

Book your place today!

Understanding global plastics trends and shaping strategies for success

Hear from industry leading speakers including:

Patrick Ottens
Ducor Petrochemicals

Martin Rathke
Biesterfeld Plastic

Amaro Araujo
Ineos Styrolution

Eduardo Contreiras
RAI Global Distribution

Ali Amin-Javaheri
Knowde

Mary Aiken-Wood
British Plastics Federation

Joost d'Hooghe
Nexeo Plastics

Esteban Sagel
Chemical and Polymer Market Consultants

Headline sponsor:

Biesterfeld
Competence in Solutions

Also sponsored by:

knowde

nexeo plastics

Supported by:

PLASTIKCITY

Fecc
EUROPEAN ASSOCIATION OF CHEMICAL DISTRIBUTORS

*T&C's apply and can be found on the website

IMAGE: CLARIANT

Right: Clariant has developed melamine-free Exolit AP 422 A flame retardant in anticipation of the current and future regulatory challenges around melamine

dispersion and stability, smoke suppression, and anti-dripping properties, along with better flow and processability which improves processing efficiency in injection moulded and extruded parts.

Chinese FR manufacturer **Zhejiang Wansheng**, which recently opened a new 400,000 m² factory in Shandong province, has launched WSFR3104, its first solid halogen-free FR for use in PA. The company says in 30% glass fibre-filled PA 66, the new additive shows improved flame retardant efficiency and better mechanical properties compared to competitive products. In tests, compounds with WSFR3104 were capable of reaching GWIT 775° C in combination with UL94-V0 at 0.8 mm thickness at addition levels considerably lower than combinations of ADP, melamine polyphosphate, and zinc borate. After recycling 100% of the compound three times in a twin-screw extruder, all properties remained intact. Full-scale production is expected to begin in 2026.

Due to growing concerns regarding the safety of triphenyl phosphate (TPP), a by-product of the production process, the company has also significantly reduced its use in its existing FR additives WSFR-BDP and WSFR-RDP, and invested in further purification steps in the production of these additives. The improved WSFR-RDP-L was recently launched with a TPP content well below the 0.1% threshold.

Fraunhofer LBF said it is looking for partners in Germany for the HFFR-Up2Cycle project which is aiming to upgrade PCR materials, including recycled PA, with halogen-free flame retardants to improve their flame retardancy and enhance their long-term mechanical and thermal properties.

For more than two decades, Exolit OP flame retardants from **Clariant** have combined robust FR performance with excellent material properties and best-in-class sustainability. This is one area in which the company is always looking to improve and is constantly evolving its portfolio to meet the challenges of its customer base.

"Take electrical cars as an example, as they bring completely new challenges to compounds," said Sebastian Hoerold, Head of Application Development for Additives Polymer Solutions at Clariant. "These include the need for a Comparative Tracking Index (CTI) of 600 V and above, sufficient resistivity against water and other fluids, as well as keeping flame retardancy and electrical properties after heat aging to name a few. Polyamide compounds that contain Exolit OP can meet all these technical challenges and in addition, help customers to achieve certain sustainability targets. A study from Fraunhofer LBF has shown that PA GF compounds containing Exolit OP 1400 maintain their UL 94 V-0 rating when recycled back into production streams multiple times. It is maintained as well throughout an aging time of 1,000 hours at 120° C simulating for post-consumer recycling."

Melamine alternative

The most recent addition to the range is the melamine-free Exolit AP 422 A, billed as a "safer and forward-thinking solution" that provides superior fire resistance and meets the stringent demands of modern industries. In anticipation of the current and future regulatory challenges around melamine, which was classified as a Substance of Very High Concern (SVHC) in 2023, Clariant has been proactively working on this innovative solution for several years, developing an SVHC-free alternative to the existing melamine-containing Exolit AP 422 flame retardant.

"Exolit AP 422 A responds to key market trends around tightening fire safety standards, environmental and health concerns, regulatory compliance needs, operational efficiency demands, and the

need for versatile solutions across many applications," said Christian Battenberg, Clariant's Global Business Development Manager Polymer Solutions.

Clariant also provides Licocare RBW Vita additives for PA based on renewable rice bran wax, a non-food-competing by-product of rice bran oil production, which act as effective lubricants, dispersion agents, and nucleating agents, improving flow by both internal and external lubrication. "Licocare RBW 300, 330, and 360 Vita, maximise the flow of polyamides giving a complete fill and faster injections without elevating temperatures," said Emilie Meddah, Global Marketing Manager for Additives Polymer Solutions at Clariant. "Licocare RBW 330 and 360 Vita improves flow and nucleates polyamides, reducing the cooling time of cycles and minimising shrink and warp via faster hardening of parts."

Restoring recyclate

The recycling of plastics is attaining increased focus in light of global efforts to minimise the environmental impact of their use. Polyamides such as PA 6 and PA 66 are widely used due to their excellent mechanical properties and thermal stability.

However, recycled PA often suffers from poor quality and processability. This is where Nexcircle R801, a chain extender developed by Swedish supplier and developer of heat-activated crosslinkers **Nexam Chemical**, comes into play as it is designed to enhance the viscosity and overall quality of recycled PA, improving critical properties and making them more suitable for high-performance applications.

Nexcircle R801 is a reactive additive that helps rebuild polymer chains which have been broken during the life cycle of the plastic, effectively restoring the material's original properties. One of the primary benefits of using it is a significant increase in viscosity, which ensures that the material can be easily extruded. Chain extension not only results in increased viscosity, but also in enhanced mechanical properties of recycled PA, including tensile strength, impact resistance, and elongation at break, making the recycled material more durable and suitable for demanding applications.

Recycled PA treated with Nexcircle also exhibits higher thermal stability, allowing for extended service life in applications that involve exposure to heat. In addition, enhanced processability and consistency provides lower production costs and

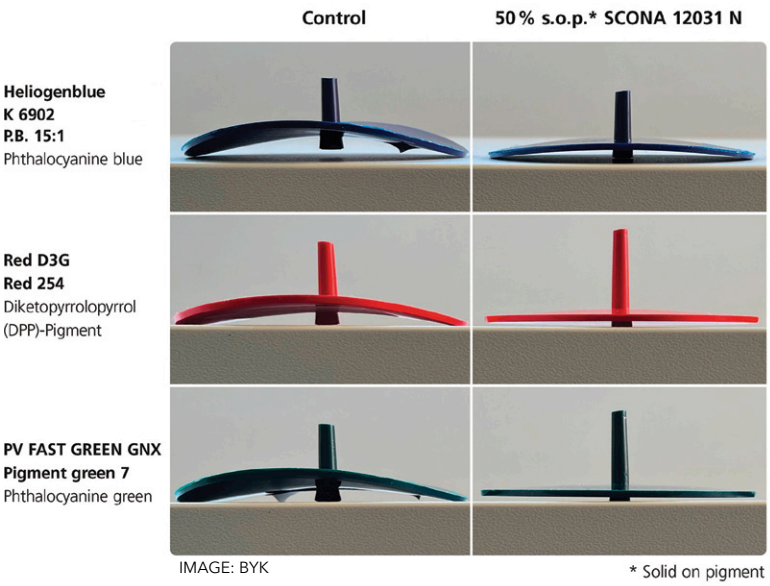


IMAGE: BYK

* Solid on pigment

Above: BYK's SCONA 12031 N significantly reduces the risk of distortion during the injection moulding process

higher yields. The benefits of Nexcircle R801 make it suitable for a wide range of applications including consumer goods, industrial products, and in particular automotive applications, where the improved mechanical properties and thermal stability is useful when manufacturing more durable and heat-resistant components.

In an unrelated but potentially exciting development, a study recently published in the journal *ACS Omega* discussed the challenges involved in recycling complex engineering polymer blends used in the automotive sector. The study explored alterations in the properties of compatibilised PA 6/TPE blends under multiple thermomechanical recycling conditions, especially for under-hood applications.

The compatibilisation of PA 6/TPE blends was achieved through the incorporation of polyhedral oligomeric silsesquioxane (POSS) nanoparticles, specifically utilising variants with three and multiple epoxide functional groups (TriEpPOSS and MultEpPOSS, respectively) in their cage structures. Following each recycling step, the blends were pelletised and injection moulded to characterise their morphological, rheological, mechanical, and thermomechanical properties.

The findings revealed that the addition of TriEpPOSS significantly improved all properties of PA 6/TPE blends throughout successive extrusion cycles. For instance, significant enhancements in Izod impact strength were achieved through the incorporation of TriEpPOSS into the PA 6/TPE blend. The 80PA6/20TPE blend with 1wt% TriEpPOSS demonstrated a remarkable 685% increase in Izod impact strength compared to the same blend without TriEpPOSS following the fourth extrusion cycle. Conversely, the incorporation of MultEpPOSS slightly reduced the rheological and mechanical properties after each extrusion cycle. Nonetheless, it was observed that all properties, particularly rheological characteristics, were superior in blends compatibilised with MultEpPOSS compared to both TriEpPOSS-compatibilised and non compatibilised blends, owing to the heightened reactivity of MultEpPOSS toward PA6.

Pigment warpage

SCONA 12031 N belongs to a new generation of **BYK**'s extensive SCONA additives family, and addresses the problem of warpage in finished parts caused by certain organic pigments such as phthalocyanine blue. This pigment is synthetic, acicular, and consists of a copper complex. The copper part of the pigment is very polar, while the rest of the molecule is non-polar. Due to these structural properties and its needle-like microstructure, phthalocyanine blue acts like a nucleus in the injection moulding process, propagating oriented crystallisation and thereby promoting warpage. SCONA 12031 N is functionalised with maleic anhydride and is not comparable with conventional, standardised polyethylene-maleic anhydride products. It forms a bond between the polymer and the pigments, thus ensuring improved dispersion and compatibility of the pigments in the material. This in turn leads to a significant reduction in the risk of distortion during the injection moulding process in the finished component.

The use of SCONA 12031 N also offers numerous advantages that the company says significantly improves plastics processing. It opens up more possibilities in colouristics so that a wider range of colours and shades can be realised, and enables faster cycle times in injection moulding which increases the efficiency of production processes. Another important benefit is the ability to replace more expensive pigments with cheaper alternatives without having to compromise on quality. This not only leads to a reduction in production costs, but also provides greater flexibility in the choice of suppliers.

CLICK ON THE LINKS FOR MORE INFORMATION:

- **https://greenchemicals.eu**
- **www.voelpker.com**
- **www.clariant.com**
- **www.lbf.fraunhofer.de**
- **www.caiadditives.com**
- **www.ws-chem.com**
- **https://nexamchemical.com**
- **www.byk.com**
- **www.ascendmaterials.com**

AMI | Events

Cables Asia

18-19 November 2025 | Bangkok, Thailand

New for 2025 - join us to explore the latest polymeric material innovations for cables and wires in Asia

BOOKING NOW OPEN

AMI | Market Reports

Energy

Plastics in Electric Vehicles
European Market 2025

Are you prepared for the role that polymers will play in the transition to EVs?

The automotive sector in Europe is undergoing a rapid transformation toward electric vehicles driven by a combination of regulatory pressures, evolving consumer preferences, and technological advancements.

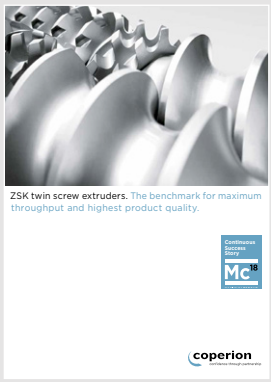
Our latest market report focuses on the heart of this transformation, the critical role that polymers will play to enable lightweighting, enhance performance, and support sustainability across EV manufacturing, and the opportunities this brings.

Take a closer look

www.ami.ltd/plastics-ev-eu-report

Download these new product brochures

COPERION: ZSK EXTRUDERS



Claimed to set the benchmark for throughput and quality, the ZSK is Coperion's most flexible and highest performance twin screw extruder series. This brochure explains the design features, applications and options.

❯ CLICK HERE TO DOWNLOAD

MIXACO: SPEEDY MIXER

Speedy mixers provide a flexible mixing option for small batch production. Available in sack and drum versions, the two ranges are supported with a full range of mixing tools designed to achieve fast and homogenous results.

❯ CLICK HERE TO DOWNLOAD

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.

❯ CLICK HERE TO DOWNLOAD

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.

❯ CLICK HERE TO DOWNLOAD

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.

❯ CLICK HERE TO DOWNLOAD

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.

❯ CLICK HERE TO DOWNLOAD

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

Keep informed: read our latest editions

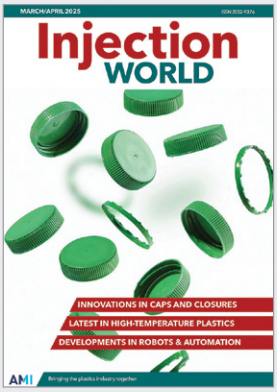
AMI publishes five process-specific FREE plastics industry magazines. Simply click on the cover below to read each magazine. Or download the issue in the relevant Apple or Android app

Compounding World March 2025
The March issue of Compounding World magazine has a cover feature on technological developments in twin screw extruders, plus updates on special effect pigments, materials testing and long fibre thermoplastics.

› CLICK HERE TO VIEW

Compounding World January/February 2025
Compounding World's January-February edition has a cover feature on additives for film applications. Other articles look at electrically conductive thermoplastic compounds and the latest pelletising technology

› CLICK HERE TO VIEW



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.

CLICK HERE TO VIEW

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.

› CLICK HERE TO VIEW

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.

› CLICK HERE TO VIEW

Film and Sheet March 2025
The March issue of Film and Sheet Extrusion has a cover story looking at the increasing sophistication of control systems for film and sheet companies, while other features cover the latest developments in thermoforming, barrier film and additives for film.

› CLICK HERE TO VIEW

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

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

GLOBAL EXHIBITION GUIDE

2025

15-18 April	Chinaplas, Shenzhen, China	www.chinaplasonline.com
6-9 May	Moulding Expo, Stuttgart, Germany	https://www.messe-stuttgart.de/moulding-expo
7-8 May	PlastTeknik Nordic, Malmö, Sweden	www.plasttekniknordic.com
8-10 May	RePlast Eurasia, Istanbul, Turkey	www.replasteurasia.com
14-15 May	Compounding World Expo India, Mumbai	www.compoundingexpoindia.com
14-17 May	Plastics & Rubber Thailand, Bangkok, Thailand	www.plasticsrubberthailand.com
20-23 May	Plastpol, Kielce, Poland	www.targikielce.pl/en/plastpol
27-30 May	GreenPlast, Milan, Italy	www.greenplast.org
3-5 June	UTech Las Americas, Mexico City	www.utechlasamericas.com
4-5 June	Textiles Recycling Expo, Brussels, Belgium	www.textilesrecyclingexpo.com
24-26 June	Foam Expo North America, Novi, MI, USA	www.foam-expo.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 December	PlastEurasia, Istanbul, Turkey	https://plasteurasia.com

AMI CONFERENCES

19-21 May 2025	Polymer Sourcing and Distribution, Malaga, Spain
2-3 June 2025	PFAS Workshop, Brussels, Belgium
10-11 June 2025	Plastics Recycling Technology, Long Beach, CA, US
10-11 June 2025	Polymers in Cables, Tampa, FL, US
17-18 June 2025	Masterbatch, Malaga, Spain
18-19 June 2025	Plastics in Electric Vehicles, Cologne, Germany
16-17 July 2025	Polymers in Footwear, Portland, OR, USA

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

www.amiplastics.com

DON'T MISS A SINGLE ISSUE

Register now for your free subscription at:

www.compoundingworld.com

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