

Top 10 Technology Trends in Plastics and Rubber in 2025

Insights into Emerging Manufacturing Powers



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Preface

The global plastics and rubber industries are entering a revolutionary new chapter. Energy transformation and trade barriers are amplifying uncertainty, while the pursuit of carbon neutrality is catalyzing a green transition.

Technological innovation has become a vital driver for enhancing competitiveness and navigating market cycles.

China's manufacturing sector continues to evolve, with international companies intensifying their localization efforts. Meanwhile, the integration of intelligent manufacturing, digitalization, and advanced materials is rapidly progressing. These dynamics are steering the industry toward higher value-added and sustainable development.

In this context, Adsale Plastics Network, leveraging over 40 years of expertise in the plastics and rubber industries, has collaborated with industry experts and enterprises across the supply chain to release the report "Top 10 Technology Trends in Plastics and Rubber for 2025". Through extensive case studies and professional evaluations, the report outlines the innovation roadmap and future direction for the plastics processing sector.

We hope this report serves not only as a technical reference but also as an industry initiative to advance together, providing insight and confidence to all stakeholders in the plastics and rubber industries as we shape a high-quality, intelligent, and sustainable future.

In recent years, Adsale Plastics Network has conducted in-depth discussions and onsite visits with industry experts and end-user brands, consistently releasing the top ten technology trends to offer valuable references for industry development. In 2025, we present the following technology trends, analyzing the latest technological innovations in the plastics and rubber industries. Our aim is to assist both upstream and downstream enterprises in seizing market opportunities and fostering the high-quality development of the plastics and rubber industries.

AdsalePlastics
AdsaleCPRJ.com **Network**
Industry Insight • Business Connect

Industry Trends Indicator

Top 10 Technology Trends in Plastics and Rubber in 2025

1 High-Value
Recycled Plastics
and Rubber

2 Bio-Plastic

3 Low-Carbon
Recycling

4 Skin-Friendly
Soft Materials

5 Lightweight,
Functional Materials
and Additives

6 Intelligent Injection
Molding and Auxiliary
Technologies

7 Energy-Efficient
Extrusion and
Auxiliary Technologies

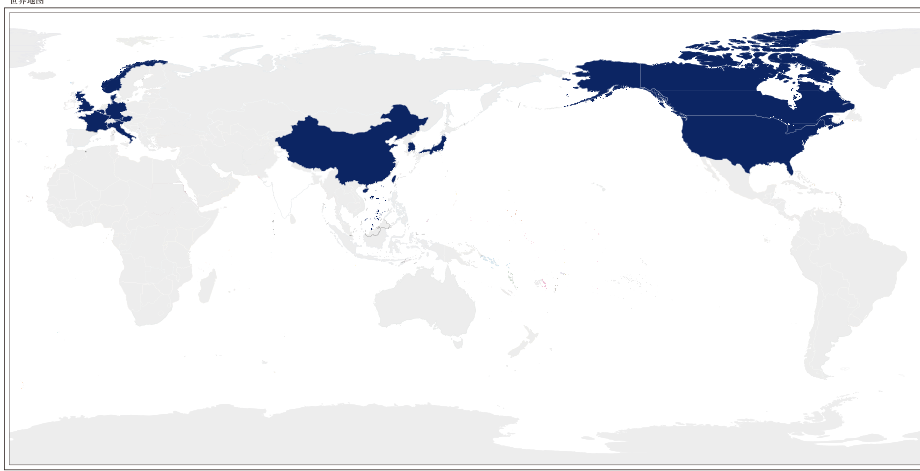
8 Multi-Layer,
Multi-Cavity Blow
Molding Technologies

9 Functional Films
and Surface
Treatment

10 Automation and
Smart Manufacturing
Technologies

To gain a deeper understanding of the top ten technology trends, Adsale Plastics Network reached out to 92 companies from 13 countries worldwide, collecting a total of 118 innovative case studies. We invited over 20 industry experts to analyze these case studies, identifying existing challenges and potential breakthroughs. Their professional insights further enhance our understanding of these new technologies.

世界地图



Participating companies in the “Top 10 Technology Trends in Plastics and Rubber in 2025” come from 13 countries, including China, the United States, Canada, Germany, Austria, Italy, the United Kingdom, France, Norway, Denmark, Belgium, Japan, and South Korea.

Additionally, we conducted expert reviews, online voting, and committee voting, focusing on three key assessment criteria: innovation, environmental benefits, and commercial value. Award-winning case studies were selected to recognize the contributions of participating companies and teams in advancing technological development within the plastics and rubber industries.

The six awards presented by Adsale Plastics Network are as follows:

Leadership Award



Pioneer Award



Outstanding Award



Innovation Award



Most Popular Award



Expert Choice Award



In the next chapter, we will provide an in-depth analysis of the award-winning case studies in the “Top 10 Technology Trends in Plastics and Rubber for 2025.”

Number of Case Studies

118

Countries of Origin

13

Participating Companies

92

Participating Experts

20+

Online Voting

16,703 valid votes

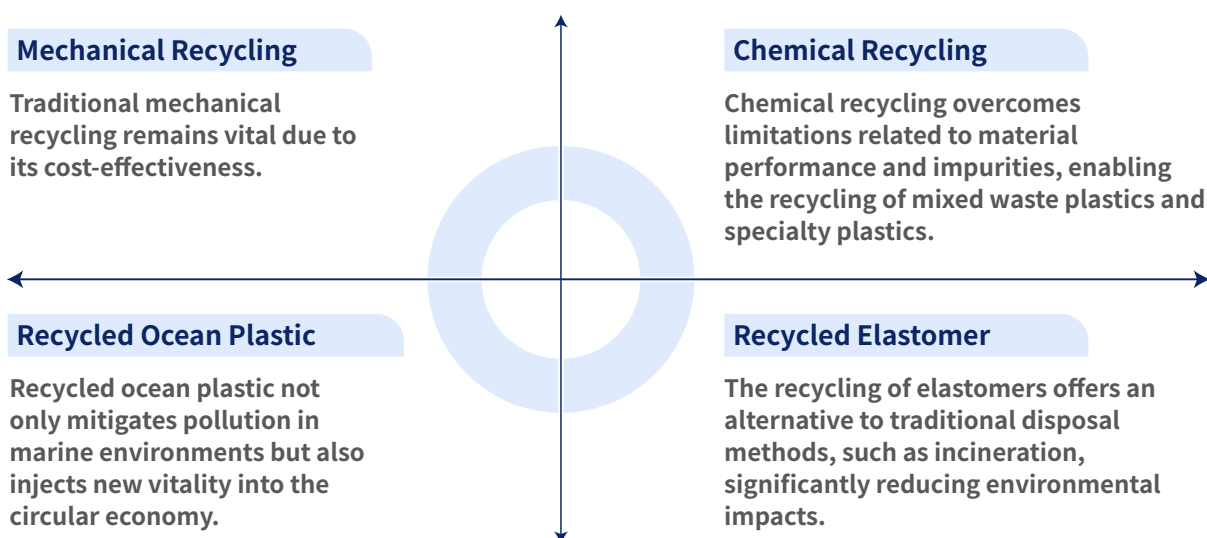
* P41 List of Experts on Review Panel

* P42 List of Award-Winning Companies and Case Studies

1 High Value Recycled Plastics and Rubber

#mechanical recycling #chemical recycling
#recycled ocean plastic #recycled elastomer

Our observations indicate that innovations in recycled plastics are emerging in various forms:



Case Studies

LyondellBasell

Leadership Award 🏆

Circulen® Project

#mechanical recycling #chemical recycling

The Circulen® project establishes a dual-track recycling system combining mechanical recycling and molecular recycling, effectively addressing key challenges such as impurity control and performance degradation in recycled plastics. It meets diverse raw material requirements, ranging from industrial products to consumer goods, while fostering a closed-loop supply chain.



Expert Comment

LyondellBasell's Circulen® project enhances the efficient recovery of plastic waste by complementing mechanical recycling with chemical recycling processes.

Covestro Leadership Award 🏆**Recycled Plastic CMF Design Innovation**

#mechanical recycling

By leveraging consumer behavior insights and CMF (Color, Material, Finish) strategies, this solution transforms the sustainability of recycled materials into tangible visual and tactile product advantages, lowering design barriers and enhancing market appeal.

**Expert Comment**

Covestro has successfully implemented a closed-loop application of polycarbonate materials by collaborating throughout the industry chain. This initiative enhances the aesthetics of recycled products and establishes a model for a stylish circular economy.

Re-Mall Pioneer Award 🏆**R-PP Food-Grade Recycled Polypropylene Materials**

#mechanical recycling #recycled ocean plastic

A systematic optimization across nine performance dimensions – such as transparency, odor, and impurity control – together with a proprietary carbon footprint tracking system, ensures high-ratio substitution of recycled materials in premium applications.

Expert Comment

Re-Mall's R-PP food-grade recycled polypropylene material effectively addresses the challenges of food-grade recycling, reducing carbon emissions by over 80%. Its successful integration into high-end applications suggests significant market potential for the future.

Yuantian Biotechnology Outstanding Award 🏆**PET Enzymatic Closed-Loop Recycling**

#chemical recycling

Using advanced enzyme engineering and genetic engineering technologies, the solution achieves highly efficient PET degradation under ambient temperature and pressure conditions. This process produces high-purity rPTA and rEG, enabling the transition of PET materials from traditional linear consumption patterns to infinite circular utilization.

Expert Comment

Yuantian's PET enzymatic closed-loop recycling overcomes the limitations of ambient temperature and pressure, achieving high monomer recovery rates that support circular economy principles. The next crucial step is to scale up production capacity for industrial validation.

WANROOETECH Outstanding Award 🏆**Chemical Recycling Equipment for Plastic Waste**

#chemical recycling

Adopting a structural design of a rotary kiln with multiple heating modules—hot air, electromagnetic, and resistance heating—this equipment processes mixed waste plastics from various sources, including municipal, industrial, agricultural, medical, and construction waste streams. The technology converts waste plastics into pyrolysis oil, gas, and carbon. By utilizing continuous sealed feeding and discharging technology, it significantly reduces oxygen content and energy consumption in flue gas.

Expert Comment

WANROOETECH's chemical recycling equipment for plastic waste showcases exceptional innovation. Its oxygen-free pyrolysis technology enables the high-value conversion of plastic waste, offering broad industrial applications and notable carbon reduction benefits. As a private Chinese company, WANROOETECH's competitive capabilities in this sector are particularly impressive.

Sesotec Outstanding Award 🏆**FLAKE PURIFIER Sorting System**

#mechanical recycling

This system features customizable combinations of color, near-infrared, and metal detection units. Its full-color CCD camera achieves a resolution of up to 0.375 mm and can recognize up to 17 million colors for targeted impurity removal. With 96 fixed detection points, it achieves metal detection accuracy of up to 1 mm, sorting more than 40 different types of polymers.

Expert Comment

The Sesotec FLAKE PURIFIER sorting system offers advanced and intelligent sorting with exceptional precision, providing technological support for high-value applications. However, the equipment is relatively high in cost.

Arkema Innovation Award 🏆**Rilsan® PA11 (Bio-Based Nylon 11)**

#mechanical recycling

Arkema has collaborated with a well-known domestic down jacket manufacturer to develop two innovative fabrics based on Rilsan® PA11. These fabrics consist of woven and film materials made from 100% bio-based Rilsan® PA11 and 50% bio-based Pebax® nylon elastomer, suitable for functional apparel such as outdoor jackets, down jackets, and skin garments. These materials can be recycled after use, providing a more sustainable material solution for the textile industry.

Expert Comment

The recyclable textile fabric made from bio-based Rilsan® PA11 embodies two environmental innovations: the use of bio-based materials and a recyclable design. However, achieving closed-loop recycling for textiles remains a challenge, highlighting the need to expand application scenarios.

Dawn Innovation Award 🏆**PE/PP Circular Solution**

#mechanical recycling

By integrating cutting-edge technologies, including an automated sorting system (achieving recognition efficiency of up to 95%), chemical depolymerization, and nano-modification, this solution raises resource utilization to over 90%, effectively overcoming performance and cost bottlenecks in plastic waste recycling.

**Expert Comment**

Dawn's PE/PP circular solution stands out in automated sorting and closed-loop systems, featuring scalable mechanical recycling. However, its end-use applications still require further development.

ExxonMobil Innovation Award 🏆**High-Performance Recycled Resin for Lubricant Packaging**

#mechanical recycling

By leveraging the Vistamaxx™ polymer modification solution, it enables the incorporation of high ratios of recycled materials in packaging structural components without compromising aesthetics, structural stability, or climate durability.

Expert Comment

Vistamaxx™ high-performance polymer enables the extensive use of recycled resin in Mobil 1™ lubricant packaging, ensuring aesthetics, mechanical performance, and durability while reducing reliance on virgin plastics.

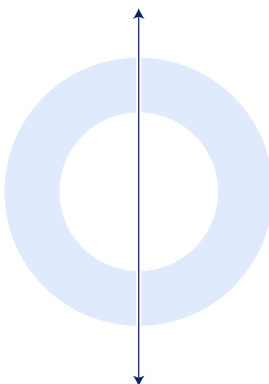
2 Bio-Plastic

#biodegradable #non-biodegradable

Thanks to innovations in material formulation and production processes, the sources and applications of bio-based plastic are showing the following trends:

Non-Food Raw Materials

In addition to traditional starch and cellulose, materials such as lignin and waste oils are becoming important sources for bio-based plastics, effectively reducing competition between bio-based plastic production and food production.



Enhanced Strength and Toughness for Diverse Applications

Bio-based plastic is demonstrating high potential across various sectors, including automotive, packaging, electronics, agriculture, healthcare, textiles, and construction.

Case Studies

Zhuhai Kingfa Leadership Award 🏆

PBAT Biodegradable Mulch Film Solution

#biodegradable

Achieving critical advancements in precise PBAT molecular structure modulation, functional enhancement, and application adaptability, this solution supports large-scale adoption of agricultural films.

The establishment of the world's largest PBAT production base, with an annual capacity of 200,000 tons, positions China as a global leader in PBAT export and application.



Expert Comment

This project addresses the trade-off between PBAT mechanical strength and degradability through core technologies, including precise molecular chain modulation, anti-hydrolysis catalysts, and starch plasticization. It has developed a high-moisture-retention mulch film, achieving a comprehensive innovation and providing a Chinese solution to global plastic pollution.

Cabot Pioneer Award 🏆

BIOPLASBLAK XP5650A/B Black Masterbatch

#biodegradable

Through advanced carbon black dispersion technology, this solution offers exceptional opacity and weather resistance, ensuring both visual quality and enhanced performance stability of biodegradable mulch films.



Expert Comment

Cabot's BIOPLASBLAK® XP5650A/B black masterbatch provides high jetness and superior carbon black dispersion without non-biodegradable components, effectively addressing the soil residue issues associated with conventional plastic films.

Covation Biomaterials Pioneer Award 🏆**CovationBio bioPTMEG Innovation Project**

#non-biodegradable

This innovative technology utilizes corncob-derived furfural to establish the world's first non-food bio-based polytetrahydrofuran industrial process. It marks a breakthrough in high-value furfural conversion, with Phase I investment reaching RMB 10 billion and 50,000-ton mass production planned for Q1 2026.

Expert Comment

Covation Biomaterials' bio-based PTMEG marks a breakthrough in the high-value utilization of China's abundant furfural resources, significantly enhancing the bio-carbon content in polyurethane and polyester elastomer products.

Arkema Outstanding Award 🏆**Rilsan® PA11 (Bio-Based Nylon 11)**

#non-biodegradable

Arkema has partnered with a leading domestic Tier 1 supplier to develop cooling water pipes for electric vehicles made from Rilsan® PA11. This material is crucial for battery cooling systems, as the cooling water pipes made from it combine excellent long-term hydrolysis resistance, flexibility, impact resistance, and low density. They can be installed in tight spaces to effectively transport coolant, enhancing thermal management and extending the lifespan of the vehicle's electrical systems.

**Expert Comment**

Arkema's 100% bio-based high-performance polyamide, derived from castor beans, offers benefits such as lightweight, low-temperature resistance, corrosion resistance, and low moisture absorption. It is suitable for high-demand applications, including automotive fuel lines, medical catheters, and 3D-printed sports equipment. The production process utilizes renewable energy and supports recycling efforts.

LG Chem Outstanding Award 🏆**Bio-Acrylic Acid**

#non-biodegradable

Leveraging 3HP fermentation technology, this material offers both biodegradability and high flexibility. It is widely applicable in cosmetic containers, superabsorbent polymers (SAP), coatings, and adhesives, with a planned production capacity reaching a million tons by 2025.

Expert Comment

LG Chem's bio-acrylic acid leverages bio-based 3-hydroxypropionic acid to produce platform chemical acrylic acid, which is then developed into foundational resins, including acrylic resins, coatings, and absorbent materials. This technology signifies a major advancement in the development of bio-based polymers.

Green Fill Material Technology Innovation Award 🏆**Multifunctional Degradable Starch Foam Board**

#biodegradable

By polymerizing two distinct biomass-derived monomers, this bio-based polyester material achieves 20-65% bio-carbon content while outperforming PBAT. It can fully replace PBAT in applications such as shopping bags, food waste bags, agricultural mulch films, express packaging, laminates, and disposable tableware.

Expert Comment

Through multi-stage starch modification, this multifunctional degradable starch foam board achieves a 97% composting degradation rate, promoting environmental protection while ensuring product shelf life and cost-effectiveness.

Star Plastics Innovation Award 🏆**Oyster Shell Antibacterial Materials**

#non-biodegradable

This project focuses on the development of natural bio-based materials, integrating post-consumer recycling concepts. Featuring naturally harmless antibacterial properties that improve health outcomes, it complies with PFAS-free standards and plays a pivotal role in advancing the sustainable economy.

**Expert Comment**

Star Plastics' oyster shell material innovatively harnesses the natural antimicrobial mechanisms of oysters, eliminating the risks associated with conventional chemical additives. It complies with international PFAS-free standards, setting a new benchmark for the R&D of healthy bio-based materials.

3 Low-Carbon Recycling

#intelligent sorting #integration (shredding, washing, pelletizing)
#bottle-to-bottle

We have observed the following development trends in low-carbon recycling processes:

Integration of Shredding, Washing, and Pelletizing

The integration of shredding, washing, and pelletizing processes facilitates a continuous and efficient recycling workflow, optimizing both time and space.

Intelligent Sorting

During the sorting phase, sensors and algorithms rapidly and accurately identify the type, color, and composition of plastics, achieving sorting accuracy of over 95%. This significantly enhances the recycling rate and purity of waste plastics.



Bottle-to-Bottle Recycling

This approach minimizes the downcycling of plastic bottles, enabling plastics to circulate within their highest-value applications. Moreover, the stringent requirements for recycling technology and equipment in bottle-to-bottle recycling drive innovation and advancements in the plastic recycling sector.

Case Studies

Husky Technologies™ Leadership Award 🏆

Integrated PET Cap Injection Molding Solution

#bottle-to-bottle

This solution achieves an all-PET design for both bottle and cap, streamlining the recycling process and enhancing rPET yield, thereby facilitating the development of fully recyclable beverage packaging systems.



Expert Comment

This integrated PET cap injection molding solution represents a revolutionary innovation in mono-material cap design, successfully meeting both lightweighting and recyclability requirements. Its scheduled mass production in 2025 is highly anticipated.

BoReTech Pioneer Award 🏆**ES Process PET Bottle Recycling Washing System**

#integration (shredding, washing, pelletizing)

This system features technical advantages such as modular process design, standard spare parts, compact equipment layout, and preset pipes within the module. Compared to conventional systems, it reduces footprints by 25%, while its pulse thermal cleaning module improves flake cleanliness by 25%. Suitable for food-grade packaging and micro denier filament recycling and washing, it addresses the needs of developed economies with land constraints and high labor costs.

Expert Comment

BoReTech's ES Process PET bottle recycling washing system represents a cutting-edge advancement in PET bottle cleaning technology. As a comprehensive sorting solution from China, it is now competitively surpassing similar international products.

TOMRA Pioneer Award 🏆**Near-Infrared BPA-Free Detection Solution**

#bottle-to-bottle

Utilizing near-infrared sensors and patented scanning technology, this solution efficiently and accurately removes impurities such as PC and PETG, controlling impurity levels to nearly 0 ppm. It meets BPA-free standards in PET food-grade and bottle-to-bottle recycling applications, enhancing safety.

**Expert Comment**

TOMRA's near-infrared BPA-free detection solution is world-leading technology. In the field of PET food-grade recycling, it provides critical technical support for ensuring food safety and improving the quality of recycled PET. Highlighting its film sorting capabilities in case studies would further enhance its impact.

Starlinger Recycling Technology Outstanding Award 🏆**recoSTAR PET art + viscoSTAR SSP Food-Contact Recycling System**

#bottle-to-bottle

Featuring high-performance C-VAC degassing modules and PCUplus air-flushing technology, this system effectively removes acetaldehyde and volatile impurities, producing high-purity food-grade rPET. With low energy consumption, a compact footprint, and high recycling purity, it is ideally suited for high-standard recycling applications of HDPE food packaging.

**Expert Comment**

Starlinger's recoSTAR PET art system sets the gold standard in mechanical rPET recycling. Its advanced C-VAC degassing module and PCUplus air-flushing technology significantly enhance the quality of recycled plastics, playing a crucial role in ensuring food safety standards and advancing the circular economy in plastics.

Meyer Optoelectronic Innovation Award 🏆

Master Series 4.0

#intelligent sorting

This system utilizes AI models to integrate functions for color, material, aging sorting, and metal removal. It intelligently adapts to production output, ensuring uniform material discharge without manual intervention and providing efficient, precise sorting technology support for the recycled plastics industry.

Expert Comment

The Master Series 4.0 leverages advanced AI sorting technology to enhance operational efficiency by over 30%, driving intelligent transformation within the industry.

Huntsman Innovation Award 🏆

SMARTLITE® O Liquid TPU Footwear System Solution

intelligent sorting

Combining the SMARTLITE® O foam midsole with the AVALON TPU outsole, this solution creates a 100% recyclable footwear system through an integrated lightweight molding process. It features easy processing, lower energy consumption, and reduced water usage, significantly minimizing production waste and carbon emissions while exemplifying best practices in green design and manufacturing.

Expert Comment

Huntsman's SMARTLITE® O Liquid TPU is specifically developed for the footwear industry, enabling easy processing. It achieves weight reduction while significantly decreasing water usage, energy consumption, waste, and carbon emissions. The material can be mechanically recycled into new footwear components, offering an innovative solution for sustainable footwear development.

ENMA Innovation Award 🏆

ENMA 1 Shaft Modular Crusher

#integration (shredding, washing, pelletizing)

This shredder features an energy-efficient design with quick disassembly and reassembly capabilities, allowing for high-efficiency processing of diverse recycled materials, including pallets, bales, and synthetic fiber blocks across varying production scales. It maximizes lifespan while minimizing downtime.

**Expert Comment**

The ENMA 1 Shaft Modular Crusher demonstrates exceptional adaptability for processing recycled plastic products of varying sizes and geometries. With its flexible modular design and low maintenance costs, this solution is particularly well-suited for small to medium-scale recycling operations.

4 Skin-Friendly Soft Materials

#medical application with high biocompatibility
#thermoplastic elastomers (TPE, TPO, TPU, etc.) #LSR

We have observed that these materials are increasingly being adopted across diverse applications, including mobility, medical, and luxury fashion.

Medical Application with High Biocompatibility

Thermoplastic elastomers and LSR are essential in high-end interventional devices, minimally invasive surgical instruments, medical robot components, catheters, wearable medical devices, and medical imaging parts. Additionally, LSR serves as a soft tissue filler for aesthetic procedures, such as facial wrinkle treatment and volume restoration.

Future Mobility

In the automotive sector, Thermoplastic elastomers contribute to weight reduction and functional integration in both interior and exterior applications. LSR is vital for high-performance sealing applications, expanding its use in electronics, innovating optical components, facilitating micro-molding and precision manufacturing, and improving wear resistance of components.



Luxury Fashion

Thermoplastic elastomers enhance the comfort of fashionable products like shoe uppers, soles, and bags. LSR is commonly used in wearables, beauty devices, phone cases, and eyewear accessories, thereby improving the overall user experience.

Case Studies

POLYMAXTPE Leadership Award 🏆

Green Thermoplastic Elastomer Solution

#thermoplastic elastomers (TPE, TPO, TPU, etc.)

This high-performance TPE material, developed with 20-70% post-consumer recycled (PCR) content, directly adheres to various substrates (e.g., PP, PC, ABS), addressing the challenge of elastomer recyclability in the industry.

Expert Comment

This PCR-enhanced TPE maintains performance parity with virgin materials while delivering soft tactile properties and strong multi-substrate adhesion (PP/PC/ABS). This eco-friendly innovation replaces conventional TPEs, offering promising prospects.

GAINSHINE Pioneer Award 🏆**TPE Silicone-Like Material**

#thermoplastic elastomers (TPE, TPO, TPU, etc.) #LSR
#medical application with high biocompatibility

This material is made from isoprene polymerization and cross-linked with mineral oil, featuring high skin-friendliness, tear resistance, and wear resistance, along with light transmittance of up to 95%. It is ideal for high-performance optical elastomer products such as biomimetic skin.

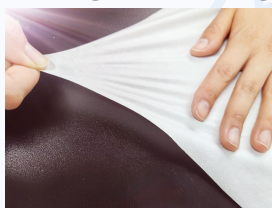
**Expert Comment**

This TPE silicone-like skin-friendly material achieves a breakthrough through a multidimensional balance of mechanics, touch, and biomimicry. It is particularly suited for applications requiring high skin-friendliness and durability, providing foundational material solutions for trillion-dollar markets like electronic skin, smart medical devices, and new energy vehicle (NEV) interiors.

Binzhou Cornel Outstanding Award 🏆**Breathable Elastic Material**

#thermoplastic elastomers (TPE, TPO, TPU, etc.)

Developed by a subsidiary of Shandong Chambroad Holding Group, this thermoplastic elastomer is processed using ultrafine fiber technology, combining breathability with skin-friendly elasticity. It is widely used in lightweight applications such as smart wearables, medical patches, and beauty masks.

**Expert Comment**

This breathable elastic material, with its advanced technology and outstanding performance, is poised to initiate a new material application revolution across various fields, leading the industry towards greater efficiency, comfort, and safety.

JEA Plastic Innovation Award 🏆**TESiV Elastomer Material**

#thermoplastic elastomers (TPE, TPO, TPU, etc.)

This material features a translucent characteristic and is specifically designed for wearable electronic products. It effectively addresses the shortcomings of traditional TPU in hydrolysis resistance, yellowing, and tactile feel, enhancing the overall user experience.

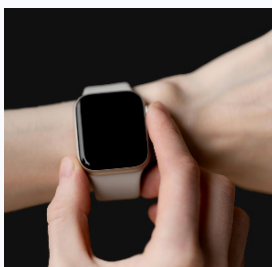
Expert Comment

This TESIv elastomer material tackles the pain points of traditional TPU, such as poor hydrolysis resistance, subpar tactile quality, and yellowing, precisely meeting market demands.

Star Plastics Innovation Award 🏆**Siloxane Modified TPU**

#thermoplastic elastomers (TPE, TPO, TPU, etc.)

Adopting a phthalate-free formula, this material effectively addresses surface tackiness while offering excellent compatibility and self-adhesive properties. Compared to fluoroelastomers, its density is reduced by approximately 30%, simplifying the manufacturing process and providing a rich array of colors at competitive overall costs.

**Expert Comment**

Star Plastics' siloxane-modified TPU is a high-performance material that combines the mechanical properties of TPU with the unique characteristics of siloxane, making it suitable for a wide range of applications in the medical, automotive, electronics, and outdoor sectors.

5 Lightweight, Functional Materials and Additives

#lightweight #high-performance #specialization #eco-friendly
#composite #carbon fiber

These materials are continuously evolving to improve the following performance characteristics:

Specialization

Through precise formulation design, these materials address specific application requirements, optimizing key performance indicators.

Environmental Friendliness

In addition to incorporating recycled plastics and bioplastics, materials with features such as halogen-free flame retardancy, low VOC emissions, and recyclability significantly enhance the environmental value of products.

High Functionality

Various composite materials such as carbon fiber reinforced composites and glass fiber reinforced composites have achieved technological breakthroughs in lightweighting and high performance. These materials not only help reduce product weight but also significantly enhance properties like high-temperature resistance, chemical corrosion resistance, and electrical and thermal conductivity, enabling the integration of multiple functions.

High Performance

High-performance materials exhibit high strength, exceptional toughness, fatigue resistance, excellent heat resistance and thermal stability, chemical corrosion resistance, high electrical conductivity and dielectric properties, as well as high transparency and low haze. They are well-suited for demanding and complex application environments, enabling the development and manufacturing of high-end products.

Case Studies

Victrex Leadership Award

LMPAEK™ Polymer

#lightweight #high-performance

Making its Asian debut at CHINAPLAS 2025, this material offers excellent weight reduction while maintaining outstanding mechanical strength, thermal stability, and chemical resistance at continuous high temperatures up to 250°C. This makes it an ideal choice for high-heat applications such as aircraft engines and automotive powertrain systems.



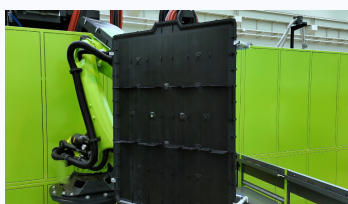
Expert Comment

Victrex LMPAEK™ polymer is poised to lead global materials science toward high-performance, lightweight, and sustainable development. It serves as a key driver for technological innovation across industries, playing an irreplaceable role in future industrial development and environmental protection.

SABIC, ENGEL and Partners Leadership Award 🏆**Thermoplastic Composite Hybrid Battery Housing**

#lightweight

Utilizing highly engineered thermoplastic composites and fully integrated automated precision injection molding, this solution maximally reduces material usage and post-processing steps. It eliminates obsolete components in existing designs and minimizes secondary processing.

**Expert Comment**

This battery housing solution represents a significant technological breakthrough in high-voltage battery systems. The large component made of thermoplastic composites incorporates an industry-unique integrated injection molding process with flame-retardant polypropylene resin, achieving over 20% weight reduction, though further optimization of mass production costs is still needed.

DOW Pioneer Award 🏆**ENGAGE™ 11000T Polyolefin Elastomer**

#Lightweight #high-performance #eco-friendly

Featuring a lower glass transition temperature, higher melting point, and crystallization temperature, this material improves resilience and mechanical properties while enhancing flowability and injection molding efficiency. It is widely used in automotive interiors/exterior, cables, footwear, and other consumer applications, meeting both lightweighting and toughness requirements.

**Expert Comment**

Dow's ENGAGE™ 11000T polyolefin elastomer breaks through the limitations of traditional olefin elastomers, achieving higher melting and crystallization temperatures that ensure material stability in high-temperature environments, effectively expanding the product's service temperature range.

Wanhua Chemical Pioneer Award 🏆**Nylon 12 Elastomer (PEBA)**

#lightweight

With ultra-low density, low water absorption, dimensional stability, and good processability, this material is suitable for footwear, sports equipment, and industrial transmission systems. It adopts a completely independent R&D pathway, establishing a full industrial chain from butadiene to polyamide 12 elastomer, showcasing Chinese technological capabilities.

Expert Comment

This material ingeniously combines the easy processability of plastics with the high elasticity of rubber by optimizing polyether block amide copolymers composed of rigid polylauro lactam and flexible polyether blocks, creating a unique thermoplastic elastomer.

Yanchang Zhongmei Outstanding Award

Innovative Application of High-Transparency Energy-saving PP Material in Refrigerator Trays

#high-performance

Refrigerator trays are typically made from highly transparent polystyrene (PS). However, the use of polypropylene (PP) with the fourth-generation clarifying agent NX8000 not only enables efficient processing at lower injection molding temperatures but also maintains excellent transparency and aesthetic quality. Additionally, since PP has a lower density than PS, replacing PS with PP contributes to lightweighting.



Expert Comment

This innovative application of high-transparency energy-saving PP material in refrigerator trays significantly shortens product processing cycles and reduces injection molding temperatures, thereby lowering processing costs. Thicker products over 2mm made from this material can still achieve good transparency, making it a viable alternative to more expensive transparent plastics.

Tederic Outstanding Award

NEO · H550 Micro-Foaming Injection Molding Machine

#lightweight #high-performance #specialization

Utilizing Tederic's CellSure® micro-foaming technology, which mixes nitrogen with plastic, the NEO · H550 achieves up to 15% weight reduction while maintaining strength. Its self-developed closed-loop micro-opening technology offers $\pm 0.01\text{mm}$ precision, ensuring uniform bubble diffusion during foaming, which enhances both structure and aesthetics.



Expert Comment

Tederic's NEO · H550 micro-foaming injection molding machine achieves lightweighting without compromising product performance, crucial for producing automotive interior parts, frames, and structural components with stringent weight and strength requirements.

Kingfa Sci. & Tech. Innovation Award

PFAS-Free Ultra-Thin Flame-Retardant High-Performance Polycarbonate

#high-performance #eco-friendly

This material maintains high flame-retardant performance while demonstrating excellent thermal stability and flow properties, enabling molding with an ultra-thin wall thickness of just 0.8mm. It is particularly suitable for structural components in precision portable electronic products, including consumer electronics, office equipment, and electrical appliances.



Expert Comment

Kingfa's PFAS-Free ultra-thin flame-retardant high-performance polycarbonate, backed by an environmentally-friendly R&D philosophy and outstanding product performance, is highly competitive in the materials market. It is expected to reshape the landscape of PFAS-Free flame-retardant polycarbonate materials.

Continuous Fiber Reinforced Polyamide

#lightweight #high-performance

This material achieves a 30% reduction in density while delivering high strength and high modulus mechanical properties. It meets aesthetic requirements such as color diversity and high surface finish, making it suitable for applications like robot skeletons and joint components, balancing structural performance with design aesthetics.

Expert Comment

Kingfa's high-strength continuous fiber reinforced polyamide used in robot skeletons presents new opportunities for advancements in the robotics industry. The material employs alternating pressure melt impregnation technology and infrared radiation fiber preheating technology, overcoming traditional process barriers.

ExxonMobil Chemical Innovation Award 🏆**New Non-PVC Elastic Flooring Solution**

#lightweight #eco-friendly

Utilizing a polyolefin hybrid system created with Vistamaxx™ performance polymer compound fillers, this flooring solution is suitable for both soft and hard elastic flooring. It features excellent heat resistance, dimensional stability, flame retardancy, and low warpage, providing the building materials market with a solution that combines high performance and sustainability.

**Expert Comment**

ExxonMobil Chemical's new non-PVC elastic flooring solution demonstrates significant environmental advantages by replacing PVC with polyolefin. It is free of plasticizers and halogens, offering high environmental value.

Inovia Materials Innovation Award 🏆**PFAS-Free PC Flame Retardant**

#high-performance #specialization

This flame retardant for polycarbonate is specifically halogen-free and does not require PTFE additives. It can cover a thickness range of 0.005 to 1.6 mm while providing good mechanical and thermal properties, making it suitable for high-performance applications such as high transparency or white polycarbonate films and sheets.

Expert Comment

Inovia's ionic flame retardant, primarily composed of sulfur and phosphorus, requires only a small amount (2% to 3%) to achieve a V0 flame retardant rating. It can be used with transparent materials without compromising optical performance and clarity. As it is free from halogens and heavy metals, it is considered a safe and environmentally friendly flame retardant system.

Arkema Innovation Award 🏆**Rilsan® PA11 (Bio-Based Nylon 11)**

#lightweight #high-performance #eco-friendly #composite

Arkema's bio-based Rilsan® PA11 material combines excellent low-temperature resistance, hydrogen compatibility, ease of processing, and lightweight properties, making it the preferred choice for Type IV hydrogen storage tank liners. Compared to the metal liners used in Type III hydrogen tanks, the Type IV liners made from Rilsan® PA11 have a higher hydrogen storage density and superior durability, capable of withstanding frequent hydrogen charging and discharging cycles, effectively reducing maintenance costs.

Expert Comment

Bio-based Rilsan® PA11 provides a high-performance sustainable material solution for large-volume Type IV hydrogen tank liners, combining carbon reduction with safety. It has received GB/T certification and offers significant commercial value.

LG Chem Innovation Award 🏆**Low Glossy ABS**

#high-performance

This material combines a skin-like texture with high compatibility, enabling seamless integration with high-gloss molds. Manufacturers can flexibly switch between matte and gloss effects without changing molds, making it widely used in the production of high-end appliance components.

**Expert Comment**

As the world's largest ABS producer, LG Chem's low glossy ABS offers a significant technical advantage in the market. This matte-grade ABS provides a skin-friendly feel without the need for mold modifications, making it ideal for high-end appliance applications and realizing substantial commercial value.

PFAS-Free Flame Retardant PC/ABS with Recycled Content

#eco-friendly

This material achieves flame retardant levels comparable to traditional PFAS materials while incorporating over 50% post-consumer recycled (PCR) content, resulting in approximately 46% reduction in carbon emissions.

Expert Comment

LG Chem's PFAS-Free flame retardant PC/ABS with recycled content is the world's first UL-certified PFAS-free flame retardant PC/ABS. With over 50% PCR material and a 46% carbon reduction, it is highly suitable for electronic and automotive applications.

Elkem Silicones

Innovation Award 🏆

BLUESIL™ LDH 5133-XY A3 Silicone Rubbe

#lightweight

This low-density, low-friction solid silicone rubber offers a lightweight feel and excellent tactile qualities. It is suitable for compression molding and extrusion processes, demonstrating good compatibility for blending with other silicone materials.

Expert Comment

This silicone rubber is highly adaptable, making it suitable for common processes like compression molding and extrusion. It can be mixed with other silicone rubbers, and with its low VOC (volatile organic compound) content, it is particularly appealing in weight-sensitive sectors such as aerospace and electronic component manufacturing, as well as in everyday products that prioritize lightweight designs.

KUMHO-SUNNY

Innovation Award 🏆

Blade Plastic

#lightweight

This material boasts an appearance and texture comparable to pure resin, featuring high modulus, high rigidity, high toughness, and excellent dimensional stability with anti-warping properties. It provides a new lightweight material solution for low-altitude aircraft components.

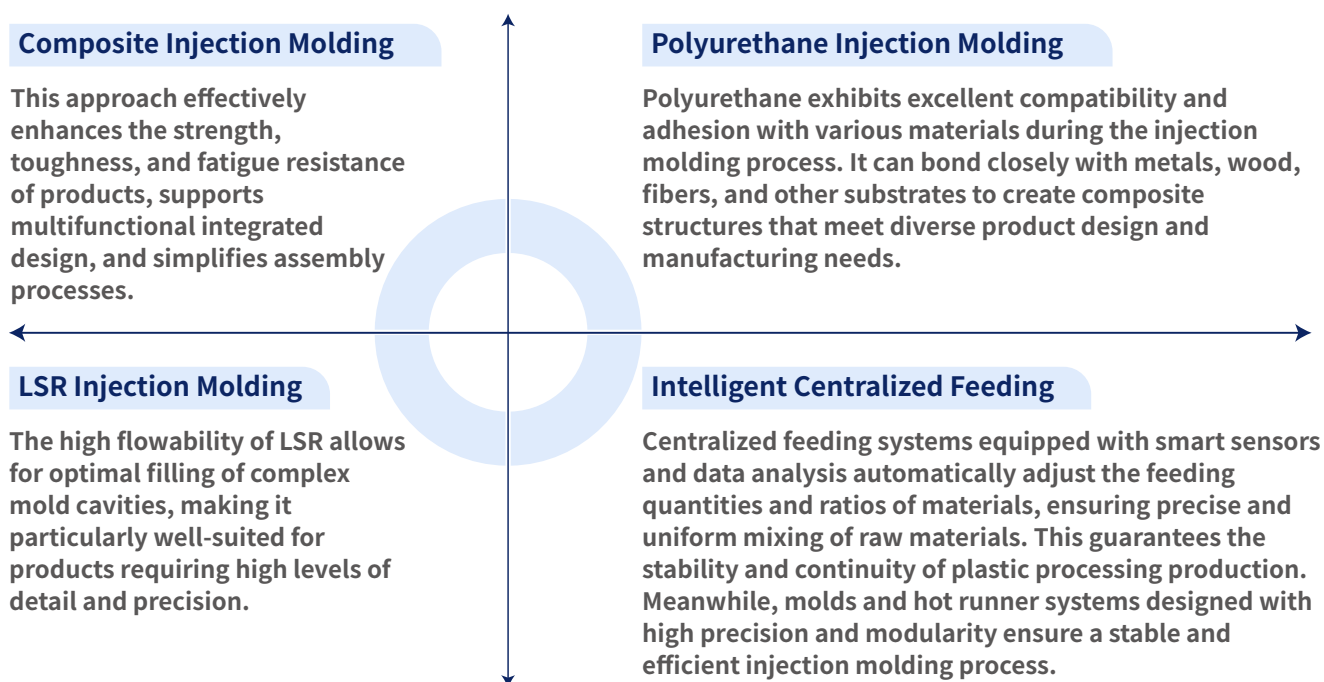
Expert Comment

The Blade Plastic of KUMHO-SUNNY offers a balance of rigidity and toughness, along with anti-warping properties, effectively replacing glass fiber reinforced materials. It presents an innovative solution for thin-wall processing, although market education will take time.

6 Intelligent Injection Molding and Auxiliary Technologies

#intelligent injection molding #composite injection molding
#polyurethane injection molding #LSR injection molding
#centralized feeding #mold and hot runner

Intelligent injection molding is suitable not only for processing conventional materials such as general plastics and engineering plastics but also for specialized materials like composites, polyurethane, and liquid silicone rubber (LSR).



Case Studies

KraussMaffei Leadership Award 🏆

powerPrint Large-Scale 3D Printing System

#industrial 3D printing

This 3D printing system utilizes innovative Fused Granulate Fabrication (FGF) technology, with the extruder as the core component, enabling efficient and precise small-batch production of large, complex parts. Its insulated, closed, large-scale vacuum printing chamber is particularly suited to processing aerospace-grade high-temperature materials like PEI. Under optimal conditions, the nozzle achieves ultra-high stable extrusion of 70 kilograms of material per hour, far exceeding the industry average of 20–30 kilograms per hour.

Expert Comment

KraussMaffei's powerPrint large-scale 3D printing system facilitates efficient, high-throughput, and large-format 3D printing. Its compatibility with a wide range of materials and thermoplastic composites empowers companies to diversify their production of high-quality components.

Notably, this system can process dimensions of up to 10 cubic meters, setting a new benchmark for the industry. It is currently being used in customized manufacturing across sectors such as aerospace, creative design, and tooling fixtures.

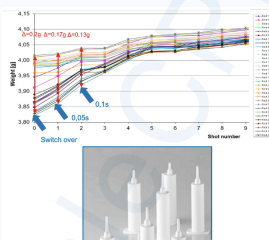


Demag Leadership Award 🏆

ActiveFlowBalance Intelligent Filling Balance

#intelligent injection molding

By innovatively adopting low-inertia servo motors and direct drive systems, the screw can accurately “lock” critical positions during the injection molding process. Using the internal pressure of the melt, it automatically achieves balanced cavity filling, enhancing product consistency and stability.



Expert Comment

Demag's ActiveFlowBalance technology effectively addresses multi-cavity mold forming challenges, optimizing the weight deviation of 32-cavity products to just 0.05g. This technology significantly reduces waste rates and enhances production efficiency, particularly in high-precision sectors such as medical and optical applications, demonstrating substantial commercial value.

Yizumi Pioneer Award 🏆

Parallel Four-Color Multi-Layer Injection Molding

#intelligent injection molding #composite injection molding
#mold and hot runner

Featuring a dual-layer parallel injection layout, this system achieves single-cycle molding of four-color products. Its modular injection units enable flexible material dosing adjustments, balancing mass production efficiency for large products with the demand of small-batch customization, thereby enhancing equipment flexibility.



Expert Comment

Yizum's parallel four-color multi-layer injection molding meets the complex demands of automotive components, delivering high added value and environmental benefits while showcasing strong commercial potential.

WITTMANN Group Pioneer Award 🏆**Wittmann 4.0 One-Stop Intelligent Injection Molding System**

#intelligent injection molding

This system integrates the injection molding machine, peripheral equipment, and data management system, achieving end-to-end collaboration from material handling and molding control to energy consumption management. It significantly enhances the overall level of production intelligence.

**Expert Comment**

Wittmann 4.0 technology integrates equipment throughout the entire injection molding process, facilitating intelligent collaborative management and efficient production. Its customized services cater to diverse needs, significantly reducing investment risks. This solution is particularly suited for high-precision applications in automotive and electronics, offering notable environmental and energy-saving benefits.

ENGEL Outstanding Award 🏆**“e-victory” Tie-Bar-Less Injection Molding System**

#LSR injection molding

This system adopts a tie-bar-less structural design, reducing clamping force from the conventional 160 tons to 100 tons while maintaining high mold compatibility alongside equipment miniaturization. The structural innovation enables the integration of additional functional modules (such as cavity separation and post-processing units) within limited space, delivering highly flexible and efficient integrated solutions for LSR injection molding equipment.

Expert Comment

The ENGEL “e-victory” system features tie-bar-less clamping technology that maximizes mold and processing space while reducing clamping force, enabling mass production of LSR parts. This innovation significantly enhances product functionality integration and optimizes production efficiency.

Haitian Outstanding Award 🏆**MA Gen 5 Injection Molding Machine**

#intelligent injection molding

This machine facilitates efficient communication between the injection molding machine, MES, and automation equipment, supporting customized production and open platform integration. It also enables the linkage of data and control logic between equipment.

**Expert Comment**

The Haitian MA5 injection molding machine has achieved breakthroughs in servo-hydraulic energy-saving technology, with hardware configurations and design upgrades setting new industry benchmarks. Its intelligent function modules support customized production, and the integration of electric pre-plastic devices with energy-saving technologies reduces energy consumption while maintaining high efficiency and sustainability. This machine offers substantial commercial value, making it well-suited for precision injection needs across various industries.

Welltec Innovation Award 🏆**1100HD Ultra-Large All-Electric Injection Molding Machine**

#intelligent injection molding

With an integrated servo system and controller, this machine achieves injection accuracy within $\pm 0.03\text{mm}$, with a weight deviation of $\leq 0.1\%$, enabling stable molding of precision products in the automotive, home appliance, and optical lighting sectors. Its CAE-optimized high-rigidity mold structure effectively extends mold life and reduces error accumulation.

**Expert Comment**

The 1100HD ultra-large all-electric injection molding machine features an integrated servo motor design, making it ideal for high-precision applications in automotive and home appliances. The technological breakthroughs are substantial, resulting in significant improvements in production efficiency and accuracy, enhancing market competitiveness.

Deeplus Innovation Award 🏆**Micro LSR Two-Color Injection Auxiliary Unit**

#mold and hot runner #LSR injection molding

#intelligent injection molding #composite injection molding

This unit can be easily adapted to injection molding machines from any brand. With a maximum shot volume of 60cc, its independently driven and controlled micro injection unit enables two-color molding of engineering plastics and LSR on a single machine, pushing the boundaries of conventional injection molding equipment.

Expert Comment

This auxiliary unit enables standard injection machines to perform two-component molding of engineering plastics and LSR. With its high adaptability and precise pressure/speed control, it demonstrates strong market application potential.

MultiTech Innovation Award 🏆**All-Electric Vertical Rotary Injection Molding Machine**

#intelligent injection molding

Addressing core challenges in structural stability and precision control for Chinese all-electric machines, this system achieves a maximum injection speed of 500mm/s and a pressure of 350MPa, covering over 90% of precision molding applications for plastics and LSR in electronics, medical, and other high-end markets.

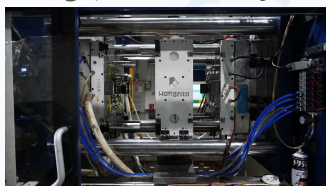
Expert Comment

Multitech's all-electric vertical rotary injection molding machine meets cost-effective requirements for precision and stable repeatability. With versatile applicability and excellent structural design and performance, it shows promising market potential.

Hongrita Innovation Award 🏆**Multi-Material Stack Rotating Mold**

#LSR injection molding

The servo-driven horizontal rotation structure significantly increases multi-color/material output without increasing machine tonnage, dramatically reducing mold space requirements to double integrated molding efficiency.

**Expert Comment**

Hongrita's integrated design and automated process enable one-time molding of plastic and LSR, achieving a 100% increase in efficiency while reducing labor and equipment investment. This breakthrough overcomes traditional overmolding limitations, resulting in significant cost reductions and improved quality stability for medical and consumer electronics applications.

TK Mold Innovation Award 🏆**High-Precision 128-Cavity Mold System**

#mold and hot runner

TK Mold's system supports up to 128+128 cavities, designed for automatic box lid and toothpaste cap molding, with a cycle time as low as 11.5 seconds. This represents a 100% efficiency improvement compared to 64-cavity molds. It balances mold life and molding precision, making it suitable for efficient large-scale production lines.

Expert Comment

TK Mold's 128-cavity mold technology facilitates efficient production with a cycle time of just 9 seconds. The optimized cooling design significantly enhances mold longevity. This innovation surpasses the traditional limitations of 64 cavities and is applicable in the medical and packaging sectors, demonstrating strong market competitiveness.

7 Energy-Efficient Extrusion and Auxiliary Technologies

#extrusion pelletizing #customized pipe extrusion
#high-speed film extrusion #extrusion die #energy-saving

In high-efficiency pelletizing, customized pipe extrusion, and high-speed film extrusion, the following technological trends are emerging:

Enhanced Intelligentization and Automation

Technologies such as the Internet of Things (IoT), big data, and artificial intelligence (AI) enable real-time monitoring and analysis of key parameters, including temperature, pressure, and speed, throughout the extrusion process. This ensures production stability and consistent product quality.

Optimization of High-Precision Extrusion Technology

High-precision screw design, mold configuration, pressure control system, temperature regulation, and high-performance drive system are employed to achieve precise extrusion.

High-Precision Die Head

Extrusion die heads play a crucial role in controlling the shape, size, and quality of the final extruded products. They are increasingly optimized through enhanced flow channel designs and high-precision processing, facilitating efficient and high-quality extrusion.

Energy-Efficient Technology

The development of new screw structures and barrel materials improves the transport and melting efficiency of materials while reducing energy consumption. Additionally, optimizing heating and cooling systems further minimizes energy consumption, contributing to a more sustainable production process.

Case Studies

battenfeld-cincinnati

Leadership Award 🏆

solEX NG 75-40 Single-Screw Extruder, BC 120 Single-Screw Extruder (China Debut)

#customized pipe extrusion

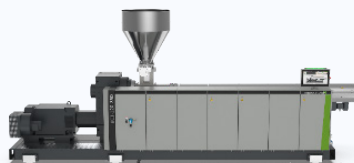
The solEX NG 75-40 single-screw extruder is designed for large-diameter, high-output pipe extrusion, delivering 25% higher output than previous models. It supports multi-size pipes and co-extrusion with diverse materials, balancing efficiency with flexibility to create agile production lines for rapid product changeovers.



Expert Comment

battenfeld-cincinnati's solEX NG series achieves 25% higher output with 15% lower energy consumption for large-diameter pipe extrusion. With proven technology and widespread market adoption, its energy-saving benefits are impressive. The BC 120 single-screw extruder demonstrates exceptional material versatility, delivering 3 tons per hour for both monolayer and co-extrusion with outstanding processing performance. Its mature technology ensures user-friendly operation and easy maintenance.

The BC 120 single-screw extruder specializes in processing eco-friendly materials such as PET, PLA, CPET, CPLA, and GPET, achieving an output of 1 ton per hour with energy consumption as low as 250 kWh/ton—over 30% more efficient than conventional models. This extruder is ideal for the sustainable manufacturing of food packaging trays and cups. It made its China debut at CHINAPLAS 2025.

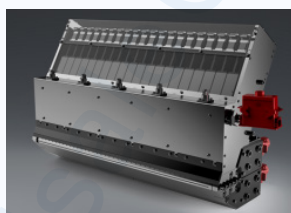


JCTIMES **Pioneer Award** 🏆

IM System Intelligent Mechatronic Integration Drive

#high-speed film extrusion #extrusion die

This technology was globally launched at CHINAPLAS 2025. Based on servo drive and intelligent algorithms, the system enables rapid CNC adjustment of the mold lip gap within $\pm 2.0\text{mm}$. It responds faster and achieves higher precision than traditional thermal bolt systems, enhancing production efficiency and repeatability while significantly reducing manual intervention and material waste.



Expert Comment

The IM System intelligent mechatronic integration drive achieves precise control of the mold lip gap within $\pm 0.01\text{mm}$, with a response time of less than 10 seconds, reducing material waste and labor costs. This technological innovation is outstanding, making it suitable for high-speed film extrusion applications and significantly improving product quality and production efficiency.

Liansu Machinery **Outstanding Award** 🏆

Flexible and Efficient Extrusion for PVC Pipe

#customized pipe extrusion

Equipped with flexible functions such as inline rapid recipe switching and color change without cleaning, Liansu's system adapts to small-batch custom orders while supporting programmable pipe length cutting and flaring. This significantly improves equipment operation efficiency and cycle response speed.

Expert Comment

Liansu's flexible and efficient PVC pipe extrusion breaks through traditional process limitations through metric weight control technology and loss-in-weight feeder recipe adjustment, reducing raw material consumption by 2% while supporting rapid color changes and multi-batch production. This solution combines environmental benefits with economic advantages, making it suitable for construction and municipal pipeline applications.

Tianhong Machinery Innovation Award 🏆**TX Series Automatic Plastic Melt Filter**

#energy-saving #extrusion pelletizing

In the extrusion pelletizing industry, this front-end filter actively addresses compatibility requirements. Featuring a multi-disc spiral scraper structure, it efficiently handles multiple melt materials while removing contaminants such as metal, silicone, and label paper. With a filtration precision of 150 mesh and a capacity of 500-4000 kg/h, it provides clean and effective front-end protection for downstream extrusion pelletizing.

**Expert Comment**

Tianhong's TX Series offers wide applicability, high filtration precision, stable performance, a compact structure, and easy adjustment, effectively intercepting impurities in plastic melts.

Simcheng Innovation Award 🏆**Polyimide (PI) Film Annealing Furnace**

#high-speed film extrusion

Manufacturing polyimide (PI) film in China has traditionally relied on imported equipment. Simcheng has independently developed a specialized annealing furnace for PI film, featuring innovations such as infrared heating that reaches 300°C within 30 minutes and temperature control consistency of $\pm 3^{\circ}\text{C}$. This technology reduces energy consumption by over 20% compared to traditional systems and made its global debut at CHINAPLAS 2025.

**Expert Comment**

Simcheng has addressed the "bottleneck" in high-end materials manufacturing. This independently developed annealing furnace for PI film represents a significant breakthrough in domestic equipment, marking substantial progress for China in the core equipment sector of high-performance film manufacturing. It provides crucial technological support for a self-controlled, green, and low-carbon industrial transformation.

KonRun Innovation Award 🏆**Intelligent Multi-Layer Nylon Composite Pipe Extrusion Line**

#energy-saving #extrusion pelletizing
#customized pipe extrusion #extrusion die

This line supports 1 to 6-layer PA composite structures for materials such as PA11, PA12, PA9TC, and ETFE. With high-precision metering and control systems, it produces products with bright and uniform surfaces, enabling high-performance localized manufacturing of automotive brake fluid pipes.

Expert Comment

KonRun's intelligent multi-layer nylon composite pipe extrusion line reduces import dependence for multi-layer PA pipes in China, achieving localization. Its precision control and corrosion-resistant design significantly enhance pipe quality.

DEKUMA Innovation Award 🏆**Automotive Multilayer Composite Pipe Extrusion Line**

#customized pipe extrusion

This line features high extrusion stability, precise layering, and easy die disassembly and assembly, complemented by an intelligent, user-friendly control system. By providing integrated custom solutions, it has successfully served several leading automakers, advancing the localization and premiumization of multi-layer pipe equipment.

**Expert Comment**

Dekuma's automotive multilayer composite pipe extrusion line offers stable extrusion, precise layering, and reliable safety. It enables customized production through data collection and product traceability systems, effectively meeting individualized requirements.

ZhongyunTech Innovation Award 🏆**ZC-600H High-Speed Water-Cooling Double-wall Corrugated Pipe Production Line**

#customized pipe extrusion #energy-saving

Utilizing sealed pressure water-cooling corrugation modules and high-strength hardened screws, this line boasts strong versatility and stable forming, achieving speeds of up to 7.6 meters per minute. It significantly enhances corrugated pipe production efficiency while reducing overall energy consumption.

Expert Comment

ZhongyunTech's ZC-600H line demonstrates significantly reduced energy consumption with mature technology, making it ideal for large-scale municipal drainage pipe production with broad market applications.

8 Multi-Layer, Multi-Cavity Blow Molding Technologies

#multilayer blow molding #intelligent blow molding #blow mold

We have observed that multi-layer, multi-cavity blow molding is being optimized in several key areas:

Stability and Continuity

Enhancing the die head of the blow molding machine ensures precise length and thickness of the parison, resulting in stable and continuous production.

Intelligentization

By leveraging sensors and AI algorithms, parameters during the blow molding process can be monitored and adaptively adjusted, allowing for timely fault diagnosis and predictive maintenance, thus minimizing unnecessary downtime.

Electrification

Fully electric blow molding machines provide significant advantages in material cost savings, setup costs, energy efficiency, and cleanliness. However, they are mostly suited for medium and small hollow products, and their stability and energy consumption still require market validation.

Intelligentization and Automation of Blow Mold

Blow molds are being enhanced through digitalization and automation technologies to ensure process stability and reduce defect rate.

Case Studies

Victor Machinery

Pioneer Award 🏆

MSZ D9-Pro Multi-Cavity Injection-Blow Molding Machine

#intelligent blow molding #blow mold

This innovative machine reduces the footprint by 50% compared to traditional extrusion-blow machines. It increases the number of cavities from 9 to 14 without raising clamping force, achieving a daily output of up to 123,051 pieces for 100ml bottle production. With an energy consumption of only 0.34 kWh/kg, it significantly outperforms the national standard of 0.4 kWh/kg. Breakthroughs in cavity expansion and energy optimization result in nearly 100% capacity increase and an 18% reduction in energy consumption, enabling companies to achieve mass production and cost reduction in space-constrained environments.



Expert Comment

Victor Machinery's 14-cavity mold achieves a daily output of 120,000 pieces with energy consumption of just 0.34 kWh/kg. The efficient mold design minimizes material waste, making it both energy-efficient and environmentally friendly, ideal for large-scale production in pharmaceuticals and food packaging, showcasing strong market competitiveness.

JCTIMES Outstanding Award 🏆**Nine-Layer Co-Extrusion Flat Die for Blown Film**

#multilayer blow molding

This precision-engineered die ensures uniform distribution of multi-layer materials and defect suppression, enhancing the mechanical, barrier, and aesthetic properties of the film. An intelligent control system guarantees process stability, reduces material waste and debugging costs, and supports diverse high-end applications, including pharmaceuticals and high-barrier packaging.

Expert Comment

The nine-layer co-extrusion die optimizes barrier performance, strength, and appearance through a flat-layered flow channel design, cutting material waste by 30%. The intelligent control system enhances production stability, making it suitable for high-end packaging and new energy films, demonstrating leading technology with significant environmental benefits.

Costar Innovation Award 🏆**Five-Layer Co-Extrusion Blown Film System**

#multilayer blow molding

This system offers flexible interlayer structural configurations and is compatible with various PE-based materials, significantly enhancing the film's impact resistance, transparency, and tensile properties. It improves output per unit energy consumption by 50%, optimizing both performance and cost efficiency.

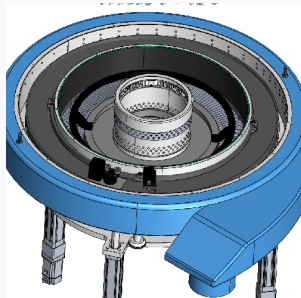
Expert Comment

Costar's five-layer co-extrusion intelligent blown film system achieves superior mechanical properties compared to three-layer lines, with a notable 50% increase in output. It is ideal for packaging in food, pharmaceuticals, and consumer goods, presenting substantial market potential.

PENGXIANG Machinery Innovation Award 🏆**Dual Motor Air Ring System**

#multilayer blow molding #intelligent blow molding

During the film forming process, this system employs real-time thickness detection and dual servo drive to control air distribution, enabling dynamic adjustment of the film's circumferential thickness. This ensures uniform cooling and enhances both product quality and production efficiency.

**Expert Comment**

PENGXIANG's dual motor-driven automatic adjustment air ring achieves precise regulation of the film's circumferential thickness during cooling through intelligent control technology. This enhances product quality and production efficiency, featuring high efficiency, low failure rates, and uniform cooling air distribution, meeting the precision requirements of film blowing processes with broad application potential.

9 Functional Films and Surface Treatment

#mono-material film #optical film #lithium-ion battery separator
#personalized surface treatment

We have observed the following development trends in mono-material films, optical films, and lithium battery separators:

Mono-Material Film

The number of layers is increasing—from 5 to 7 to 11—while the thickness is decreasing, with some films measuring as thin as 18 microns. This increase in layers allows each film to impart unique functionalities, such as barrier properties, reinforcement, and heat sealing. Thinner films contribute to lightweight design, thereby reducing material costs.

Lithium-Ion Battery Separator

In lithium-ion battery separators, the application of composite materials enhances mechanical strength, electrical conductivity, and porosity, further improving energy density and cycle life. Innovations in ultra-thin processes reduce internal resistance, providing more space for electrode materials, which increases energy density, extends range, and improves charging speed. Advances in coating technologies also enhance thermal stability, mechanical strength, and electrolyte wettability.

Optical Film

The development of high-performance materials and high-precision coating technologies enables the production of films with functions such as anti-reflection, reflection, polarization, and filtering. These films help to reduce the number of optical components and simplify system design, meeting the requirements of complex optical systems.

Personalized Surface Treatment

In addition to coating and laminating, surface treatments such as heat transfer, solvent-free printing, and corona treatment also provide technical alternatives for the customized processing of functional films.

Case Studies

Windmöller & Hölscher

Leadership Award 🏆

Varex II Blown Film Line

#mono-material film

The Varex II blown film line achieves uniform thickness across layers in multi-layer co-extruded structures by precise control of the MDOPE stretching process, ensuring stable performance of the EVOH barrier layer. Its 9-layer MDOPE film, when combined with PE, replaces non-recyclable materials like aluminum-coated BOPP/PE while providing high flatness and rigidity, meeting the demands of high-speed printing and premium packaging.



Expert Comment

The Varex II blown film line demonstrates exceptional uniformity in multi-layer co-extruded films, elevating the oriented stretching process and exemplifying a balance between performance and sustainability in the green transformation of high-barrier flexible packaging.

Brückner Leadership Award 🏆**Linear Motor Simultaneous Stretching (LISIM®) Technology**

#lithium-ion battery separator

Utilizing linear motor drive technology, Brückner achieves a breakthrough in capacitor film thickness down to 2µm while maintaining high mechanical strength and flatness. This ensures stability during high-speed operation. The line features a structure without mechanical connections, significantly reducing wear and maintenance costs, making it suitable for mass production of next-generation functional films.

**Expert Comment**

In the renewable energy revolution, ultra-thin high-temperature capacitor films are crucial for energy storage systems, directly impacting fast charging efficiency for electric vehicles and the reliability of grid-scale energy storage. Brückner's LISIM® technology sets a benchmark for high-performance film manufacturing.

Hualong Pioneer Award 🏆**Eco-Friendly MDOPE Film**

#mono-material film

By employing unidirectional multiple stretching technology, Hualong enhances the rigidity and transparency of PE films, improving their printability and mechanical properties. This innovation supports multi-color printing, addressing the challenges of traditional MDOPE films that are difficult to print, and aids in building a recyclable packaging loop.

Expert Comment

Hualong's MDOPE film redefines polyethylene's physical properties through its innovative stretching process, retaining recyclability while addressing issues like insufficient rigidity and poor print compatibility common in traditional flexible packaging materials.

Miyakoshi (China Distributor: Jiahe Dingxin) Outstanding Award 🏆**MJP30AXF Full-Color Water-Based Inkjet Printer for Flexible Packaging**

#personalized surface treatment

The MJP30AXF printer enables plateless printing, catering to diverse production needs for small batches and variable data without minimum order restrictions. It offers a 50% efficiency improvement over traditional gravure printing machines. Its high-density water-based pigment inks ensure food safety and consistent color density while promoting environmental sustainability with zero VOC emissions.

**Expert Comment**

The Miyakoshi MJP30AXF printer redefines flexibility and quality in flexible packaging production with its innovative plateless technology. By utilizing an intelligent inkjet system, it eliminates traditional plate-making processes, allowing for easy customization and significantly shortening order response times.

ExxonMobil Chemical Outstanding Award 🏆**Heavy-Duty Packaging Film Solution**

#mono-material film

Using Exceed™ Stiff+ 0820 metallocene polyethylene, this solution produces three-layer co-extruded PE heavy-duty packaging bags capable of carrying up to 40kg, effectively replacing polypropylene woven bags. It combines high impact resistance with excellent rigidity, showcasing outstanding drop performance and full recyclability, making it ideal for bulk packaging applications like fertilizers and grains.

Expert Comment

Heavy-duty bags made from Exceed™ Stiff+ 0820 metallocene polyethylene offer a more environmentally friendly alternative to woven bags while providing robust protection for the contents.

Wacker Innovation Award 🏆**GENIOPLAST® Pellet 345 Organic Silicone Additive**

#mono-material film

As a PFAS-free additive, it significantly optimizes the processing performance of LDPE films by reducing torque and die head pressure, while enhancing wear resistance and surface quality.

This non-migratory, food contact-safe material provides a secure and efficient solution for the film packaging sector.

**Expert Comment**

Wacker's GENIOPLAST® Pellet 345 innovatively integrates organic silicone with TPU, enhancing LDPE processing technology. Its non-migratory features ensure food safety and resolve issues associated with traditional additives, making it particularly suitable for packaging applications with stringent hygiene and durability requirements.

HySum Innovation Award 🏆**High Barrier Transparent Mono-Material Film**

#mono-material film

This film features a composite of MDOPE/PE with aluminum oxide and PE, achieving WVTR and OTR values below 1. The MDOPE film, with a low crystallization point, serves as a surface printing film and, when combined with ultra-low temperature heat-sealable PE film for bag production, maintains shape integrity at an opening temperature of 85°C.

**Expert Comment**

HySum has developed a diverse mono-material packaging solution portfolio through material innovation and process synergy, overcoming traditional challenges in balancing recyclability and high protection. These solutions meet the requirements of fast-moving consumer goods while addressing the precise protection needs of sectors like pharmaceuticals and electronics.

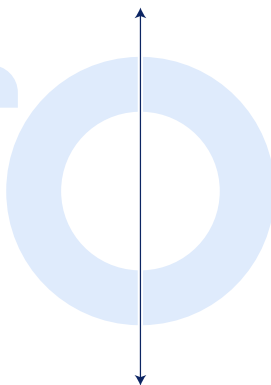
10 Automation and Smart Manufacturing Technologies

#inline quality inspection #cobot # control system
#energy management

The following noteworthy technological trends are evident in inline quality inspection, collaborative robot, control system, and energy consumption management:

Deep Learning with Big Data Models

Utilizing big data models, inline quality inspection system can learn and identify defect patterns in plastic products, significantly improving detection accuracy and efficiency. Meanwhile, injection molding control system can automatically adjust parameters such as pressure, speed, and temperature to achieve optimal molding.



High Compatibility

Depending on the specific requirements of the production line, it is possible to seamlessly switch between different inline quality inspection modes, collaborative robot operating modes, and control and energy management modes, facilitating collaborative optimization with the production system.

Case Studies

SIKORA Leadership Award

Plastic Pellet Purity Detection and CENTERWAVE 6000 Pipe Inspection System

#control system #inline quality inspection

The SIKORA plastic pellet purity detection and sorting system innovatively integrates optical and X-ray detection technologies, enabling synchronous identification and automated sorting of metal and organic contaminants.



The CENTERWAVE 6000 pipe inspection system utilizes a millimeter-wave rotating transceiver to create a 360° non-contact measurement system, overcoming material characteristics and temperature limitations. Through automatic refractive index identification and feedback control mechanisms, it significantly shortens the debugging cycle and reduces raw material waste.



Expert Comment

This system effectively addresses product appearance quality issues caused by contaminants by combining X-ray and optical technologies to detect and remove plastic impurities.

Expert Comment

Inline measurement of wall thickness, inner and outer diameter, and roundness of pipe products can be challenging. The SIKORA CENTERWAVE 6000 employs frequency-modulated continuous millimeter-wave measurement technology for inline non-contact inspection, requiring no pre-setting, which allows for rapid application and represents a significant innovation.

Suzhou Yuzhen Technology

Pioneer Award 🏆

AI Vision Inspection Equipment

#inline quality inspection

This system automatically collects images of all products on the production line and utilizes deep learning for AI modeling. Its core advantage lies in its precise identification capability for unknown defects, enabling the rapid removal of defective products that first appear during production and effectively addressing the blind spots of manual inspection and traditional machine vision.

Expert Comment

Yuzhen's AI vision inspection system can automatically classify and analyze products without requiring samples or images of defective items. Its ability to accurately identify previously unseen defects enhances the flexibility and efficiency of visual inspections.

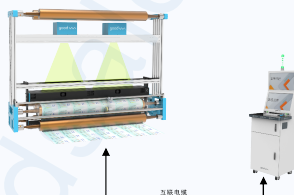
Good Vision & Motion

Pioneer Award 🏆

Full-Stack Self-Developed Printing Quality Inspection System

#inline quality inspection

This system achieves inspection speeds of 800 meters per minute, easily meeting the operational demands of high-speed pharmaceutical packaging machines. Its high-speed machine vision inspection system, with transmission speeds of up to 10 Gbps, enables comprehensive, high-precision, and high-speed quality inspection. This technology is also applicable for quality inspection in transportation, new energy, and lithium batteries.

**Expert Comment**

This full-stack self-developed printing quality inspection system employs proprietary constant current light sources, high-speed graphic processing algorithms, and all-fiber transmission camera technology to achieve high-speed multi-station visual inspections. It can replace imported equipment, showcasing notable innovation and advancements.

motan

Outstanding Award 🏆

sCOMPACT Dehumidifying Dryer

#energy management

This device integrates drying, conveying, blending, and energy consumption monitoring functions, supporting IoT connectivity and factory-level data access. It provides a compact, intelligent, and efficient material management solution.

**Expert Comment**

The sCOMPACT dehumidifying dryer achieves end-to-end innovation, from basic drying to energy management, through the collaboration of multifunctional modules and intelligent control systems. Its high efficiency, energy savings, and technological architecture align space optimization with low-carbon production for the plastics processing industry.

eSUN Innovation Award 🏆**Smart Manufacturing Platform for Polymer Footwear Materials**

#control system

This platform utilizes an integrated system for foot scanning, design, and printing. Through 360-degree 3D scanning technology and specialized algorithms, it accurately designs insoles tailored to users' foot shapes and employs 3D printing for rapid, low-cost production of lightweight, eco-friendly, and comfortable insoles.

Expert Comment

eSUN's insole smart manufacturing platform combines 3D scanning modeling, 3D printing, and material modification to produce customized insole products. It serves as a model for rapid manufacturing in customized production applications.

PackSys Global Innovation Award 🏆**capLAB Inline Inspection Integrated Automatic Device for Tamper Evident (TE) Bands**

#inline quality inspection

This system utilizes PackSys' slitting process to develop an inline automatic device that monitors the appearance and sealing integrity of tamper-evident closures in real time. If significant quality defects are detected, it communicates with the molding machine to halt production, enhancing quality control and cost savings.

**Expert Comment**

The capLAB intelligent inspection system redefines quality control standards for bottle closures through its innovative inline slitting integration technology. This device combines tamper-evident functionality inspection with real-time cavity number identification, establishing a digital twin channel from production to quality systems, thereby achieving improved quality control and cost savings.

EMAN Technology Innovation Award 🏆**Flexible Automation Control System**

#control system

Targeting multi-factory and multi-workshop collaboration applications, this system enables efficient closed-loop management of molds, covering maintenance, production transition, and launch through process interconnection and task collaboration. It effectively enhances the resilience and responsiveness of injection molding production.

Expert Comment

EMAN's flexible automation control system breaks down data barriers, achieving quality enhancement, improved equipment efficiency, and reduced labor costs through the coordinated operation of multiple devices along the production line.

Taisen Intelligent Equipment Innovation Award 🏆**Airless Leak Detection Equipment**

#inline quality inspection #control system

This innovative system eliminates the need for compressed air and integrates proprietary sensors for precise detection of bottle body sealing. It boasts strong compatibility and energy efficiency while offering five key advantages: high precision, high efficiency, high compatibility, energy savings, and user convenience.

Expert Comment

Taisen's airless leak detection equipment utilizes clean air from the environment instead of traditional compressed air for closed testing. It can detect tiny perforations, showcasing high compatibility and innovative design.

Through the analysis of case studies, we further identify the current development directions in the plastics and rubber industries:

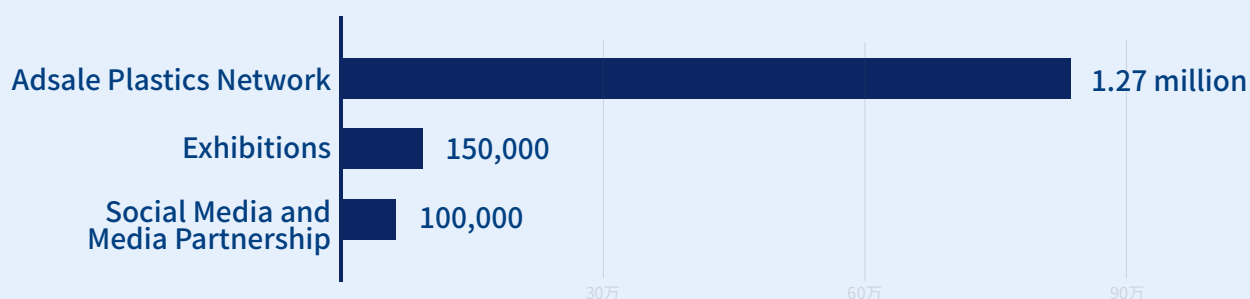


Overall, the plastics industry is undergoing a transformation driven by high performance, intelligent manufacturing, and sustainability. A new wave of technological innovation and sustainable practices is reshaping the industry landscape.

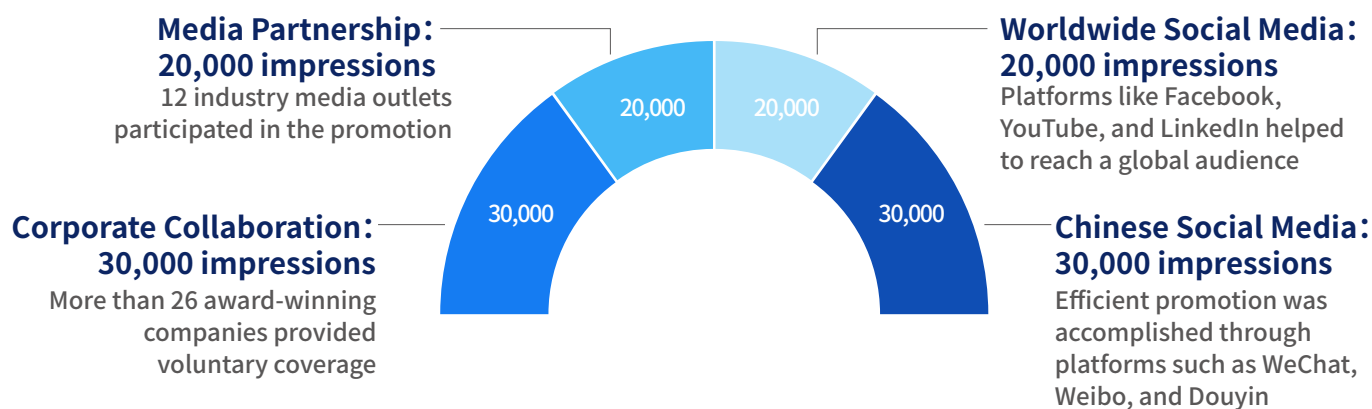
Only those companies that proactively innovate and adapt to these trends will keep pace with industry transformations and remain competitive in the next phase of development.

To promote the “Top 10 Technology Trends in Rubber and Plastics in 2025”, Adsale Plastics Network has created a promotional matrix centered on its official website, supported by exhibitions and expanded through social media. As of April 30, 2025, the related content garnered a total of 1.52 million impressions on online and offline platforms, showcasing the significant impact of this initiative within the industry.

The related content of “Top 10 Technology Trends in Rubber and Plastics in 2025” garnered a total of 1.52 million impressions.

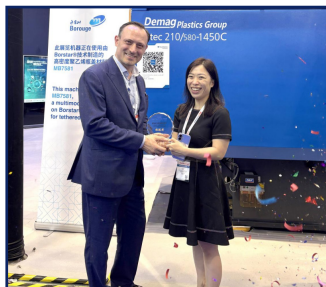


Leveraging social media and media partnership to amplify influence.



Onsite Interaction at Exhibition

At CHINAPLAS 2025, the premier exhibition for plastics and rubber, various award-winning companies showcased their latest innovations, including groundbreaking technologies making their debut. They also received awards for the “Top 10 Technology Trends in Plastics and Rubber in 2025” at the fairgrounds.



“Top 10 Technology Trends in Plastics and Rubber in 2025” Case Studies Review Panel



Kai Zheng

Chairman of the Sixth Council
China Synthetic Resin Association



Kai Zhao

Executive Vice President
China Association of Circular Economy



Shan Xu

Secretary General
China Association for Medical Devices
Industry



Hongjun Wu

Deputy Secretary General
China Packaging Federation



Haidong Xu

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China Association of Automobile
Manufacturers



Yonggang Wang

Secretary General
China Plastic Recycling Association of
CRRRA



Kathy Man

Vice Secretary-General, Committee of
Multinationals
China Petroleum and Chemical Industry
Federation



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Physics and Chemistry, CAS



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and Technology



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Sichuan University



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Professor
East China University of Science and
Technology



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Professor
Donghua University



Vito Tsai

President
ACMT, Association of CAE Molding
Technology



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and Custom 3D Printing Product line
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Group Co. Ltd.



Eric Shen

North East Asia Packaging Director
Beiersdorf China



Xiaolin Wang

Process and System Director
Haier Group Module Supplier Resource Platform

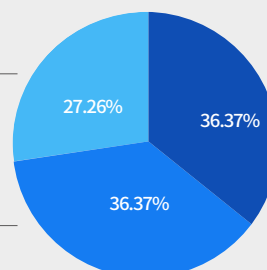
Organizations of Experts



End-User Enterprises

Universities

Associations



Leadership Award

Technologies	Companies	Case Studies
High-Value Recycled Plastics and Rubber	LyondellBasell (LYB)	Circulen® Project
	Covestro (Shanghai) Investment Co., Ltd.	Recycled Plastic CMF Design Innovation
Bio-Plastic	Zhuhai Kingfa Biomaterial Co., Ltd.	Biodegradable Copolyester and Agricultural Films with Adjustable Structure and Lifespan
Skin-Friendly Soft Materials	Nantong Polymax Elastomer Technology Co., Ltd.	Green Thermoplastic Elastomer (TPE) Solution
Low-Carbon Recycling	Husky Technologies™	Integrated PET Cap Injection Molding Solution
Lightweight, Functional Materials and Additives	Victrex High-performance Materials (Shanghai) Co., Ltd.	LMPAEK™ Polymer
	SABIC, ENGEL and Partners	Thermoplastic Composite Hybrid Battery Housing
Intelligent Injection Molding and Auxiliary Technologies	Demag Plastics Machinery (Ningbo) Co., Ltd.	ActiveFlowBalance Intelligent Filling Balance
	KraussMaffei Machinery (China) Co., Ltd.	powerPrint Large-Scale 3D Printing System
Energy-Efficient Extrusion and Auxiliary Technologies	battenfeld-cincinnati (Foshan) Extrusion Systems Ltd.	solEX NG Single-Screw Extruder, BC 120 Single-Screw Extruder
Functional Films and Surface Treatment	Windmöller & Hölscher	Varex II Blown Film Line with MDO Technology
	Brückner Maschinenbau	Capacitor Film Production Line with Linear Motor Simultaneous Stretching (LISIM®) Technology
Automation and Smart Manufacturing Technologies	SIKORA AG	Plastic Pellet Purity Detection and CENTERWAVE 6000 Pipe Inspection System

Pioneer Award



Technologies	Companies	Case Studies
High-Value Recycled Plastics and Rubber	Shanghai Re-Mall Environmental New Material Co., Ltd.	R-PP Food-Grade Recycled Polypropylene Materials
Bio-Plastic	Cabot (China) Limited	BIOPLASBLAK® XP5650A/B Biodegradable Black Masterbatch
	Huafon Covation Biomaterials Jiangsu Co., Ltd.	CovationBio® bioPTMEG Innovation Project
Skin-Friendly Soft Materials	GAINSHINE Technology Co., Ltd.	TPE Silicone-Like Skin-Friendly Material
Low-Carbon Recycling	Zhejiang BoReTech Environmental Engineering Co., Ltd.	ES Process PET Bottle Recycling Washing System
	Tomra Sorting Technology (Xiamen) Co., Ltd.	Near-Infrared BPA-Free Detection Solution
Lightweight, Functional Materials and Additives	Dow Chemical (China) Investment Co., Ltd.	ENGAGE™ 11000T Polyolefin Elastomer
	Wanhua Chemical Group Co., Ltd.	Nylon 12 Elastomer (PEBA)
Intelligent Injection Molding and Auxiliary Technologies	Wittmann Battenfeld (Dongguan) Co., Ltd.	Wittmann 4.0 One-Stop Intelligent Injection Molding System
	Yizumi Holdings Co., Ltd.	Parallel Four-Color Multi-Layer Injection Molding
Energy-Efficient Extrusion and Auxiliary Technologies	JCTIMES Group	IM System Intelligent Mechatronic Integration Drive
Multi-Layer, Multi-Cavity Blow Molding Technologies	Jiangsu Victor Machinery Co., Ltd.	MSZ D9-Pro Multi-Cavity Injection-Blow Molding Machine
Functional Films and Surface Treatment	Jiangmen Hualong Membrane Material Co., Ltd.	Eco-Friendly MDOPE Film
Automation and Smart Manufacturing Technologies	Suzhou Yuzhen Technology Co., Ltd.	AI Vision Inspection Equipment
	Good Vision & Motion (Shenzhen) Co., Ltd.	Full-Stack Self-Developed Printing Quality Inspection System

Outstanding Award



Technologies	Companies	Case Studies
High-Value Recycled Plastics and Rubber	Yuantian Biotechnology (Tianjin) Co., Ltd.	PET Enzymatic Closed-Loop Recycling
	Hunan Vary Technology Co., Ltd.	Chemical Recycling Equipment for Plastic Waste
	Sesotec Shanghai Co., Ltd.	FLAKE PURIFIER Sorting System
Bio-Plastic	Arkema (China) Investment Co., Ltd.	Bio-based Rilsan® PA11 for EV Cooling Systems
	LG Chem	Bio-Acrylic Acid
Skin-Friendly Soft Materials	Binzhou Cornell New Materials Technology Co., Ltd.	Breathable Elastic Material
Low-Carbon Recycling	Starlinger & Co GmbH	recoSTAR PET art + viscoSTAR SSP Food-Contact Recycling System
Lightweight, Functional Materials and Additives	Shaanxi Yanchang Zhongmei Yulin Energy and Chemical Co., Ltd.	Innovative Application of High-Transparency Energy-Saving PP Material in Refrigerator Trays
	Tederic Machinery Co., Ltd	NEO · H550 Micro-Foaming Injection Molding Machine
Intelligent Injection Molding and Auxiliary Technologies	ENGEL Austria GmbH	e-victory 100LIM Injection Molding Machine
	Haitian Group	MA5 Injection Molding Machine
Energy-Efficient Extrusion and Auxiliary Technologies	Guangdong Liansu Machinery Manufacturing Co., Ltd.	Flexible and Efficient Extrusion for PVC Pipe
Multi-Layer, Multi-Cavity Blow Molding Technologies	JCTIMES Group	Nine-Layer Co-Extrusion Flat Die for Blown Film
Functional Films and Surface Treatment	Miyakoshi Printing Machinery, Co., Ltd. (China Distributor: Jiahe Dingxin)	MJP30AXF Full-Color Water-Based Inkjet Printer for Flexible Packaging
	ExxonMobil Chemical	Heavy-Duty Packaging Film Solution
Automation and Smart Manufacturing Technologies	motan Taicang Co., Ltd.	sCOMPACT Dehumidifying Dryer

Innovation Award



Technologies	Companies	Case Studies
High-Value Recycled Plastics and Rubber	Arkema (China) Investment Co., Ltd.	Recyclable Textile Made of Bio-based Rilsan® PA11
	Dawn Polymer	PE/PP Circular Solution
	ExxonMobil Chemical	High-Performance Recycled Resin for Lubricant Packaging
Bio-Plastic	Green Fill Material Technology Co., Ltd.	Multifunctional Degradable Starch Foam Board
	Star Plastics	Oyster Shell Antibacterial Materials
Skin-Friendly Soft Materials	Star Plastics	Silicone-Modified TPU (PFAS-Free)
	Dongguan JEA Plastic Co., Ltd.	TESiV Elastomer Material
Low-Carbon Recycling	Hefei Meyer Optoelectronic Technology INC	Master Series 4.0 with AI Sorting Technology
	Shanghai Huntsman Polyurethanes Specialties Co., Ltd.	SMARTLITE® O Liquid TPU
	ENMA Granulator (China) Co., Ltd.	ENMA 1 Shaft Modular Crusher
Lightweight, Functional Materials and Additives	Kingfa Sci. & Tech. Co., Ltd.	Continuous Fiber Reinforced Polyamide for Robot Skeletons, PFAS-Free Ultra-Thin Flame-Retardant High-Performance Polycarbonate
	ExxonMobil Chemical	New Non-PVC Elastic Flooring Solution
	Arkema (China) Investment Co., Ltd.	Application of Bio-Based Rilsan® PA11 in Large-Volume Type IV Hydrogen Storage Tank Liners
	Inovia Materials (Hangzhou) Co., Ltd.	PFAS-Free PC Flame Retardant
	LG Chem	Low Glossy ABS, PFAS-Free Flame Retardant PC/ABS
	Elkem Silicones	BLUESIL™ LDH 5133-XY A3 Silicone Rubber
	Shanghai KUMHO-SUNNY Plastics Co., Ltd.	Blade Plastic

Innovation Award



Technologies	Companies	Case Studies
Intelligent Injection Molding and Auxiliary Technologies	Welltec Machinery Limited	1100HD Ultra-Large All-Electric Injection Molding Machine
	Deeplus Machinery Co., Ltd.	Micro LSR Two-Color Injection Auxiliary Unit
	Multitech Machinery Ltd.	All-Electric Vertical Rotary Injection Molding Machine
	Hongrita Plastics (Shenzhen) Ltd.	Multi-Material Stack Rotating Mold
	TK Mold (Shenzhen) Limited	High-Precision 128-Cavity Mold System for medical and packaging applications
Energy-Efficient Extrusion and Auxiliary Technologies	Huizhou Tianhong Machinery Manufacturing Co., Ltd.	TX Series Automatic Plastic Melt Filter
	Guangdong Simcheng Plastics Machinery Co., Ltd.	Polyimide (PI) Film Annealing Furnace
	KonRun Intelligent Machinery (Ningbo) Co., Ltd.	Intelligent Multi-Layer Nylon Composite Pipe Extrusion Line
	Dekuma Rubber and Plastic Technology (Dongguan) Ltd.	Automotive Multi-Layer Composite Pipe Extrusion Line
	ZhongyunTech	ZC-600H High-speed Water-Cooling Double-wall Corrugated Pipe Production Line
Multi-Layer, Multi-Cavity Blow Molding Technologies	Guangdong Costar Machinery Technology Co., Ltd.	Five-Layer Co-Extrusion Blown Film System
	Zhejiang Pengxiang Machinery Manufacturing Co., Ltd.	Dual Motor Air Ring System
Functional Films and Surface Treatment	WACKER China	GENIOPLAST® Pellet 345 Organic Silicone Additive for LDPE films production
	HySum Flexibles Limited	High Barrier Transparent Mono-Material Film
Automation and Smart Manufacturing Technologies	Shenzhen Esun Industrial Co., Ltd.	Smart Manufacturing Platform for Polymer Footwear Materials
	PackSys Global	capLAB Inline Inspection Integrated Automatic Device for Tamper Evident (TE) Bands
	Wuhan EMAN Technology Co., Ltd.	Flexible Automation Control System
	Guangdong Taisen Intelligent Equipment Co., Ltd.	Airless Leak Detection Equipment

Review Panel and Award-Winning Companies

Top 10 Technology
Trends in Plastics and
Rubber in 2025

Adsale Plastics
AdsaleCPRJ.com Network
Industry Insight • Business Connect

Most Popular Award



Companies	Case Studies
Huizhou Tianhong Machinery Manufacturing Co., Ltd.	TX Series Automatic Plastic Melt Filter

Expert Choice Award



Companies	Case Studies
Windmüller & Hölscher	Varex II Blown Film Line

Finalist Award



Technologies	Companies	Case Studies
High-Value Recycled Plastics and Rubber	Shanghai DODGEN Chemical Technology Co., Ltd.	Swirling Falling Film Crystallizer
	Shenzhen Esun Industrial Co., Ltd.	High-Quality Chemical Recycling Technology for Polylactic Acid
	The Japan Steel Works, LTD.	TEX Twin-Screw Compounding Extruder
	Star Plastics	Ocean Plastic Recycling, ITE Electronic Product Recycling, PFAS Free
	Suzhou ACERETECH Co., Ltd.	safPET™ Food-Grade PET Bottle-to-Bottle Recycling System
	Zhejiang DOMO engineering material Co., Ltd	TECHNYL® 4EARTH® Chemical Recycling
Bio-Plastic	Zhuhai Kingfa Biomaterial Co., Ltd.	Fully Biodegradable Lightweight Packaging Material and Industrialization
	Ecombine Advanced Material Co., Ltd.	Ecombine-PP Nano-Cellulose Reinforced Polypropylene High-Performance Bio-Based Composite

Finalist Award



Technologies	Companies	Case Studies
Bio-Plastic	Sage Advanced Materials	Bio-Based High Barrier Film
	Dawn Polymer	Research and Application of Biodegradable Polyester Materials
Skin-Friendly Soft Materials	Nantong Polymax Elastomer Technology Co., Ltd.	High-Performance TPE Material for Medical Speculums
Low-Carbon Recycling	Hunan Vary Technology Co., Ltd.	AI Intelligent System and Key Technologies for Mechanical Recycling of Home Appliance
	Mold-Masters	Co-Injection Molding Technology
	Taizhou Huangyan Yalong Technology Development Co., Ltd.	Screen-Free Filter
	Kingfa Environmental Sci. & Tech.Co., Ltd.	Integration Technology and Industrial Application for Recycling Mixed Plastic Waste
Lightweight, Functional Materials and Additives	Zhuhai Vanteque Specialty Engineering Plastics Co., Ltd.	Heat and Cold Shock Resistant, Crack-Free, Halogen-Free Flame-Retardant Semi-Aromatic Polyamide Material
	Guangdong Yulong Technology Co., Ltd.	PY-3008M, Eco-Friendly Halogen-Free Flame-Retardant Functional Masterbatch for Polypropylene
	Shenzhen WOTE Advanced Materials Co., Ltd.	WOTE DuraKraft™ PEEK
	FOROP Advanced Materials Co., Ltd	Ultra-Thin BOPP
	GEON Performance Solutions (Dongguan) Co., Ltd.	GEON® CMP Flame-Retardant PVC Material for Cable
	Lihui Environmental Protection New Material Co., Ltd.	Eco- Friendly Black PVC Paste

Finalist Award



Technologies	Companies	Case Studies
Intelligent Injection Molding and Auxiliary Technologies	Guangdong YUDO Hot Runner System Co., Ltd.	Multi-Layer Injection Molding System
	Ningbo Techmation Co., LTD.	AI Network Platform
	Shandong Dawn Mould Plastics Co., Ltd.	Passenger Vehicle Project
	Dongguan Goldenbox Plastic Machinery Co., Ltd.	Automatic Conveyor System for Integrated Intelligent Infusion Tube Production Line
Energy-Efficient Extrusion and Auxiliary Technologies	Windmüller & Hölscher	OPTIMEX II FFS, W&H Three-Layer Heavy-Duty Blown Film Machine
	Costruzioni Meccaniche Luigi Bandera SpA	Extrusion and Laminated Film Composite Machine
	Nanjing KYmach Technologies Corp., Ltd.	HK26MT Extruder
Functional Films and Surface Treatment	Guangdong Decro Film New Materials Co., Ltd.	Decro Glue-Free Composite Film
	Shenzhen Senior Technology Material Co., Ltd.	High-Temperature Resistant Lightweight Nano-Fiber Composite Film
	Vetaphone A/S	iPlasma Atmospheric Pressure Plasma Surface Treatment
Automation and Smart Manufacturing Technologies	Windmüller & Hölscher	Second Generation of Easy2 Change Convenient Changeover
	Dalian Second Rubber and Plastic Machinery Co., Ltd.	Constant Temperature Rubber Mixing and IoT
	Suzhou GMA Environmental Protection Technology Co., Ltd.	Automatic System for Centralized Feeding of Multiple Materials
	Dalian Altma Industry Co., Ltd.	Flexographic Coating Composite Machine

★ The above rankings are in no particular order.

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