



NEWS

GAME CHANGING TECHNOLOGY



Dear Reader:

When people think about game-changing technology, they often imagine entirely new inventions or breakthrough discoveries. In reality, some of the most significant advances come from applying existing knowledge in new ways, solving familiar challenges differently, and finding opportunities where others see limitations.

This edition of *Ti News* highlights several examples of how innovation continues to evolve across our industry. From advanced thin film technologies used in capacitor films to packaging solutions that improve recyclability, reduce material consumption, or enhance performance, the common thread is the ability to rethink what is possible.

The articles in this edition illustrate this idea in different ways. Some focus on new material solutions, such as the continued evolution of the NATIVIA® portfolio of bio-based and compostable films. Others show how films such as EXTENDO® XZMU and LMW3 are helping customers address challenges related to recyclability, lightweighting, and packaging performance. You will also see how laminating films developed for graphic arts applications are creating new possibilities in window packaging, illustrating how expertise developed in one area can create opportunities in another.

The feature on Polyopt, the newest acquisition of the Al Ghurair Group in specialty films, provides another perspective on innovation. The demanding nature of capacitor films requires exceptional precision and process control. While these highly technical films serve a very different market than packaging, the expertise behind them demonstrates how advanced film technologies can create opportunities across multiple industries and applications.

This same spirit of innovation was reflected at Interpack 2026, where our theme, "Expanding the Possibilities of Packaging," highlighted how new ideas, technologies, and collaborations continue to shape the future of our industry. It is also evident in our growing engagement across Asia, where evolving market needs are creating new opportunities for innovation and partnership.

Finally, this edition includes a look at how colleagues around the world celebrated Taghleef Industries' 20th anniversary. While technology and innovation remain at the center of our business, our success ultimately depends on the people whose expertise, creativity, and dedication make progress possible.

I hope you enjoy this edition of *Ti News* and the many examples of game-changing technology featured throughout its pages.

Sincerely,
Dr. Detlef Schuhmann
CEO *Ti* Group

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Advanced Thin Film Technology: Precision That Enables New Possibilities

From capacitor films to future specialty film applications

Polyopt is a specialty film producer based in Neunkirchen, Germany and is recognized as one of the global leaders in thin film technology, particularly in the field of capacitor films, in which precision, consistency, and surface quality are critical performance factors. Operating as a sister company to Taghleef Industries within the Al Ghurair Group, Polyopt brings decades of expertise in advanced film manufacturing and high-value specialty film applications.

Through years of experience in film handling and optimization, the company has developed specialized expertise in controlling film thickness, surface quality, and performance characteristics for demanding technical applications.

Capacitor films require extremely uniform thickness profiles, exceptional cleanliness, and optimized surface properties to ensure reliability and electrical performance in applications such as electric vehicles, renewable energy systems, and industrial electronics. Polyopt supports manufacturers in achieving these requirements through highly specialized film treatment and optimization processes. Capacitor films are also becoming an increasingly important component of industrial supply chains supporting electrification, renewable energy, and advanced manufacturing. In addition to its leadership in capacitor films, Polyopt has

longstanding expertise in flexible packaging applications, providing a unique combination of capabilities across multiple specialty film markets.

Beyond the traditional capacitor market, thin film technology is becoming increasingly important within the packaging industry. Driven by new packaging regulations and sustainability initiatives, manufacturers are seeking innovative film solutions that reduce material consumption while maintaining barrier performance, durability, and recyclability.

In this evolving market environment, Polyopt's expertise in thin film processing provides valuable advantages for packaging applications as well. Advanced film optimization technologies can contribute to downgauging strategies, improved functional coatings, and enhanced material efficiency, all of which are becoming key priorities in modern packaging development.

The combination of technical know-how, process precision, and application-oriented innovation positions Polyopt as a strong technology partner across multiple specialty film markets. As industries continue to demand thinner, more functional, and more sustainable film solutions, thin film technology will remain a critical driver for future product development.

The image shows the exterior of a modern building with a white facade. The Polyopt logo is prominently displayed on the upper part of the building, featuring the word "POLYOPT" in large, bold, blue letters. The letter "P" is green, and the letter "O" is also green. The building has several windows with white frames and dark shutters. The sky is a clear, deep blue.

Window Packaging, Simplified

New laminating films enable window creation in a single operation

Window packaging continues to gain traction across food, cosmetics, premium retail, and consumer goods as brands look for ways to enhance visibility, shelf appeal, and consumer confidence. By allowing the product to be seen directly through the package, windowed designs can elevate presentation while reinforcing perceptions of quality and transparency.

For converters and printers, however, producing these windows has traditionally involved additional processing steps. Conventional windowed cartons often rely on separate patching operations in which PVC or other plastic films are applied after printing and converting. While effective, these methods can add complexity to production, increase handling requirements, and slow throughput.

Recent developments in thermal laminating technology are beginning to simplify that process. New laminating films designed specifically for window packaging applications now allow transparent windows to be created directly during lamination, reducing the need for secondary patching operations and enabling a more streamlined workflow.

One solution is Derprosa™ Window Gloss Endurance (35F733), a high-gloss PET thermal laminating film developed by Taghleef Industries S.L. in Spain. Engineered specifically for window packaging applications, the film allows converters to create transparent windows using standard thermal laminators, combining lamination and window creation into a single operation while eliminating the need for separate PVC patching processes and additional equipment.

A key innovation behind Derprosa Window Gloss Endurance is its fast-cooling EVA adhesive, which becomes fully transparent after solidification. This helps minimize haze or distortion, creating clean, high-gloss windows that enhance product visibility while maintaining premium visual appeal. The film

is also designed for strong machinability and stable performance during long production runs, helping improve production efficiency, reduce waste, and support reliable sheet stacking once cooled.

The flexibility of the solution also opens new design possibilities. Derprosa Window Gloss Endurance can be applied to the inside of a carton to contribute barrier functionality or to the outside to create a continuous visual surface across both board and transparent window areas. It is suitable for a range of packaging formats, including folded and corner window applications.

As a PET-based solution, this film also provides an alternative to traditional PVC window patching materials and is approved for food-contact applications. As packaging manufacturers continue seeking ways to improve efficiency while maintaining premium presentation, Derprosa Window Gloss Endurance demonstrates how laminating films are evolving beyond surface decoration to support smarter, more integrated packaging solutions.



Tackling a Tough Challenge for Food Service Packaging

How NATIVIA® PLUS D823 helps simplify disposal of food-contaminated packaging



NATIVIA® PLUS D823 FILM PROPERTIES

Food service packaging has long posed a stubborn end-of-life problem: trays and lids contaminated with food residues are largely incompatible with conventional recycling, sending significant volumes of single-use plastic straight to landfill. With regulations tightening across markets worldwide, the pressure to find workable alternatives has never been greater.

In response, Taghleef Industries, in cooperation with Corapack, has developed an alternative to traditional ready-meal and fresh-food packaging based on a top lid made with NATIVIA® PLUS D823, a 35 µm transparent, biaxially oriented PBSA-based lidding film designed for home compostability and derived from biobased polymers. The complete packaging structure combines a compostable, lacquered molded fiber tray with the NATIVIA PLUS D823 lidding film, heat-sealable on one side.

The entire pack — tray, film, and food residues — can be disposed of directly in the organic waste stream, with no cleaning or separation needed. This makes the solution particularly well suited for heavily food-contaminated applications across food service environments. Just as importantly, there is no trade-off in performance. NATIVIA PLUS D823 delivers high seal integrity, an ultra-low minimum sealing temperature (MST), film transparency for product visibility, and compatibility with existing high-speed packaging lines.



Transparent with good contact clarity



Good printability with enhanced receptivity to inks and adhesives when corona treated



Good mechanical properties for easy converting and processability in packaging machines



Good flexibility and no noise



Excellent breathability

The Evolution of BOPP Films for Flexible Packaging

From film supplier to innovation partner

Over the past twenty years, polymer films have evolved from a simple material input into a key driver of packaging performance, design, and sustainability. This transformation reflects a broader industry shift from selecting materials based primarily on specifications to engineering solutions focused on performance and overall package functionality. As a result, BOPP film suppliers have become strategic innovation partners, collaborating across the value chain to help solve increasingly complex packaging challenges.

In flexible packaging, films now play a central role in product protection, shelf-life extension, machinability, and shelf differentiation. Multi-layer film structures are engineered to balance barrier performance, seal integrity, mechanical strength, and compatibility with high-speed packaging operations. At the same time, sustainability expectations continue to accelerate the development of mono-material packaging, thinner structures, and recycle-ready film technologies designed to support circular packaging goals without sacrificing performance.

Mini-Sized Chocolate Bars

For mini-sized chocolate bars, packaging must protect products that are sensitive to heat, moisture, and handling while maintaining reliable high-speed wrapping performance. White opaque polypropylene film structures help protect chocolate, preserving flavor and texture throughout shelf life. At the same time, these films provide strong print performance and reliable cold seal functionality.

Potato Chips

In snack packaging, high-barrier film technologies are essential for protecting potato chips from moisture, oxygen, and light. Premium matte-finish packaging has also become increasingly important for shelf differentiation and consumer appeal. Modern metallized BOPP structures combine strong barrier protection

with matte aesthetics, reliable sealability, and efficient machinability on high-speed packaging lines while supporting more recyclable polyolefin-based packaging solutions.

Chewy and Gummy Candy

Packaging for chewy and gummy candy requires a careful balance between moisture protection, visual appeal, and production efficiency. Clear high-barrier films help maintain product freshness and texture while enabling transparent packaging designs that showcase the product. These advanced film structures also support strong sealing performance and reliable converting efficiency across high-volume production environments.





Bakery and Granola Bars

For bakery and granola bar applications, packaging must combine product protection with premium shelf presentation and reliable cold seal performance. Matte-finish outer films paired with metallized or white opaque inner webs create a distinctive shelf appearance while reducing ink usage and improving converting efficiency. Together, these film technologies support strong visual differentiation, efficient machinability, and dependable packaging performance for on-the-go snack products.

Today's flexible packaging market requires film structures that deliver far more than basic functionality. Through continued film and application development, Taghleef Industries supports packaging solutions designed for protection, efficiency, shelf impact, and improved recyclability.

Expanding Flexible Packaging Possibilities with EXTENDO® XZMU

High-barrier mono-material solution for spouted stand-up pouches

As brands continue to seek packaging solutions that combine performance, convenience, and sustainability, spouted stand-up pouches are rapidly emerging as a high-growth opportunity across food, beverage, personal care, and household applications. Lightweight, durable, and consumer-friendly, these formats are increasingly replacing rigid packaging, particularly for products such as sauces, spreadable creams, purees, detergents, and refill systems.

At the center of this transition is Taghleef Industries' EXTENDO® XZMU, a high-barrier PP film that enables mono-material structures

while maintaining strong product protection. By delivering ultra-high barrier properties against oxygen, moisture, mineral oils, and aroma loss, EXTENDO® XZMU helps preserve product quality and shelf life while supporting recyclability goals.

For spouted stand-up pouches, XZMU enables lighter-weight alternatives to traditional rigid containers and complex multi-material laminates. This allows brands to reduce material usage, improve transportation efficiency, and enhance consumer convenience while supporting more recyclable structures. As demand for refillable



and flexible packaging grows, high-barrier mono-material solutions like EXTENDO® XZMU help brands reDESIGN™ packaging for the future.

Lightweight Bottles, New Demands

LMW3 supports efficient wrap-around labeling for carbonated beverages

Inside a bottling plant, everything moves fast. Labels are applied at high rates, bottles are filled at high speed, and every packaging component must perform consistently throughout the process.



As the industry pushes to reduce material usage, PET bottles are becoming lighter. While this offers clear sustainability benefits, it also creates new challenges. Thinner, lightweight bottles can be more sensitive to pressure, especially when filled with carbonated beverages or exposed to temperature fluctuations during transportation and storage.

Developed to address these challenges, LMW3 is the latest addition to Taghleef Industries' wrap-around label film portfolio. The film combines ultra-low density for ultra-high yield with enhanced mechanical properties that support both material efficiency and reliable

performance. Its engineered white appearance enhances print definition and color intensity for strong shelf impact while helping optimize ink consumption.

LMW3 has been successfully validated through trials with Ellerhold Witten GmbH, a leading beverage label converter, confirming its suitability for carbonated soft drink applications.

In today's production environments, the shift toward lightweight packaging is creating new demands across the value chain, making film performance a critical factor in packaging efficiency and reliability.

LFG: A Mono-Material PP Solution for Yogurt Cup Banderoles

Rethinking a familiar format to support recyclability

At first glance, a yogurt cup may appear to be a simple everyday package. Yet behind that small container, the packaging industry is paying increasing attention to material selection, recyclability, and packaging design.

Over the years, paper banderole labels have been widely used on yogurt cups. However, combining different materials for the label and container can complicate the recycling process, particularly as sustainability expectations and European packaging regulations continue to evolve.

LFG is a high-thickness PP film developed by Taghleef for yogurt cup banderole labels, enabling fully mono-material packaging structures. It offers excellent printability and the high stiffness needed to meet top-load requirements

while adhering to the container without the use of glue, unlike traditional paper-based solutions.

To further assess the application, *Ti* partnered with Emsur's innovation and development center, INNOTECH, to explore how LFG could support mono-material yogurt cup banderole structures without compromising performance.

Innovation often starts by rethinking even the most familiar everyday packaging applications.



Asia in Focus

Expanding *Ti*'s presence in one of the world's fastest-growing markets



Asia is rapidly emerging as one of the most dynamic regions for flexible packaging innovation. Increasing demand for packaged food, expanding industrial capabilities, and accelerating sustainability commitments are driving major transformation across the region's packaging industry.

As part of its global growth strategy, Taghleef Industries is expanding its presence across Asia with a particular focus on Southeast Asia, where demand for high-performance and recyclable packaging solutions continues to accelerate.

Through closer collaboration with converters, brand owners, and regional partners, *Ti* is bringing innovative solutions for applications ranging from food packaging and labeling to recyclable mono-material structures. Across the region, customers are seeking solutions that balance performance, efficiency, and recyclability while addressing evolving market and regulatory requirements.

Participation in industry events such as SustPack Singapore and ProPak Asia Thailand has further reinforced Taghleef's presence in the region, providing valuable opportunities to connect directly with

customers, exchange insights, and showcase the company's technologies and capabilities.

As the packaging landscape continues to evolve, *Ti* remains committed to supporting customers and partners across Asia with innovative film solutions and local market expertise.

“Southeast Asia is one of the most dynamic and fastest-growing packaging markets in the world. Our participation in these important industry events signals our long-term commitment to this region, not just as a supplier, but as a trusted technical partner ready to co-develop solutions that address local market needs and global regulatory demands.”

Oliver Nickel, Director Sales and Marketing Asia Pacific

More Than a Stand

Expanding the Possibilities of Packaging at Interpack 2026



From the moment visitors stepped onto the Interpack show floor this year, one thing was clear: the packaging industry is evolving rapidly.

For Taghleef Industries, the event was about more than showcasing solutions; it was about creating space for meaningful conversations. Under the theme “Expanding the Possibilities of Packaging, Together,” the stand quickly became a hub where ideas and people came together naturally.

Where Products Meet Conversation

From day one, the stand was lively and full of energy. Customers, brand owners, converters, and partners stopped by not only to explore new materials but also to discuss real-world applications, from improving performance to integrating recycled content and advancing circularity.

The stand was designed as a journey through five themes, each grounded in practical, tangible solutions:

Origins, Rewritten explored alternative raw materials, including bio-based PP films and recycled-content solutions such as reLIFE™ substrates.

Distinction, Amplified highlighted visual impact and design, featuring materials such as Derprosa™ for graphic arts and Titanium™ metallized films for premium IML applications.

Performance, Unleashed focused on flexible coated films designed to enhance properties such as printability and machinability on the line.

Circularity, Increased showcased mono-material structures such as EXTENDO®, along with solutions that support recyclability, including SHAPE360® polyolefin films for TD shrink labels.



Future, Accelerated looked ahead to emerging developments, including the latest NATIVIA® films designed for home compostability.

Each area served not simply as a display but as a starting point for practical, solution-focused discussions.

Ti Talks: A Living Program

Designed as a structured yet open program, *Ti Talks* followed the same five themes as the stand, allowing each day to build a complete narrative, from the origins of materials to the outlook for the future.

Morning sessions, *Ti Talks – Inside Packaging*, focused on Taghleef's own expertise. Internal specialists guided visitors through products, applications, and real case studies, showing how flexible packaging, labels, and graphic arts solutions are put into practice.

In the afternoon, *Ti Talks – Beyond Packaging* broadened the conversation, bringing in external experts and fresh perspectives for each theme. The program began with *Origins, Rewritten*, during which Emiliano Basualto (Senior Analyst at ICIS) explored the evolution of global resin markets, from polypropylene trends to shifts in regional production. (continued on next page)

With *Distinction, Amplified*, the focus shifted to design. Led by moderator *Tim Sykes* (Packaging Europe), speakers including Jean-Emile Potaufoux (Technical Manager at RecyClass), Dominika Maruszak (Global Packaging Sustainability Manager at PepsiCo), Ulrike Danne (Senior Manager Sustainability at GS1 Germany), and Joana-Maria Bauchwitz (CEO at Baries Design) explored how packaging design is increasingly shaped by the interplay of creativity, circularity, and data.

continued

Ti Talks: A Living Program



Top left: Jean-Emile Potaufoux, Tim Sykes, Dominika Maruszak, Joana-Maria Bauchwitz, and Ulrike Danne

Top right: Joachim Quoden, Fiona Durie, Scott Trenor, and Guido Aufdemkamp

Bottom left: Eric Klingenberg, Stan Haftka, Afsaneh Nabifar, and Fabrizio Radice

Bottom right: Tim Sykes, Nerida Kelton, Ton Knipscheer, Boris Planer, and Alexander Reitz

In Performance, Unleashed, the conversation expanded to global compliance and market dynamics. Experts including Joachim Quoden (Managing Director at EXPRA), Guido Aufdemkamp (Executive Director at Flexible Packaging Europe), Scott Trenor (Technical Director at APR), and Fiona Durie (Advocacy Consultant at CEFLEX) shared insights into the growing interconnection between regulation, compliance, and global market conditions.

The Circularity, Increased session focused on compostable and bio-based materials, with contributions from Fabrizio Radice (General Manager at Corapack), Afsaneh Nabifar (Chairperson at Compostable by Design), Eric Klingenberg (Materials Science Lead at Mars Advanced Research Institute), and Stan Haftka (Business Development Manager at Kaneka Green Planet). Moderated by Maria Monique Murillo (Strategic Marketing Manager Flexibles at Taghleef Industries), the discussion addressed both the opportunities and the limitations of real-world applications.

Finally, Future, Accelerated looked ahead, with Boris Planer (Consultant at Retail Cities), Nerida Kelton (World Packaging Association), Ton Knipscheer (Executive Director at ECPA), and Alexander Reitz (Team Lead

Consulting & Development at PreZero Sustainable Packaging) exploring how packaging, retail, and consumer expectations may evolve by 2030.

What made *Ti Talks* especially effective was its tone. Rather than traditional presentations, the sessions felt like open discussions: often candid, sometimes contrasting, but always grounded in the real questions facing the industry.

More Than a Stand

Throughout the week, the stand became a genuine meeting point. Planned meetings blended seamlessly with spontaneous conversations, long-term partners reconnected, and new opportunities began to take shape.

What stood out most was the consistency of the conversations. Across regions and applications, the same priorities surfaced again and again: increasing recycled and bio-based content, improving recyclability, and maintaining product performance.

Interpack reinforced one key message: innovation matters most when it works in practice and when it is built together.

The Future of Labeling

Innovations across every major labeling format

Label technologies continue to evolve as brands and converters seek greater efficiency, improved performance, and packaging solutions that support circularity goals. Across formats ranging from wrap-around labels to shrink sleeves, in-mold labels, and pressure-sensitive labels, ongoing film innovation is helping create more specialized and sustainable labeling solutions.

Wrap-Around Labels

For high-volume beverage applications such as 20oz, 1-liter, and 2-liter carbonated soft drink bottles, wrap-around labeling remains a preferred solution due to its efficiency and cost effectiveness. Modern BOPP film technologies are helping converters and brand owners improve machinability, print quality, and downgauging capabilities without compromising performance. Advanced roll-fed label films support smooth operation on high-speed bottling lines while enabling vibrant graphics and compatibility with recycling streams, helping beverage brands improve operational efficiency while supporting packaging circularity goals.

Shrink Sleeve Labels

Shrink sleeve labeling continues to expand across beverage, food, and home care applications due to its ability to deliver full-body, 360-degree branding on complex container shapes. Low- and medium-shrink film technologies provide more controlled shrink behavior, improved print consistency, and greater stability during converting and application. At the same time, polyolefin-based shrink solutions are helping support recyclability goals through floatable structures and compatibility with circular packaging initiatives.

In-Mold Labels

In-mold labeling is increasingly used in rigid packaging applications such as food containers, household goods, and personal care packaging. Unlike traditional applied labels, in-mold labeling integrates the label directly into the container during the molding process, creating a durable and highly integrated packaging solution. Recent innovation focuses on mono-

material polypropylene structures that improve recyclability while maintaining premium aesthetics, including metallic finishes. Advanced IML films deliver reliable high-speed processing, strong adhesion during molding, and durable label performance throughout the product lifecycle.

Pressure-Sensitive Labels

Pressure-sensitive labels continue to play an important role in premium personal care applications where shelf appeal and durability are essential. New film technologies provide enhanced tactile finishes, vibrant print performance, and resistance to moisture, oils, and handling. In addition to delivering premium branding opportunities, recycle-ready polyolefin structures help brands align pressure-sensitive packaging with evolving recyclability goals.

As label technologies continue to evolve, Taghleef Industries continues to support brands and converters with film solutions designed to improve performance, efficiency, and

recyclability across a wide range of label applications.



Celebrating 20 Years Together

A truly global anniversary

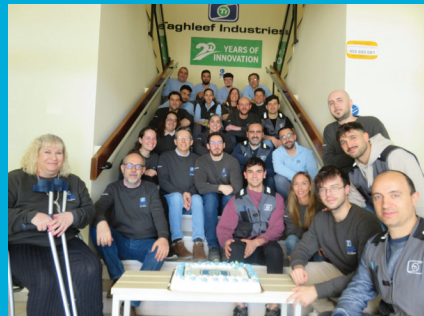
On April 1, 2026, Taghleef Industries celebrated an important milestone: 20 years of innovation, growth, and collaboration. While the anniversary honored the company's history and achievements, its true spirit was reflected in the people who helped shape its first two decades.

Across six continents, *Ti* sites marked the occasion with local celebrations that brought employees together to recognize this shared accomplishment. Whether through anniversary receptions, group photos, or simply sharing cake with colleagues, employees took time to celebrate the milestone and

the people behind it. While the celebrations varied from site to site, the sense of pride and appreciation was shared across the company.

More than a company, Taghleef is a global team united by a shared purpose and commitment to innovation. As *Ti* looks ahead to the future, this anniversary serves as a reminder that its greatest strength has always been its people.

Thanks to the people of *Ti* for making the first 20 years possible.



20 YEARS OF INNOVATION



Understanding the Coefficient of Friction of BOPP Films

How COF influences film handling, machinability, and packaging performance

BOPP films are widely used in flexible packaging due to their excellent clarity, strength, and barrier properties. One critical parameter affecting film performance during processing and end-use applications is the coefficient of friction (COF). COF determines the ease of film handling during converting, printing, packaging, and stacking operations. Key factors influencing the COF of BOPP films include formulation, surface characteristics, environmental conditions, and processing parameters.

COF is defined as the ratio of the frictional force resisting motion between two surfaces to the normal force pressing them together. COF is typically divided into:

Static COF (SCOF):

Resistance at the onset of motion

Kinetic COF (KCOF):

Resistance during sliding motion

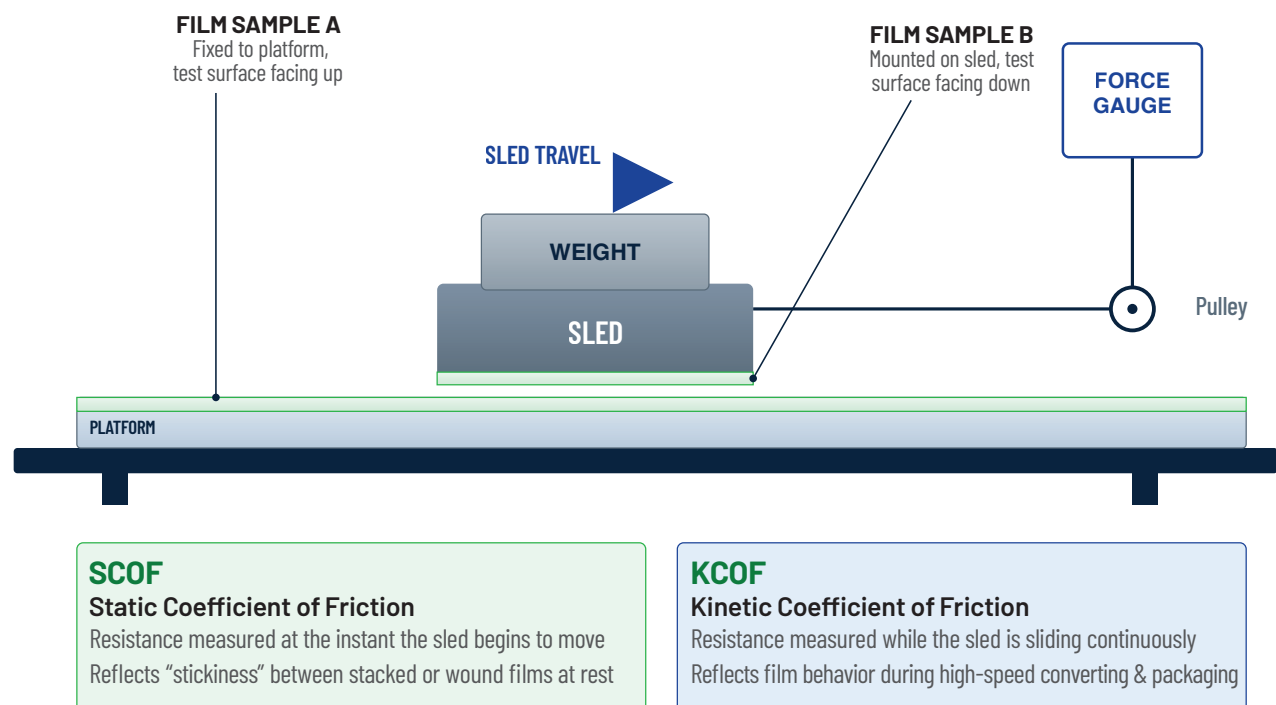
The diagram (below) shows an example of COF test equipment. A film sample is held in place on a platform

with the test surface facing upward, while a second film sample is fixed to a weighted sled so that the test surface is in contact with the film on the platform. The sled is then pulled across the platform to measure the SCOF and KCOF.

Control of COF is essential for ensuring machinability in high-speed packaging lines, preventing blocking (film sticking) and achieving optimal stacking behavior. Several factors affect COF, including resin properties, slip additives, anti-block additives, surface roughness, and surface energy or treatment. Slip agents play the most significant role in controlling COF. Common slip additives are erucamide, oleamide, and silicone oil. These additives work by migrating to the film surface to form a lubricating layer. Higher concentration levels of these additives lower COF values. The migration rate to the film surface depends on temperature and polymer compatibility. Typically, COF decreases over time as these slip additives bloom to the surface.

MEASURING THE COEFFICIENT OF FRICTION

How the sled test determines SCOF and KCOF

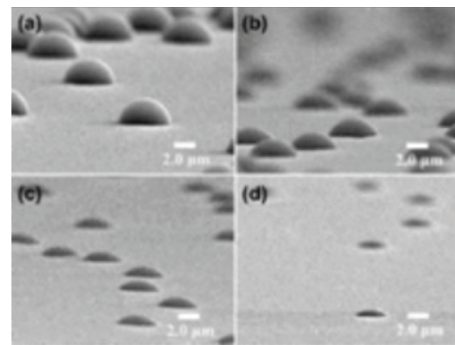


Anti-block agents also affect COF by creating micro-roughness on the surface that reduces the contact area between films. Common anti-block additives include silica, talc, and polymethyl methacrylate (PMMA). These additives prevent blocking and improve web handling; but anti-block size, shape, and loading level all influence film properties. Care must be taken during formulation to optimize all properties. Excessive anti-block can increase film haze, affect heat seal performance, contribute to process roll contamination, or create pinholes in high-barrier metallized films that reduce barrier properties. All these factors must be carefully balanced when developing an anti-block formulation.

Other factors affecting COF are surface treatment, film structure, and processing conditions. Corona or flame treatment are often used to increase surface energy for better printability. Treated surfaces typically exhibit higher COF compared to untreated ones due to increased adhesion. BOPP films are often co-extruded with multiple layers. The type and composition of outer layers strongly influence COF. Biaxial orientation (machine direction and transverse direction stretching) affects surface morphology and impacts additive distribution. Rapid cooling can trap

additives inside while slow cooling promotes earlier migration to the surface. High tension during winding increases contact pressure, potentially altering COF measurements and affecting blocking tendency.

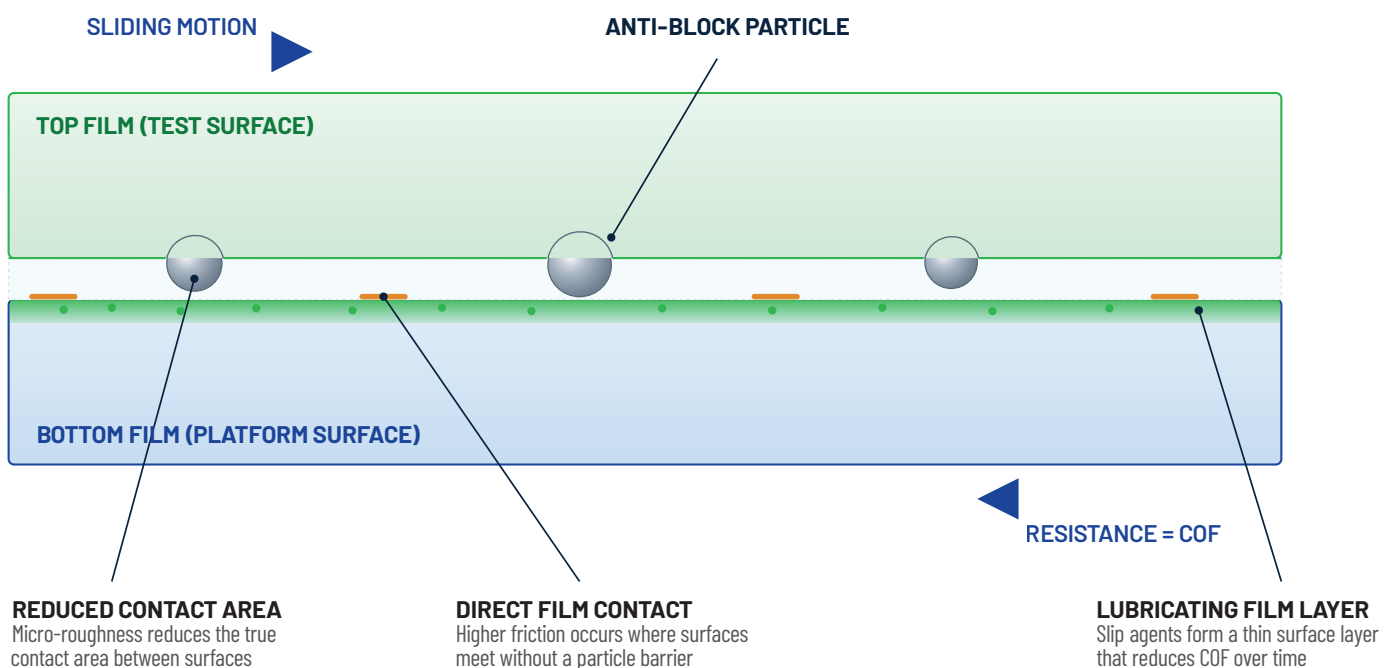
The coefficient of friction of BOPP film is influenced by a complex interplay of material formulation, surface characteristics, processing conditions, and environmental factors. Among these, slip and anti-block additives play the most significant role, while surface treatments and aging effects significantly modify behavior over time. Optimizing COF requires a careful balance of these variables to meet the performance requirements of specific applications.



SEM surface pictures of silica anti-blocking agent

HOW ADDITIVES CONTROL FILM-ON-FILM FRICTION

A cross-sectional view of two BOPP film surfaces in contact



Light microscopy image of anti-block of Ti film

Join us at LOUPE Americas

Showcasing film innovations that extend beyond traditional applications



From September 15–17, Taghleef Industries will exhibit at LOUPE Americas 2026, the newly reimagined event formerly known as Labelexpo Americas. Visitors are invited to Booth #527, where the *Ti* team will present the latest advances in label and packaging film solutions and the expertise behind them.

The booth will feature a broad films portfolio spanning pressure-sensitive labels (PSL), in-mold labels (IML), wrap-around labels (WAL), shrink sleeve labels, and graphic arts applications. Through application-focused displays and product samples, visitors will see how *Ti*'s films respond to the evolving needs of today's brands and converters—from shelf appeal and on-press performance to recyclability and source reduction.

A central theme of the exhibit is the way film technologies increasingly cross traditional application boundaries. Films originally developed for one market are now creating value across many, opening new opportunities in packaging design, performance, and sustainability. It is an approach that reflects *Ti*'s belief that meaningful innovation often comes from applying knowledge in new ways.

Ti will showcase established solutions and emerging developments, offering a clear view of where label, packaging, and graphic arts films are headed next. Visitors can also learn about *Ti*'s ongoing investments in manufacturing and innovation, including a new production line that expands the availability of both existing and new specialty film solutions closer to customers across North America, strengthening regional supply and customer support. For brands and converters navigating new regulations, shifting consumer expectations, and ambitious sustainability targets, conversations at Booth #527 will focus on practical discussions, with *Ti* experts on hand to help address specific packaging challenges.

LOUPE Americas provides an important forum for the industry, and *Ti* is proud to be part of the conversation. Whether redesigning an existing label or reimagining a package from the ground up, visitors are invited to discover new possibilities at Booth #527.



Upcoming Events

SEP 1-3	IMDA Product Decorating Summit	Houston, USA
SEP 8-10	Agra Middle East	Dubai, UAE
SEP 13	AWA Seminar Series 2026	Chicago, USA
SEP 15-16	Surface In Motion	Stuttgart, Germany
SEP 15-17	LOUPE Americas (formerly Labelexpo)	Chicago, USA
SEP 23-25	Printing United Las Vegas	Las Vegas, USA
SEP 28-30	SPC Advance How2Recycle Summit	San Diego, USA
OCT 6-8	Sustainability in Packaging Europe	Barcelona, Spain
OCT 18-21	Pack Expo International	Chicago, USA
OCT 20-23	SICAM	Pordenone, Italy
OCT 27-29	APR Fall Member Meeting	New Orleans, USA
NOV 3-5	Gulf Food Manufacturing	Dubai, UAE
NOV 4-5	PolyNext Conference and Awards	Dubai, UAE
NOV 4-5	APR Design Training	Indianapolis, USA
NOV 10-12	Sustainable Packaging Summit	Utrecht, Netherlands
NOV 10-13	Plast Imagen	Mexico City, Mexico
NOV 15-17	PLMA Private Label Trade Show	Chicago, USA
NOV 17	AWA Sleeve Label Conference	Chicago, USA
NOV 25-26	Plastics Recyclers Annual Meeting	Valencia, Spain

About the Cover

The printed edition of this *Ti News* features Derprosa™ laminating film on the cover.

Designed to enhance the appearance, durability, and tactile experience of printed materials, Derprosa laminating films offer a wide range of finishes that help printers, converters, and brand owners create distinctive, high-quality packaging and printed communications.

For more information about the Derprosa range of laminating films, contact derprosa@ti-films.com or visit derprosa.com.





www.ti-films.com