

BENEATH THE SURFACE

FOSTERING PPF INNOVATION WITH A STATE-OF-THE-ART PILOT FILM EXTRUSION LINE

The traditional barriers to innovation in paint protection film (PPF) are rapidly becoming relics of the industry's past. First, lengthy qualification testing timelines have made way for an advanced, accelerated testing method that delivers results in a matter of days. Now, Lubrizol has introduced a state-of-the-art pilot film extrusion line capable of yielding a degree of accuracy and quality previously unseen among TPU suppliers. This unprecedented investment in PPF R&D is eliminating obstacles and clearing the path for greater innovation in the PPF industry. Innovation that can advance beyond only coating and adhesives technology, to one that holistically considers TPU technology.

PROBLEM

Traditional, Scaled-down Pilot Lines Lack Precision and Produce Defects

For many PPF brand owners, innovation across their product lines remains limited to coating and adhesives formulations, requiring a leap of faith with TPU suppliers and film processors. Bridging the gap between the theoretical and a viable new product can be expensive and time-consuming, with crude prototyping capabilities and lengthy qualification testing slowing and discouraging new product development.

TPU polymers are developed to exacting industry specifications using advanced materials science, but too often they face final validation on small, unrefined pilot extrusion lines that only vaguely resemble commercial-grade quality and produce film rife with defects. When that inadequately produced product fails to meet real-world performance requirements for PPF, repeated experimentation and pilot-scale extrusion are necessary.

These substandard capabilities are yet another factor favoring the industry-wide inertia toward the status quo. PPF brand owners are disinclined to try something new when development and validation can be costly and time-consuming.

IT DOESN'T HAVE TO BE THIS WAY.

OBJECTIVE

Streamlined Development of PPF

These structural shortcomings impact the bottom line in a variety of ways. Validation based on imperfect prototyping can lead to unsatisfactory results when scaled to the commercial production environment. Best case, those are wasted efforts that need to be repeated after additional formulating, testing and guesswork prototyping. Worst case, the product slips through the process, only to perform poorly in the market.

The same crude pilot extrusion lines used for new product prototyping also perform technical troubleshooting for existing commercial products. Evolving regulatory requirements can impact certain key ingredients and force adjustments to previously validated TPU, but even small changes can impact final product characteristics, manufacturing processes, and final performance. Those changes can be difficult to detect with current pilot extrusion capabilities.

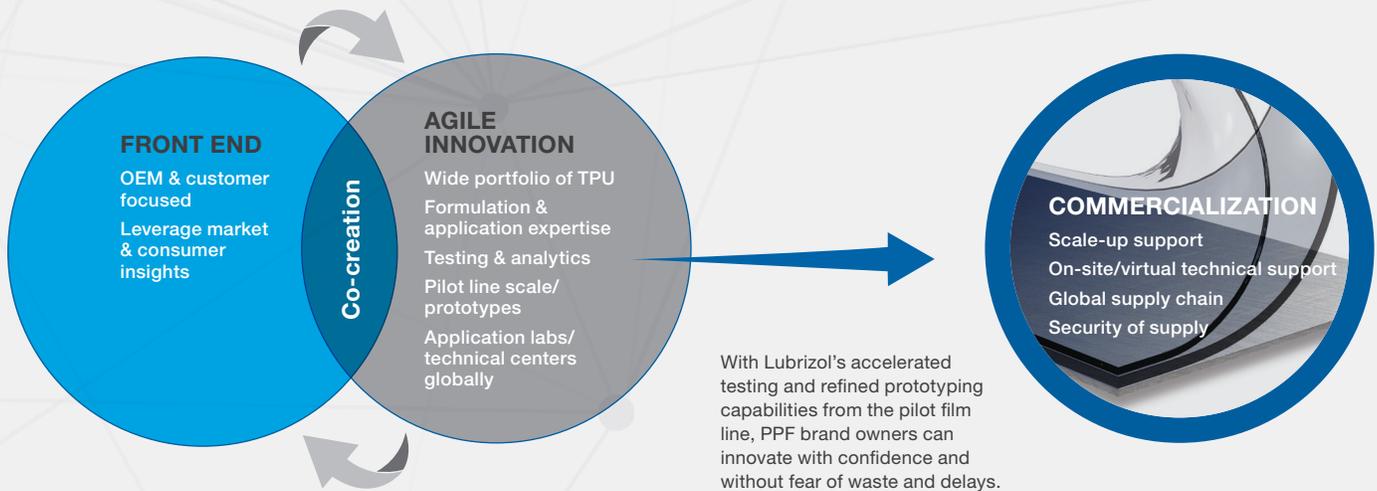
By better matching prototyping capabilities to those of commercial film extrusion, PPF brand owners can reduce overall investment in cost and effort, avoiding waste, shortening innovation cycles, and improving troubleshooting results. However, those capabilities do not exist in-house for most PPF brand owners, and introducing others for support adds time and costs. This represents an unmet need for PPF innovation.

UNTIL NOW.



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SOLUTION

Production-Quality Prototyping with Lubrizol

Lubrizol is introducing commercial capabilities into the prototyping stage of TPU development and extrusion with a state-of-the-art pilot film line providing a degree of accuracy and quality rarely seen among TPU suppliers. Film from the new pilot line lacks the defects common to typical pilot lines, allowing PPF brand owners and Lubrizol's materials scientists to recognize the nuances inherent to a specific TPU before it is selected for a PPF design and reaches commercial introduction.

That sort of clarity also enables more efficient troubleshooting —not just around the TPU used in PPF, but also related to all aspects of the production process. With a more production-representative prototype, Lubrizol can refine the TPU polymer and help film processors dial in their extrusion processes to ensure consistency of PPF characteristics and performance.

With Lubrizol's accelerated testing and refined prototyping capabilities from the pilot film line, PPF brand owners can innovate with confidence and without fear of waste and delays. Simply put, Lubrizol isn't just imagining a different PPF landscape; it is investing to make it happen.

Acting as the hub of a more integrated, innovation-focused product development process, Lubrizol can leverage enhanced, accelerated testing processes, a commercial-grade pilot film line and streamlined interaction across the value chain to drive customer-focused innovation to benefit you and your customers.



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