

BENEATH THE SURFACE



LUBRIZOL
ENGINEERED
POLYMERS

ADVANCING
MATERIALS.
ELEVATING
PERFORMANCE.

Value Chain Collaboration Hits the Jackpot

Lubrizol demonstrated the power of data-driven marketing to a graphics wrap film producer following extensive research within the value chain for printed graphic wrap films, which share TPU chemistry and many performance attributes with PPF. The space had long been dominated by PVC, but more recently TPU entered the market bringing a number of benefits including durability and the ability to remain flexible at low temperatures.

While the newer, TPU-based films hadn't yet gained wide acceptance at the installer level, they were widely promoted from a sustainability-focused PVC-free perspective. Meeting with a number of installers, Lubrizol learned that customers would really value a durable, ultra-high performance and self-healing film offering an extended lifecycle and warranty. The original PVC-free message alone did not justify the premium price compared to incumbent PVC-based films.

COMPETITOR BENCHMARKING AND THE VALUE OF PARTNERSHIP

Lubrizol developed a plan for more in-depth market research in collaboration with a graphics wrap film manufacturer and installer. The study was designed to capture real-world weathering performance data comparing configurations of graphic film that were commercially available. To that end, Lubrizol designed a performance benchmarking project using a fleet of taxicabs in Las Vegas, Nevada. Las Vegas was considered representative of those most aggressive environments because of its extreme UV and thermal conditions.

The research compared data from real-world exposure with accelerated test data generated from the widely accepted xenon arc method. Taxicabs outfitted with the films included an all-ESTANE® TPU solution (print media and laminate); a hybrid system comprised of PVC print media and ESTANE® TPU laminate; an industry-leading all-PVC configuration; and an alternative PVC-free construction.

For a year, a total of twelve taxicabs (three cabs per configuration) took the beating of aggressive UV and thermal exposure while making daily rounds in Las Vegas. After that, the wrap films were carefully removed and sent back to Lubrizol for evaluation against specimens that remained in pristine condition within a controlled environment in the laboratory. The results from the taxicab specimens correlated very well to the original results of accelerated testing. In fact, the rate of physical degradation observed after only one year for products not containing ESTANE® TPU configurations was even more significant than originally hypothesized.

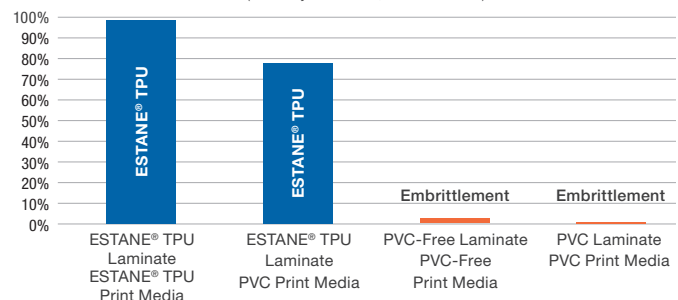
DATA-DRIVEN DECISION MAKING

It is a well-recognized problem that film installers endure time-consuming challenges with breakage during removal of PVC wrap films. This phenomenon is the result of chemical decomposition as a consequence of prolonged exposure to heat and UV. Because it is formulated precisely to resist such degradation, the wrap films made from ESTANE® TPU retained more than 95% of their ability to stretch without tearing or breaking. The hybrid ESTANE® TPU laminate with PVC-print media retained nearly 80%. The others suffered significant losses to their original elongation, with less than 5% of the original properties retained after only one year of exposure.

Seeing the value in a long-lasting, self-healing TPU, the graphics film manufacturer changed its marketing strategy and warranty program, and repositioned the ESTANE® TPU-based product offering as a premium solution within their overall portfolio for long-lasting performance, well aligned with the strength of its claims.

WEATHERING – GRAPHICS FILMS

% Elongation Retained After 2000 Hours Xenon UV Exposure
(Industry Standard, ASTM D7869)



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