

Argotec™ Graphic Film Printing & Overlamine Application Guide



SWM Provides Precision, Extruded Urethane-Based Printing & Overlamine Systems for Graphic Film Applications

Why are (Pressure Sensitive Adhesive) PSA coaters, converters & printers turning to SWM for graphic film? Because it's the future of non-Polyvinyl Chloride (PVC) printing and overlamine films for exterior graphics. Increasing numbers of pressure sensitive film coaters and converters, and in turn, commercial graphics printers, are turning to the Argotec™ Thermoplastic Polyurethane (TPU) Graphic Film for its excellent abrasion resistance, conformability, service temperature performance, Ultraviolet (UV) resistance, Class-A gloss finish and environmental friendliness.

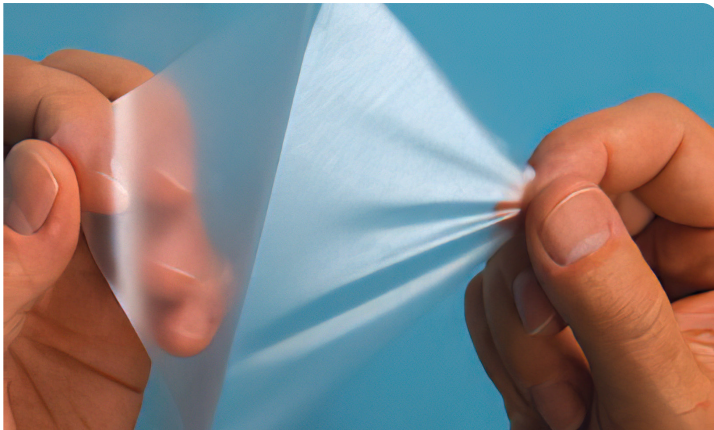
Argotec film is an exceptionally durable, highly conformable, high gloss film that is compatible with most commercial pressure sensitive adhesive systems and is ideally suited for performance graphics in extreme environments for applications such as:

- Wraps, decals and decorations for cars, motor coaches, RVs and toy haulers
- Fleet truck graphics
- Transit advertising
- Motorcycle, dirt bike, ATV, snowmobile & lawn/garden equipment graphics
- Extreme sport helmets & equipment
- Gas station/pump skirts
- Floor and window advertising graphics
- Power tool labeling
- Safety/hazard markings
- Kiosk coating and advertising
- Product identification labeling

Features & Benefits of Argotec Graphic Film

Argotec is well suited for use wherever graphics will be exposed to sun, weather temperature extremes, heavy use or abrasive conditions. It exhibits all the desirable characteristics inherent in aliphatic polyurethanes:

- Highly flexible, conformable
- Stretches without color loss
- Fast installation with hand & squeegee pressure, heat gun rarely needed
- Outdoor environment durability
- Abrasion resistance
- Excellent high and low temperature performance, cold-crack resistance
- UV resistance (5 year)
- No plasticizers to migrate and cause embrittlement or adhesive incompatibility
- Resistance to hydrocarbons, ozone, road chemicals
- Halogen-free, PVC- free, phthalate-free



Argotec films are PVC-free, plasticizer-free, halogen-free, phthalate-free, aliphatic polyurethane graphic films, cast on a PET carrier to aid in adhesive coating and final installation

Value Added by SWM

In addition to the benefits of the polymer itself, SWM manufacturing adds:

- Proprietary extrusion techniques that produce the flattest TPU films
- Photographic inspection systems ensure extremely low gel, high optical clarity
- Class-A gloss finish
- Widest sheet in the industry
- Longest rolls available, up to 1000 splice-free yards
- PolyEthylene Terephthalate (PET) carrier for ease of film converting and installation

Argotec performance characteristics, combined with the ability to custom engineer and extrude the right film for your specific application, results in a consistency of value unequalled in the specialty films industry.



UV and weather resistant Argotec graphic film face stocks resist the harsh environments inherent in many outdoor advertising, signage & OEM product identification applications



Flexible, conformable Argotec printing & overlamine films are ideal for use in printing & protecting decorative automotive and RV graphics or advertising wraps for cars, trucks & buses



Typical Argotec Graphic Film Properties

Print and Protection Performance for Graphics & Labels

Argotec 46510 White Film

Premium grade, ≥ 2 -mil, printable face stock that utilizes the same proprietary, lubricant-free urethane resin technology as the highly successful automotive paint and electronic display protection films we market worldwide.

Argotec 46510 Clear Film

Premium grade, a 1-4 mil, optically clear face stock that utilizes the same resin technology to provide outstanding protection over graphics reproduced on Argotec White or other non-TPU printed substrates.

Property	Argotec 46510 White Film	Argotec 46510 Clear Film
Film type	Aliphatic Polycaprolactone Urethane	
Application	Graphic printing	Overlamine
Gauge	≥ 2 -mils (50 μ)	1-4 mils (25-100 μ)
Width	62 inches (1.57 meters)	
Length	Up to 1000 non-spliced yards (914.4 meters)	
Tensile strength	ASTM D-412 7000 psi (48.26 MPa)	
Elongation @ break	ASTM D-412 450%	
UV resistance	A10 QUV testing – No change at 3000 hrs	
Surface tension	ASTM D-2578 >35 dyne/cm	
Gloss, 60°	OTM 3-309 >80	
Haze	D-1003 $<1\%$ on Argotec-CLEAR	

TPU Film Over PVC for Graphics

Why Use TPU Film instead of PVC for Graphics?

TPU film has a proven record of superior outdoor performance compared to PVC. TPU films have long been used for paint protection in the automotive market. Millions of square yards of TPU film worldwide protect the exterior finish of cars, trucks, vans and recreational vehicles from UV radiation, abrasion, road chemicals and other damaging elements.

The inherent protective qualities that make TPU film so successful in the paint protection market are now available in white TPU printing films and clear, protective TPU overlamine films for the exterior graphics industry.

TPU Graphic Film Outperforms PVC as it's:

- Ultraviolet resistant & non-yellowing
- Plasticizer free & won't embrittle due to plasticizer migration
- Tough, durable, abrasion and chip resistant for long lasting protection
- Resistant to bugs and road chemicals, doesn't degrade in automotive applications
- Halogen free, phthalate free, environmentally friendly and considered a "green" product
- Printable via solvent, ecosolvent and latex ink systems
- Virtually gel-free, providing outstanding optical clarity
- Has excellent hot and cold temperature resistance, doesn't crack or degrade over time



Additional Benefits of TPU versus PVC:

- Highly conformable
- Retains printed colors when stretched around three-dimensional surfaces
- Does not haze or lose its gloss on flat/horizontal surfaces
- Noted for its ease and speed of installation
- Easy to remove when changing graphics

Ask Your Graphic Film Material Provider like SWM for Polyurethane Film Options!

Argotec Film Innovation Center



SWM Film Innovation Center

SWM is the clear choice for custom engineered, high performance, polyurethane film and sheet for a wide variety of critical “can’t fail” applications. The company has extensive experience in flat die, cast-on-carrier, and blown film extrusion technologies, as well as extrusion coating and multilayer constructions.



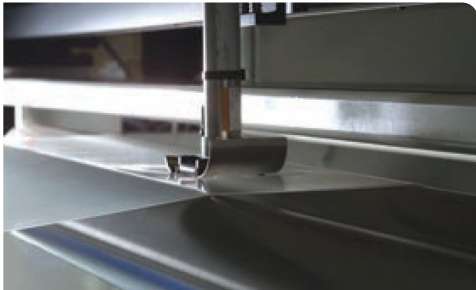
SWM offers precision film and sheet products made from the full range of extrudable polyurethane resins, as well as co-polyesters and other difficult to extrude specialty thermoplastic elastomers. A technical force in the specialty films industry, SWM continues to set the standard for innovation, capability, and commitment to excellence in film extrusion and customer satisfaction.

This is evidenced by the SWM Innovation Center, the industry’s first of its kind research and development facility devoted solely to advancing the state of polyurethane film and sheet. The Innovation Center features:

- Class-7 soft walled clean rooms inside a 8,000 square-foot hard-walled white room (top photo)
- Flat-die and blown-film lab lines (2nd photo)
- Digital in-line gauge control (3rd photo from top)
- Photographic inspection systems help ensure the best possible film quality (bottom photo)



With the facility and equipment listed above, as well as production level extrusion lines and a fully dedicated research staff, this resource allows SWM to continue to provide its customers with unequalled technical service for decades to come.



At every step of the design and production process, SWM adds value. SWM is the clear choice in TPU film!

For more information on Argotec Films email us at ams@swmintl.com or visit www.swmintl.com.

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& Structures**

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