Solve+Make™

Conquer your adhesive-coated film challenges in three steps

JESSUP®
Adhesive Coated Films

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Throughout this eBook, you'll also find application spotlights that illustrate outcomes we've seen with this process to inspire you.

INTRODUCTION

You're looking for the right adhesive-coated film product or laminate.

Or maybe you're looking for a concept product that doesn't exist.

Maybe you can't get the tapes films or laminates you need due to supply issues or discontinuation.

You're not alone. These are the kinds of situations our customers find themselves in every day. Ideas that seem crazy to you? Nine times out of ten, we've already worked on a project just like it.

That's why we created this eBook. We want to make the process easier for you.

We'll walk you through a better way to design a solution using our three-step approach:

1 STEP 1: DISCOVER

2 STEP 2: CREATE

3 STEP 3: EVALUATE

RANGE AND VERSATILITY POSSIBLE WITH ADHESIVE-COATED FILMS

APPLICATIONS


Skateboard decks – Navy carrier decks


Outdoor advertising – Outdoor safety signage


Safety tapes – Splicing tapes


Sidewalks – Highways

CAPABILITIES

Repositionable – Permanent

Anti-slip – Super smooth

Light cleaner resistant – Disinfectant resistant

Hot weather durability – Cold weather durability

PREP WORK

Q. What are some of the considerations and hurdles you have to clear when designing a customized material solution?

A. You need to ensure that the surface and substrate layers of the film are compatible. Will you need permanent adhesion, or do you want a temporary solution that can be repositioned? What kind of temperatures and humidity will the film see when used? For outdoor applications, how about sun, rain, snow, and ice?

For inspiration, here are a few uncommon needs we've surfaced in working with customers:

Withstanding ten commercial wash and dry cycles

Getting the perfect anti-slip quality

Creating a film that "breathes"

Creating a label that sticks inside a 600°F grill

Getting the right photoluminescent color for unusual situations

APPLICATION SPOTLIGHT

Developed

Custom pigmented adhesive eliminates a film layer and enhances outdoor durability of the finished product.

"Eliminating film reduced our costs and complexity; improving durability raised our brand integrity. Win-win!"

– Outdoor equipment manufacturer

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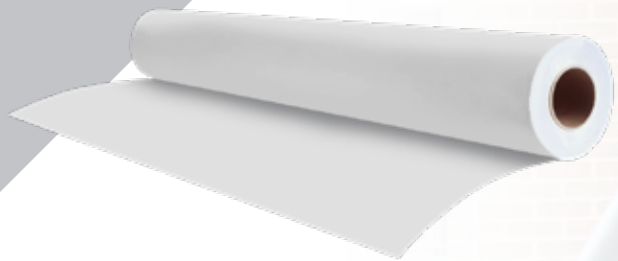


APPLICATIONS

Applications that use adhesive-coated films and laminates include building and construction wraps, gaskets for industrial products, graphics for indoor use and outdoor ads, tradeshow signage, retail signage, photoluminescent signage for industrial safety equipment, fabrics (suede, carpet, etc.) for vehicle interiors, marine films to replace epoxy coatings, and transfer adhesives used as assembly aids to stick items together or mount signs on a surface.

Innovation is often at the core of these applications, and cost performance is always a factor. For these reasons, customized films and laminates are best produced in collaboration with a material supplier. Creating something that's never existed before requires a team effort. And an experienced supplier can match performance targets with a problem-solving mentality, all while taking economics into account.

STEP 1: DISCOVER

1

Time to get started on the **Discover – Create – Evaluate** the process.

You begin by defining the problem you're trying to solve.

It's important that your material supplier thoroughly understands your needs and application, so current samples, drawings, and specs for the part or product should be part of that first meeting. Also, take time to uncover details about the installation environment, taking note of factors such as substrate, temperature, humidity, wear, and other challenges.

Filling out a fairly comprehensive checklist of needs and environmental factors will make your next step, the design phase, more efficient. Take a look at the list to the right for some key inputs you'll need to provide.

KEY INPUTS

- Application
- Application surface
- Environmental Exposure
- Chemical exposure
- Water exposure
- Temperature range
- Durability / lifespan
- Size and shape for all variations, including length, width, and thickness
- Surface roughness or smoothness
- Surface energy
- Installation environment
- Downstream assembly conditions
- Aesthetics and durability requirements

APPLICATION SPOTLIGHT

Developed

Unique double-sided 5 mil PSA tape eliminates the need to laminate multiple layers for sound dampening.

"Fewer layers mean lower scrap rates and production costs. We are beyond thrilled."

– Building products supplier

STEP 1:
DISCOVER

Adhesive Considerations

Before moving on to step two, let's take a moment to talk about one of the most critical decisions in this process: the choice and chemistry of the adhesive component. This is a relatively deep and technical topic, but a working knowledge of the basic types is helpful.

Adhesives are either pressure-sensitive (PSA) or non-pressure sensitive.

Non-Pressure Sensitive Adhesives must dry to become solid and function (e.g., Superglue); often, they require heat, water, or a solvent to create a bond.

PSAs need neither physical nor chemical change to function. It's defined as any material that can usefully hold two materials together solely by surface contact following slight finger application pressure. It is inherently tacky at room temperature and typically requires no water, solvent, or heat to activate the adhesive to create a bond.

There are many options and chemistries in these two groups, but the simplified lists below are a good place to start when familiarizing yourself with these materials.

Solid Adhesives
- Calendered (Rubber)
- Hot Melt (Thermoplastic elastomers)
- Reactive (Acrylic and Silicone)
- Phenolic Adhesives

Liquid Adhesives
- Solvent-Based (Rubber and Acrylic)
- Water-Based (Rubber and Acrylic)

Common PSAs
- Natural Rubber
- Synthetic Rubber
- Acrylic Adhesives
- Silicone Adhesives

STEP 2: CREATE

2

Your next step is to collaboratively design a new adhesive-coated film or laminate that solves your problem or takes your product to the next level.

Now is the time to take all of the inputs from the Discovery phase and determine which potential materials will be the best choices for substrate, liner, topcoat, and other constructed layers. We've listed many of the options to consider in the list on this page, and explain four of them in more detail on the next page.

Coatings
- Acrylic pressure sensitive adhesives
- Rubber pressure sensitive adhesives
- Low temperature heat/solvent reactivated
- High temperature heat/solvent reactivated
- Polyurethanes
- Plastisols
- Custom blends
- Custom saturation coatings

Liners
- Paper liners (SCK, clay coated, glassine)
- Poly-coated liners
- Polyester and other film liners
- Non-silicone release liners

Substrates
- Polyester film
- Polyethylene film
- PVC film
- Polypropylene
- Polyimide film
- Styrene film
- Foil
- Textiles
- Rubber
- Cork
- Felt
- Paper
- Fiberglass
- Non-wovens
- Gasket
- Other roll goods

STEP 2: CREATE

2

Specialty pigments – these can be blended to comply with safety codes and other standards, desired color, and performance level. They're generally used for tinting adhesives, but transfer tapes can also use them for color code identification. That way, electronic cameras used in various processes will know which side is coated. This requires added metal that can be "read" by a scanner. UV taggants can also be added for this purpose.

Grit coatings – choices here include grit size – from very fine to very coarse – and grit color, as well as adhesive type and color.

Pressure sensitive adhesvies – these can be solvent-based or water based. Water-based adhesives are more economical and more eco-friendly. Solvent-based generally have higher performance and can be easily modified via blending to get to the desired properties.

Specialty materials – Options include felts, fabrics, Nomex® (an inherently heat and flame-resistant fiber from DuPont), and nonwovens. You may need tissue tapes or softer fabrics, for example, the backing of an emblem for a shirt. Automotive interiors are an application area where suede and carpeting tapes are used.

APPLICATION SPOTLIGHT

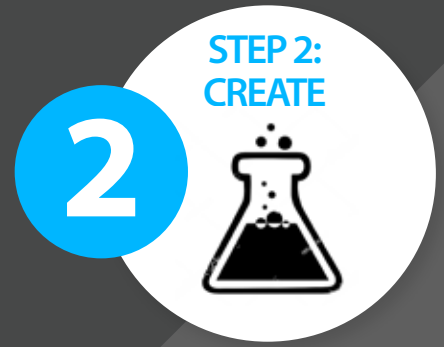
Developed

A customized, multiple-adhesive blend allows dye sublimation printing through the adhesive and maintains removability.

"There were no standard adhesives that would completely solve the problem, so we relied on collaboration with our supplier instead of settling for a less than perfect solution."

–Screen printer

STEP 2: CREATE



This is also the time to coordinate layer choices with specifications, product design, and laboratory samples. Services that are critical at this phase include:

Technical support	Product design	Sample testing	Performance testing	Certification	Compliance documentation
Adhesive formulation, chemical compatibility testing, benchmark testing to ensure the new product meets required performance levels.	Selection of an adhesive and liner that meets all the needs of the application, along with problem-solving suggestions for an easier path to completion.	Evaluation and prototypes; small scale design of a larger application so that performance testing can be done on the sample.	Comparative testing or finished product testing.	Often provided upfront, can include specs for skin contact, UL approval and indirect food contact (e.g., food trays in hospitals or schools).	Assurance of regulatory compliance to REACH, PROP 65, CPSIA, conflict minerals. There are many possibilities – We provide all the documentation needed to ensure the product is fully compliant for the market or the application.

STEP 3: EVALUATE

3

Test and certify are the buzzwords for step three.

During the design phase, you identified what tests are needed to ensure your solution fires on all cylinders, including performance, aesthetics, and durability.

Testing should be performed in both lab and application environments to ensure real-life results are consistent with lab results.

The following tests are standard for prototype and production samples and can be expanded to include other tests identified in step two:

- **Peel adhesion –** determines the strength of the bond
- **Shear adhesion –** tests adhesive to failure
- **Tack –** measure of adhesive stickiness
- **UV stability –** durability under lights and sun
- **Moisture –** This is a measure of air permeance through a membrane.
- **Taber Abrasion –** common wear test in the industry, a sanding disk runs for a certain number of cycles; for printed graphics, this test determines wear resistance
- **Chemical exposure –** impact of various chemicals on the material
- **Coefficient of friction –** determines slip rating for anti-slip products
- **Burn/flammability –** test for fire safety rating

APPLICATION SPOTLIGHT

Developed

Unique adhesive to withstand 600F for an outdoor grill application.

"Industrial adhesive performance applied to a consumer application? We thought it couldn't be done. Thankfully, we were wrong."

--Grill manufacturer

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STEP 3: EVALUATE

3

Depending on the application, testing and certifications requirements may include:

Standards organizations/laws:

- UL Listing
- ETL Listing
- U.S. military specification
- NFSI
- ADA

Regulatory certifications:

- Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
- Restriction of Hazardous Substances (RoHS)
- California Proposition 65
- Ozone Depleting Substances
- US TSCA
- RoHS3- EU Directive 2015/863
- WEEE EU Directive 2002/96/EC
- Biocides
- Organotin Compounds
- Heavy Metals
- PBB and PBDE
- Latex
- Phthalates, Halogenated Compounds
- PFOS/PFOA, Bisphenol A

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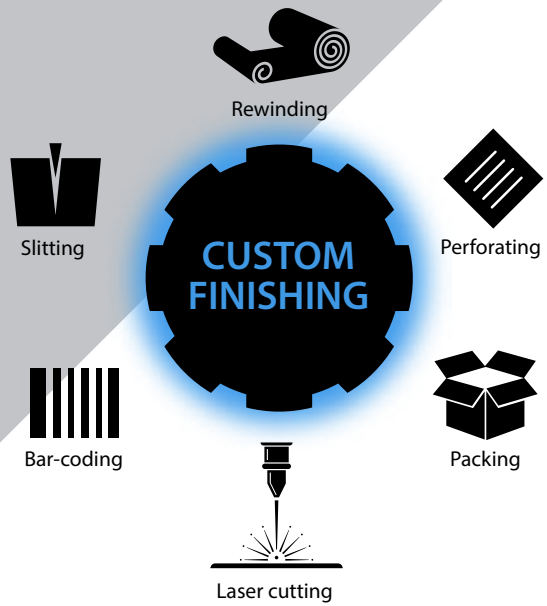

Finishing Touches with Custom Solutions

Now that your materials have been produced, they need to be converted into a form appropriate for your manufacturing environment. You also have options in how they are packaged / shipped so that they are protected, tracked, and kitted if need be.

If you are working with us, you can take advantage of any or all of these options, or you may choose to do them yourself. Keep in mind that having a material supplier who can tie a bow on your product development all the way to white label fulfillment frees up your production lines and mitigates risk.

Converting
- Flatbed die-cutting
- Rotary die-cutting
- Kiss cutting
- Slitting
- Razor - shear - score
- Roll-to-roll lamination
- Roll-to-sheet lamination
- Laser cutting
- Sheeting
- Rewinding
- Perforating
- Printing
- Embossing

Packaging
- Labeling
- Bar-coding
- Shrink wrap
- Kitting
- Packing
- Shipping
- Custom pallets
- Package inserts
- Private labeling
- Back slitting of lazer cut parts

APPLICATION SPOTLIGHT

Developed

Durable adhesive system that enables outdoor graphics to stick in all weather – it can even be applied underwater.

"Making our graphics stick – no matter what – was the goal. The outcome exceeded expectations by a long shot."

–Pool and spa manufacturer

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Rob Jessup

WORKING WITH US

If you choose to work with us, we have a documented process called Solve+Make™ that seamlessly steps you through the Discover – Create – Evaluate process.

If you need…

- Adhesives that stick and easily peel off or stay stuck - from a day to a decade
- Anti-slip surfaces to stabilize footing - from backyard decks to Navy carrier decks
- Materials that stand up to traffic - from pedestrians to heavy-duty vehicles
- Materials that handle wipe downs - from mild cleaners to harsh disinfectants
- Materials that aren't afraid of the outdoors - from the blistering summer sun to frigid, icy winters

…we've got your back!

These are the kinds of problems we have solved with patented and innovative technologies. We power innovation for strong brands, and become an extension of their production and fulfillment. For this to happen, you need to have somebody you can trust. And when you find the right partner, one you can depend on and with sufficient manufacturing capabilities, your brand can focus on what it does best - innovation, marketing, and sales - without added manufacturing expense and without having to tie up your own production lines.

Contact us today

Call to find out how Jessup's Solve + Make solution can help.

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