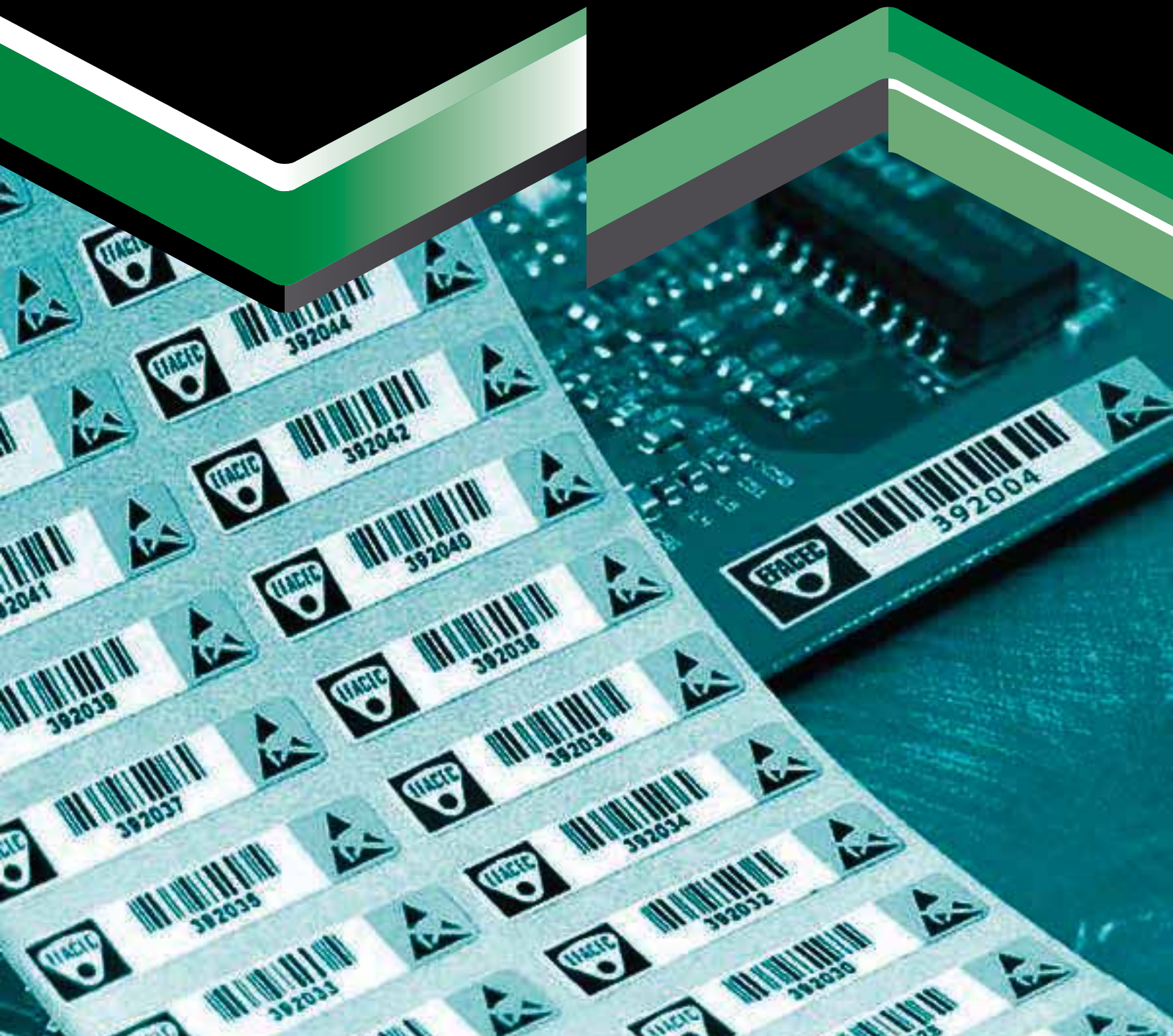


Choosing the Right Material / Adhesive Combination For Your Labels



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Five Questions

Adhesive or pressure sensitive labels have a wide variety of uses including identification, information, tracking, and inventorying of goods across many markets and industries. Since the first adhesive labels were introduced in the 1930's, numerous innovations have been made in the substrates, inks, and adhesives used in the production of labels. When you are specifying labels, it is important to understand the newest material and adhesive options so you can choose the best combination for optimum label results.

To determine the best materials and adhesives, you should consider a wide variety of factors in the application of your labels. We will explore five basic questions that should be answered completely when specifying labels. The answers to these questions will help you determine the optimum materials and adhesives that will deliver the desired performance from your labels.





Question 1:

How will your labels be used?

When you are deciding on the best materials and adhesives for your application, the surface your label is being applied to is a very important consideration. Surfaces can vary widely from something as simple as a shipping box to more challenging substrates like a polyethylene terephthalate (PET) bottle, so this factor should be examined closely.

The surface energy of the items you are labeling can range from high to low. As a general rule, the higher the surface energy the easier it is to create a bond between the label and surface. For example, corrugated cardboard has a high-energy surface promoting easy adhesion, while plastics and coatings applied to paper or cardboard for durability can create a slick, low-energy surface making a bond more difficult. There are different types of adhesives specifically formulated to suit high- and low-energy surfaces, so these variances should be taken into account when picking an adhesive.

The material selected should match the characteristics of the item to be labeled. For example, a label used on a plastic squeeze tube needs to have a higher degree of flexibility than the label applied to the carton containing the tube. The most frequently specified label materials include:

- ▶ **White Thermal Transfer / Direct Thermal Paper** – features a bright white appearance along with high resistance to abrasion and smearing, typically does not work well in wet environments
- ▶ **Vinyl** – high-performance acrylic adhesive provides a permanent bond to a wide range of surfaces, excellent for outdoor applications and can last up to seven years, required pliability should be considered
- ▶ **Polyester** – UL approved, designed for indoor/outdoor use; some types are temperature resistant up to 300° F, can last 2-5 years outdoors, is chemical resistant
- ▶ **Polyimide** – designed for barcode or alphanumeric identification of printed circuit boards, or related electronic components, for A:sn temperatures up to 1000° F
- ▶ **Polypropylene** – designed for environmental resistance; excellent adhesion to painted metal, polyolefin and fiber drums in all weather conditions, suitable for short-term outdoor applications for six months to two years
- ▶ **Polyethylene** – designed for use in a variety of printing applications where durability, strength, and superior printability are key, works well for squeeze bottles, lasts six months to two years outdoors

Labels may also require special characteristics such as tolerance of extreme temperatures, moisture resistance, or the ability to withstand harsh chemicals. Specially formulated coatings can be used to enhance the durability of materials used for these applications.

Considerations When Labeling Plastic Surfaces

Recently, Liberty Marking Systems faced a challenge involving labeling for polyurethane screening systems and wear liners used in the coal mining industry. In addition dealing with the application's harsh environmental factors and the product's plastic surface slickness, the silicon-based mold release being used made labeling difficult because typical materials would not adhere to the "non-stick" residue left on the products. Liberty was able to find a special label material strong enough to withstand the elements with an adhesive that would resist the special mold release formula.

[READ THE CASE STUDY](#)



Question 2:

What environments will your labels be exposed to?

When considering label applications, environmental conditions such as extreme high and low temperatures, exposure to chemicals, or contact with moisture present unique and specific requirements that must be considered in selecting the right materials and processes.

Freezer Labels

Effective adhesion can be especially challenging for freezer labels due to the variety of exposures. Factors such as frost and humidity can cause labels to lose their adhesive properties need to be considered. You should also be aware of whether your labels that will be applied prior to temperature reduction or in an active freezer environment, since the label properties required will be different.

High Temperatures

There are labels specifically designed for use in extremely high temperatures and applications involving harsh industrial solvents such as electronic component development, chemical laboratories, and similar environments. In these situations, exposure to high temperatures, caustic fluids, and industrial cleaning solutions make selecting the proper label materials and production methods critical for optimum performance.

Outdoor Applications

Labels exposed to outside elements must be resistant to a variety of weather conditions including ultraviolet rays from the sun which can cause untreated labels to quickly fade, degrade, and detach from their applied surface. Using the proper UV-resistant inks and laminates will protect your labels in these tough outdoor conditions.

Physical Demands

Labels on many goods are subject to a high degree of handling and movement allowing abrasions to occur due to frequent contact with pallets and lift trucks. For increased abrasion resistance, label materials that offer a higher degree of durability should be used to preserve the integrity of your labels.



Question 3:

What type of printing is needed on your label?

Smudge Resistance for Barcoding

Your choice of label material will depend on what type of printing you require. When printing information that will be scanned, such as barcodes, it is critical to select materials and inks that will resist smudges and fading. Saving money by using lower quality supplies can become an extremely expensive mistake if a customer ends up sending back skids of product labeled with unreadable barcodes.

Fade Resistant

Certain inks and material selections will be more resistant to elements like moisture and UV light, which could compromise the legibility and visibility of the printing on your labels.

Secondary Printing

If secondary printing will be required on your labels, you will have to make sure that the materials and adhesives used are compatible with your printing system since not all label materials can be used with all printing technologies. Overlooking this factor could leave you with an unusable supply of labels.

For labels that will be written on by hand, materials should be specified providing a surface that can be either written on permanently, or temporarily marked and wiped clean.



Question 4:

How will your labels be applied?



Hand or Automatically Applied

To achieve the desired look and required performance from your adhesive labels, it is important to carefully consider the application method you will be using. Labels can be applied by hand, machine, or a combination of both. By choosing the materials best suited for your application method potential application problems can be avoided. For automated applications, the label liner, adhesive, face stock, roll size and core size can all impact the effectiveness of your labeling process, so these factors should be taken into account.



Product Positioning

Achieving consistency with hand label applications can be difficult. Labels with repositionable adhesives are a great option for hand application because they allow removal and repositioning shortly after application. These labels can be taken off and reapplied without leaving behind adhesive residue or destroying the label. Repositionable labels rely on an acrylic-based, all-temperature adhesive to offer short-term removability, so they can be moved, adjusted, or reapplied to another item before achieving permanent adhesion.



Ensure Compatibility

When working with your label supplier, be sure to discuss the application method you will be using. Particularly in the case of machine applications, you want to be certain that your label materials and adhesives are compatible with the machines' configurations, operation temperature, and capacity.



Question 5:

Do your labels have any special requirements?

GHS and BS5609 Compliance

GHS (Globally Harmonized System) is the labeling standard for the identification of potentially hazardous chemicals. GHS mandated chemical drum labels are required to include specific information (symbolology, colors, etc.) and be printed according to specified guidelines. A compliance that shows a particular material used for BS5609 is approved for transcontinental shipping is required. A GHS label has been tested and proven to survive in salt water for up to three months.

Removable / Repositionable

Labels with a removable adhesive can be repositioned after application without damaging the label or the surface upon which it is applied. Removable adhesive labels are commonly used for short-term identification labels, store coupons, and temporary promotional tags. Environmental factors can affect the effectiveness of removable adhesives, so special consideration should be given where moisture or extreme temperatures are involved.

Sequential / Serialized

Trackable information is included on serialized labels, providing item-specific identification by which items can be located. Your label supplier can use your data to develop a sequential/serialized tracking system for you.

Tamper Evident

When security is necessary as part of your label application, tamper indicating label materials can be used. Tamper evident materials are destructible, making it easy to identify attempted removal. They are available in a wide selection of materials, adhesives, colors, and patterns.

UL Compliant

UL (Underwriters Laboratory) labels designate that a product or component has passed the demands of UL testing and earned the UL approval designation. UL labels must be printed in strict compliance with established UL guidelines. UL labels can be developed from a variety of label materials to suit specific needs including water and chemical resistance.

What to look for in a label supplier?

When looking for a label supplier, you should partner with a company that offers comprehensive capabilities, industry-leading technology, quality materials, extensive production capacity and a total commitment to customer satisfaction. A good supplier is experienced and available to assist you in selecting the right material, adhesives, and processes to deliver the labels you need.

Liberty Marking Systems offers you the benefit of in-depth expertise, extensive capabilities, and superior production capacity, as well as the flexibility and responsiveness required to meet your precise label needs. Our experienced team can also provide you with design assistance and pre-press services. When you work with Liberty you can expect:

- ▶ Quotes typically in 3-4 hours
- ▶ Production deliveries average 3-7 days
- ▶ Eight-color and process printing
- ▶ Label sizes to 13" wide
- ▶ The availability of virtually any material
- ▶ Cut-to-size or roll labels
- ▶ Access to most UL Listed Materials
- ▶ Large and small quantity runs
- ▶ Premium packaging including poly bagging every roll
- ▶ Ability to handle *Emergency Rush Orders*



Your Label Supplier Should Provide:

- ✓ Extensive Experience and A Proven Track Record
- ✓ A Wide Range of Quality Label Materials & Adhesive Options
- ✓ In-depth Analysis of Your Application To Find the Best Solution
- ✓ Design Assistance and Prepress Services
- ✓ Quick turnaround on quotes and production deliveries
- ✓ Attention to Quality and Detail in Every Step of the Way
- ✓ Premium Packaging & Product Identification

Interested in learning more about how we can meet your labeling needs?
We would love the opportunity to discuss your project!

GIVE US A CALL

877-871-6742

REQUEST A QUOTE

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