



## Sticking to the Facts... All About Labels

*In the US we find the label requirements are crazy. It is almost as if we had to label a bookcase with the warning 'do not eat this bookcase — it can be harmful to your health'.*

~ Bjorn Bayley

Whether you use them for product identification or shipping, for security or promotion, or for any other use, labels are a part of every business's inventory of printed items. The earliest use of labels was for product identification; uses now include a wide range of applications across many industries.

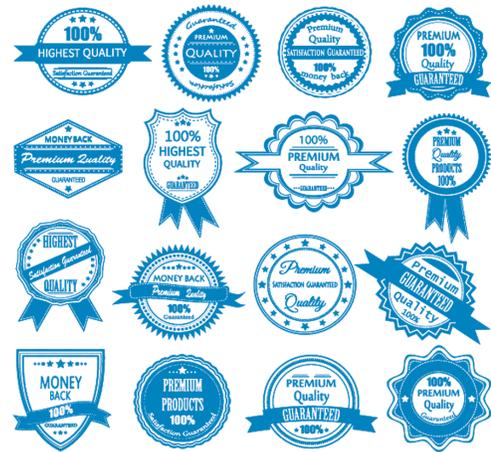
### Label, Sticker, or Decal?

We'll begin our discussion of labels with a semantics question: what is the difference between a label, a sticker, and a decal? Since many people use the terms interchangeably, we think there's no obvious answer beyond common usage.

- When adhered to a product (such as a soup can or a piece of fruit) as a means of identifying or providing information about the product, we most often refer to the item as a label.
- When affixed to something (the bumper of a car, the front of a package, or a voter leaving the polls) in order to call attention to what is written on it, we refer to the item as a sticker.
- When the item can be moved from one surface (the substrate it is printed on) to another (a window, a model airplane), usually with the aid of heat or water, we refer to the item as a decal.

### Self-adhesive vs. Gummed

Self-adhesive labels (also known as pressure sensitive) are so common today that it is hard to remember when labels were printed on special label stock that had a gummed adhesive on the back. Unlike today's pressure sensitive adhesive, the gummed version required moisture



to activate the adhesive. (If you've never encountered a gummed label, think of a postage stamp that has to be moistened to adhere to the mail piece.)

Today's pressure sensitive labels are available on rolls, on sheets, and individually. Those on sheets are easy to remove from the waxy backing, but an individual label may present a problem if the liner lacks a split in the back. Fasson®, a supplier of self-adhesive label paper to printers, has a product called Crack 'n Peel® that has diagonal score lines across the label backing. Separating the backing from the label is just as the name implies – crack along the score line and peel off the label. Since the backer has score lines at intervals along the backer, all labels (except for very small ones) are likely to have one or more score lines on the backer.

### Label Printing Methods

Desktop laser printers have enabled many businesses to print mailing labels on sheets of blank die cut stock, printing the return address information at the same time as the outbound address. This is convenient, especially for labels that have a one-time use. Manufacturers of self-adhesive label paper have introduced many variations

of die cut labels, including specialty die cuts such as CD labels. These companies also offer digital templates that help users format information to print correctly on the label.

However, for more durability, or to introduce graphics such as a company logo, labels need to be printed by one of several methods. Each method is best for certain uses.

- **Flexographic printing:** Flexography, sometimes called surface printing, is the dominant printing method for self-adhesive labels. Flexographic plates are made of rubber or polymer material that enable printing on a wide range of materials; therefore flexography is also the dominant printing method for packaging materials such as boxes, bags, and tape. Flexographic inks are water based and have a low viscosity, enabling fast drying and therefore greater press speeds. However, flexographic ink can fade when subjected to sunlight, so labels printed using this method are for indoor use.
- **Offset printing:** Offset printing in PMS (Pantone Matching System) colors or in full color (process color) provides a high quality image. However, offset inks have a thin ink film – thinner than any other label printing method – which leads to fading in sunlight. Therefore, labels printed using offset presses are for indoor use only.
- **Screen printing:** Perhaps the most versatile of all printing processes, screen printing is the method of choice for any label that will be used outdoors or will otherwise be subjected to ultraviolet light. Unlike flexographic or offset printing inks, screen printing inks are glossy and resistant to chemicals and abrasion. A screen printed ink film is also 10 to 20 times thicker than flexographic ink. Labels printed with these inks will last an average of three to five years outdoors. In addition, screen printing can be used on durable materials, such as polyester or vinyl. Because of these properties, most decals are screen printed.

## Durability

The durability of a label refers to the strength of the *substrate* (the material the label is printed on), how fast the ink fades when exposed to sunlight, and the degree to which the ink and substrate will resist chemicals, solvents, and abrasion (scuffing). Paper is the least durable substrate; polyester and vinyl are more durable. Ink durability is determined by the thickness of the ink film and the type of pigment used in the ink.

To add durability, labels may have a coating added after printing. A clear coating that is cured with ultraviolet light – a UV clear coat – adds protection against abrasion and

increases resistance to chemicals and solvents. A UV clear coat also adds a high luster or shine to the label.

Another way to increase durability is to laminate the label with clear polyester. Lamination provides the same benefits as UV clear coating and also increases the label's resistance to weathering. Note, however, that neither a clear coat nor lamination provides any additional protection against the effects of sunlight.

## Label Adhesive

A pressure sensitive adhesive is one that requires only pressure to form the bond. In contrast, other adhesives may require solvent, water, or heat to bond. Pressure sensitive label adhesives are designed to be either permanent or removable.

The ability of a pressure sensitive label to form and hold a bond is affected by many variables, including the surface to which it is applied, whether contaminants are present, and temperature. For example, most pressure sensitive adhesives are designed to form and hold a bond at room temperature. Cold temperatures may cause the adhesive to reduce or lose its tack, and high temperatures may cause a reduction in bonding ability.

Adhesives can be formulated to handle specific conditions, such as temperature extremes, rough or dirty surfaces, or easy removal. For example, a high tack permanent adhesive will “grab” the application surface, enabling labels to adhere to rough or dirty surfaces. Freezer or “frost fix” adhesive, in either permanent or removable style, will withstand temperatures of minus 40 degrees Celsius. Ultra-peelable removable labels have an adhesive that leaves absolutely no residue when removed and are often used on book covers and glass.

## Back Printing on Transparent Labels

If you are ordering a full color label on a transparent material, you may need to print white ink on the label back. This is because process color inks are transparent, so that when the four ink colors – cyan, magenta, yellow and black – are layered they will create additional colors. When transparent ink is printed on a clear substrate, everything is transparent. If the decal is mounted on a window, the label imprint will seem to disappear. Adding a layer of white ink to the back of the decal interferes with the transparency and makes the printed image appear sharp and full of color.

## There's More to a Label Than Meets the Eye

To ensure your complete satisfaction with any label you order from us, we will ask you questions about how and where it will be used. This will help us determine the label substrate, ink, printing method, and adhesive. To see samples of labels, visit us or call for an appointment, and we'll bring the samples to you.

# a vocabulary of the graphic arts

**Adhesion:** the state of two surfaces being held together by chemical or mechanical forces. Also known as bonding.

**Bumper sticker:** a vinyl label with a strong, durable adhesive and lightfast inks. The adhesive is often very high tack, making the bumper sticker very difficult to remove without damage.

**Decal:** a label that can be moved from one surface to another, often with the aid of heat or water. The word is short for decalomania which is derived from the French word *decalquer*, meaning to trace.

**Elastic:** capable of returning to the original shape after temporarily being deformed.

**Frangible:** the characteristic of a material to break up into fragments, rather than retaining its form as a single object when deformed. A cookie is an example of a frangible material.

**Peelable adhesive:** adhesive that is strong and will remain bonded, but can be removed relatively easily without tearing the label or leaving adhesive behind on the surface. Also known as removable adhesive.

**Permanent adhesive:** adhesive designed so that a label cannot be removed without tearing or damaging the surface

using solvents. The adhesion strength and speed may vary so that full adhesion is either immediate, or the label can be removed for a short period.

**Repositionable adhesive:** spray adhesive that makes a tape-like bond on lightweight materials. Has an extra-long tack range that allows the material containing the adhesive to be lifted and repositioned.

**Static cling:** a plastic material containing a static charge that enables it to adhere to flat, smooth surfaces such as glass. Often used for window advertising.

**Tack:** adhesive stickiness; the property of an adhesive that permits it to form a bond of measurable strength immediately after label application.

**Tensile strength:** the ability of a material to resist attempts to stretch it or pull it apart. Adhesives have high tensile strength.

**Viscoelastic:** having both viscous and elastic qualities. Adhesives are viscoelastic materials.

**Viscosity:** a liquid's resistance to flow. The higher the viscosity, the more the liquid resists flowing.

## T H E I D E A

### Specialized Labels

In addition to familiar items like mailing and shipping labels, we can offer you a variety of specialized labels:

- Piggyback labels combine two layers of adhesive substrate where the bottom layer forms the backing for the top layer. The piggyback label is applied normally, then later the top layer can be removed and applied elsewhere.
- Asset labels are used to mark fixed and non-fixed assets. They are usually tamper-evident, permanent or frangible, and usually contain a barcode for electronic identification using readers.
- Blockout labels conceal what lies underneath with a strong gray adhesive.
- Security labels are used to guard against counterfeiting and tampering. The labels combine covert and overt features to make reproduction difficult. They can be used

for authentication, theft reduction, or identification and are ideal for electronic equipment, pharmaceutical products, auto replacement parts, and other security-related applications.

- Decals are durable and weather-resistant or weather-proof, making them ideal for parking permits, vehicle signs, window stickers, hard hat labels, vehicle service records, and floor graphics. A water-dip decal must be dipped in water prior to application. Water loosens the adhesive and allows the decal to be removed from its backing. Vinyl peel-and-stick decals are petroleum-based and transfer after the decal is peeled from its base.
- Barcoded and numbered labels can be used for inventory management or identification. Numbering can be sequential.

C  
O  
R  
N  
E  
R

## Pressure Sensitive Labels

Pressure sensitive labels that are printed using flexography can be printed on a wide variety of substrates. Common pressure sensitive papers and films include uncoated litho paper, coated high gloss litho paper, fluorescent papers, gold and silver foil, vinyl, clear acetate, and mylar/polyester. All of these substrates (except for vinyl, acetate, and mylar) are intended for indoor use.

Vinyl, which can be used indoors or outdoors, is flexible and scuff resistant though will stretch and shrink to a small degree. If the surface to which the label is being applied is vinyl, then it is best to use a vinyl label material.

Pressure sensitive polyesters are dimensionally stable, meaning they don't stretch or shrink. However, the lack of flexibility means that polyester labels won't adhere well to irregular surfaces or curves. Polyester is resistant to chemicals and can be used indoors or outdoors.

Holographic material is a metalized vinyl film that gives a prismatic appearance by diffracting light. It is mainly for indoor use, though is suitable for outdoors for a short time.



*What are UPC codes that appear on some labels?*



UPC stands for Universal Product Code. If your label requirements include a product identification barcode for stocking and scanning at a cash register, then you'll need a Universal Product Code (UPC) number.

A UPC code is a unique 12-digit number comprised of three groups: company prefix, item reference number, and a check digit. The company prefix is assigned by GS1 US (formerly the Uniform Code Council) and may be either 6 or 8 digits. It is for the exclusive use of the company to which it is assigned. The item reference number is assigned and managed by the business that holds the company prefix number and is unique for each product or service. The

check digit is a single digit used by the scanner to ensure that the complete number has been correctly composed. The UPC barcode is a representation of the UPC number by means of parallel bars and spaces of varying widths.

GS1 US charges an annual fee to companies for their UPC numbers. Once the number is assigned, it can be printed on a label to be affixed to the product.