

Your
Guide
To
Help
You
Sell
Your
Customers
Label
Products



L A B E L C O R P O R A T I O N

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Table of Contents

Mission Statement	1
Capabilities	2
Equipment List	3
Labels (types, adhesives, applications).....	4-11
General Glossary	12-17
Converting Technology	18-22
Electronic Printing	23-24
Frequently Used Stocks.....	25
Customer Service.....	26



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Selling to the trade only

MISSION STATEMENT:

Our commitment is to be the leading flexographic label manufacturer for the trade only. We are committed to supplying our customers with the highest quality labels, attentive knowledgeable customer service representatives and competitive pricing. We accomplish this through the efforts of our experienced management and production teams.

FACTS ABOUT STYLERITE LABEL CORPORATION:

- 25,000 Square Foot Manufacturing Facility Located in Rochester Hills, MI
- Equipped For and Committed to Quality Label Manufacturing and Custom Label Applications
- Wide Selection of Label Material in Inventory.

Capabilities & Product Information

- 8 Flexographic Label presses with printing capabilities up to 8 colors, including:
 - Four Color Process Printing
 - Over 3,000 Dies in Inventory
 - Ability to produce, Roll, Sheet or Fanfold label products, including Laser and Thermal Transfer Labels
- Labelaire Equipment for affixing labels and plastic clean-release cards to continuous forms
- Odd Length one-part continuous forms
- UV Coating - Maximum 10" Width
- Laminating
- Back printing
- Mirror Imaging
- Scratch off game cards and coupons
- Up to 16" wide
- Rush Delivery Available
- 24 Hour Service
- Standard Delivery - 5-10 Work Days

Customized Stock/Warehousing Program

Stylerite Label Corporation has developed a customized Stock/Warehousing Program for qualified customers.

Here's how it works. If you have a customer that orders a large annual quantity of labels but will only release monthly or quarterly drop shipment, we will give you a price based on the annual usage but only run the monthly or quarterly drop shipments when you need it. This program gives you the benefit of annual large quantity pricing while only paying for product when you need it. We can also arrange for warehousing of product if you need it at our facility in Rochester Hills, Michigan.

Call our Customer Service Department for more information on our Customized Stock/Warehouse Program

Stylerite Label Corporation
Equipment List

(2) Mark Andy - 830

- Maximum Number of Colors - 2
- Maximum Web Width - 7"
- No U/V
- Maximum Repeat - 15"

Mark Andy - 2100

- Maximum Number of Colors - 8
- Maximum Web Width - 7"
- U/V Available
- Maximum Repeat - 15"

Mark Andy - 2200

- Maximum Number of Colors - 6
- Maximum Web Width - 10"
- U/V Available
- Maximum Repeat - 24"

Allied

- Maximum Number of Colors - 3
- Maximum Web Width - 10"
- No U/V
- Maximum Repeat - 17.125"

Mark Andy - 4120

- Maximum Number of Colors - 4
- Maximum Web Width - 16"
- No U/V Available
- Maximum Repeat - 24"

Webtron Aquaflex

- Maximum Number of Colors - 6
- Maximum Web Width - 10"
- U/V Available
- Maximum Repeat - 20.125"
 - * Variable Imaging including . . .
 - * Bar-coding
 - * Consecutive Numbering

Comco

- Maximum Number of Colors - 4
- Maximum Web Width - 10"
- U/V Available
- Maximum Repeat - 18"

Finishing Department

- 10" Arpeco Tracker
- 16" Tabletop Re-winder. Die sizes of 7", 10", and 16"
- Tabletop Re-winders
- Polywrap Equipment
- Full Bindery Capability

Electronic Pre-Press Equipment List

- | | | | |
|---|---|---|--|
| <ul style="list-style-type: none"> • (4) Apple PowerMac G4 - Workstations • (1) Apple Power Mac G3 - Trapping Station • (1) Apple Power Mac G3 - Utility Station | <ul style="list-style-type: none"> QuarkXpress Adobe PageMaker Macromedia FreeHand Adobe Photoshop Adobe Illustrator Adobe Streamline | <ul style="list-style-type: none"> Luminous Trapwise Preps MarkZware Flight check Adobe Acrobat Caere Omniform Caere Omnipage | <ul style="list-style-type: none"> Epson Expressions 1680 2540 dpi Screen 3050 Laser Rod Power Bundle with Ternes punch and on-line film processor/ Harlequin Rip Film Processor - Glunz & Jensen (27" width) External Drives: <ul style="list-style-type: none"> a) Zip SCSI 100MB, 250MB b) Jaz 2GB c) SyQuest 200MB, 88MB, 44MB LaCie CD-R Recorder HP Black & White 11 x 17 Laser printer Epson Stylus Color 5000 Inkjet printer 11 x 17 with bleeds Dedicated Network NT Server/with tape back ups executed nightly |
| <ul style="list-style-type: none"> • (2) PC workstations | <ul style="list-style-type: none"> Programs F3 ProDesigner Illustrator Acrobat Publisher | <ul style="list-style-type: none"> PageMaker Corel Photoshop | |

Labels

Labels are an important product in the business forms and related printed products industry. They identify ownership, show origins, warn of danger, persuade buyers, acknowledge receipt, describe contents, instruct users, direct shipments, etc.

Labels are included in several government product class codes: SIC-2641, SIC-2751, and SIC-2752.

Today, the most commonly used type of label is the pressure sensitive label, but other types of labels include heat seal, gummed, and ungummed. Labels are available as singles, as sheets, and as continuous rolls or fan-folded, and they can also be part of form/label combinations.

Types of Labels

Pressure Sensitive Labels

A pressure sensitive label can be applied to a variety of surfaces with a small amount of pressure. No moisture, heat, glue, or other agent is needed to activate the adhesive—all that is required is to remove the liner (also called the carrier or backer) and then apply the label to the surface. This construction makes pressure sensitive labels very convenient, clean, and easy to use.

A basic pressure sensitive label consists of a face stock, a primer (also called an anchor coat), an adhesive coating, a silicon coating, and a liner. **Figure 4-107** shows the construction of these components.

The simple task of removing a label from its liner is actually very important. If removed incorrectly, the label might exhibit too much curl and might not function properly. As illustrated in **Figure 4-108**, the proper way to remove a label from its liner is to peel the liner away from the label, not the label from the liner.

Labels can be manufactured either as **butt-cut labels** or as **die-cut labels**, both of which are shown in **Figure 4-109**. Butt-cut labels are known by a variety of different names including slit, kiss-cut, face-cut, or knife-cut labels. Each butt-cut label is separated by a single knife cut through the face stock. Because the square corners of a butt-cut label tend to stick up after it has been applied, the label can be inadvertently snagged and prematurely removed. Die-cut labels can have rounded corners or special shapes, many of which are custom-designed. The waste material or matrix is generally removed from the liner so that only the die-cut labels themselves are left on the liner. Compared to butt-cut labels, die-cut labels look better and adhere better (i.e., have less tendency to lift).

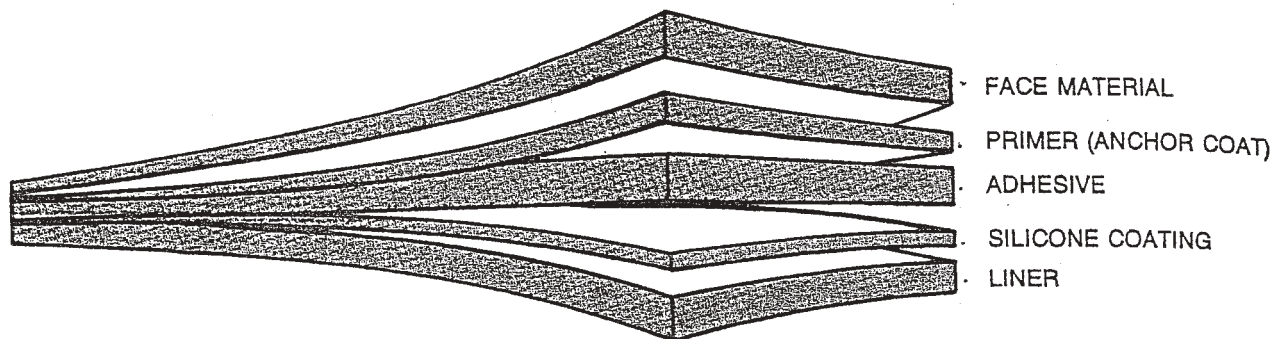


Figure 4-107 Pressure Sensitive Label

Face Stock

There is a broad range of face stocks available for pressure sensitive labels. Described below are some of the more commonly used face stocks and their applications.

Many different types of **papers** are used for label face stocks.

Smudgeproof stock, which is perhaps the most common stock used, is especially formulated for data processing applications (EDP labels). Because it absorbs ink quickly and therefore minimizes smudging, it can be used within a relatively short period of time after being imprinted on a computer printer. It is also called uncoated litho.

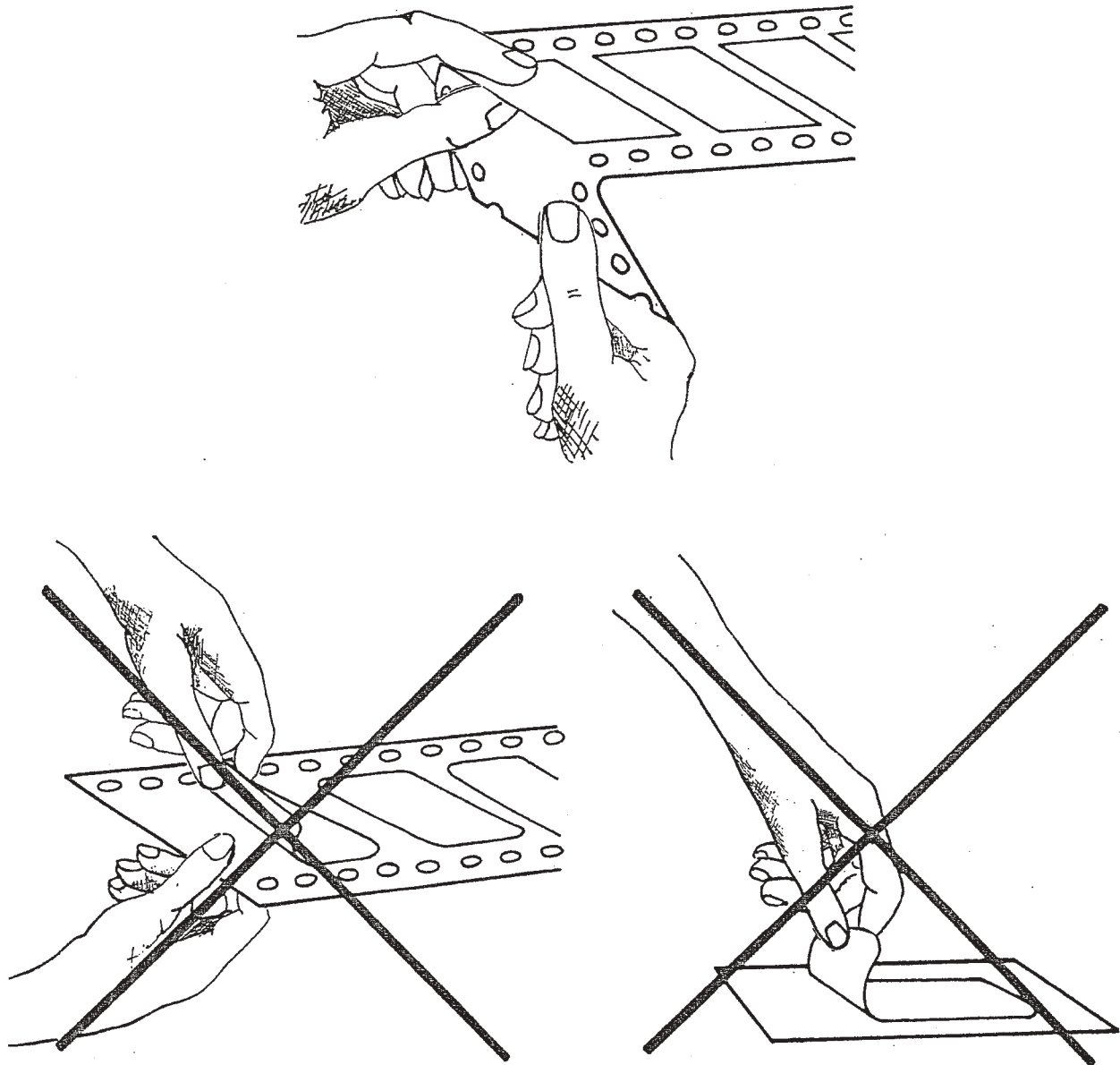


Figure 4-108 Removing a Label

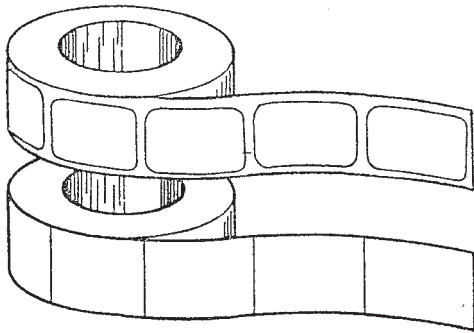


Figure 4-109 Die-Cut and Butt-Cut Labels

Latex impregnated stock is durable, can conform to curved shapes, and can be used outdoors. It prevents paper dust and fiber contamination and therefore is appropriate for tape reel applications and for removable label applications. A special coating prevents the adhesive from being transferred to the applied surface. It was originally formulated for use on magnetic tape reels that require the label to be removed from the reel in one piece without any residue.

Matte litho stock (sometimes called dull litho) has good ink receptivity and scanning characteristics. It is a good choice for high-quality graphic printing or bar codes.

Tamper-resistant stock is a weak paper that can't be removed intact and reapplied to another surface (hence, it prevents tampering). It is often used for retail price marking to prevent a price label from one product from being applied to another product. This stock can be combined with either permanent adhesive or removable adhesive. Permanent adhesive is, of course, very effective at preventing tampering, but it can leave a residue on the surface of the product. When tamper-resistant stock is combined with removable adhesive, it is constructed with many slits in the face: the removable adhesive prevents residue from being left on the surface, and the slits prevent the label from being removed intact and applied to another product. For such stock, a special die is generally necessary

to construct the slits. Tamper-resistant stock can have either a dull smudgeproof finish or a litho semi-gloss finish, and it is also available as a vinyl. Tamper-resistant stock is also called destructible litho or price marker stock.

Fluorescent stock is available in a variety of brilliant colors. It is used to grab attention or when lighting conditions are poor.

Cast-coated stock is a pure white printing paper with a high-gloss finish. It is used primarily for packaging and promotional labels. When used with computer printers, it has only fair ink receptivity and is therefore likely to smudge in EDP applications.

Other types of materials used for face stock include Tyvek®, tag, foil, polyester, and vinyl.

The primer (also called the anchor coat) improves the anchorage of the adhesive to the face stock. In some cases, it can improve opacity and thereby improve scannability.

Adhesives

Perhaps the most important component of a pressure sensitive label is its adhesive. Unless the proper adhesive is selected, the label may not perform properly. To select the proper adhesive for a label, the label manufacturer must be informed of several factors:

- The environment the label will be used in.
- The expected life of the label.
- The surface the label will be applied to.
- The manner in which the label will be applied (either by hand or machine).

If a label is defective, the problem can often be attributed to improper testing of the adhesive under actual conditions.

Two terms frequently used with adhesives are “tack” and “adhesion.” Tack refers to the degree to which an adhesive will stick to a surface on first contact. Usually, adhesives exhibit a higher tack on smoother surfaces and at higher surface temperatures, whereas they usually exhibit a lower tack on rough surfaces and at lower surface temperatures. On the other hand, adhesion refers to the strength with which the adhesive adheres to a surface after it has been allowed to fully set. A minimum of 24 hours should be allowed to test for adhesion, and as much as 72 hours is often recommended. However, special formulations are available that allow an adhesive to set in one hour.

The surface that a pressure sensitive label is to be adhered to should be clean and dry. Some surfaces that hinder a label’s adhesion include corrugated material, recycled paper, rough surfaces, and those covered with dust, oil, or frost. In addition, some labels, because of their adhesive components, actually penetrate and destroy the surfaces they have been applied to. An example of such a surface is polyvinyl chloride (PVC).

The two main types of adhesives are **rubber-based adhesives** and **acrylic adhesives**. Rubber-based adhesives have a higher level of initial tack to most surfaces, but they don’t provide as much permanence as acrylic adhesives. Rubber-based adhesives are good for pebbled surfaces, but they shouldn’t be used on flexible vinyl materials because a destructive chemical reaction can occur. Acrylic adhesives have a lower initial tack to most surfaces, but they provide greater permanence. They have better resistance to ultraviolet (UV) degradation than rubber-based adhesives, and they can be used with flexible plastic materials.

Adhesives are often classified as either permanent or removable. A permanent adhesive is intended to bond the label to an item for the life of that item (i.e., until that item is destroyed). Removable adhesives, when combined with the proper face stock, allow a label to be cleanly removed within a specified period of time. Some removable labels are designed to be **repositionable**-that is, they can be removed from one surface and, within

a specified period of time, be adhered to another surface. Of course, not all removable labels are repositionable. When one that isn’t repositionable is removed from a surface, it may lose its adhesiveness, so it may not be able to adhere to a surface, either to the one it had been on or to another one. Extensive testing is recommended to ensure that a removable label will perform as desired.

Some adhesives are specifically designed to withstand high or low temperatures. High-temperature adhesives can withstand exposure to 450° F, and cold-temperature adhesives can withstand temperatures ranging from 40° F to -40° F.

For special applications, manufacturers can customize labels with patterned adhesives (usually stripes) that provide ungummed areas on the label. A typical application includes a perforation in the area left ungummed so that part of the label can be removed for subsequent use. Another common construction leaves an ungummed edge on the label to facilitate lifting the label from the backing.

Different adhesives can be applied in one manufacturing process, either for two or more labels manufactured at the same time or for one label that will be separated into more than one part for different uses. Suppose, for example, that two labels are manufactured two-across for use in the assembly and shipping operation of an appliance. A removable adhesive might be used for the label that is affixed to the appliance during assembly, and a permanent adhesive might be used for the label that is affixed to the carton the appliance is shipped in.

The great variety of available adhesives and face stocks create many possible combinations for pressure sensitive labels. By knowing the label’s intended environment and purpose, the manufacturer will be able to recommend an adhesive that will allow the label to properly perform its designated function. Some manufacturers will even custom-blend adhesives for special purposes. Of course, all labels should be tested to ensure that they perform as desired.

Liners

A liner for a pressure sensitive label serves several functions. First, it bears a silicone coating that allows the label to be easily removed. Second, it serves as a carrier for the label. Third, it serves as a protective covering for the label's adhesive.

The selection of liner material depends on the label's intended use. Common weights for most applications are 40# and 50# liner stock. For EDP applications, a 50# liner is generally used. Paper liners are common, and plastic liners are often used with high-speed label applicators.

A self-imaging liner is a chemical self-contained carbonless sheet that has a silicone release coating and a pressure sensitive adhesive. The carbonless coating allows images printed on the face stock by impact printers to be transferred to the liner. As shown in **Figure 4-110**, the image is visible on the liner after the label is removed. This construction is ideal for any application that requires absolute accuracy of file copy information and label information.

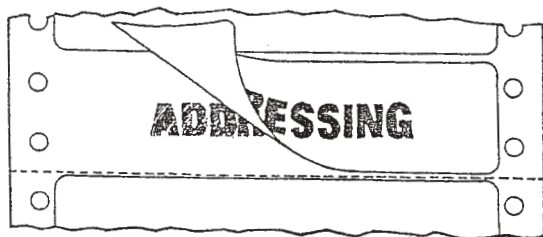


Figure 4-110 Self-Imaging Liner

Two-Ply Labels

A two-ply label is commonly known as a **piggy-back label**. Shown in **Figure 4-111**, it consists of two labels placed one on top of the other and mounted on a liner. Because each label has a release coating,

both can be removed from the liner as a unit and affixed to a surface. Later, the top label can be peeled off and affixed to another surface. This label construction can be combined with self-imaging liners and self-imaging labels to produce multiple images with one pass through a computer printer. Some common applications for this construction include magazine return address labels and patient labels used with hospital admission forms.

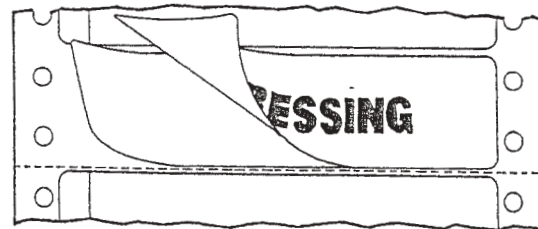


Figure 4-111 Two-Ply (Piggy-back) Label

Form/Label Combinations

Labels and forms can be manufactured together to serve many purposes. The three types of form/label combinations are a label affixed to a form, a multiple-part form in which a label is one part, and dual-web construction.

Pressure Sensitive Labels Affixed to Forms

Many times a forms system benefits from a label affixed to a form, such as illustrated in **Figure 4-112**. In such cases, the label is generally affixed to the form in an off-line operation, by either tipping or blowing the label onto the form. In the tipping process, line glue or spot glue is used to affix the liner carrying the label to a form. Since it is actually the liner that is attached to the form, the label can always be removed from the form and affixed to another surface. In the blown-on process, the label that is to be affixed to the form is first removed from its liner. Therefore, if a blown-on label is to be removed from a form, it must be either a repositionable label

or the top part of a two-ply (piggyback) construction. In the two-ply construction, the top label can be removed after the bottom label (which serves as the “liner” for the top label) has been affixed to the form.

In another method of affixing a label to a form, a special release coating is applied to the section of the form where the label is to be positioned. This clear formula acts as a release liner to which a label (face stock and adhesive) can be affixed. With this construction, printing can appear on the form underneath the label and can be read after the label is removed. Also, because the special release coating has less bulk than a release liner, it allows for easier imprinting. Bertek’s Bare-back® label is an example of a product that uses this release coating.

Another type of form/label combination cuts the label out of the form itself. In this method, a roll of one-part, preprinted, line-hole-punched forms is run through a machine that applies pressure sensitive adhesive to the area on the back of the form that is to be cut out. The adhesive is applied 1/2” wider than the label area, and the line holes allow register to be + 1/32”. Then a 43# or 50# release liner is laid down over the pressure sensitive adhesive on the back of the form. A self-contained encapsulated release liner can be used so that the information later entered on the label portion will also appear on the liner and therefore remain with the form. After the release liner is applied, the area that is to serve as the label is die cut with just enough pressure to cut the stock but not the release liner behind it. The web is then sheeted or fan folded, or it can be rewound and returned to a forms manufacturer to be collated into a multiple-part form. With this method, several different labels of various sizes can be included in just about any area of a form. An example of this type of form/label combination is the **SESAM** label (pronounced “See Sam,” an acronym for “Self-made, Self-Adhesive Material” label) manufactured by Glue Fold Inc.

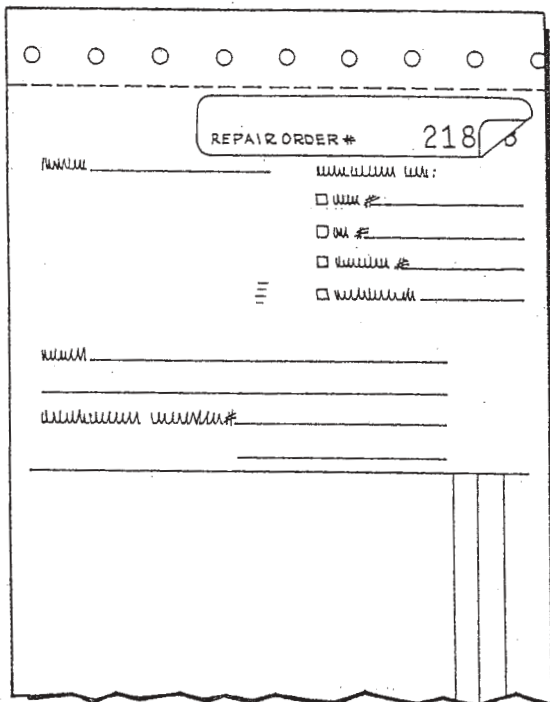


Figure 4-112 Label Affixed to Form

Multiple-Part Form/Label Combinations

Many form/label combinations are multiple-part forms having a pressure sensitive label stock as one part, such as shown in **Figure 4-113**. The label stock is collated with the other parts during manufacturing. The other parts of the form can include a wide variety of stocks. This construction is appropriate when self-imaging liners or self-imaging labels are unsatisfactory.

Dual-Web Form/Label Constructions

A dual-web construction consists of two sheets that are joined to form a single web. In a form/label combination, a dual-web construction pairs pressure sensitive material side-by-side with another material to allow a label and a corresponding form to be imprinted at the same time. It is also possible to combine two different pressure sensitive webs, such as one with permanent adhesive and one with

removable adhesive. As shown in **Figure 4-114**, a glue line joins the two webs side-by-side. (Some manufacturers have the ability to use two glue lines to join three webs side-by-side.) Form/label combinations can be created on either a press or a collator. Both single-part and multiple-part form/label combinations are available.

For more information on pressure sensitive labels and form/label combinations, please see NBFA's Product Knowledge book entitled *Labels* and also NBFA's *Pressure Sensitive Label and Form/Label Combination White Paper*.

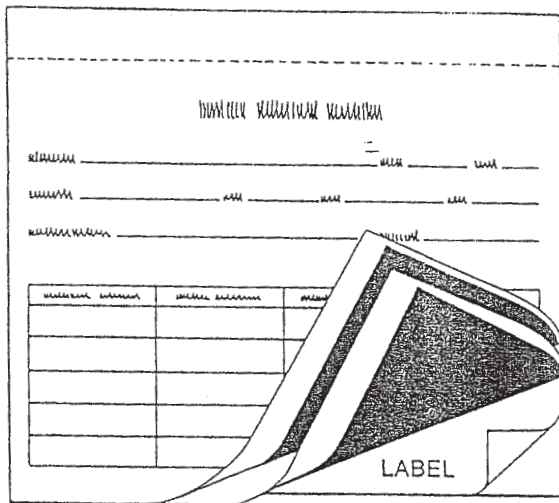


Figure 4-113 Label Collated with Form

Heat Seal Labels

Heat seal labels are often used for product packaging and for direct mail address labels. They are usually manufactured from a sulfite bond that has been coated on the back with heat-activated gum. Generally, the gum is non-tacky (i.e., not sticky) at room temperature, but it converts to an adhesive state at temperatures above approximately 135°F.

Heat seal labels can be printed with standard printing methods, and they can be

printed at higher speeds than pressure sensitive labels. They are available in rolls or sheets, and they can also be embossed, die cut, and trimmed. Manufacturers who specialize in printing heat seal labels use heat resistant inks and varnishes.

The materials for heat seal labels are less expensive than for pressure sensitive materials, but application costs can be greater because an additional unit is needed to heat and thereby activate the adhesive.

Types of Adhesives

Adhesives used for heat seal labels can be classified as instantaneous adhesives or delayed-action adhesives.

Instantaneous adhesives are applied by raising the temperature and then lowering it. An adhesive bond is developed when the melted coating is fused to a surface during the cooling cycle. Some amount of pressure is also required for the instantaneous adhesive to develop a proper bond between the label and the surface.

Delayed-action adhesives, after undergoing the heating and cooling process, retain a tackiness for some time—anywhere from several minutes to a few months—before reverting to a solid state. Because of this delayed action, these labels are often removed from the heat source and then applied to a surface with pressure. Initially, the delayed-action adhesive develops a bond to a surface by its tackiness, but when it reverts to a solid state, its adhesion will vary depending on the surface to which it was applied. Generally, when applied to solid surfaces such as glass, metal, wood, and rigid plastic, the adhesive bond is strengthened. Conversely, when applied to flexible packaging films, the bond deteriorates.

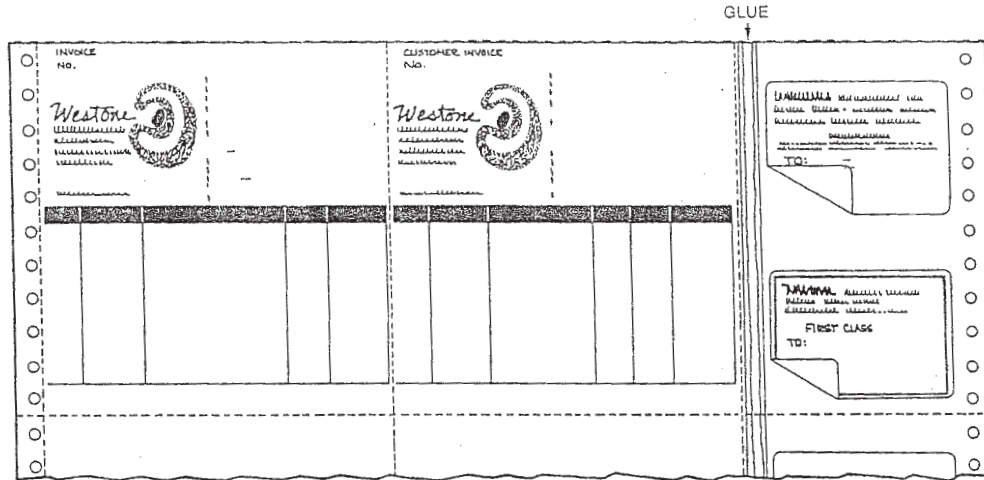


Figure 4-114 Dual-Web Construction

Proper Storage of Heat Seal Labels

Mills that manufacture heat seal stocks recommend that they be stored at 65°–85° F and at a relative humidity of 40%–60%. Heat seal stocks can be greatly affected by contact with a heat source, such as radiators, direct sunlight, etc. A roll of heat seal stock should be stored on its end.

Applications

A major application for heat seal labels is in bulk mailing operations that require maximum adhesion of the label. A heat activated gum is applied to the back of bond paper, and the sheets are then converted into one-part continuous forms (which are often line hole punched and folded into flat packs). The end-user prints the names and addresses by computer and then sends them to a mailing house. A Cheshire labeling machine cuts the forms into labels and applies heat as the label is affixed to the mailing piece.

Heat seal labels are also used in a wide variety of industries for labeling product packages and containers.

Gummed and Ungummed Labels

Gummed labels must have their adhesive coating moistened before being applied to a surface. Ungummed labels have their adhesive coating applied in a separate opera-

tion (normally by automatic mailing equipment or portable adhesive applicators). Both types of labels are usually less expensive than pressure sensitive labels, but application costs can be greater because additional units are needed to moisten the gummed labels or to apply the gum to ungummed labels. Available constructions include continuous rolls, sheets, and cut singles.

Types of Gums

The two major categories of gum are conventional gum and dry gum. With either type, moistening the gum makes it immediately ready for application.

Conventional gum is readily identifiable by its shiny surface. It is applied in a continuous film on the back of a sheet of paper. The difference between the gum and the paper stock creates a strong tendency for the paper to curl with changing atmospheric conditions, and this curling can cause problems during printing and even during label application.

Dry gum is often almost invisible because the adhesive is not applied as a film coating but as very small glue particles. Because of the small size of the particles, dry gum paper has little or no curl. Dry gum is especially ideal for wet offset printing.

Labels Glossary (Types, Adhesives, Applications)

Acetate: A plastic synthesized cellulose dissolved in acetic acid. This product is hygroscopic and subject to dimensional instability.

Acrylic Adhesive: Pressure-sensitive adhesive based on high strength, acrylic polymers. Can be coated as a solvent or emulsion system.

Adhesion: A bond established upon contact between two surfaces.

Adhesive (cement, glue, gum): A substance capable of holding materials together by surface contact.

Adhesive Bleed: A condition in which the adhesive has oozed out or has been mechanically drawn from under the edge of a pressure-sensitive material.

Adhesive, Cold Temperature: Any pressure-sensitive that will adhere to a cold substrate or will remain adhered in a cold environment.

Adhesive, High Temperature: Adhesive that will withstand sustained elevated temperatures.

Adhesive, Permanent: An adhesive characterized by relatively high ultimate adhesion, but can be removed if the force used overcomes its bonding ability.

Adhesive, Pressure-Sensitive: A type of adhesive, which is tacky at room temperature and adheres to a variety of surfaces on contact by applying pressure.

Adhesive, Removable: An adhesive characterized by relatively high cohesive strength and low ultimate adhesion. It can be removed easily from most surfaces. Some adhesive transfer could take place depending on the affinity of the adhesive to the surface.

Adhesive, Residue: The adhesive remaining when a pressure-sensitive adhesive is removed from the surface of a substrate.

Adhesive Transfer: The adhesive remaining after a pressure-sensitive adhesive is removed from a substrate.

Application Temperature: Temperature at the time the label is applied. All adhesives have a minimum application temperature rating. Testing is recommended when approaching minimum application temperature.

Caliper: Thickness, usually measured in mils, or thousandths of an inch. A mil is sometimes called a "point." A 10-mil tag might also be called 10-point tag stock.

Chemical Resistance: The resistance of pressure-sensitive material deterioration by a chemical.

Compatibility: The ability of ink, film, substrate, and/or solvents to function together in an acceptable manner. Manufacturers of inks, plastics, and other printing materials usually recommend specific ink/solvent/substrate systems that are compatible. Compatibility is essential to the ultimate performance of the system.

Conformability: The ability of pressure-sensitive material to yield to the contours of a surface (curved or rough).

Coupon Stock: A multi-ply pressure-sensitive label removed by the consumer from a package, usually printed with additional information about the product or a bonus price discount for a product.

Curl: Upcurl, downcurl, corner-to-corner curl, web direction, machine or cross-machine curl. All describe material that does not lay flat when slit or sheeted.

Cuts: The number of rolls slit from a master roll. Example: master roll finished 54", customer requires 6 cuts 9" (6" x 9"=54").

Delamination: The separation of a material into layers in a direction approximately parallel to the surface. For instance, a polyester facestock separating from the liner during processing.

Die: A tool or device used for cutting a desired shape.

Die Cut: 1.) To cut decals with a die. 2.) The line of severance between a self-adhesive material and its trim. 3.) A term used to describe a decal formed by diecutting.

Direct Thermal Transfer: A term more commonly used when referring to thermal papers. A heated image is applied to a thermal reactive substrate (paper, film, etc.) The areas of the substrate that are heated turn darker in color and the image appears.

Drawdown: Small hand-prepared sample. Usually a special nonstock construction.

Dwell: The time that a pressure-sensitive material remains on a surface before testing the adhesion or removability. The time that a hot-stamp, embossing head, or thermal die remains in contact with the surface of a pressure-sensitive material.

Edge Lift: The edge of a label rising from the surface of the substrate. This condition occurs most frequently on small diameter curved surfaces. Resistance to edge lift is dependent on the bond strength of the adhesive and the flexibility of the facestock.

Face Material (base material, facestock): Any paper, film, or fabric suitable for making into a pressure-sensitive material.

Fading: A gradual decrease in brilliance of color. The term is often applied to the deterioration of color caused by sunlight.

Fanfold: To put continuous folds in thin substrates such as film or paper, which resemble the folds in a fan or accordion.

Gloss Finish: Very shiny-highly reflective.

Matte Finish: Dull-reflects very little light.

Fisheye: Crater in the coating, usually round with a speck in the middle giving the appearance of a fish's eye.

Flexibility (conformability, pliability): A property of face materials, measured under specified conditions, which indicate how readily they will conform to curve surfaces.

Flexographic Printing: Formerly called aniline printing. A method of rotary letterpress printing that employs flexible plates and rapid drying inks.

Flood Coat: Thin coating of ink covering 100% of the printable surface.

Gloss: Characteristic of the surface, which causes it to reflect light at a given angle.

Heat Resistance: The property of a material that inhibits the occurrence of physical or chemical changes caused by exposure to high temperatures.

Heat Seal Adhesive: An adhesive that is dry to the touch and is activated when heat is applied.

Hot Stamping: A printing process in which a thin metal foil is transferred to a decal material by a combination of heat and pressure.

IML: A label that is applied during the molding process of a plastic bottle.

Ink Bleed: When one color runs into and discolors either the background color of the facestock or another color of ink that is laid down adjacent to the color that is bleeding.

Label, Pressure-sensitive (self-adhesive label): A pressure-sensitive label product that has been converted through printing/production equipment. The end product is produced in the form of rolls, sheets, fanfold, or by other techniques that produce like products, which have been slit or cut from the converted roll.

Label, Transparent: A pressure-sensitive label whose face material and adhesive can be seen through.

Laminate (verb): Apply one layer of material to another.

Laser Printing: A method of printing that utilizes a laser beam to put an image onto a substrate. Usually the surface of the substrate must have specific characteristics.

Lay Flat (stayflat): A label material with good noncurling characteristics.

Liner, Release (backing, liner, carrier): The component of the pressure-sensitive construction that functions as a carrier for the pressure-sensitive facestock. Prior to application, it protects the adhesive; it is separated from the decal before the label is applied to its substrate.

Loss of Tack: The adhesive loses its quick-stick properties.

Machine Direction (M.D., web direction): The direction of a base stock parallel to its movement through the coater.

Master Roll: A large, full-width roll of material that has finished the primary manufacturing process and is usually untrimmed.

Material Splice: An area where tape has been used to attach two rolls of material (vinyl, polyester, etc.) together to form one continuous web.

Matrix (ladder, skeleton, waste): The unused face and adhesive layers of a pressure-sensitive construction surrounding a die-cut label, which are removed after the labels are die cut.

Matte Finish: A dull finish.

Memory: The property of a material that causes it to attempt to return to its original dimensions.

Metallized Film: A plastic film that has been coated on one side with a very thin layer of metal. Usually vacuum metallized.

Migration: The movement of internal chemical components of a material.

Mil (.001"): One mil is one thousandth of an inch.

Moisture Content (percent moisture): The moisture within a material.

Moisture Vapor Transmission (moisture vapor transmission rate): A measure of the rate of water vapor transmission through any material.

Mottle: Non-uniform coloring or coating of a face material or of printing on a decal.

MSI: Abbreviation for one thousand square inches; also written 1,000 square inches.

Mylar: E.I. Dupont Company's registered trademark for polyester film.

No-Label Look: A label is designed in such a way that the label blends in with the container.

O.D. (outer diameter): The dimension measured from the outermost points on the end of a roll of material.

Offcut: The part of the trim width that is not utilized. For example, if a customer orders 13 cuts 4" out of a 54" finished roll, there is a 2" offcut ($13 \times 4 = 52$). The customer is paying for the full 54" and is advised by sales that we can ship the offcut or discard it as trim waste.

Offset (set-off): A defect characterized by the partial transference of ink from a freshly printed surface to an adjacent surface, as that of another sheet film or the backing paper in a roll.

On Demand Printing (Electronic, e.g., laser, dot matrix and thermal transfer): Being able to print graphics or text on labels as they are needed as opposed to making up many ahead of time.

Opaque (nontransparent): The ability of a material to block the transmission of light. Wood is total-ly opaque-you cannot see through it.

Overage: When more material is manufactured than ordered.

Overlaminating: Application of a clear film to a label stock for the purpose of protection or to enhance graphic quality.

Overlap (application): In applying a decal around a bottle or container, one end extends over the other.

Ooze: Adhesive moving out of ends of rolls or stacks of sheets causing ends to feel sticky and possibly causing material to block.

Packaging (label on consumer consumable): Pressure-sensitive films used for package decoration that includes primary label, coupon stock closure systems and tamper-evident applications.

Permanency: A measure of an adhesive's ultimate holding power or bond strength. A permanent adhesive will develop a bond that can make label removal difficult or impossible without distorting the face stock.

Pin holing: Refers to the failure of printed ink to form a complete film. This condition will become visible by the appearance of small holes in the solid print area.

Plasticizer: A substance added to materials to impart flexibility.

Plasticizer Migration: The movement of plasticizers from within some plastics to the surface of the material. May cause excessive softening or degradation of some adhesives.

Prime Label (primary label): Main product description label.

Polyester: A film having good resistance to moisture, solvents, oils, and many other chemicals.

Polyethylene: A tough, stretchy plastic film having very good low temperature characteristics. Also used a great deal for producing semi-rigid bottles.

Pressure-sensitive Label (self-adhesive label): A label utilizing a pressure-sensitive adhesive that has a protective backing. Available in rolls, sheets, or fanfold packs.

Pressure-sensitive Label Stock (self-adhesive label stock, web stock, pressure-sensitive laminate, tape): The combination of face material, pressure-sensitive adhesive and release liner from which pressure-sensitive labels are manufactured.

Register: The exact corresponding placement of successively printed images and/or diecut, pressure-sensitive labels.

Release: The force required removing the release liner from the facestock at a specified speed and angle.

Release Liner (backing paper, carrier, liner): The component of the pressure-sensitive construction that functions as the carrier and protects the adhesive prior to application.

Removability: A relative term to describe the force or condition under which a pressure-sensitive label can be removed from a substrate. A removable label is one in which no damage or staining occurs to the substrate or face material and no adhesive residue is left on the substrate upon removal.

Removable Adhesive: A pressure-sensitive adhesive characterized by low ultimate adhesion and clean removability from a wide variety of surfaces.

Residue: Adhesive left on substrate when decal is removed.

Roll to Roll: A method of running films through a printing machine; a roll of film is fed into a printing unit, is printed, and then is rewound into a roll as it exits the machine.

Tack: Quick adhesion sometimes called "grab" or "finger tack." It is the level of grab obtained when the surface of an adhesive is touched or when a label is applied to a surface and quickly pulled away.

Tensile Strength: The force parallel to the plane of the specimen required to break a given width and length of stock under specified conditions.

Thermal Transfer: A printing process whereby heat and pressure are applied to an inked ribbon and substrate. This releases the ink from the ribbon and bonds it to the substrate.

Tight Release: The adhesive does not release freely from the liner.

Tolerance: Ability to hold a given dimension + a specified amount.

Topcoat: A surface treatment on a film that extends ink receptivity.

Transfer Adhesive: Adhesive put on a differential release liner in such a manner as to have a higher value of release from one surface than from the other. Thus, if the backing is pulled away from the adhesive, it will remain on the side with the higher release. Transfer tape can be used to laminate materials together on the press or to put the adhesive on underface (subsurface) printing after it is printed.

Translucent: A material that transmits and diffuses light. A good example is frosted glass.

Transparency: The ability of a face stock to allow transmission of light without appreciable scattering. A face stock is considered transparent if 10-point type can be read through it.

Trim: The normal edge waste from a master roll. Also known as “tails.”

Tyvek: E.I. DuPont Company’s registered trademark for spunbonded polyolefin film.

Ultimate Adhesion: The maximum bond established between a product and the surface to which it is adhered. The time required to reach ultimate adhesion varies with the adhesive, but it is usually in the range of 72-96 hours.

UV (ultraviolet): That part of the spectrum wherein the wavelength of light is shorter than that of visible light. Carbon arc lamps and black lights are artificial sources of ultraviolet light used by a printer.

U.V. Drying: A system that uses ultraviolet rays to affect the curing process.

UV Resistance: The ability of any material to withstand extended exposure to sunlight (ultraviolet) without degradation, hardening or excessive discoloration.

Varnish: A liquid solution used to form a protective coating.

Vinyl: Plastic films used for pressure-sensitive labeling materials. Vinyls can be manufactured in rigid or flexible constructions. Generally more flexible and formable than polyesters. Also known as PVC (polyvinyl chloride).

Void: An area of a coated film that does not have the coating. An adhesive skip; and adhesive void.

Waterborne Adhesive (also referred to as aqueous or waterbased): An adhesive in which the polymer is emulsified in water. Water is the vehicle, which is used to coat the adhesive.

Weatherability: Ability of the decal to withstand the effects of outdoor weathering-sunlight, heat, cold, humidity, rain, snow, and time.

Web: The material in a roll as it is unwound. A.) across the web-side-to-side direction (width), transverse direction. B.) Machine direction, lengthwise direction of a roll.

Wrinkles: Small creases or folds in a smooth surface.

Converting Technology

Introduction:

The term converting refers to the portion of the label production process where the pressure-sensitive material is cut into the final shape for the end use of the label. Converting includes die cutting the labels on the liner, inserting perforations and fan folding, punching line feed holes on the edges of the web, cutting the web into sheets and a number of other operations. Converting operations can be performed on both printed and unprinted materials and will almost always be performed in line (at the same time) as the printing process.

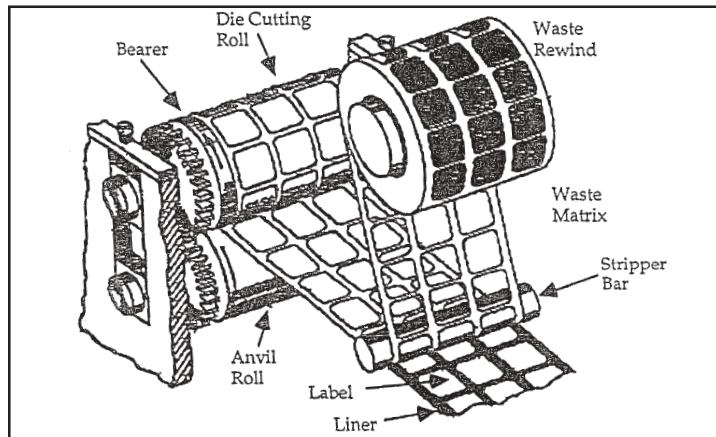


Figure 5-1

Die Cutting

Die Cutting is the term used to describe the process of cutting the facestock into the final label shape. The operation is performed by pressing a sharpened cutting surface against the facestock which is supported by the release liner and an Anvil roll. The pressure of the die cuts or bursts the facestock and the adhesive.

The Die is a cutting tool designed to cut a repeat pattern and can be manufactured in either a flat or cylinder profile.

Flat Bed Dies are sharpened steel rule fastened in a movable chase. The chase is lowered to a stationary anvil as the web stops momentarily and then returns to the ready position.

Magnetic Dies are machined or etched from thin flat sheets of metal which are wrapped around a magnetic cylinder on a rotary press. The depth of blade is significantly less than with an engraved die however the costs can and the durability are also less.

Rotary Engraved Dies are manufactured from a solid cylinder where the cutting edge is formed by removing material from the surface of the cylinder, creating a raised sharpened cutting surface. Engraved dies are typically more expensive however will normally last longer and can be used on more intricate shapes and designs. An additional portion of engraved dies is the addition of bearers which is a collar on either side of the cylinder which positions the cutting surfaces at the precise distance from the anvil roll, thus controlling the depth of cut.

Die Bearers

Bearers are precision ground surfaces on each end of an engraved die or magnetic cylinder that maintains a specific distance between the cutting blade and the anvil surface. This clearance is determined by the caliper of the liner to be used. (40# = 2.5 mils, 50# = 3.2 mils target, etc.) The caliper of the release liner is critical since the proximity of the die to the anvil roll surface is controlled, the liner becomes an extension of the anvil roll, supporting the facestock and adhesive so they can be cut.

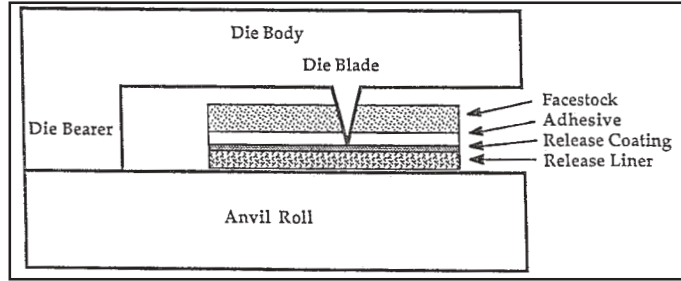


Figure 5-2

If the release liner varies in thickness, the facestock and adhesive will be pressed either too far into the die or not far enough. Materials with high liner caliper could result in liner breaks during automatic label application because of cuts in the liner, or could cause label dispensing problems due to adhesive flow through cuts in the silicone layer. Materials with low liner caliper could result in problems with label matrix breaks or label predisping during converting due to the label surface or adhesive insufficiently cut.

In Flatbed letterpress printing, text made up of individual characters, are placed side by side and locked into a metal frame or Chase. The raised surface of each character is then inked by a roller and subsequently pressed against the substrate to transfer the image to the sheet. Over the centuries, the process has evolved from the simplest form of printing using hand carved blocks of wood as the characters to modern photographic means of imaging and chemically etching a solid metal plate to form the relief image. Photo engravings and hot metal typesetters comprised the dominant share of the commercial printing market until the introduction of Offset Lithography in the 1950's.

The rotary form of the traditional letterpress printing uses a molded metal cylinder known as a "Stereotype" that contains the relief surfaces. The raised areas are inked in a similar manor to the flatbed operation and transferred to a moving web. Historically, the use of rotary letterpress has been limited to newspaper and book production.

For the most part, both flatbed and rotary letterpress are obsolete or are used in small specialized printing operations. Most of the applications have been transitioned to Offset Lithography.

Flexography

Flexography is printing with a flexible, elastomeric plate that has the image area of the plate raised above the non-image area. The area of the plate carrying the ink has the raised portion obtained by removing and lowering the non-image areas by cutting, molding, etching, dissolving, or washing them away.

Flexo inks are generally thin, highly fluid (low viscosity), and rapid drying. The inks can be solvent or water based systems, and recently an increased use of Ultra-violet (UV) curable systems.

Plates are commonly made from photo-polymer materials but can also be made from natural and synthetic rubbers. Plates are mounted to the plate cylinder by affixing them with a double sided tape, commonly known as "sticky back".

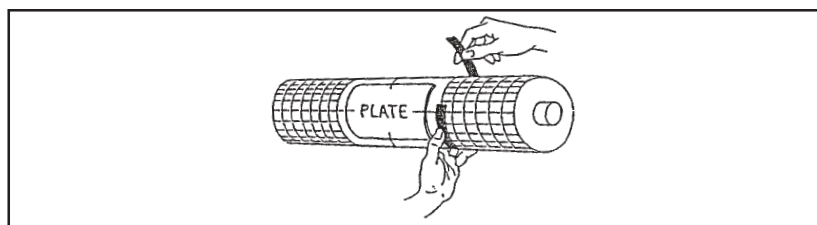


Figure 5-3

Press configurations for Flexography include inline, central impression and stack. The central impression press uses one common impression cylinder for all printing stations and uses two to seven stations. The inline design places a tandem series of printing stations in a row. In theory, the inline design can be configured to include an unlimited number of printing stations, but typically have four, six, eight and up to ten stations. A few sophisticated converters have connected two separate inline presses together to form a combination press that has up to fourteen printing stations. This type of press is used for highly specialized work that involves multiple webs combined to create unique products. The stack version involves individual printing stations mounted on frames above one another, and could include from one to four stations on each side of the frame.

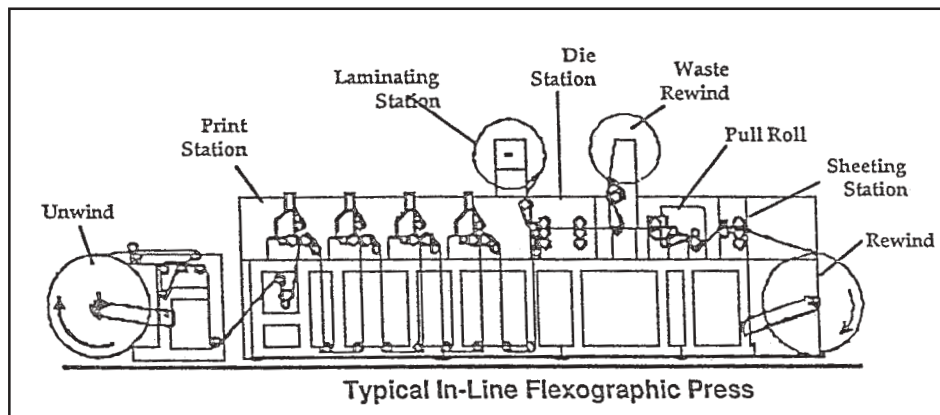


Figure 5-4

The typical Flexo printing station is comprised of a set of four rollers each with a specific function in delivering ink to the substrate. The fountain roll picks up ink from the ink reservoir (fountain) and transfers it to the anilox roll. The anilox roll is a metal or ceramic roll that is covered with a series of cells. The cells can vary in size, depth and number and control the amount of ink that the plate receives. Typical cell configurations range from 80 to over 600 per lineal inch. The anilox transfers the ink to the plate cylinder.

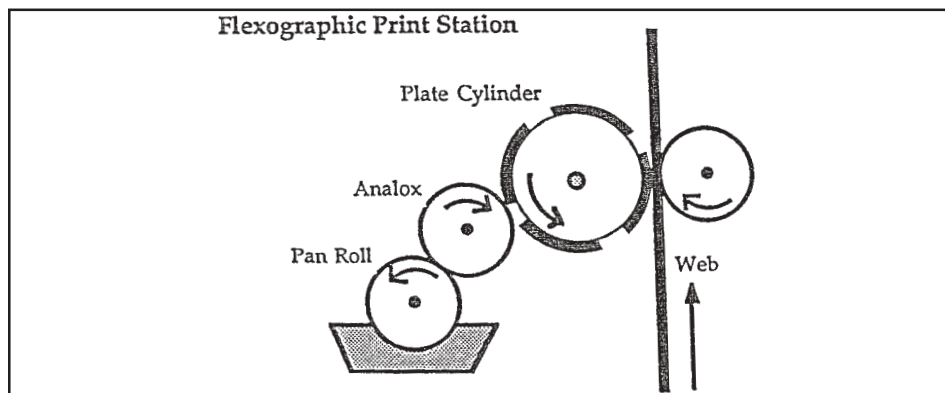


Figure 5-5

The plate cylinder is a very precise steel roll that the plate or plates are mounted to. The circumference of the plate cylinder can vary to accommodate various print repeats. The gears for the plate cylinder are changed with the circumference to insure the surface speed of the plates match the surface speed of the moving web exactly. There are variations found in Flexo inking systems that are used to more precisely control the ink volume that is transferred to the plate.

High quality printing will often employ a doctor blade to wipe the surface of the anilox roll, which permits the cells to transfer only the intended volume of ink. Long run equipment may also eliminate the fountain roll and use an ink applicator in its place. The ink applicator sprays ink onto the anilox roll in close proximity to the doctor blade. This configuration reduces the amount of ink that is exposed to the air, providing greater viscosity control.

The impression cylinder is a precise solid steel roll that is used to provide a smooth surface to support the substrate as ink is being transferred from the plate. It is imperative that the impression roll be kept in good condition, free from dents, dings, adhesive build up, spilled ink or any other sort of debris.

Flexography is a process that is primarily used to print packaging materials. The combination of the fast drying, fluid inks and the flexible plates enables this process to print on a wide range of substrates. The plate will conform to irregular surfaces and the inks will flow into these irregularities producing an image of acceptable quality. As the plate conforms to the irregular surfaces that they print on, they also distort, reducing the overall precision of the process.

To achieve printed results of the highest quality it is essential to maintain a balance between the plates' ability to conform and its tendency to distort. Plate manufacturers are constantly improving the plate materials to optimize this balance. It is easier to get consistent results using photo polymer plates than rubber which explains why polymer plates dominate the majority of Flexo operations.

Flexography is a web process, with the exception of sheet fed corrugated box presses. The substrate is loaded into the unwind portion of the press in roll form, and is pulled through the press. As the web moves through the press it will be printed and dried. The web can then be "converted" or transformed into the intended product. It may be die cut, folded, glued, punched and perked, other webs may be laminated to it, it may be sheeted, slit or wound into rolls.

Generally speaking Flexography is divided into wide web (over 24") and narrow web (Under 24"). However in the case of the label industry, all work is done in the broad industry classification of narrow web. The label industry in general will consider narrow web label to be 10" and under, while anything over ten inches will be referred to as wide web. This terminology is important because the on press performance of some pressure sensitive materials will vary according to width of the product. This is essentially determined by the physical properties of the material including strength, release value, die configuration and press speed.

Rotary Letterpress

Rotary Letterpress systems combine a thicker, paste, letterpress type ink, continuous moving web printing and a harder, stiffer plate to produce clean sharp images. Often combined with UV curing systems, Rotary Letterpress printing offers durable, quality printing.

Rotary letterpress inks are paste inks metered by a multiple roller ink train of oscillating, rotating rollers. The ink is thinned to a smooth uniform thickness, transferred to rubber form rollers which transfer the ink to the printing plate.

Rotary letterpress printing plates are similar to Flexographic plates in appearance. Rotary letterpress plates are made of a harder material which needs more pressure to transfer an image, but do not deflect under pressure as Flexo plates. The resulting print image is cleaner and sharper, with very little ink "halo" effect around each image.

Lithographic Printing

Lithography is a term derived from the operation of printing with water, incorporating the basic principal that grease and water do not mix. When the printing plate for the Lithographic process is made, the printing image is rendered grease receptive and water repellent, while the non-printing or non-image areas are rendered water receptive and ink repellent.

The finished plate, which is made of a thin sheet of metal (usually aluminum) is wrapped around a cylinder on the printing press (Plate Cylinder) and locked into place by a set of plate clamps located in what is described as the cylinder gap. As the plate revolves on press the surface comes into contact successively with rollers wet by water or "Dampening Solution", and rollers wet by ink. The dampening solution wets the non-printing areas of the plate which, because grease is repelled by water, prevents the ink from sticking or wetting the non-printing areas. As the inked rollers roll over the dampened plate, the printing or image areas attract the greasy ink and form the image area.

Unlike the other printing processes that use a physical means to separate the image from the non-image areas, Lithography requires strict control of the application and chemistry of the ink and water as well as the substrate.

Offset Lithography (Offset)

Offset Lithography is one form of Lithographic printing. In almost all cases where lithography is in use, it will be on a Offset Lithographic press. The term Offset is commonly used to describe the process where the inked image on the printing plate is transferred to an intermediate blanket cylinder. The paper picks up the image as it passes between the blanket cylinder and impression cylinder.

Electronic Printing

AIM: Automatic Identification Manufacturers, Inc.

Alphanumeric: The character set which contains letters and numbers and may contain other characters such as punctuation marks or control characters.

Background: The spaces, quiet zones and area surrounding a printed symbol.

Bar: The darker element of a printed bar code symbol.

Bar Code: An automatic identification technology that encodes information into an array of varying width parallel rectangular bars and spaces.

Bar Code Density: The number of data characters that can be represented in a linear unit of measure. Bar Code density is often expressed in characters per inch (CPI).

Bar Length: The bar dimension perpendicular to the bar width. Also called height.

Bar Width: The thickness of a bar measured from the edge closest to the symbol start character to the trailing edge of the same bar.

Codabar: (2 of 7 Code, Code 27). A numbers only bar code consisting of seven modules, two of which are wide.

Code 39: (3 of 9 Code). A full alphanumeric bar code consisting of nine modules, three of which are wide.

Code 128: A full alphanumeric bar code capable of encoding all 128 ASCII characters.

Continuous Code: A bar code symbology where all spaces within the symbol are parts of characters. There is no intercharacter gap in a continuous code.

Depth of Field: The distance between the maximum and minimum plane in which a code reader is capable of reading symbols.

Dot Matrix: A system of printing where individual dots are printed in matrix (5x7 and 7x9, etc.) forming bars, alphanumeric characters and simple graphics.

EDP: Electronic Data Processing.

Electronic Printing: Any method of printing that utilizes electronic equipment.

Helium Neon Laser: A type of laser commonly used in bar code scanners. It emits coherent real light at a wavelength of 633 nm.

Impact Printing: Any printing system where a microprocessor-controlled hammer impacts against a ribbon and a substrate.

Ink Jet: A method of printing using liquid ink projected a drop at a time against a substrate.

Interleaved Two of Five Code: A number only bar code symbology consisting of five bars, two of which are wide. In this code both bars and spaces carry information.

LED: Light emitting diode. A semiconductor that products light at a wavelength determined by its chemical composition. The light source often used in bar code readers.

MICR: Magnetic Ink Character Recognition. The stylized printing on the lower left of personal and bank checks.

Moving Beam Scanner: A scanning device in which scanning motion is achieved by mechanically moving the light beam through the bars.

Non-Read: In a bar code system, the absence of data at the scanner output after an attempted scan due to no code, defective code, scanner failure or operator error.

Opacity: The optical property of a substrate material that minimizes show-through from the backside or the next sheet. The ratio of reflectance with a black backing to the reflectance with a white backing.

Print Quality: The measure of compliance of a bar code symbol to the requirements of dimensional tolerance, edge roughness, spots, voids, reflectance, PCS, quiet zone and encodation.

Quiet Zone: A clear space containing no machine-readable marks, which precedes the start character of a bar code symbol and follows the stop character. Sometimes called the "clear area."

RFID: Radio Frequency Identification. See RADIO FREQUENCY TAG.

Radio Frequency Tag: An electronic tag capable of receiving/storing and/or transmitting digital information by means of and in response to RF energy.

Read/Only: Read/Only identification systems employ radio frequency tags, which contain preprogrammed data.

Read/Write: In an RF automatic identification system, the capability of RF tags to have their stored data changed by an external RF signal.

Read Rate: The ratio of the number of successful reads on the first attempt to scan to the total number of attempts.

Self-Checking: A bar code or symbol using a checking algorithm that can be independently applied to each character to guard against undetected errors.

Stacked Codes: 16K and Code 49 are examples where a long symbol is broken into sections and "stacked" one upon another similar to sentences in a paragraph. Extremely compact codes.

Substrate: The surface on which a bar code symbol is printed.

Symbol: A combination of bar code characters including start/stop characters, quiet zones, data characters, and check characters required by a particular symbology, which forms a complete scannable entity.

Symbol Density: The number of data characters per unit length.

Thermal: A printing system in which dots are selectively heated and cooled and dragged upon a heat-sensitive paper. The paper turns dark in the heated areas.

Thermal Transfer: A printing system like thermal except a one-time ribbon is used and the substrate is common paper. Eliminates the problem of fading or changing color inherent in thermal.

Vertical Bar Code: A code pattern presented in such orientation that the axis of the symbol from start to stop is perpendicular to the horizon. The individual bars are in an array appearing as rungs on a ladder.

"X" Dimension: The nominal dimension of the narrow bars and spaces in a bar code symbol.

Frequently Used Stocks

EDP Smudge Resistance (Uncoated Litho): This is an uncoated low cost stock formulated for the computer industry. It is a porous and absorbent stock with excellent printability and smudge resistance.

High Gloss: This is a cast-coated material with a luster or mirror-like finish suitable for high quality printing. It is not recommended when you need to write or print on the label.

Semi-Gloss: This is a coated-one-side white paper for quality printing with a medium gloss level.

Matte Litho: This is a lightly coated material that can be written on or typed on. It does have limitations on some typewriters.

Thermal Transfer: A smooth, absorbent-coated facestock designed for thermal transfer printing. It is a non-sensitized face stock utilizing a special inked ribbon. A durable, polyester ribbon film coated with dry thermal transfer ink is placed between the thermal printhead and label. The thermal printhead is used to transcribe the ink onto the label surface, where it cools and anchors to the media surface. The polyester ribbon is then peeled away, leaving behind a stable, passive image.

Direct Thermal: This is a chemically coated paper stock. The thermal printhead is typically a long linear array of tiny resistive heating elements that are arranged perpendicular to the paper flow. Each thermal printhead element locally heats an area on the chemically coated paper directly under the print element. This induces a chemical reaction, which causes a black dot to form in that area. The image, itself, is formed by building it from dot rows as the media passes underneath the active edge of the printhead.

Fluorescent: These bright colored stocks come in red, orange, chartreuse, pink and green. It is a matte-coated stock. These are attention-getting labels.

Foil: Aluminum foil is laminated to a base Kraft sheet, with an acrylic topcoating. It is available in Bright Silver, Dull Silver, Bright Gold and Dull Gold.

Vinyl: This material is extremely flexible and moisture-resistant. It is also weather-resistant and can be used indoors or outdoors.

Polyester: This is a sturdy synthetic film, used in applications where resistance to oil and solvents are an issue. A clear overlamine is recommended with polyester for outdoor use.

Latex-Impregnated: A flexible computer imprintable paper material that will conform to curved and small cylindrical surface. This material is tough and pliable when compared to standard paper materials. It has the best moisture resistance of paper facestocks.

Gummed Labels: Gummed labels are available in many types of stocks. Some of the most common stocks include book paper, cast-coated stock, high-gloss stock, foils, and kraft paper. All of these stocks are generally available with basis weights between 35# and 60#. Glassine stock (usually with a basis weight of 25#) is sometimes used for transparent labels and windshield stickers. When used as part of a multiple-part business form, a gummed label is often a 20# stock. Carbonization is possible with this stock.

Gummed Label Applications: Gummed labels are commonly used for product packaging and for office applications such as shipping labels and labels for file folders, report covers, and binders. Ungummed labels are frequently used for bulk mailings and for product identification labels (such as with bottled and canned goods). For more information on heat seal labels and gummed and ungummed labels, please see NBFA's Product Knowledge book entitled *Labels*.

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Integrated Labels
- Special Features & Capabilities
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