



WHITLAM GROUP

Whitlam Group's Resource Guide

# THE BASIC FUNDAMENTALS OF LABELING

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# Basic Fundamentals of Labeling

When getting started on a labeling project, ask yourself these questions to help guide you through the process:

## Label Performance

- What does the label adhere to? (Plastic, metal, glass, corrugated, aluminum)
- What are the surface conditions? (Smooth or textured, flat or curved, clean or oily)
- What environment will the label be exposed to?
- At what temperature will the label be applied?
- Does the label need to be permanent or removable?
- Is there any imprinting? (If imprinting, what method is being used?)
- Is “PPAP” required?

## Label Characteristics

- Do you have a sample? (If yes, do you want us to match your sample?)
- Do you have a blueprint? (If yes, please provide.)
- What is the size of the label? (Do you want exact size or is there a +/-?)
- How many colors? (Spot color or CMYK)
- Material type? (Paper, Film, Polyester, Polypropylene, etc.)
- Is there a “Mandatory Liner?” (If yes what is it?)
- Does the label need “Lamination” for protection? (Gloss, matte, etc.)
- How is it being applied? (Machine or Hand-applied)
- Is there consecutive numbering?
- Are there any bar codes? (If yes, what is the symbology?)
- Any copy changes? (If yes, how many?)

## Finishing Requirements

- Is it die cut or butt cut?
- What’s the “finishing style”?
- How do you want your finished copy positioned?
- What’s the quantity per Roll or Stack?

# Label Construction

A typical label consists of a Protective Layer, Ink, Topcoat, Facestock, Adhesive and a Liner.

## Protective Layer

A varnish or laminate applied to the surface of a label to protect the ink and/or label stock against sunlight, chemicals, abrasion, moisture, or any combination of these.

## Graphic Layered Ink

Ink is laid down between the protective layer & the topcoat.

## Topcoat

A physical surface coating applied to promote or increase ink adhesion with conventional and digital print technologies, or to modify gloss. Can also be used to provide a protective coating.

## Facestock

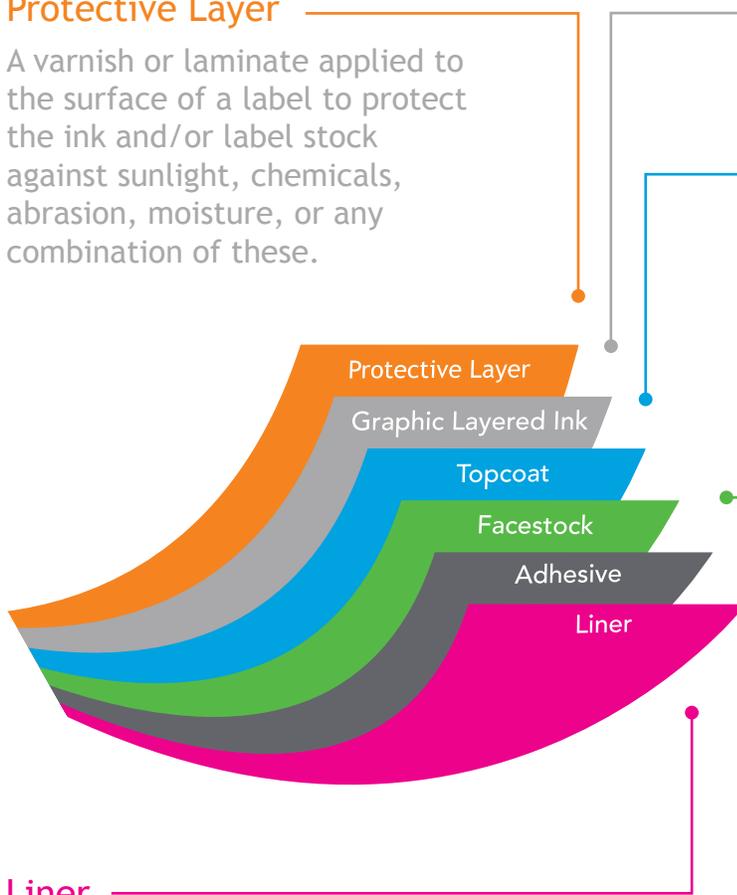
Film or other specialty paper, fabric, membrane to which the topcoat and adhesive are anchored. Carries graphics to the application surface. Functions as a protective laminate. Provides a barrier to moisture or vapor. Functions as a spacer material in a layered construction.

## Adhesive

Pressure-sensitive or heat-activated coating used to bond the film to the application surface.

## Liner

Supports the product through manufacturing and life of use. Protects adhesive until it is applied to the end use surface.



# Label Characteristics

## Liners

Liners support the product through manufacturing and life of use. Liners protect the adhesive until it is applied to the end use surface.

### Liner Functionality

- The base for adhesive coating
- Transfers adhesive to facestock
- Protects adhesive
- Transports subtractive through converting
- Acts as a die-cutting base (anvil)
- Provides proper dispensing (automatic or mechanical)

### Important Liner Properties

- Strength (tensile/tear)
- Smoothness (front/back)
- Caliper consistency
- Density/hardness
- Dimensional stability/layflat
- Release level

### Types of Liners

- Recycled content (30% post consumer waste)
- Paper
- Film



# Label Characteristics (Cont.)

## Adhesives

### Removable

Labels that usually can be removed from the substrate without pieces of residue remaining on the surface. Note: After a period of time or exposure to weather, the label may become permanent.

Permanent labels that have strong adhesion to a surface usually cannot be removed without damage to the label or to the surface itself.

The following is a list of additional important properties we need to know in the initial design and development stage.

- Plasticity
- Shrink Resistance
- Water Resistance
- Humidity Resistance
- Solvent Resistance
- Shelf Life
- Residual Monomers
- Cost
- Clarity
- Removability
- Color
- Reworkability
- Residual Solvents
- Repositionability
- Temperature Resistance



# Label Characteristics (Cont.)

## Facestock

We are capable of printing on a variety of materials and films. Let us help you find the right label material to meet your product’s requirements and application needs.

### Paper

A natural product made from wood or pulp.

### Foil

A thin layer of aluminum or alloys.

### Film

Films are a synthetic or a plastic type of material.

### Magnet

Paper or film on the top layer, with a flexible magnet as the bottom layer.

### Static Cling

Vinyl facestock, no pressure, sensitive adhesive with a liner.

### Tape

Facestock of paper or film with adhesive, but no liner.

### FDA Approved

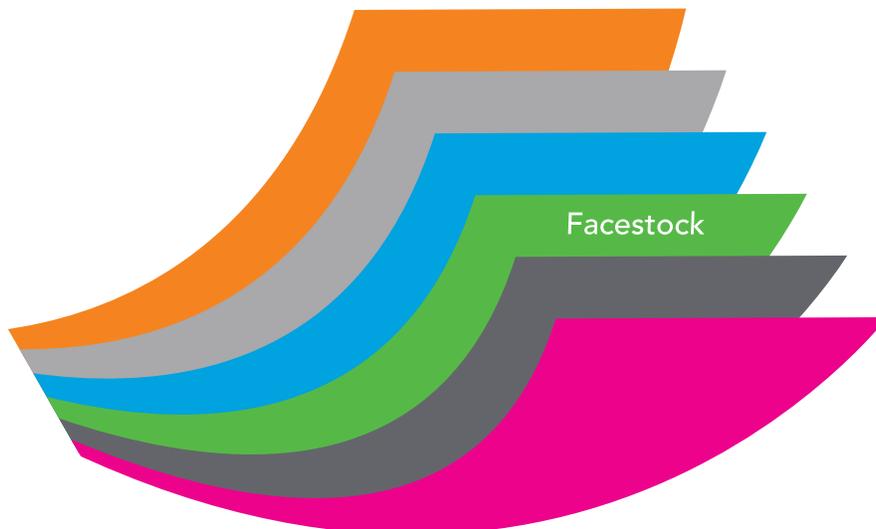
Paper or film, direct or indirect food contact.

### Tag

Paper stock that is typically 70mm thick.

### Holographic

Micro embossed metalized film.



# Label Characteristics (Cont.)

## Topcoat

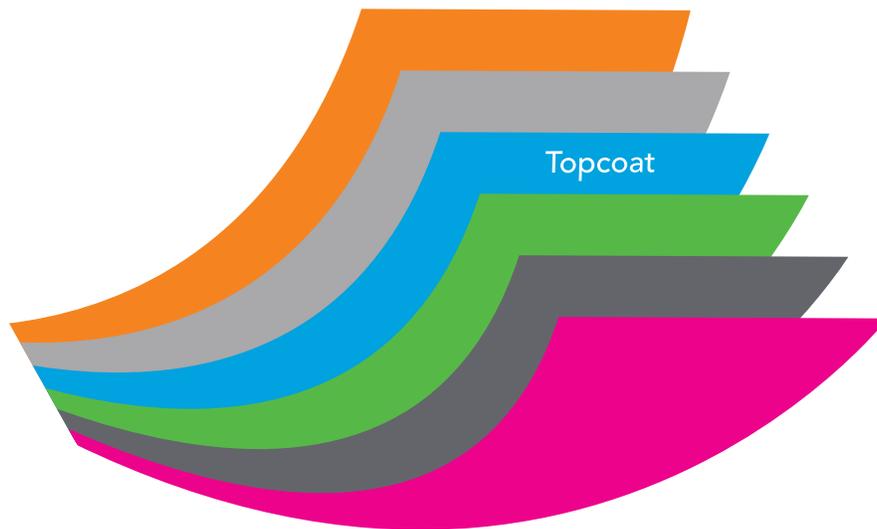
In some cases, it’s necessary to protect labels from different environmental conditions. Natural and synthetic resins are used to protect or embellish your printed piece.

### Varnish

A thin, liquid protective coating (either matte or glossy) that is applied to the product. It adds protection and enhances the appearance of the product. It can be applied as an all-over coating or it can be applied as a spot coating.

### Laminate

A protective film that is fused to the labels. Lamination can provide a high gloss finish that facilitates resistance to abrasions and chemicals.



# Label Characteristics (Cont.)

## Graphic Layered Ink

We have dedicated technology experts that will find a solution for your specific application needs. We are committed to maintaining high production standards from our ink to our color management systems. We can custom mix our inks to match your specific colors.

### Water-Based Inks

- Low odor
- More cost effective
- More environmentally friendly
- Excellent choice for FDA approved & CMYK application
- Can be used for Scratch ‘N’ Sniff or scented varnish.
- Metallic, fluorescent, mainly used on paper.

### U.V. Inks

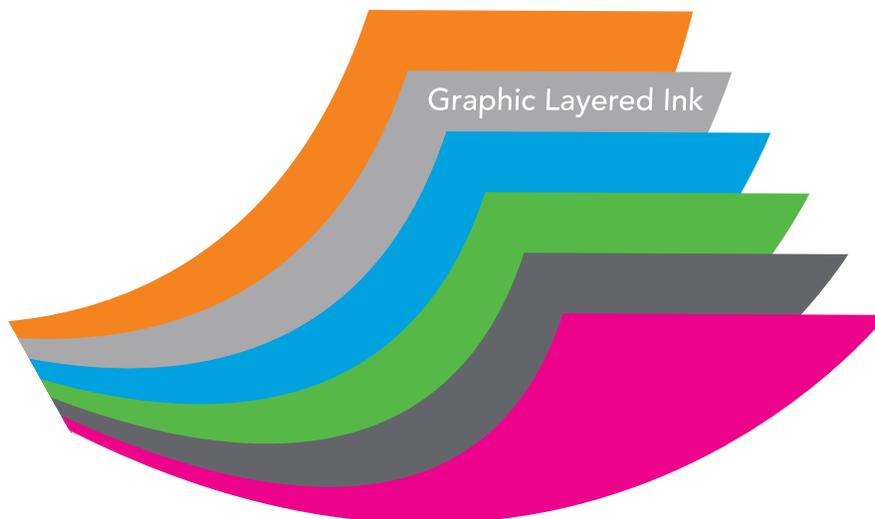
- Excellent abrasion durability, chemical & fade resistant.
- It does have an odor.
- Can be used on paper or film, needs to be top coated for U.V.
- High costs, 100% solid, excellent choice for CMYK printing.

### Solvents

- Excellent choice for durable application on film.
- Not as environmentally friendly as other inks.
- Can be used on non top coated films.

### Specialty Inks

- Low odor
- FDA Approved
- Scratch ‘N’ Sniff
- Metallic
- Fluorescent
- Scratch-off
- Thermo-chromatic
- Scented
- U.V.
- Water-based
- Taggants



# Label Characteristics (Cont.)

## Protective Layer

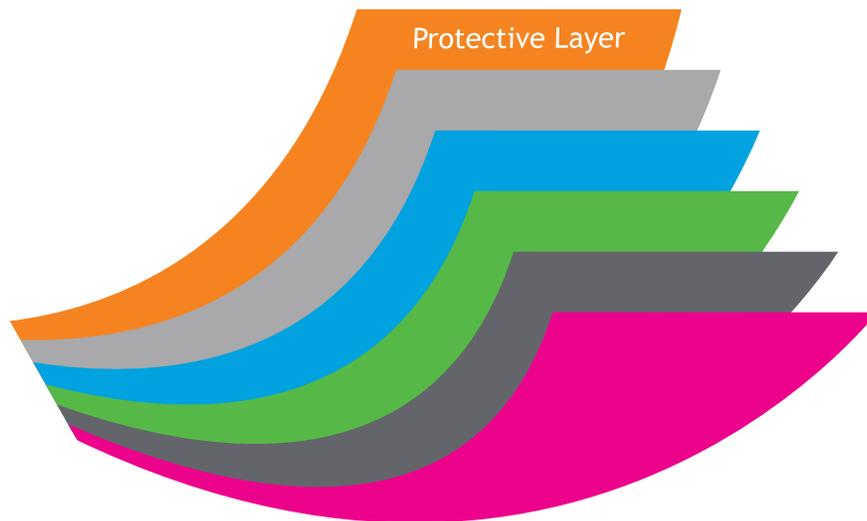
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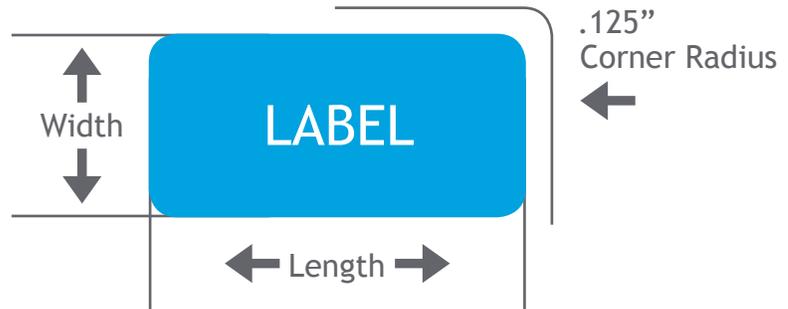


# Label Dimensions & Tooling

When starting your design phase, ask yourself this question:  
How will this label be used?

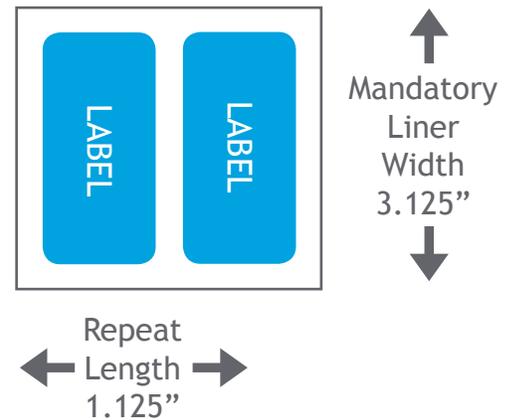
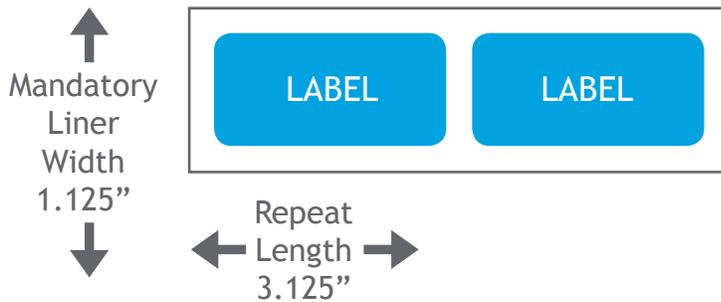
## Dimensions

- Width
- Length
- Corner Radius



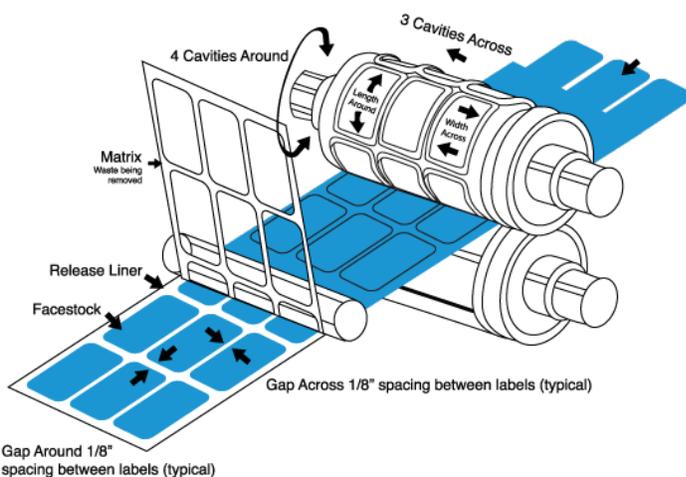
## Repeat Length

There are 2 ways to run this label: With the mandatory liner length of 3.125”, or the mandatory length of 1.125” running along the web. Typically 1/16” is left on each side of the cavity.



## Label Die Close-Up

An example of a die is shown below.  
Label production is more efficient when there are more cavities across the die.



**PLEASE NOTE:**  
The specifications for the gap between labels are made when the die is ordered. No adjustments to the die can be made after a die is manufactured.

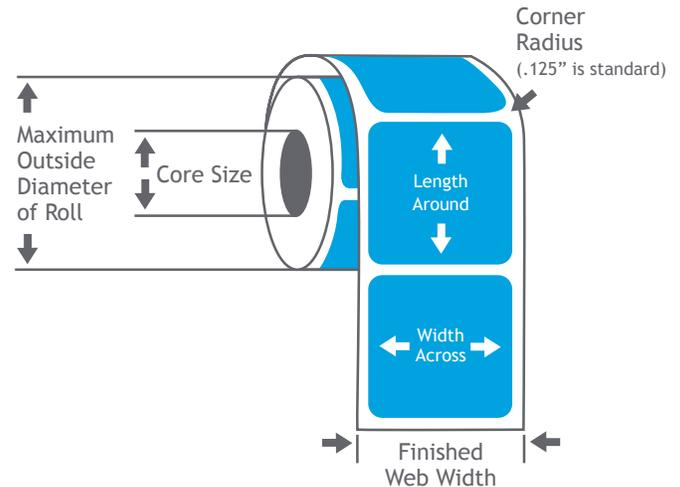
# How Will the Label be Applied?

## Machine Applied, Hand Applied, Or Customer Imprinted?

Determine whether the label is being machine applied, hand applied, or customer imprinted.

### Machine Applied Or Imprinted

- Determine the width and length of the label on the roll.
- Are labels wound outside or inside?
- What is the core size? (3” is our standard)
- What is the maximum size of diameter of a roll?
- Are missing labels permitted?



## Imprint Method

### Thermal Transfer (Continuous roll or fan-folded):

- Most commonly used variable data printing process and makes use of elements which are heated and cooled selectively. This is used for variable information printing of batch codes, date codes, sequential numbering text, diagrams and bar codes.

### Direct Thermal (No ribbon with heat sensitive material):

- The main process used for adding additional information, such as product description and bar codes to food product labels.

### Laser (Toner, sheeted, or continuous fan-fold):

- A printing process that uses toner powder, high temperatures and a photo conductive drum to create an image fused onto the facestock.

### Ink Jet (Liquid ink, typically sheeted):

There are two main types of ink jet printing devices: Continuous and drop-on-demand. Ink jet printing can be applied to virtually any surface. It offers a number of benefits for black and white, spot color, or full color digital printing. In order to ensure optimum ink absorption and ink keying properties, an essential requirement for printing bar codes is absolute sharpness of image.

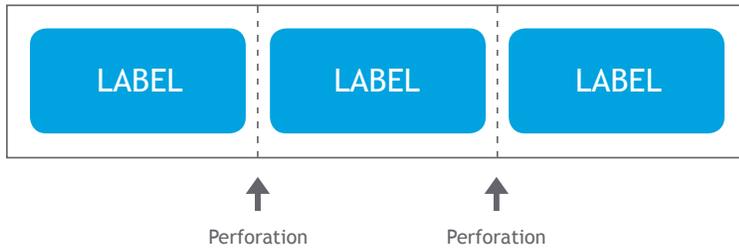
### Other

Ink, Pen, Marker, Ink stamp (Any finish form)

# Slitting & Cutting Options

## 1. Perforations

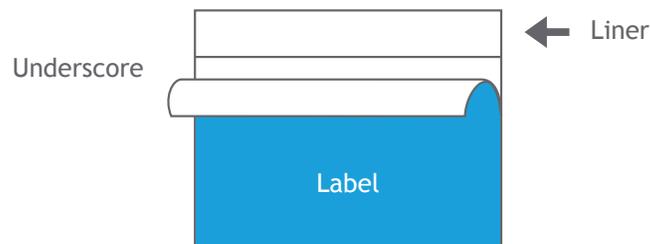
Makes it easier to separate the labels.



Number of Ties	Cut	Hold
6	0.134"	0.032"
8	0.093"	0.032"
10	0.068"	0.032"
12	0.051"	0.032"

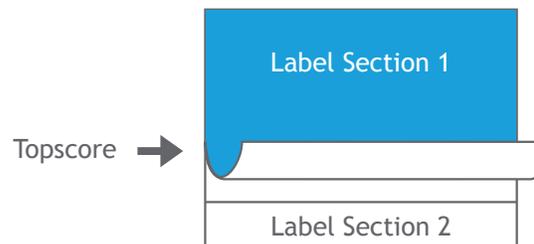
## 2. Underscore

Cut through the liner for easy removal.



## 3. Topscore

Cut through the facestock to the liner. This method could be used to produce a “2 PART” label. The face slit is usually used on sheeted labels to make it easier to peel the facestock away from the liner.



# Finishing Format Options

There are generally 2 types of finishing styles: Die-cut or Butt cut.

## Die-Cut Labels

Labels that have a gap or space (normally 1/16 or 1/8”). There are many die shapes available including square corner, round corner, circle, rectangle, and other special shapes.



## Butt Cut Labels

Labels separated by a single cross-directional cut to the liner. No matrix area exists between labels. Butt cut labels are not suitable for automatic dispensing.

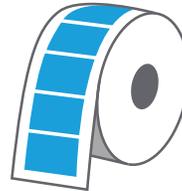


# Finishing Format Options (Cont.)

There are generally 3 types of finishing formats: Roll form, Sheeted or Fan-Folded.

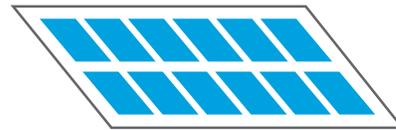
## 1. Roll Form

Labels finished spooled or rolled on a core.



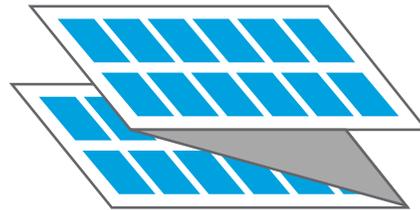
## 2. Sheeted

These are individual single sheet labels usually containing a back or top score.



## 3. Fan-Folded

Die-cut labels with a perforation across the liner are folded back and forth along the perforations creating a stack of labels.

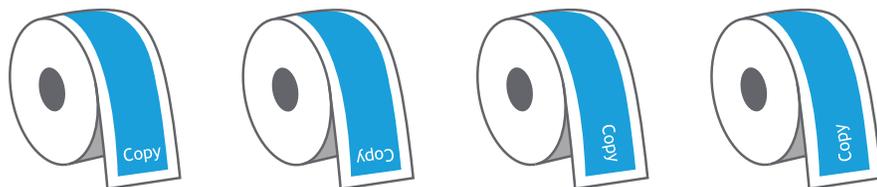


## Rewind Position

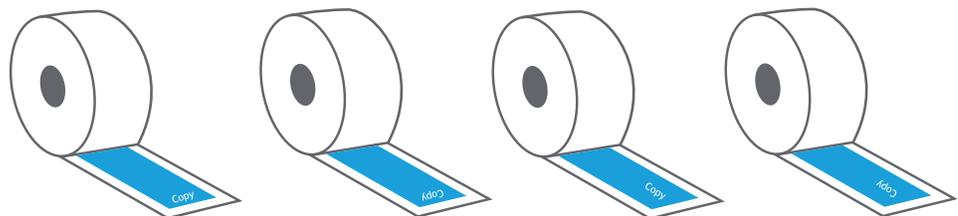
After completion of printing and die-cutting, the converted label roll is taken from the press to the rewind department to be finished.

### Finishing Roll Form Positions

Wound Outside



Wound Inside



# Barcodes & Variable Printing

We offer a variety of numbering formats to meet all of our customers’ needs, from static barcodes to consecutive numbering. Static bar codes, such as UPC codes, provide fast product identification at the point of sale. Whitlam Group prints bar codes in conformance with any specification.

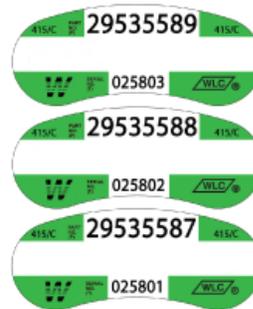


## Barcodes are a Standard

A series of vertical bars of varying widths, in which each of the digits, zero through nine, are represented by a different pattern of bars that can be read by a laser scanner. The bars are commonly found on consumer products, usually for inventory control.

## Consecutive Numbering

Consecutive numbered labels are traditionally used as a method to identify products in a unique way. Adding the barcode to the same label allows the end-user to track products, record the date of manufacture, monitor engineering revisions, and provide other information that can be linked to the sequential number of the product.



## Variable Printing

Variable printing is when each printed piece is different and/or personalized. This type of information is also referred to as Personalization, 1:1 Marketing, Variable Data Printing (VDP), Versioning, Direct Marketing, and much more. The data fields and the images are called variables because they change, or vary, for each copy. Variable printing with different data is often used for warehousing, distribution, shipping, storage, tracking, etc. This variable information may be in the form of variable text, barcodes, sequential numbers, batch codes, date codes, etc.



## QR (Quick Response) Codes

A QR (Quick Response) code is a two dimensional matrix bar code that can store information. By carrying information in both directions, QR codes can consist of up to several hundred times the amount of data in ordinary bar codes



# Barcodes & Variable Printing (Cont.)

## Barcode Symbologies

### 1D

<p>CODE 128</p>  <p>C o d e 1 2 8</p>	<p>GS1-128</p>  <p>(01)01234567890128(15)051231</p>	<p>CODE 39</p>  <p>* C O D E 3 9 *</p>
<p>UPC-A</p>  <p>1 23456 78901 2</p>	<p>UPC-E</p>  <p>0 1 2 3 4 5 6 5</p>	<p>INTERLEAVED 2 OF 5</p>  <p>01 23 45 67 89 10 12 13</p>
<p>CODABAR</p>  <p>A 1 2 3 4 5 6 A</p>	<p>CODE 93</p>  <p>CODE93 12345678</p>	<p>MSI (MODIFIED PLESSEY)</p>  <p>1 2 3 4 5</p>

### 2D

<p>CODE 49</p> 	<p>MAXICODE (POSTAL)</p> 	<p>DATA MATRIX</p> 	<p>PDF417</p> 
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# Label Terminology

## ABC (ANTI-BLOCK COATING)

Applied to the back side of the liner to prevent label transfer to the liner back when rolls of labels are unwound. This is generally used with film facestocks or heavy adhesive coat weights.

## ABRASION RESISTANCE

The degree to which a label surface, including printing and protective coatings, is able to resist rubbing or wearing away by friction.

## ACCELERATED AGING

This is a test procedure for subjecting PS label stock to special environmental conditions in order to predict the course of natural aging but in a far shorter period of time.

## ACRYLIC ADHESIVE

PS adhesive base on acrylic polymers. This can be coated as a solvent or emulsion system. This type of adhesive is noted for excellent stability in outdoor exposure.

## ADHESION

A measurement of the force required to remove a label from a substrate.

## ADHESIVE

Pressure-sensitive or heat-activated coating used to bond the film to the application surface.

## ADHESIVE FAILURE

A partial or total lifting of the label from the substrate.

## ADHESIVE RESIDUE

The adhesive remaining behind on a substrate when a PS label is removed.

## ADHESIVE TRANSFER

The transfer of adhesive from its normal position to the surface from which it was removed. Transfer tape demonstrates this phenomenon because of the differential release on the release liner.

## ADHESIVE TYPES

- Cold/Freezer Temperature  
Enables a pressure-sensitive label to adhere when applied to refrigerated or frozen substrates.

- Permanent  
High adhesion: usually cannot be removed without damaging or destroying the label.
- Removable  
Low adhesion; usually can be removed from the substrate without pieces remaining on the surface. May cause damage to the surface of some materials. After a period of time or exposure to weather, the removable label will become permanent.
- Textile  
An adhesive that removes cleanly from fabric. If left on the fabric for extreme periods of time, staining may occur. Should not be used on velvet, furs, suede, leather or plastic.
- Ultra Removable (Repositionable)  
Adhesive that allows a label to be reapplied in another area up to a certain period of time after application.

## APPLICATION TEMPERATURE

Temperature of a substrate or label material at the time the label will be applied. Testing is recommended when approaching minimum application temperature.

## BARCODE

A pattern of vertical bar and spaces which represent characters of data that is readable with optical scanning devices.

## BARCODE VERIFICATION

Tests the quality and readability of printed barcodes.

## BASIS WEIGHT

The weight of a ream of paper. Traditional version is given in pounds per ream, while the modern version is given in grams per square meter.

## BIAXIALLY ORIENTED POLYPROPYLENE (BOPP)

A film which is extended and stretched in both the machine and cross direction. This stretching improves physical properties over non-oriented polypropylene.

## BLEED

When the printed image extends beyond the trim edge of the label.

## BOND STRENGTH

The amount of force required to separate the joined surfaces.

# Label Terminology (Cont.)

## BUTT CUT LABELS

Labels separated by a single cross-direction cut to the liner. No matrix area exists between labels. Butt cut labels are not suitable for automatic dispensing.

## CARRIER

Refers to the backing material the pressure-sensitive labels are protected by. Also known as the release liner.

## CAST COATED

Coated paper dried under pressure against a polished cylinder that produces a high-gloss finish to the paper.

## CHEMICAL RESISTANCE

The resistance of a material to the deteriorating effects of exposure to various chemicals under specified conditions.

## COATED PAPER

General term applying to all papers which have been surface coated with pigments.

## COATER

A machine used to apply adhesive to backing and/or carriers to produce a pressure-sensitive tape which is composed of an unwind stand, coating devices, rollers, ovens and a wind-up stand.

## COATING

A material, usually liquid, used to form a film that covers a surface. Its function is to decorate and/or protect the surface from destructive agents or the environment.

## COHESIVE STRENGTH

The internal strength of an adhesive and its ability to resist splitting caused by external forces. It is measured by its resistance to forces parallel to the surface. Good cohesion is necessary for clean removal.

## COLD TEMPERATURE APPLICATION

Typically when an adhesive will enable a PS label to adhere when applied to refrigerated or frozen substrates, generally +35 degrees F or colder.

## CONFORMABILITY

The ability of a PS material to yield or conform to the contours of a curved or rough surface.

## CONTINUOUS LABEL

Fan-folded labels manufactured from a continuous web of label stock which is not cut into units prior to execution. Continuous labels are mostly used for data processing applications.

## COUPON BASE

A 2 layered film product with adhesive and protective liner. When used in combination with another pressure-sensitive coated facestock, it affords the label converter the capability of manufacturing a redemption coupon that has a lift tab and is printed on both sides. A clear film remains on the labeled item after the coupon has been removed.

## CROSS DIRECTION (CD)

In paper, the direction across the grain. Paper is weaker and more sensitive to change in relative humidity in the cross direction than in the grain direction.

## CSA (CANADIAN STANDARD ASSOCIATION)

A widely respected authority on safety standards, performance standards, and certification.

## DE-LAMINATION

The separation of a material into layers, in a direction approximately parallel to the surface. For instance, if a facestock separated from the liner during processing.

## DESTRUCTIBLE LABEL

A pressure-sensitive construction made with low-strength facestock so that attempted removal will usually result in destruction of the label.

## DIE

Any of a variety of tools or devices used for cutting material into a desired shape.

## DIE CUT LABEL

Pressure-sensitive labels mounted on a release liner from which the matrix has been removed.

## DIE CUTTING

The process of using dies or sharp steel rules to cut labels into various shapes.

# Label Terminology (Cont.)

## DIE LINES

A hand drawn or computer-generated layout of the die cut shape(s).

## DIE LOAD MONITORS

Gauges that indicate the amount of pressure exerted on rotary dies.

## DIRECT THERMAL

A specialized printing technology that forms images by using rapidly heated pins which selectively activate a heat-sensitive coating applied to the facestock.

## DOCTOR BLADE

An adjustable knife-like bar which controls the amount of adhesive on the glue wheel.

## DWELL

The time during which a PS material remains on a surface before test is performed.

## EDGE CURL

The peeling back or lifting of the outer edge of a tape which has been applied in a curve.

## EDGE LIFT

The tendency of the edge of a label to rise off 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.

## EDM (ELECTRONIC DISCHARGE MEDIUM)

An electronic discharge method of manufacturing rotary dies.

## EDP (ELECTRONIC DATA PROCESSING)

Data processing by electronic equipment. Pressure-sensitive labels produced for imprinting on this equipment incorporate line hole punching and perforations.

## ELONGATION

The increase in length of a material produced by extending it to the point of rupture.

## EMBOSSING

Impressing an image in relief to achieve a raised surface by overprinting, or on blank paper (called blind embossing).

## EMULSION ADHESIVE

An adhesive in which a polymer resin is dispersed in water. These adhesives are more environmentally friendly than solvent based adhesives.

## EXPOSURE TEMPERATURE

The temperature that a labeled product is exposed to.

## EXTRUDE

To expel or force through a measured orifice to apply a molten thermoplastic adhesive onto a web.

## FACE SLIT

A slit in the face material of a pressure-sensitive product to facilitate removal OF the liner/carrier.

## FACESTOCK

Film or other specialty paper, fabric, or membrane to which the topcoat and adhesive are anchored. Carries graphics to the application surface, functions as a protective laminate, provides a barrier to moisture or vapor, and also functions as a spacer material in a layered construction.

## FAN FOLD

Sometimes referred to as “zigzag fold.” The put-up of pressure-sensitive labels on a continuous backing in such a way as to form a flat pack.

## FDA (FOOD AND DRUG ADMINISTRATION)

Regulations for PS applications apply to the following: (1) Direct food contact - such as labeling of fruit and vegetable with an edible skin; (2) Indirect food contact - where incident between an adhesive and food may be possible. Facestock: (1) Contact between paper and dry foods; (2) Contact between paper and aqueous and/or fatty foods.

## FILM

Acetate, polyester, polyethylene vinyl and other polymeric. Face material manufacturing from synthetic

# Label Terminology (Cont.)

high molecular weight polymers.

## FINISH

The surface property of a paper or film determined by its texture and gloss. A gloss finish, for example, can be shiny and highly reflective, while a matte finish is generally dull and reflects little light.

## FLAME RESISTANT

The ability of a tape to withstand exposure to a flame. Flame resistant (fire-retardant and self-extinguishing) materials will burn when exposed to flame, but will not continue to burn after the flame is removed. Burning rate, smoke density, toxicity of fumes, and melt drippings are important factors in assessing flame resistance.

## FLAMMABILITY

Measures the ability of the label to support combustion or burn at a specified rate.

## FLEXOGRAPHIC PRINTING

A method of rotary printing which employs flexible plates, rotary die cutting, rapid-drying inks, in-line lamination, and other converting operations.

## FLUID IMMERSION

Tests the ability of the label to resist the effects of a wide variety of chemicals.

## FOGGING

Tests the ability of the label to maintain a specified gloss level under the influence of fog and moisture.

## FOUR-COLOR PROCESS (CMYK)

The process of reproducing full-color printed images. The image must be converted to a set of halftone screened negatives which are a series of dots of various sizes. A halftone negative is made for each of the separate color components of the image (cyan, magenta, yellow, and black). These color separations are made into printing plates, one for each color, and when printed, the overlapping dots of the color components reproduce a full-color image.

## GRAVURE PRINTING

A printing process that employs minute engraved wells. Deeply etched wells carry more ink than a raised surface and print darker values. A doctor blade wipes excess ink from the cylindrical printing surface.

## HEAT ACTIVATED

To soften a dried thermo-plastic adhesive film to a sticky stage by applying heat. After bringing the adhesive to its melting point, the process of bonding can then take place.

## HEAT AGING

A controlled environment is used to provide an indication of any deterioration of an end use or finished product.

## HEAT RESISTANCE

The property of a material which inhibits the occurrence of physical or chemical changes caused by exposure to high temperatures.

## HEAT TRANSFER DECORATION

Used for the decoration of containers and bottles to provide colorful, crisp, high impact graphics. The process uses reverse-printed colors from a web to decorate glass, metal, and plastic containers with a so called "no-label" look. End user sectors for heat transfer decoration include personal care, household products, food & beverage products, and industrial sectors.

## HIGH TEMPERATURE APPLICATION

Typically this is when an adhesive will enable a PS label to withstand sustained elevated temperatures (+200 degrees F or higher).

## HOT MELT

A pressure-sensitive adhesive applied to the liner or backing in a hot molten form which cools to form a conventional pressure-sensitive adhesive.

## HOT STAMPING

A decorating process in which the desired image is transferred to a substrate by a heated, positive copy die. Images are normally limited to one color positive copy line.

## IMPREGNATED PAPER

This is a general term for soft porous papers which are permeated, instead of simply coated, with solutions or compounds of various types.

## IMPRESSION CYLINDER

In printing, the cylinder on a printing press against which

# Label Terminology (Cont.)

paper picks up the impression from the inked plate in direct printing, or the blanket in offset printing.

## INITIAL TACK

Adhesives usually have two adhesive stages: (1) Initial tack - when adhesive is sticky enough to hold parts together; (2) Set - when the adhesives has firmly bonded to the label.

## INKJET PRINTING

A method of printing that projects liquid ink a drop at a time against a substrate.

## LABEL

The functional portion of a pressure-sensitive construction comprising the face sheet and adhesive, die cut into various shapes.

## LAMINATE

A protective film that is fused to the labels. Lamination can provide a high gloss finish that facilitates resistance to abrasions and chemicals.

## LASER PRINTING

A non-impact electrophotographic process utilizing a laser beam to scan the surface of the drum which creates a latent image that attracts toner. The toner is then transfer fused into the print surface.

## LATEX PAPER

Impregnated Paper, Saturated Paper. Paper manufactured by two major processes: (1) the latex is incorporated with the fibers in the beater to form each sheet; (2) a pre-formed web of absorbent fiber is saturated properly with latex. The papers are characterized by strength, folding endurance, water resistance, flexibility, durability and resistance to abrasion.

## LAY FLAT

Typically refers to a liner or the entire construction of a label material that is good for sheeted applications, or has good non-curling characteristics.

## LEXAN™

A polycarbonate film material that comes in velvet embossed and a gloss finish.

## LINER

Supports the product through manufacturing and life of use. Protects adhesive until it is applied to the end use surface.

Label Terminology (Cont.)

## MATTE FINISH

A dull finish or deglossed surface.

## METALIZED FILM

A plastic or resinous film that has been coated on one side with a very thin layer of metal. This is usually a vacuum metalized processed film.

## METALLIC FOILING / DECORATIVE LABELING

A flexible and thin metal layer used as a label's face material. Can use metallic paper or films, inks, or hot/cold foiling on your label.

## MILS

Used in describing the thickness of films, adhesives, liners, or the entire material construction. The term means thousandths of an inch (2 mils = .002").

## MINIMUM APPLICATION TEMPERATURE

The lowest temperature at which an adhesive will function.

## MSI

Abbreviation for one thousand square inches (1,000 S.I.). This is a unit of measurement that label material is purchased and sold in.

## MYLAR™

A polyester film material.

## OFFSET PRINTING

An indirect printing process where an impression of letters and/or a design on a flat plate is printed on a rubber blanketed cylinder, then pressed against paper to transfer the ink.

## OOZING

A "squeezing out" of the adhesive from under the backing.

## OPACITY

Property of a paper or film which prevents "show through" of dark printing on or in contact with the backside of the sheet. This is opposite of transparency.

## OPAQUE INK

An ink that conceals all color beneath it.

# Label Terminology (Cont.)

## OVERLAMINATING

An application of clear film to a graphic for the purpose of protection, or to enhance the graphic quality.

## PEEL ADHESION

The force required to move a pressure-sensitive label from a standard test panel at a specified angle and speed after the label has been applied to the test panel under specified conditions.

## PEEL STRENGTH TESTING

Tests the amount of force required to remove a label from a wide variety of surfaces.

## PERFORATION

A series of small cuts made in labels and/or their release liner to facilitate tearing along a predetermined line.

## PIGMENT

In printing inks, the fine solid particles used to give color, body or opacity.

## PIN FEED

Evenly spaced holes that are punched into the left and right margins of a continuous form. Used at the collator to guide the paper through and align each part.

## PLASTIC

One of many high-polymeric substances, including both natural and synthetic products, but excluding the rubbers. Plastic is capable of flowing and pressure or tensile stress, if necessary, into the desired final shape.

## PLASTICIZER MIGRATION

Loss of plasticizer from an elastomeric compound, such as vinyl, that is absorbed into the adhesive. The result is a softening of the adhesive to the point of adhesion failure. Plasticizer can also migrate to the surface of a material and adversely affect top coats.

## PLASTICIZER SOFTENER

A substance added to materials to impart flexibility, workability and elongation.

## PLATE CYLINDER

The metal cylinder of a press on which the plate is mounted.

## POLYESTER

A strong film having good resistance to moisture, solvents, oils and many other chemicals. It is usually transparent.

## POLYETHYLENE

An extruded, tough, and stretchy film having limited temperature resistance but good moisture barrier properties.

## POLYPROPYLENE

A polyolefin plastic similar in properties to polyethylene but with higher temperature capability and greater strength.

## POLYSTYRENE

A water-white or clear thermoplastic produced by the polymerization of styrene. The electrical insulation properties of polystyrene are outstandingly good and the material is relatively unaffected by moisture. This film has limited temperature resistance and tears easily.

## POLYVINYL CHLORIDE

A versatile resin with good resistance to water, fire, and some acids. This can be made into a film that comes in clear and opaque white. It can be rigid, hard, and flexible.

## PRE-MASK

Pressure-sensitive tape used to transfer a cut graphic from its liner to the substrate.

## PRESSURE-SENSITIVE (PS)

A term used to designate a distinct category of adhesive which, in dry (solvent free) form, is aggressive and permanent or removable at room temperature. Adheres to a variety of surfaces without the need of more than finger or hand pressure. Adhesive requires no activation by water, solvent or heat.

## PRIME LABEL

Label that acts as the main identification of a product. Often designed to attract attention, contains information to appeal to a buyer, and is usually applied at the time of its manufacture.

# Label Terminology (Cont.)

## REGISTER

The exact corresponding placement of successively printed and/or successively die-cut pressure-sensitive labels.

## RELEASE

The force required to remove the release liner from the facestock at a specified speed and angle.

## RELEASE LINER

The portion of the label that receives the release coating. Prior to application, it protects the adhesive, provides support for the facestock during the die-cutting operation, and allows the label to be transported to a label applicator or through a computer printer.

## RESIDUE

Adhesive left on a substrate when a label is removed.

## REWINDER

A machine that takes rolls from the winder and slits or rewinds them into smaller rolls.

## ROLL LABELS

Pressure-sensitive labels that are produced in continuous roll form.

## RUBBER-BASED ADHESIVE

A pressure-sensitive adhesive based on natural or synthetic rubbers.

## SALT SPRAY TESTING

Tests the ability of the label to resist the influences of salt and water, as would occur on the exterior of an automobile.

## SCORE

To make an impression or a partial cut in a material for the purpose of bending, creasing, folding or tearing.

## SCREEN PRINTING

Method of printing in which the ink is forced through

a design on a tout screen and onto the object to be printed. This process results in a heavy ink deposit that provides excellent outdoor durability.

## SELF-WOUND OVER LAMINATION

This is typically a clear film with adhesive on one side and no liner. This is a lower cost alternative to liner over laminations. Sometime there is a release coating on the top side of the film to allow for smooth and easy unwinding.

## SERVICE TEMPERATURE

The temperature range that a PS label will withstand after a 24 hour residence time on the substrate. The range is expressed in degrees Fahrenheit.

## SHEAR ADHESION

The time required, under specified test condition, to slide a standard area of pressure-sensitive label from a standard flat surface in a direction parallel to the surface.

## SHEAR STRENGTH

Internal or cohesive strength of the adhesive.

## SHEAR TEST

A method of separating two adhesive bonded materials by forcing (either by compression or tension) the interfaces to slide over each other. The force exerted is distributed over the entire bonded area at the same time. Strengths are recorded in pounds per square inch.

## SHEETING

Process whereby rolls of pressure-sensitive base stock are converted into sheets of finished labels by cutting them to the desired length in the sheeting stations on a rotary press.

## SHELF LIFE (STORAGE LIFE)

The period of time during which a product can be stored under specified conditions and still remain suitable for use.

## SILICONE

A unique polymer system that can be a very effective release coating, or pressure-sensitive adhesive, capable of functioning effectively at extreme temperatures.

# Label Terminology (Cont.)

## SLITTER

A sharp disk that cuts paper into pre-determined widths.

## SPOT COLOR

Refers to a method of specifying and printing colors in which each color is printed with its own ink. In contrast to process color printing that uses four inks (cyan, magenta, yellow, and black) to produce all other colors.

## STATIC CLING

An induced property of a film which enables it to grab onto a smooth, clean surface without using a pressure-sensitive adhesive. Static Cling is a phrase applied to grabbing by electrical static.

## SUBSTRATE

The surface to which the finished label is applied.

## SUBSURFACE PRINTING

Printing on the underside of a clear film then laminate a layer of transfer adhesive to the printed side of film. This is a very durable construction.

## TACK

Quick adhesion. The property of a pressure-sensitive label that causes it to adhere to a surface instantly with a minimum of pressure and contact time as measured by TLM Tester or equivalent equipment.

## TAG

A label attached to a product without the use of an adhesive.

## TAMPER-EVIDENT LABEL

A pressure-sensitive construction made of materials that partially destruct upon removal, indicating that a package, label, or container has been tampered with.

## TAPE TEST

Tests the ink adhesion to any given label material.

## TEAR STRENGTH TEST

Tests the strength of the label material and its ability to resist tearing.

## TENSILE STRENGTH TEST

Tests the strength of the label material under the influence of bending and stretching.

## THERMAL CYCLE (OVEN, FREEZER, OR HUMIDITY)

Tests the ability of the label to withstand various environmental conditions in a cyclical format.

## THERMAL TRANSFER RIBBON TESTING

Tests the adhesion and quality of thermal transfer ribbon to any given label material.

- Wax  
Most popular ribbon with some smudge resistance; suitable for matte and semi-gloss paper labels.
- Wax / Resin  
Smudge-resistant; suitable for semi-gloss paper and some synthetic labels.
- Resin  
Scratch and chemical-resistant; suitable for coated synthetic labels.

## TOOLING

Rotary dies used to cut out shapes of label.

## TOPCOAT

A physical surface coating applied to promote or increase ink adhesion with conventional and digital print technologies, or to modify gloss.

## TYVEK™

A spun bound polyolefin material.

## UL (UNDERWRITERS LABORATORIES INC)

A global independent product-safety testing and certification organization.

## UV RESISTANCE

The ability of any material or ink to withstand extended exposure to sunlight or ultraviolet light without degradation, discoloring, fading, or discoloration.

## VARNISH

A thin, liquid protective coating (either matte or glossy) that is applied to the product. It adds protection and enhances the appearance of the product. It can be applied as an all-over coating or it can be applied as a spot coating.

# Label Terminology (Cont.)

## VINYL

A film that is highly durable and resistant to chemicals and moisture. It is high in conformability and is excellent for outdoor use.

## WEATHERABILITY

The ability of a label to withstand the effects of outdoor weathering, sunlight, heat, cold, humidity, rain, snow, and time.

## WIND DIRECTION

Position of the printing as it comes off the finished roll.

## XENON

Tests the ability of the label to endure ultraviolet exposure without fading.