The Basic Fundamentals of Labeling
Whitlam Label’s Resource Guide
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Basic Fundamentals of Labeling Checklist

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 position?
- What’s the quantity per roll or stack?
A typical label consists of a topcoat, facestock, adhesive and a liner.

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

**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.

**Graphic Layered Ink**: Ink is laid down between the topcoat and the facestock.

**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.
1. **Topcoats (Protective Coatings)**

These natural and synthetic resins are used to protect or embellish your printed piece. 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** — smooth coating of varnish: a coating of varnish, applied to something to give it a protective gloss.

**Lamination** — a protective film that is fused to the labels. Lamination can provide a high gloss finish will peak resistance to handling abrasions and chemicals.

2. **Facestock/ Materials**

We are capable of printing on a variety of materials and films. Let us help your find the right label material to meet your products requirements, whether it’s outdoor exposure, high temperature or even chemical resistance. Let our experts help choose what’s right for your application.

The following is a list of some of the most popular label stocks. If you don’t see what your labeling needs require, give us a call and we can find the right material for you.

**Paper** — A natural product made from wood or pulp. All papers used in the printing industry are measured by basis weight and grade.

**Film** — Films are a synthetic or a plastic type of material

**Foil** — A thin layer of aluminum or alloys.

**Tags** — Typically a paper that is a thicker stock

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

**Static Cling** — Vinyl facestock, no pressure, sensitive adhesive, but with liner.

**Magnets** — Are paper or film top layer, with a flexible magnet as the bottom layer.

**Holographic** — Micro embossed metalized film.

**FDA Approved** — Paper or film, direct or indirect food contact.
3. Inks

We have dedicated technology experts that will find a solution for your specific application. 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.

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

Water-Based Ink
- Low odor
- More cost effective
- More environmentally friendly
- Excellent choice for FDA approved and CMYK application
- Can be used for scratch ‘n’ sniff or scented varnish
- Metallic, fluorescent, mainly use on paper material

Solvent
- Excellent choice for durable application on films
- 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
- UV
- Water-based
4. Adhesives

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

**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.

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

- Color
- Clarity
- Shelf life
- Residual monomers
- Residual solvents
- Plasticity
- Shrink resistance
- Water resistance
- Humidity resistance
- Solvent resistance
- Temperature resistance
- Removability
- Repositionability
- Reworkability

5. Liner

Liner supports the product through manufacturing and life of use, well protecting adhesive until it is applied to the end use surface.

**Liner Functionality**
- The base for Adhesive Coating
- Transfers Adhesive to facestock
- Protects Adhesive
- Transports Substrate Through Converting
- Acts as a Diecutting 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
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.

An example of a typical dies 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.

**If machine applied or imprinted:**
- Determine the width and length of the label on the roll?
- Are labels are wound outside or inside?
- What is the core size?
- 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 that fused on 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. Film labels must be provided with a special inkjet coating in order to ensure optimum ink absorption and ink keying properties, as well as absolute sharpness of image, this being an essential requirement for the printing of bar codes.

**Other:** Ink pen, Marker, ink stamp (Any finish form)
1. **Perforations**: Makes it easier to separate the labels.

![Perforation Diagram]

2. **Underscore**: Cut through the liner for easy removal.

![Underscore Diagram]

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.

![Topscore Diagram]
Finishing Format Styles

There are generally two types of finishing styles: Die-cut or Butt Cut

**Die-Cut Labels**
Labels which have a gap or space (normally 1/16” or 1/8”). There are many die shapes available in square corner, round corner, circle, rectangle, and other special shapes.

**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.
There are generally 3 types of finishing formats: roll form, sheeted or fan-folded.

1. **Rolls**: 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.
Variable Imaging

Our streamlined and cost effective workflow allows us to print variable data, personalized graphics and even complete image changes.

**Variable Imaging**
- Personalized graphics
- Complete image change

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

Consecutive numbered labels are traditionally used as a method to uniquely identify products. Adding the barcode to the same label allows the end-used 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.

As a member of the Automotive Industry Action Group (AIAG), Whitlam specializes in AIAG Labels, as well as other bar coded or numbered applications such as date codes or harsh environment requirements paint bake cycles.

Barcodes Security Capabilities

- Anti-theft
- Counterfeit deterrence
- Evidence tracking
- Part authenticity
- Parts marking Brand protection
- Original product verification
- Prevent document duplication
- Tamper
Sample of Barcode Types

CODE 128
EAN-128, UCC-128
CODE 39

UPC-A
UPC-E
INTERLEAVED 2 OF 5

CODABAR
CODE 93
MSI PLESSEY

RSS Barcode

2D BARCODES

CODE 49
MAXICODE (POSTAL)
DATA MATRIX
PDF417
We are capable of printing on a variety of materials and films. The following is a list of some of the most popular label stocks. If you don’t see what your labeling needs require, give us a call and we can find the right material for you.

**Metalized Polyester**
This stock is available in chrome, mirror-like finish or a brushed finish that resembles stainless steel. This is an excellent material for outdoor use due to its dimensional stability and the ability to withstand harsh weather conditions and exposure to chemicals. It comes with a permanent pressure sensitive adhesive in standard and heavy coat weight for your more difficult surfaces. This also is available with a high temperature resistant removable adhesive for paint masking application.

**Clear Polyester**
This material is available in gloss, and matte finish. This is an excellent material for outdoor use due to its dimensional stability and the ability to withstand harsh weather conditions and exposure to chemicals. It comes with a permanent pressure sensitive adhesive in standard and heavy coat weight for your more difficult surfaces. This also is available with a high temperature resistant removable adhesive for paint masking application.

**White Polyester**
This material is available in gloss, and matte finish. This is an excellent material for outdoor use due to its dimensional stability and the ability to withstand harsh weather conditions and exposure to chemicals. This material can be used on thermal transfer & laser printers. It comes with a permanent pressure sensitive adhesive in standard and heavy coat weight for your more difficult surfaces. This also is available with a high temperature resistant removable adhesive for paint masking application.

**Clear Polypropylene**
This material is available in gloss, and matte finish. This is an excellent material for decorative packaging applications due to its flexibility and high degree of clarity. It comes with both permanent and removable adhesives depending on the application.

**White Polypropylene**
This material is available in gloss, and matte finish, and can be printed on via thermal transfer printers. This is an excellent material for decorative packaging applications due to its flexibility, and is more cost effective alternative to polyester. It comes with both permanent and removable adhesives depending on the application.

**Clear Vinyl**
A frosted-clear material that is useful when you want to create window decals. By printing it in a mirror image you can create a decal that can be placed inside a window so that it can be viewed from the outside.

**White Vinyl**
This is the standard bumper sticker material, and is useful when you need a low-cost label that can be used outdoors. It comes standard with an permanent, and removable adhesives.
Packaging Materials & Descriptions

**Light Weight Paper, Film, Foil, Sealing Layer**
This material uses a 25# light weight white semi gloss paper, then a very thin film layer, followed by a micron thin layer of foil, that acts as a barrier to light & air. A layer of LDPE low density polyethylene film is then used as a sealing film. This is a recommended construction for small packages of dry powders and mixes.

**Heavy Weight Paper, Film, Foil, Sealing Layer**
This material uses a 35# light weight white semi gloss paper, then a very thin film layer, followed by a layer of foil, that acts as a barrier to light & air. A layer of LDPE low density polyethylene film is then used as a sealing film. This is a recommended construction for larger packages, such as noodles or rice.

**Coffee Wrap**
This construction is designed for packaging single use serving sizes of coffee. The top layer is a 48 gauge, silver metalized polyester film laminated to a 1.75 mil thick EVA co-ex film. Together these materials create an aroma barrier as well as an excellent sealing layer of protection. This product has a high gloss shiny silver surface.

**Light Weight White Poly Packaging Film**
This material utilizes a light weight white poly film laminated to a thin layer of foil, that acts as a barrier. Then there is a layer of LDPE low density polyethylene as a sealing film. This is a good choice for smaller size packages of dry powders, food mixes, and some liquids. It can also be used in the cosmetics industry.

**Heavy Weight White Poly Packaging Film**
This material utilizes a heavier gauge white poly film laminated to a thin layer of foil, that acts as a barrier. A thicker layer of low density polyethylene (LDPE) is then added as a sealing film. This is a recommended choice for medium to larger size packages of dry powders, food mixes, along with liquids such as hair care products, and lotions. It also has uses in the cosmetics industry.

**Medium to Heavy Weight Silver Packaging Film**
This material utilizes a medium gauge metalized glossy silver polyester film laminated to a thin layer of foil, that acts as a barrier. A thicker layer of low density polyethylene (LDPE) is then added as a sealing film. This is a recommended choice for medium to larger size packages of dry powders, food mixes, along with liquids such as hair care products, and lotions. It also has uses in the cosmetics industry.

**Ultra Durable White Packaging Film**
This material utilizes an extremely durable 3 mil white tear resistant film with a 1.5 mil sealing layer. This construction is chemical resistant, with excellent seal strength. This is a good choice for household chemicals, poisons, fertilizers, cleaning products. Testing is required due to the nature of product.

**White Poly Tubular Formed Packaging Film**
This material is designed to be easily formed into a tubular shape for powdered drink mix packets. It is constructed of a white polyester film laminated to a foil, that acts as a barrier. A layer of low density polyethylene (LDPE) is then added as a sealing film.

**Shrink Film**
This material is a 2 mil clear Co-Polyster, PETG shrink film that is ideally suited for 360 degree graphics on containers. You can utilize the entire surface of your product for maximum impact with this product.
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 face stocks or heavy adhesive coat weights.

Abrasions 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 adhesives based 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.

Adhesives
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, Permanent: A PS adhesive characterized by having relatively high ultimate adhesion. The label either cannot be removed intact or requires a great deal of force to be removed.

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

Adhesive, Removable
A PS adhesive characterized by low ultimate adhesion. The label can be removed from most substrates without damaging the surface or leaving a residue or stain.

Adhesive Transfer
The transfer of adhesive from its normal position to the surface from which it was unwound. Transfer tapes demonstrate this phenomenon because of the differential release on the release liner.

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.

Adhesive Types
- Permanent
  High adhesion: usually cannot be removed without destroying label.
- Cold/Freezer Temperature
  Enables a pressure-sensitive label to adhere when applied to refrigerated or frozen substrates generally +35°F or colder.
- 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 velvets, furs, suede, leather, or plastic.
- Removable
  Low adhesion. Usually can be removed from the substrate without pieces remaining on the surface. May cause damage the surface of some materials. After a period of time or exposure to weather, the removable label will become permanent.
- Ultra Removable (Repositionable)
  Adhesive that allows a label to be reapplied in another area and is not limited to the number of times it can be repositioned. Repositionable adhesive does not gain permanency over time.

Basis Weight
The weight of a ream of paper. Traditional version is given in pounds per ream. The modern version is given in grams per square meter.

Bar Code
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.

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 labels, it is called bleed.

Bond Strength
The amount of force required to separate the joined surfaces.
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.

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

Carrie/Liner (Backing)
Refers to the backing material the pressure sensitive labels are carried on, also known as liner.

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

Coupon Base
A 2 layered film product with adhesive and protective liner. When used in combination with another pressure-sensitive coated facestock affords the label converter the capability of manufacturing on press 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.

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

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

Coating
A material, usually liquid, used to form a covering film over a surface. Its function is to decorate and or protect the surface from destructive agents or 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 this is when an adhesive that will, enable a PS label to adhere when applied to refrigerated 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 form 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 affords the label converter the capability of manufacturing on press 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 the grain direction.

CSA
Canadian Standard Association.

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

Destructible Label
A pressure-sensitive construction made with a face material having a low strength so that attempted removal of a label made from this stock will usually result in destruction of the label.

Die
Any of a variety of tools or devices used for cutting material to 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 any shape for labels.

Die Lines
A hand drawn or computer generated layout of the die cut shape or shapes.

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

Direct Thermal
A specialized printing technology using rapidly heated pins that selectively activate a heat sensitive coating applied to the facestock thus forming the desired image.
**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 Data Processing E.D.P**
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; either 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 base 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.

**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.

**Face Slut**
A slit in the face material of a pressures sensitive product to facilitate removal for the liner/carrier.

**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 as different from roll form.

**FDA**
Food and Drug Administration. Regulations for PS applications apply to the following area: (1) Direct food contact, such as labeling of fruit and vegetable with an edible skin; (2) Indirect food contact, where incidental between an adhesive and a 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, manufactured from synthetic 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.

**Flammability**
Measures the ability of the label to resist flammability or burn at a specified rate.

**Flame Resistant**
The ability of a tape to withstand exposure to a flame. Flame resistant (fire-retardant 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.

**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.
Label Terminology Cont.

**Four-color process**
The process of reproducing full 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 images (cyan, magenta, and yellow, 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, hence print darker value shallow wells are used to print 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 application of heat. After bringing the adhesive to its melting point, the process of bonding can then take place.

**Heat Aging**
This is a controlled environment to provide an indication of any deterioration of an end use or finished product.

**Heat Resistance**
This is the property of a material which inhibits the occurrence of physical or chemical changes caused by exposure to high temperatures.

**High Temperature Application**
Typically this is when an adhesive that will enable a PS label to withstand sustained elevated temperature (+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 to be or impregnated with solutions or compounds of various types.

**Impression Cylinder**
In printing, the cylinder on a printing press against which 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 at which time it is sticky enough to hold parts together; 2) Set at which point the adhesives has firmly bonded them.

**Ink Jet**
A method of printing using liquid ink projected 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 web material formed by bonding two or more materials together.

**Laser Printing**
A non-impact electrophotographic process utilizing a laser beam to scan the surface of the drum creating a latent image which 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 formation of the sheet; 2) a performed web of absorbent fiber is saturated with properly latex. The papers are characterized by strength folding endurance, resistance to penetration by water, flexibility durability and resistance to abrasion.

**Lay Flat**
Typically refer to a Liner or the entire construction of a label material that is good for sheeted applications, or has good non-curling characteristic.

**Lexan**
This is a registered trademark of the General Electric Company for polycarbonate film material. This 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.

**Matte Finish**
A dull finish. A 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.

**Mils**
Used in describing the thickness of films, adhesive, 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. This is a unit of measurement that label material is purchased and sold in (1,000 S.I.)

Mylar
This is a registered trademark of the DuPont Company for polyester film material.

Offset Printing
A process of indirect printing in which an impression of type or a design on a flat plate is printed on a rubber blanketed cylinder from which it is impressed.

Oozing
A “squeezing out” of the adhesive from under the backing, occurring when the tape is in roll form, the edges of the roll become tacky.

Opacity
That 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.

Overlaminating
This is an application of clear film to a graphic for the purpose of protection or to enhance the graphic quality.

P.C.W
Post Consumer Waste.

Peel Adhesion
Adhesion strength. Peel adhesion is 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
Series of small cuts made in labels and/or their release liner to facilitate tearing along a predetermined line.

Permanent
A PS adhesive characterized by having relatively high ultimate adhesion. The label, either cannot be removed intact or requires a great deal of force to be removed.

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. (picture: pin feed)

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

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 adhesive failure. Plasticizer can also migrate to the surface of a material and adversely affect top coats.

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 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**
(Application tape, transfer tape) Pressure-sensitive tape used to transfer a cut graphic from its liner to the substrate.

**Pressure-Sensitive**
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 and adheres to a variety of surfaces without the need of more than finger or hand pressure. Requires no activation by water, solvent or heat and has sufficient cohesive strength so it can be handled with the fingers.

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

**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 and 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.

**Removable Adhesive**
A pressure-sensitive adhesive characterized by low ultimate adhesion to a wide variety of surfaces that can be removed without damage to either the label or the substrate.

**Residue**
Adhesive left on a substrate when a label is removed.

**Rewinder**
A machine which takes rolls from the winder, slits or rewinds into smaller rolls.

**Roll Labels**
Pressure-sensitive labels that are produced in a continuous roll form.

**Rubber Base 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 translucent 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. Sometimes 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 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.

**Shear Strength**
Internal or cohesive strength of the adhesive.

**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 (normally one year).

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

**Slitter**
A sharp disk which cuts paper into pre-determined widths. Substrate: The surface to which the finished label is applied.
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 which uses four inks (cyan, magenta, yellow, and black) to produce all other colors.

Static Cling
An induced property of a film which enable 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.

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 which 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 which will 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)
Thermal Cycle Tests the ability of the label to stand up to 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.

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
This is a registered trademark of the DuPont Company for a spunbond polyolefin material.

U.L.
Underwriters Laboratories.

U.V. 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.

Vinyl
A film that is highly durable and resistant to chemicals and moisture. It is high in conformability 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.