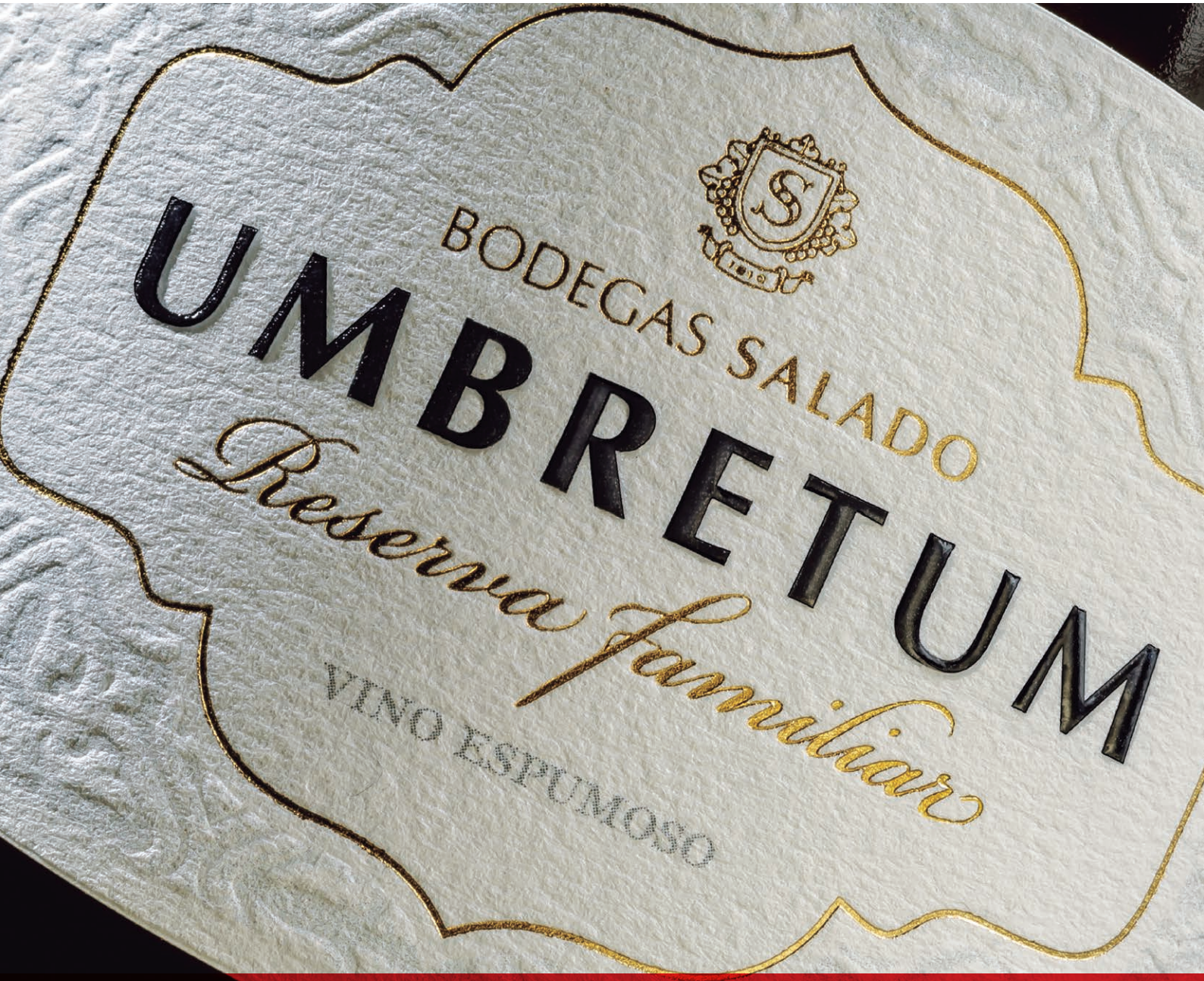


Wine Labelling Handbook

Best practices for the design, printing and application of pressure sensitive wine labels.

AVERY DENNISON
Inspired Brands. Intelligent World.™

label.sapssa.averydennison.com

AVERY DENNISON'S NEW AQUA OPAQUE™ TECHNOLOGY

The uncoated wine paper that stays white in the ice bucket

Avery Dennison's unique new Aqua Opaque™ technology will keep your wine label white, even in wet conditions.

Uncoated labels are often used to create a premium 'look' and to differentiate from glossy, coated papers. However, conventional materials lose opacity and turn grey when wet, resulting in unattractive labels with uneven colouring.

This ground breaking Aqua Opaque™ innovation resists the impact of moisture absorption and greying effect to the label for at least 2 hours, maintaining a superior white opaque appearance.

Wine producers can now safeguard the visual appeal of their label, whilst maintaining a premium brand image in the ice bucket.

IT'S NOT JUST A LABEL: IT'S YOUR BRAND

Packaging differentiation has increasingly become the tool relied upon to catch the consumer's attention where it really counts: at the point of sale. For wine labelling, pressure-sensitive labelstock is uniquely able to deliver the complex, high-quality print and die-cutting the market demands. At the same time, it offers advanced technical characteristics to meet the challenging requirements of application and functional performance on a bottle, under a variety of conditions.

This handbook outlines recommended best practices for the wine labelling industry in areas where there are a number of technical challenges to consider. To deliver a fully successful outcome across the entire value chain, the importance of technical considerations and process optimisation are covered.

These include:

- Label design, printing and finishing techniques
- Label application considerations and recommendations
- Test protocols

Labelling and packaging solutions from Avery Dennison create exciting new possibilities for your brand by enhancing your product's profile and delivering operational efficiencies.

SELECTION OF LABEL STOCK

Design Flexibility

Pressure-sensitive technology provides greater design and production flexibility, with fewer limits on label shape and size. No other decorating technology offers the same combination of brilliant graphics, intricate die-cuts, and virtually invisible edge lines.

There are many ways in which it delivers distinctiveness and true brand differentiation. A variety of papers and films, combined with specially formulated adhesives, accommodate your most innovative wine labelling ideas. Pressure-sensitive substrates include bright, gloss white papers, laid and style papers and film (including clear-on-clear film constructions for the 'no label look'). If these don't satisfy your desire for differentiation, a wide variety of specialities can be sourced around the globe to fulfill every requirement.

Trials should be conducted under production conditions to confirm compatibility of label stocks, in their finished label form, against the conditions of each bottling line. This is particularly important where labels are required to perform in environments where they will experience high humidity and wet conditions.

LABEL SIZE AND SHAPE

It is important to consider the size of the label relative to the size of application pads used. There are label width and height limitations dependent on factors such as the label substrate, the shape and the size of the bottle, and the application system used.

\\ Refer to Label Application. *(page 16)*

Consideration:
The bigger the label, the greater the risk of bubbling.
Small changes in label size can have large effects on label application.

There are industry guidelines that recommend optimum label size and position. Consideration needs to be given to the bottle shape and the applicator.

\\ Refer to Industry References. *(page 23)*

EMBELLISHMENTS

By definition, a pressure sensitive label needs sufficient and uniform pressure on the whole surface of the label to allow it to adhere to the substrate surface.

Heavy embossing and embellishment change the physical characteristics of a paper and will alter the initial tack and ultimate adhesion of the adhesive. As the surface contact of the underside of the label to the bottle will reduce, a permanent adhesive exhibiting higher tack, is therefore recommended.

Special care must be taken with hot/cold foil stamping or embossing, as these processes can affect release liner performance by weakening parts of the web.

PET liner materials offer higher resistance to the use of strong embossing techniques.

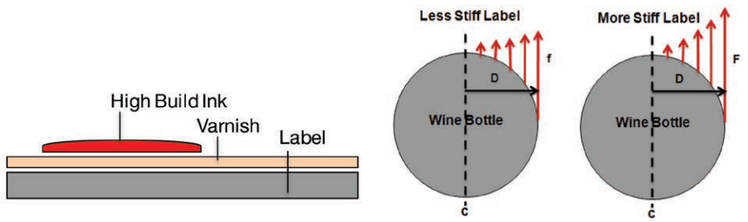
There are several factors that can cause a label to lift. These include: incorrect materials used, environment, label design, inks and varnish and application. The following are some specific factors influencing label lift during the design and applications phases.

Label Design

Ink build / varnish / foil can stiffen facestock - increasing lift force

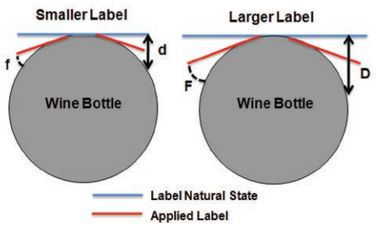
The design of the label is a fundamental step, requiring a balance of aesthetic appeal and functional performance through the value chain.

High build/heavy varnish causes tension on the label and increases stiffness. This can impact adhesion wipe-down pressure. The impact of increased label stiffness will increase overall lift force (resistance to bend). This is expected to increase with distance (D) from the centre point of the label (c), and is **greatest at the label edge.**



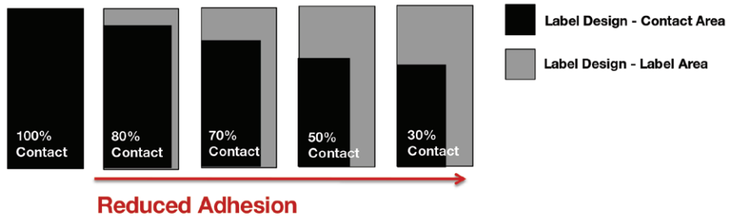
Increasing label size increases lift force

The smaller the label, the shorter the adhered label edge distance will be (D) from its flat natural state. Edge tangential force (F) also increases with greater bend as the label tries to lift at this point (D).

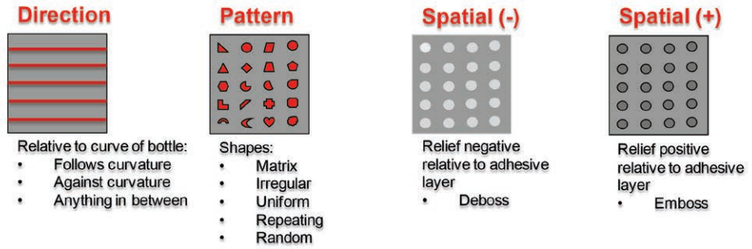


Mechanical emboss reduces adhesion outcomes

Mechanical embossing the label effectively reduces the available adhesion contact area. The greater the emboss, the less working area available for the adhesive to pressure activate and hold down label.



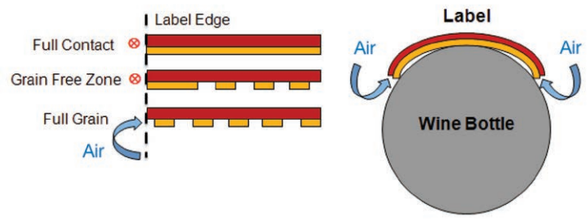
The emboss design will influence the severity of the impact. For example horizontal lines are against the bottle curvature and further stiffens the labelstock. Full adhesive pressure and contact is required to hold the label down. There is no quantitative method for definition of label emboss design severity.



The ability to control and measure process variation on a mechanical emboss presents a technical challenge. Variation in a mechanical emboss depth means a 'light' emboss design can be supplied heavily embossed.

Mechanical emboss exposes adhesive, which can reduce adhesion performance over time

Adhesives can decay if exposed to the air. PSA performance depends on the adhesive sealing on itself and being fully activated on application. A full grain to edge creates opportunity for adhesive decay over time *weakening at the point where lifting force is greatest.*

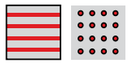


Lift may propagate more significantly if other factors are present (such as reduced contact area, label stiffness, etc.). Significantly, adhesive decay with a full grain may happen over time - and may not reveal itself for months or years.

SUMMARY

Label Design & Label Converting

Assuming application conditions are not contributing factors:

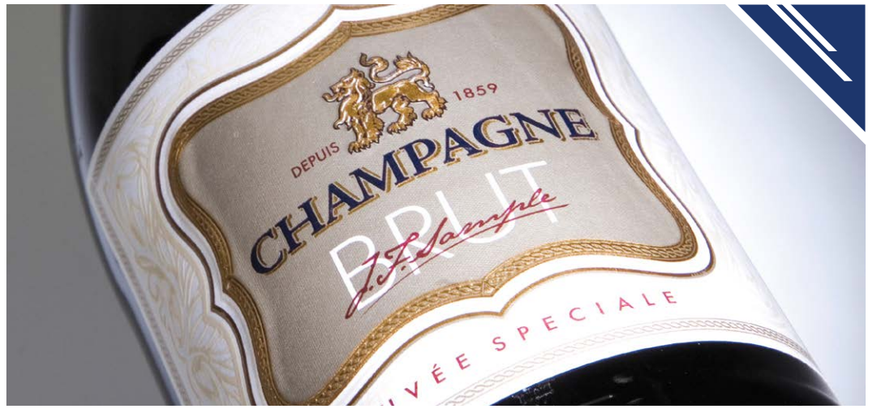
LABEL	DESCRIPTION	FACTOR	AFFECT	LABEL PERFORMANCE
	Full Grain to Edge	*Fixed* Direction, pattern and spatial *Variable* Depth	• Incomplete Activation • Decrease workable Contact Area • Stiffens Facestock	↓↓Adhesive Force resisting Facestock Memory Potential long term adhesive decay from exposure
	Grain free Zone	*Negligible* Direction, pattern, spatial and depth	• Maintains possibility of full edge contact	Offsetting impact by normalizing PSA performance at edge (before application and glass factors)
	Varnish / Inks	*Variable* Type, Coverage, Coating amount	• Stiffens Facestock • Migration Effects • Moisture Ingress	↑ Force returning Facestock Memory
	High Build		• Stiffens / Stresses Facestock	↑ Force returning Facestock Memory
	Emboss Severity and process control	*Variable* Process, Pattern, Application, Substrate	• Reduced adhesion contact area • Stiffens Facestock (emboss direction)	Creasing, bubbling ↑ Force returning Facestock Memory

Recommendations - Embossing

- Label adhesive performance will be reduced if heavy embossing or foiling is applied – prior testing is strongly recommended
- Label must have a minimum 3mm grain free zone measured from label edges
- Embossing levels that result in an adhesive contact area below 50% in combination with processing variation will place risk on application performance.

\\ Use **Adhesive Contact Test** method. **Refer to Glossary of Terms.** *(page 22)*

- Pre-embossed products, such as Estate #4, will provide a textured finish look with consistent adhesive coverage.



VARNISH ON THE LABEL SURFACE

The label surface should be varnished. A varnish over the label surface is required to:

1. Protect the label image during transportation and consumer handling
2. Reduce the absorption of moisture/water from the environment, or when the label is exposed to fridge and ice bucket conditions, especially for paper.

Protection with varnish is strongly recommended for all paper substrates. Varnishes should be selected for their image protection and water repellent properties.

NECK LABELS

Neck labels for wine bottles can be a problem if material, environment, label design, inks, varnishes, application and bottle surface are not ideal. While neck labels may appear to apply successfully on the bottling line, with no sign of label lifting evident, lifting can be discovered at a later stage, such as when a case of wine is opened in a retail store.

Here we discuss the problems experienced with label lifting; the contributory factors; and how best to avoid its occurrence. We also provide recommendations for appropriate choices in Avery Dennison materials.

Neck Label Lifting

Neck labels that have applied well and displayed no sign of lifting at the packaging stage have later shown variable degrees of lifting. This is also referred to as 'winging'.

Primary Cause

Where conditions are not ideal, the 'memory' of the face stock is strong enough to cause a label to lift and return to its original (flat) state. This can be a very slow process and may not be evident until 24 hours after application.

Factors Influencing Neck Label Lifting

There are several factors that can cause labels to lift:

1. Incorrect material used: (face stock and/or adhesive)

A permanent adhesive should be used, and the thinnest possible face stock. Material at, or above, 85gsm should be avoided all together. A good choice would be an Avery Dennison film face stock, because its low-memory properties make it less susceptible to lifting.

2. Environment:

In cold conditions (around 5°C) the adhesive can harden and therefore not form a good bond with the substrate. In high temperatures, above 40°C, the adhesive will become soft and therefore lose its internal cohesive strength. A high degree of moisture and dust in the filling hall will also reduce the adhesive bond area by preventing the adhesive from flowing across the bottle's surface ('wetting out').

In some cases, it may be necessary to use film material to hide the variation in thickness of the folded cap. It is important to select a film stock with low stiffness (PE will perform better than PP at the same thickness). Label dispensing also needs to be taken into consideration when selecting the face stock for neck label applications.

3. Label design:

Heavy embellishment can reduce the adhesive bond area. Similarly, foil stamping can stiffen the label, adding to its memory. A good balance between the surface of the label in contact with the glass and with the cap must be achieved (50% on the glass, 50% on the cap). A large enough overlap of the label surface is also required: anything above2 cm will ensure a good bond.

4. Inks and varnishes:

Experience has shown that pressure-sensitive adhesives generally display reduced adhesion on printed and varnished surfaces.

In many cases, inks and varnishes contain small amounts of silicone to provide good scuff resistance for the label's surface on the bottling line and during transportation. However, silicone is used as a release coating in the pressure-sensitive label application process, so where a label overlap is required, reduced adhesion is to be expected.

An overlap is required on a neck label. A non-varnished reverse glue-flap provides a minimum 1.5 cm unprinted and unvarnished area in the label design. This is critical for optimal adhesion.

5. Application:

Proper wipe-down of the label is critical. Foam or brush wipers are ***not*** recommended.
The preferred option is a rubber squeegee wiper backed with spring steel.

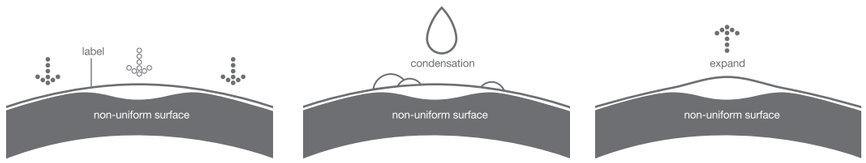
\\ Refer to Label Application. *(page 16)*

Refer to Avery Dennison's Technical Marketing Bulletin for Wine Neck Label recommendations. Please contact your local Avery Dennison representative or go to **label.averydennison.com.au**

BOTTLING LINE ENVIRONMENT

Uncoated Paper Bubbling

Due to the unique characteristics of papers – absorbency, high memory/stiffness – it is critical that full adhesion across the label surface is achieved. Particularly when large wine labels are being applied, areas of the label that have not made sufficient contact with the substrate are more susceptible to bubbling when exposed to moisture.



Moisture is absorbed by the paper. Where full contact is achieved paper doesn't move.

Area where no contact is achieved is able to absorb moisture and swell.

Paper swelling is evident as a bubble in non contact area.

Label Storage Before Application

As bubbling is caused by moisture intake from the environment, storage of the labels in proper conditions can help to reduce the incidence of this effect.

After removing all packaging and film strapping that could prevent consistent moisture absorption by the paper, the label should be stored in a comparatively humid environment for at least 24 hours before application. Storage temperature during this period should be as close as possible to 20°C for optimal adhesive performance. Moisture absorption prior to labelling pre-conditions the paper to the ambient environmental conditions in the labelling hall.

Applicator Set Up

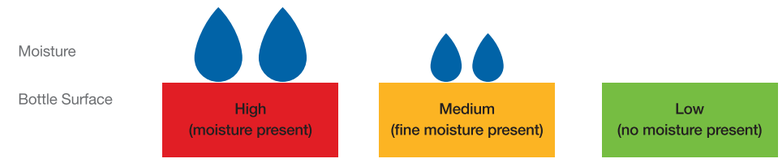
Even and consistent pressure over the entire face of the label is critical to ensure adhesive anchorage to the bottle once the label has been dispensed from the peel plate.

Labelling Wet Bottles Is A Challenge

Water acts as a contaminant, compromising the integrity of the adhesive. When applying pressure-sensitive labels to wet bottles, the following tips may assist in overcoming this issue:

1. Control air temperature, humidity and fill temperature to prevent condensation on filled bottles.
2. Blow water off the bottle surface by installing air knives just before the labelling head. Let gravity work for you: blow the water down the bottle to expose dry glass.
3. Apply the pressure-sensitive label to the dry glass after water/condensation has been blown off.

Bottle Surface Condensation



Considerations:

- Wine type (e.g. sparkling)
- Environment (e.g. relative humidity, wine temperature, bottle temperature, ambient room temperature, prevailing conditions)
- Mitigators (e.g. bottle warmer, air blowers, specialty adhesive)

Label Adhesion

Conditions required during label application are critical. Air and/or bottle temperature should be above 5C. Label application during rain and high humidity create specific application changes. Moisture can form on the bottle surface which may not be noticeable. If the ambient temperature and relative humidity don't allow it to evaporate then it acts as a contaminant. Mitigation of these factors includes bottle warmers, air blowers and/or specialised adhesives such as Z3338.

Why Is Bubbling More Likely to Happen with Uncoated Papers?

The tactile qualities which give uncoated papers their 'old world' charm is a characteristic of the open-weave nature of the paper fibres, which have a tendency to absorb moisture. Bubbling is caused by moisture penetrating the label, which then causes the paper fibres to expand.

Although the bubbling issue is more prevalent with uncoated papers, it can also occur with coated papers.

Heavy Label Embellishment

Heavy embossing and embellishment can change the physical characteristics of a paper. This may alter the initial tack and ultimate adhesion of the adhesive, as the surface contact of the underside of the adhesive-coated label will be reduced. The risk of bubbling is higher than normal around embossed and bottle seam areas. Labels must have a minimum 3mm grain free zone measured from label edges.

Application Conditions that Create Bubbling Issues

Avery Dennison has pioneered the use of an underlaminate for the wine market to counteract the issue of bubbling, which can occur as a result of the factors listed below.

- Insufficient pressure during label application to activate adhesion of the label to the glass surface
- Glass surface considerations including glass variability and surface tension
- Effectiveness of the varnish
- Bubbling is more prevalent with uncoated/textured papers

This is due to the expansion of the paper because of moisture ingress from the ambient bottling environment.

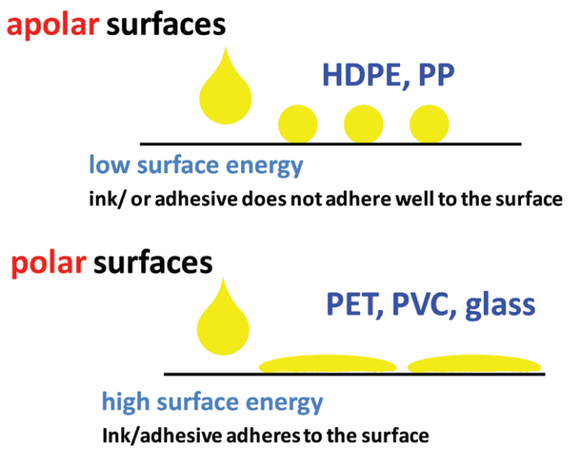
Avery Dennison has devised a 'Test Method' to ensure full contact of the label with the bottle surface and provide evidence of any inherent risk of label 'bubbling', at time of application.

GLASS SURFACE CONSIDERATIONS

From the vine to the table, every stage is important. None more so than the application state. To ensure that pressure-sensitive labels are capable of being applied mechanically on automated bottling lines, this section discusses the factors that are critical to success.

While glass manufacturers try to maintain a smooth bottle surface, some irregularities are unavoidable due to shrinkage and/or softness of the hot glass. The areas that can contribute to difficulty in label application are:

1. **Surface energy:**
Dyne levels vary and impact the degree of difficulty for label adhesion. For adequate adhesion, surface tension must be 38 dynes or greater.

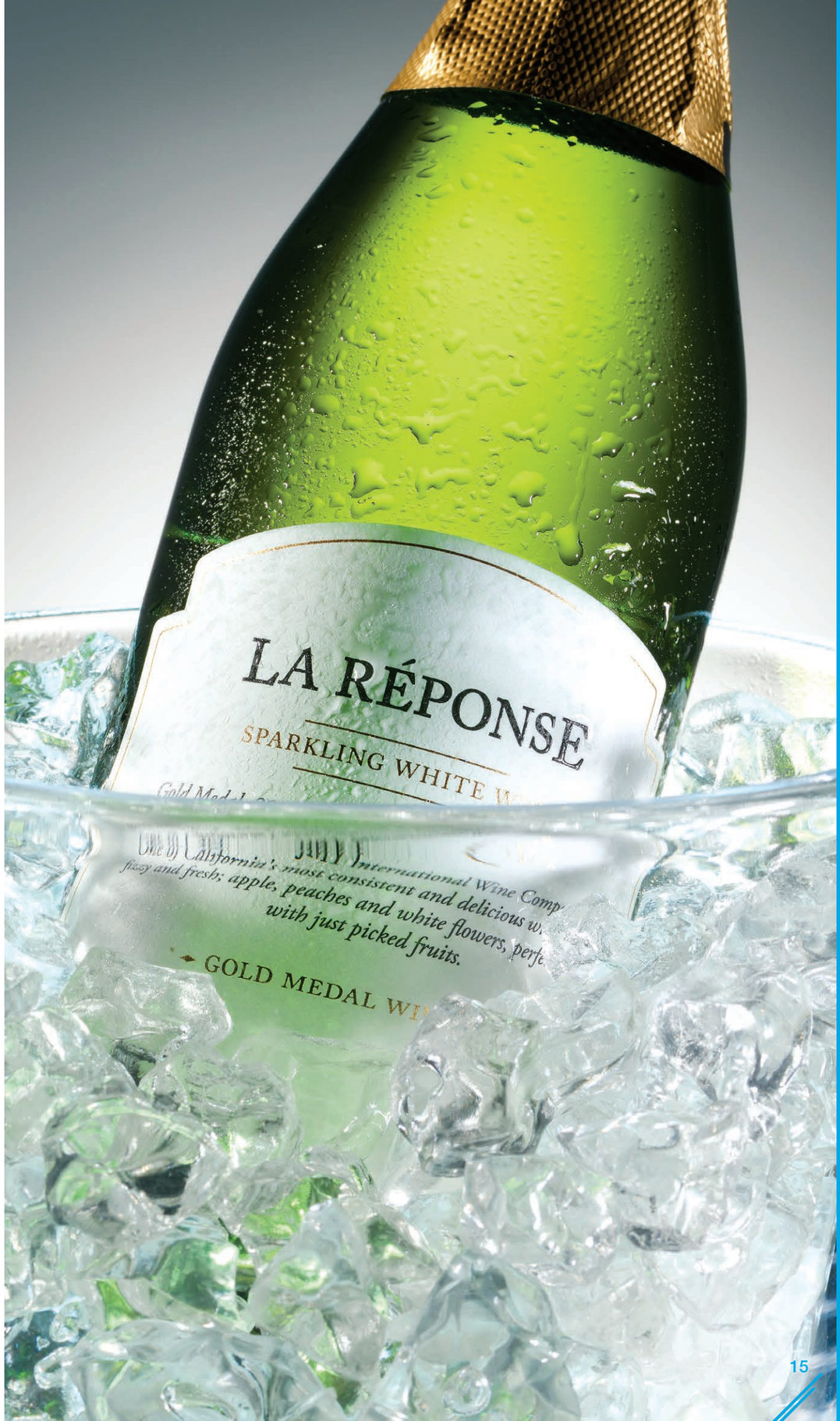


2. **Surface contaminants:**
Adhesive contact can be compromised due to factors such as; dirt, dust, moisture, condensation, etc. It is important that bottles are rinsed and clean prior to use.

3. **Surface profile:**
Bottle seams can be problematic, especially with heavy facestocks embellished with mechanical embossing or any embellishment that stiffens the labelstock such as; inks, varnishes or high build ink. Sink/bulge variation (label panel bottle sink prevalence = poorer adhesive contact)

The applied label will generally adhere within specified glass tolerances (usually 0.5mm), but more rigid labels may have difficulty conforming, and additional pressure may be required during application.

For optimal application, increase wiping pressure by stiffening the plates and use segmented wipers with horizontal splits.



LABEL APPLICATION

Applicator Settings

When applying pressure-sensitive labels, initial pressure is firmly applied across the complete surface of the label (in a 'wiping' motion) at the moment of first contact of the label to the bottle, to ensure that full adhesion is achieved across the entire label surface.

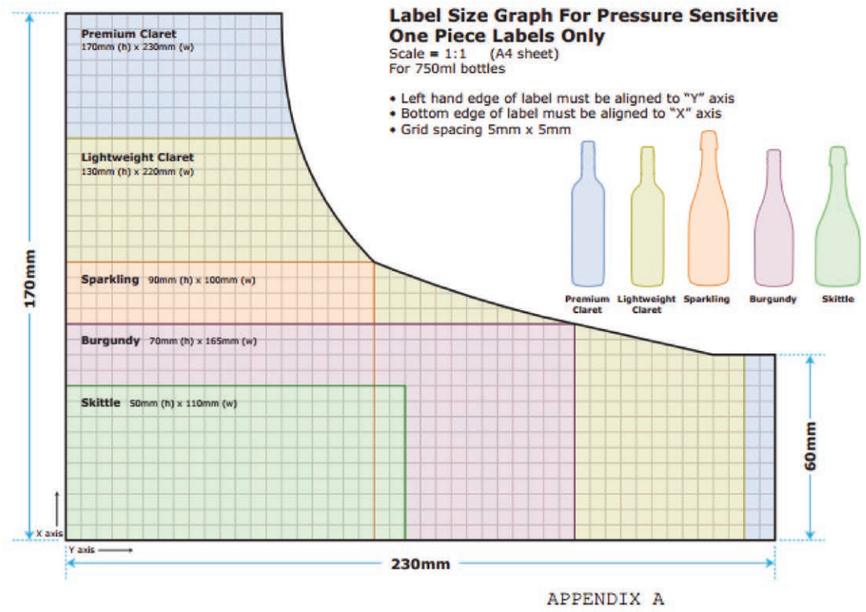
Note: Substrate changeovers, e.g. from a cast coated to a textured paper, may require some adjustment to the applicator settings due to the inherent differences in the materials. High-memory materials such as uncoated papers may require additional pressure to achieve good adhesion.

The Size of the Label

It is important to consider the size of the label relative to the size of application pads used. There are label width and height limitations dependent on factors such as the nature of the label face material, the shape and the size of the bottle, and the application system used.

\\ Refer to the Label Panel Chart below.

The bigger the label, the greater the risk of bubbling. Small changes in label size can have significant effects on label application.



APPENDIX A

The Label Panel Chart shows the five most popular 750ml bottle styles (Premium Claret, Lightweight Claret, Sparkling, Burgundy and Skittle). The label should fit into the dimensions shown in the Label Panel Chart. The minimum label height is 12mm.

** Source - Wine Packagers of Australia Inc. specification for pressure sensitive labels, October 2014.*

Application Pads – Best Practice to Minimise Edge Lifting/Bubbling

The type and size of the pad needs to match the characteristics of the label face material to be applied.

Note: Gloss and uncoated papers require different pressure. Uncoated papers have a much higher memory than gloss/ metallic materials, and thus require higher pressure to activate the adhesive bond. Plastic pads should therefore be used in place of brushes and applicator settings should be adjusted to increase pad pressure. Such changeovers should not be considered inefficient, but rather as standard process improvements.

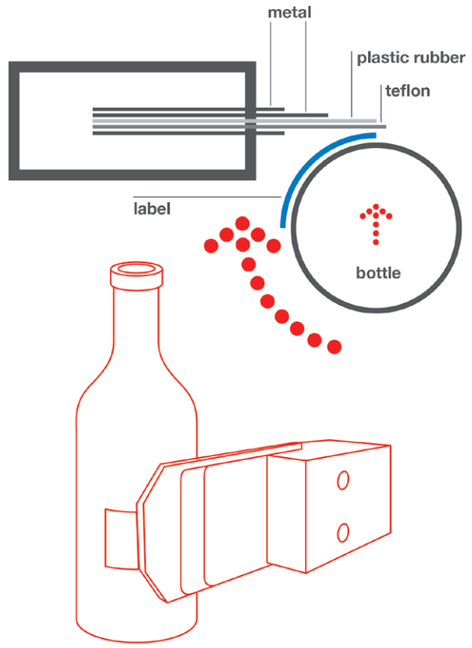
The number of pads employed may also play a role in ensuring 100% contact of the label with the substrate.

Recommendation:

Pads should ideally be made from several layers with:

- different metal materials for spring function
- plastic/rubber for wiping function
- teflon for sliding function (to avoid scratches and damage)

Best-practice label 'wipe down' is to use solid 'Zed' panels and wipe from the centre of the label toward the edges.



The automatic application process for pressure-sensitive labels dispenses a label from the release liner at a set point, brings it into contact with the bottle as it rotates and moves along the labelling line, and via light pressure ensures a smooth, bubble-free finish.

SPRAY TEST PROTOCOL

Avery Dennison has devised a ‘Test Method’ to ensure full contact of the label to the bottle surface and provide evidence of any inherent risk of label bubbling.

The test protocol comprises two key stages and does not damage the label, so that it can be replaced in the bottle line after testing (non-destructive test).

Spray Test Method:

1. Run 10 empty bottles through the applicator using the selected labels
2. Using a fine water mist spray, cover each label immediately after application
3. After 60 seconds, visual analysis of the labels can begin
4. If bubbling or tunnelling occurs, the label has not made contact with the bottle surface at this point
5. Readjust the applicator until the entire label face is free of bubbling or tunnelling when tested with the water spray.

The steps detailed above will assist in achieving optimum applicator setup and minimise potential label bubbling issues on wine bottles. This process should be run for every machine setup or shift change.

This spray test may take longer to work with varnished paper labels. In this case, a visual check for label adhesion should be conducted by looking through the glass bottle at the underside of the label. If the label has not made contact with the bottle surface at any point, the label surface may look light-coloured. Where the adhesive is making good contact with the surface of the bottle, it will look darker. Light-coloured areas will be more susceptible to bubbling when exposed to moisture.

ICE BUCKET TESTING

The ice bucket test is a performance test in which labelled bottles are immersed in a water and/or ice bath for a specified period of time.

Label failures resulting from this test may include pleating, edge lifting, sliding, label delamination, ink flaking, poor wet opacity and weak resistance to label peel-off.

Note: There is no unanimously-approved standard industry test protocol for ice bucket testing. Testing protocols vary, and tests should be customer-specific. It is critical that paper and varnish combinations are tested according to the specific requirements of the individual customer, as the ice bucket performance of a label will differ greatly between the 1-hour and 12-hour water immersion tests.

Pressure-sensitive labels offer many significant advantages over traditional wet glue labels, including improved ice bucket performance and label presentation. However, very few laminates can offer absolute resistance to immersion in water.

The difficulty comes when attempting to apply reasonable standards and test methods to the label selection and design process. No test methods are agreed by all parties in the supply chain. Variations in the test method used can introduce significant confusion and misinformation, so, for uniform results, Avery Dennison has designed a protocol recommendation for wine label evaluation in the ice bucket.

Ice Bucket Method:

1. Apply printed or varnished labels to bottles and rub down to ensure full adhesive contact with the glass surface
2. Let the samples rest for at least 24 hours to form a full adhesive bond with the glass
3. Fill the bottles with water, so they will not float, and immerse in an ice/water mix sufficient to last for at least four hours
4. Inspect the labelled bottles immersed in the ice and water slurry at 20 minute, one-hour and two-hour intervals

Evaluation:

Evaluation of the success of the test can be achieved as follows:

- The label must remain adhered to the bottle for at least two hours. It should not slip off the bottle’s surface when slight pressure is applied, or fall off
- No edge lifting or major tunnelling should occur during this two-hour period

The test can be considered **successful** if the label remains predominantly adhered to the bottle and requires some force to separate it from the bottle surface after two hours of immersion.

The test can be considered **failed** if the label has separated completely from the bottle surface before the two-hour immersion period is completed. The time at failure should be recorded.

This test does not take into account the visual appeal of the label. Face stock degradation, discolouration, and ink and foil flaking are common occurrences, and should not be considered as failure, but rather as side comments to the test. It is difficult to develop and print a paper label that will not show any sign of degradation after extended water immersion.

However, this test protocol and timeframe are expected to adequately cover normal wine bottle use, enabling printers and designers to evaluate label performance within the context of real ‘end-use’ customer expectations.

PRESSURE SENSITIVE LABELLING CHECKLIST

(complete a copy of this checklist before commencing new label application production runs)

LABEL DESIGN	Complies with label panel size charts	Refer to page 16	Yes	No	
	Minimum 3mm grain free edge	Refer to page 5	Yes	No	N/A
BOTTLES	Clean and to specification	Refer to page 14	Yes	No	
	Dynes tested at 38 or higher	Refer to page 14	Yes	No	
	Condensation on bottles	Refer to page 13	Yes	No	
APPLICATOR SET-UP	Settings adjusted to suit new substrate	Refer to page 16	Yes	No	
	Z-wipes used	Refer to page 17	Yes	No	
	Z- wipes positioned over label panel area	Refer to page 17	Yes	No	
	Air blowers/knives used to remove excess moisture	Refer to page 12	Yes	No	
	Bottle warmer used to bring bottles to desired temperature	Refer to page 13	Yes	No	
SPRAY TEST	Spray test carried out (10 empty bottles)	Refer to page 18	Pass	Fail	
	Were adjustments made after spray test to optimise stitch down?		Yes	No	
ENVIRONMENT AT TIME OF APPLICATION	Environmental conditions can adversely impact label adhesion: • the ambient temperature • relative humidity • bottle surface temperature • wine fill temperature • moisture present on bottle surface • prevailing conditions such as rain, breeze, etc. Have steps been taken to reduce or mitigate these factors to ensure adequate label application? Have the labels been conditioned to room temperature?	Refer to pages 12 & 13			

Please note: If any boxes are ticked 'No' this falls outside Industry recommendations. What mitigation steps were taken?

Name: _____

Date: _____

Signature: _____

Comments: _____

_____

_____

_____

_____

GLOSSARY OF TERMS

Adhesive contact test: Performed using imagine processing software such as Sherlock Vision System Software. Measures wetted-out adhesive pixels ratio to non wetted-out adhesive pixels to give a % of adhesive contact.

Abrasion resistance: The degree to which a face stock will resist deterioration from rubbing, handling, or scuffing.

Cast-coated: A finishing technique in which a paper face stock is coated and dried under pressure against a highly-polished cylinder. Cast-coated papers have a brilliant high-gloss enamel finish.

Embossing: Impressing a print surface with dies to produce a relief image.

Face stock: The top layer or printing surface of pressure-sensitive labelstock.

Gloss: A measurement of the spectral reflectance of light off the surface of the label, usually expressed as 'gloss', 'low gloss', or 'matte.'

Grain: A characteristic of a paper face stock referring to the direction in which most fibres lie, corresponding to the direction in which the paper travels through the paper machine.

Grain Free Zone: A minimum 3mm emboss free zone measured from each label edge to assist adhesion.

Ice bucket test: A performance test to verify the resistance of the label to moisture during water immersion. In this test, labelled bottles are immersed in a 50/50 ice/water bath for up to 4 hours. Failure may include label edge lifting, sliding, delamination, or ink flaking off the label.

Initial tack: The initial 'grab' of the adhesive to the substrate.

Liner: The carrier for a pressure-sensitive label. Release liners are coated with a release material, allowing them to separate from the label immediately before application.

Machine Direction Orientation (MDO): A property of an extruded film, achieved by stretching the film by a given ratio in the direction of machine flow, to enhance its final properties, e.g. conformability.

Mandrel test: An aggressive test used to determine the suitability of an adhesive/face stock combination for applications round very tight curves, eg neck label applications.

Multi-layer Pad: Application pad in one part, made from several layers (metal, plastic, teflon), wiping from one edge of the label toward the other.

Neck labels: High initial tack and good mandrel hold are necessary for neck label applications. Testing the label construction is essential, as many factors will affect performance, such as face stock stiffness, ink and varnish coverage, size of label overlap, bottling temperature, and bottle coating levels.

Peel strength: A characteristic of adhesion referring to the force per unit width required to break the bond between the label and the container. This is often expressed at a specific degree and rate of peel under controlled environmental conditions.

Reverse Glue Flap: An area of 1.5cm minimum, free of varnish, with a smaller un-inked area on the left-hand side of the under lapped label area to assist adhesion.

Short-term repositionability: Low initial adhesive tack allowing for the removability/repositionability of misapplied labels prior to ultimate adhesion being achieved.

Tensile strength: The force required to break a face stock when pulled in opposing directions.

Ultimate adhesion: The final adhesion level achieved by the label, usually 72 hours after labelling.

Water removability: Label and adhesive will remove from glass and plastic containers when soaked in an alkaline or caustic solution for five minutes.

Wet-labelling conditions: For use in moist environments or when condensation is present on bottles at the time of labelling. Air dryers are recommended for extremely wet conditions.

Wet strength: Describes a paper that has chemical and/or physical components added to improve moisture resistance. The paper fibres retain their bond strength when wet, and wet strength should not be confused with the lower-performance characteristics of 'water resistance'.

Zed Pad: Application pad in two parts, wiping from the centre of the label on the bottle toward the edges.

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TECHNICAL TRAINING VIDEOS

\\ Watch our series of informative "Ask the Experts" technical videos to learn more:

http://label.sapssa.averydennison.com/en_sa/home/about-us/avery-dennison-knowledge-center.html

GLOSSARY OF TERMS // INDUSTRY REFERENCES

Wine Labelling Handbook

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