Wine Handbook 2026



AVERY DENNISON


CRAFT
ODKA
EST 2016
SPECIALLY DISTILLED FOR 3 DIFFERENT BREED
GLUTEN FREE

Think of this guide as a big glass of inspiration.

The wonderful thing about designing a wine label is that you're only limited by your imagination. But that's also the challenge. When your creativity can run in almost any direction, how do you know which way to go?

We've developed this handbook to help you easily browse the possibilities. In these pages you'll find descriptions of our rich range of industry-tested materials for creating wine labels that seduce the senses, vividly tell brand stories, improve sustainability and stand apart on the shelf—while simultaneously handling the less glamorous functional duties that every wine label must carry out. (We've never believed that looking incredible and working hard are mutually exclusive.)

Here you'll also find technical guidance to help properly bring your vision to life. Questions about printing? Wondering about the finer points of application and testing? It's all inside—and when you need to go deeper on a question, our technical teams are standing by, ready to help, too.

At Avery Dennison, we design label materials with an eye to what's possible. We take great pride in helping converters, designers, and brands create something functional. Something beautiful. Something sustainable. And something new. Wherever your imagination takes you.

Cheers.

Chardonnay

750

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BOUQUET
MALBEC
NAPPA VALLEY
2012

Avery Dennison Sustainable ADvantage

Sustainable Advantage

Sustainability covers a broad spectrum of priorities, from responsible sourcing and reducing greenhouse gas emissions to fostering a circular economy through recyclable packaging at the end of its lifecycle.
Our labeling solutions are thoughtfully designed to tackle these key aspects of sustainability, providing options that meet the different needs of users.

The solutions in our sustainability portfolio meet one or more of these criteria:

Contains recycled or renewable content

Give a second life to what has already been used

Facestocks and liners that include post-industrial waste or post-consumer recycled content

Reduction in the use of materials

Use only what is necessary

Thinner facestock, adhesive, or liner that uses less raw materials to be manufactured

Enables recycling, reuse or compostability

What we use can be used again

Solutions that enable the reuse and recycling of packaging as well as the recycling and composting of label waste

Responsibly sourced

Products sourced from a supply chain that shows care for people and the environment

Film made from renewable alternatives and paper certified by FSC® or other organizations

FSC
www.fsc.org
FSC® C111395
The mark of responsible forestry

AD Circular

The Avery Dennison liner recycling program



Label waste is not always visible on the final packaging, but its impact on brand reputation is no less real.

For the effective recycling of PET and glassine liners, a proper waste collection system and separation technologies must be in place.

Avery Dennison continues to add suitable recyclers to our AD Circular program, making it easier for converters and brand owners to take part in creating a circular economy and secure their sustainability credentials.

(The availability of the program may vary among Avery Dennison operating sites)

rPET Liner

PET film liners made with recycled content



Recycled content label solutions are one of the important packaging considerations for meeting brand owners' sustainability goals and complying with emerging regulations.

Avery Dennison introduces award-winning (Environmental and Sustainability Award 2019) recycled PET (rPET) liners, made 30% with carefully sorted recycled post-consumer PET bottle flakes.

Converters and brand owners can reduce waste and the reliance on fossil fuel-based films, helping lay the foundation of a "closed-loop" system while securing their sustainability credentials, all without compromising on converting and dispensing performance or design aesthetics, versus conventional liners. As virgin PET liners continue to phase out, you can find a growing number rPET options in the Avery Dennison portfolio.

Sustainable Wine Adhesives



Biobased adhesive

Hotmelt rubber-based adhesive that contains 30% raw materials originating from renewable resources, providing ultra-high initial tack and ultimate adhesion on a variety of low surface energy substrates.

Biomass Balance (MB)

An innovative approach to reduce our dependence on fossil fuel inputs and use more natural, renewable content

Our Biomass Emulsion adhesive contains bio-content derived from non-food organic waste sources which can be replenished or regrown through a natural process.

The benefit is an overall reduction in fossil material and GHG emissions in the total production of the adhesive, certified by an independent, third party body.

Sustainable Wine Labelling

What pairs perfectly with a wine label? Materials that are recycled and responsibly sourced. Our Fleury, Cane Fiber and rCrush facestocks are made with recycled material, giving brands a compelling story, and consumers one more reason to feel good about their favorite vintage.



rCrush Range

From citrus fruit, grape or barley waste to a label: the Crush range allows brand owners to use organic waste in a label to build their circular economy story.

- The facestocks are made of 15% organic residue and 40% post consumer waste
- 45% virgin wood pulp certified by Forest Stewardship Council®



rFleury Range

From a beautiful wood. Designed for brands that seek to reduce their environmental impact, rFleury Chêne is an off-white, wood-flecked paper made with 30 percent recycled fiber, providing an attractive, natural color.



Bio-based Paper

Cane Fiber paper is made with a minimum of 90% bagasse fiber, sourced from sugar cane waste. It delivers the same whiteness as conventional labels and is an excellent choice for rums and other spirits brands.



Recycled content wine papers

- Paper made with at least 50% recycled fiber with natural pigments
- 95 gsm white papers with light felt finish and embossed finish



Apple Touch

- 95 gsm face paper, no wet-strength added
- Made with 5% apple residue (skin remaining after apple juice production)
- Craft look



rFrozen Pearl

- Silver, pearlescent paper with a white/blue shimmering effect
- Made with 40% post-consumer fibers



rFelt

Featuring 30% post-consumer recycled pulp and FSC® Mixed Credit certification, it embodies the shift toward sustainable materials without sacrificing the premium finish brands expect.

View the Sustainable Wine Product Overview

avydn.co/3O7C3n4

Black Collection

An iconic black label can transform a brand, speaking to consumers of truly premium contents. Quality of execution is everything, and the Avery Dennison Black Collection gives converters and brand owners materials that look the part – right up to the edge.



The Black Collection is a broad portfolio that delivers the exceptional and dependable quality needed for consistently high shelf appeal, even when using textured black labels.

Materials include smooth to highly structured surfaces, thick to thin facestocks and a choice of different shades. Converters no longer have to print twice to create a rich and even black. You'll benefit from saturated black labels without white edges, along with the stable hot foiling needed to release your creativity.

Take consumers on an elegant and luxurious journey into the dark - and use the Black Collection to make wines, spirits and beers really stand out on the shelf.

Key features

- An extensive black labelling portfolio
- Different textures and shades
- Eliminates the need to print 2x for full black
- Black labels without white edges
- Good printability
- Stable hot-foiling on unprinted areas

View the Black Collection Product Overview

avydn.co/3mxZOZs

Sensorial Collection

Label look is just one part of a consumer's impression of a bottle. Communicating brand values properly means going further – how does a label feel? What's the sound when it's touched? Is there perhaps even scent?



The Avery Dennison Sensorial Collection gives designers a broader toolset. Different label surfaces can be created using soft touch, textured or patterned papers to produce a premium, vintage or artisanal feel. Hand-picked trees are used to create wooden labels that recall the roots of nature with a delicate scent. Diverse label surfaces can be used to give consumers a subtle message when hearing the sound of a finger moving over the surface. And of course an outstanding visual impact is retained to engage the most dominant of all the senses.

A wine, spirits and craft beer journey may always reach its zenith in taste, but Avery Dennison Sensorial materials help you to give the consumer a detailed and rewarding experience on the way.

Key features

- Materials for any premium brand image
- Engage all consumer senses
- Deliver unique sensorial experiences to the customer
- Excellent service and minimum order quantities

View the Sensorial Collection Product Overview

avydn.co/3ND40mz

Local Wine Service Programs

When seeking brand differentiation, unique, pressure-sensitive facestock materials can be the difference between your brand remaining on the shelf or being enjoyed by consumers.



For new projects on unique materials such as our Uncoated and Gloss wine facestocks, low volume rolls and custom widths are crucial in helping to manage inventory and cost. That's why we've expanded our EXACT and Ready Width services for several premium products in our Wine & Spirits portfolio.

The Ready Width service program allows you to purchase rolls from a selection of standardised widths and lengths, while the EXACT service allows you to order the exact roll widths you need at a predefined roll length. This makes it easier for your business to take on smaller projects using premium products from our wine range.

For more specialised projects, our locally-held Metallised and Specialty Paper ranges can provide a unique look and feel for your wine labels, making them sure to stand out on the shelf. Let Avery Dennison's pressure-sensitive wine label portfolio and our flexible local service programs work to your advantage.

Please download our Product Services Guide and reach out to your local Avery Dennison sales representative for assistance or further information.

Download the latest Product Services Guide

avydn.co/3aK8t8l

Adhesive, Underlaminate & Liner options

Adhesive

	Type	Ice bucket resistance	Neck label suitability	Cold Labelling	Sustainable ADvantage
S2030	Permanent, acrylic emulsion	Good	Excellent	Good	
rS2030MB	Permanent, acrylic emulsion	Good	Excellent	Good	Biomass Balance
S2047N	Permanent, rubber hotmelt	Good	Good	Good	Biobased
S2047	Permanent, rubber hotmelt	Good	Good	Good	
S3037	Permanent, rubber hotmelt	Good	Good	Good	Biobased

Liner

	Type	Dispensing Speed	Wet Labelling Conditions	Deep Embossing	Intricate Die Shapes	Sustainable ADvantage
Glassine	BG40WH N, BG45WH, BG45WH IMP, BG50WH	Low to medium	Fair	Very good	Good	Recyclable through AD Circular
PET	PET23, PET30	Low to high	Excellent	Excellent	Excellent	
rPET	rPET23, rPET30	Low to high	Excellent	Excellent	Excellent	Contains 30% recycled postconsumer PET bottle flakes

Underlaminate

PLUS technology	rPET Clear	Contains 30% recycled postconsumer PET bottle flakes

All components are believed to be reliable and accurate. However, the furnishing of such information and comparisons is for reference purposes only and does not constitute a waranty of any kind.
Actual product performance should always be tested for fitness-for-use.


2013 Pinot Grigio
Player

Label Design

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 lines.

There are many ways in which pressure-sensitive labels deliver 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.

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.

Printing

Embellishment

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 surface contact to the bottle will be reduced as a result, a permanent adhesive exhibiting higher tack is therefore recommended.

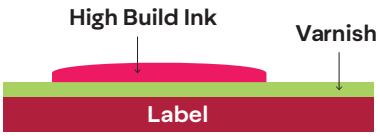
Special care must be taken with hot/cold foil stamping or embossing, as these processes can affect release liner performance by weakening parts of the web. PET liner materials offer higher resistance to the use of strong embossing techniques.

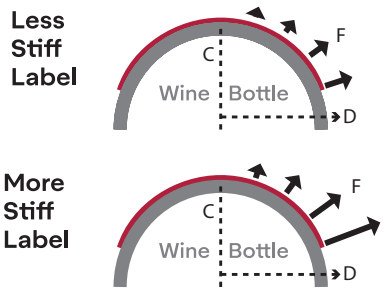
There are several factors that can cause a label to lift. These include: incorrect materials used, environment, label design, inks & varnish used and application method. The following are some specific factors influencing label lift during the design and applications phases.

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

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

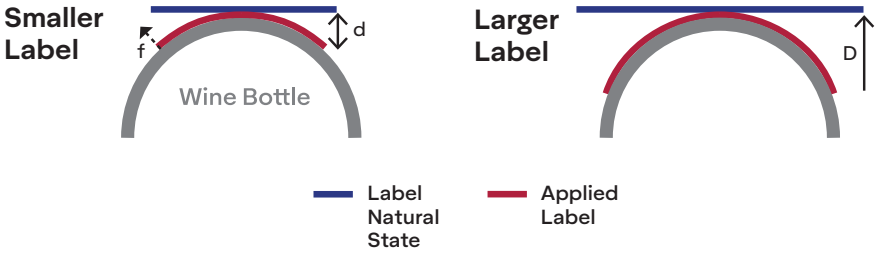
High build/heavy varnish causes tension on the label and increases stiffness. This can impact adhesion wipe-down pressure. The impact of increased label stiffness will increase overall lift force (resistance to bend). This is expected to increase with distance (D) from the centre point of the label (C),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





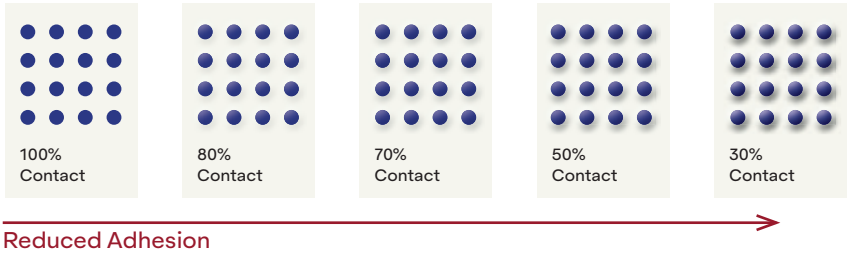
Increasing label size increases lift force

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).



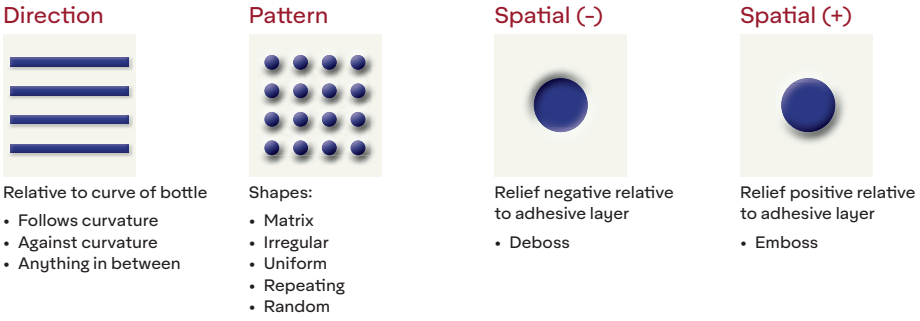
Mechanical emboss reduces adhesion outcomes

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 the label.



The emboss design will influence the severity of the impact

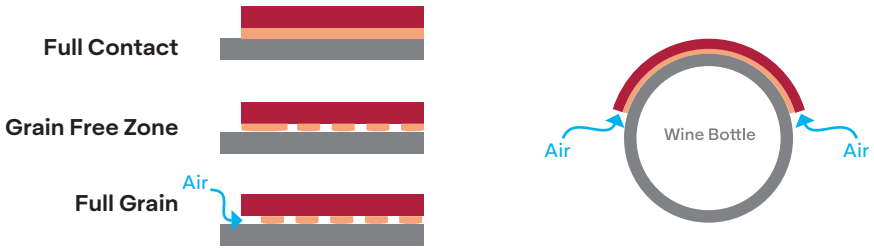
Horizontal lines, for example, will go against the bottle curvature and further stiffen the labelstock. Full adhesive pressure and contact is required to hold the label down. There is no quantitative method for defining the severity of a label emboss design's impact on adhesion.



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.



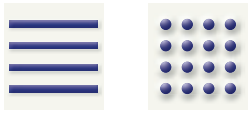
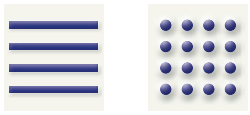
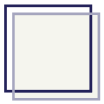
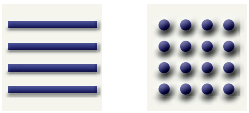
Lift may propagate more significantly if other factors are present (such as reduced contact area, label stiffness, etc.). Significantly, adhesive decay with a full grain may happen over time - and may not reveal itself for months or years.

Printing

Embellishment - Summary

Label Design & Label Converting

Assuming application conditions are not contributing factors:

Label	Description	Factor	Effect	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.

Printing

Varnish On The Label Surface

Mechanical emboss reduces adhesion outcomes

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 altogether. A good choice would be an Avery Dennison film face stock, as 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 above 2 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 Avery Dennison's Technical Marketing Bulletin for Wine Neck Label recommendations. Please contact your local Avery Dennison representative or go to label.averydennison.com

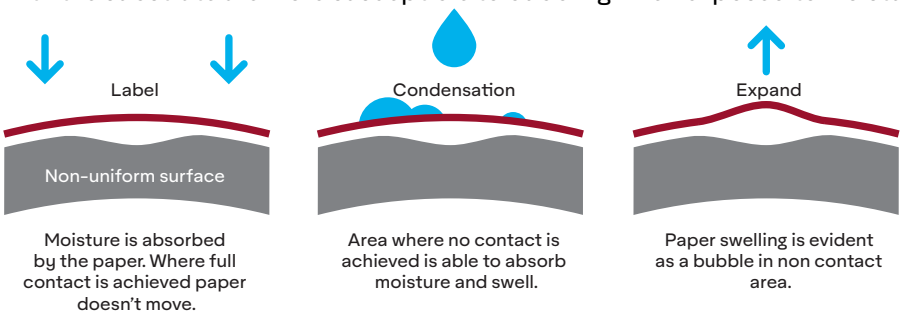


Label Application Methods

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.



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

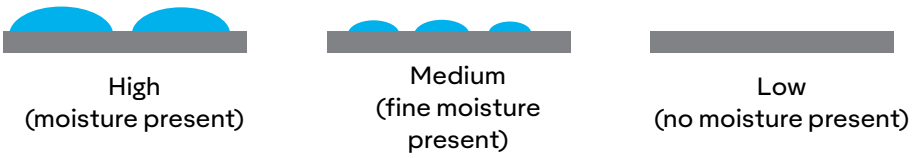
Even and consistent pressure over the entire face of the label is critical to ensure adhesive anchorage to the bottle once the label has been dispensed from the peel plate.

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



High
(moisture present)

Medium
(fine moisture present)

Low
(no moisture present)

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 5°C. 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

Bubbling is primarily caused by the expansion of the paper due to moisture ingress from the ambient bottling environment. 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

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.



Label Application Methods

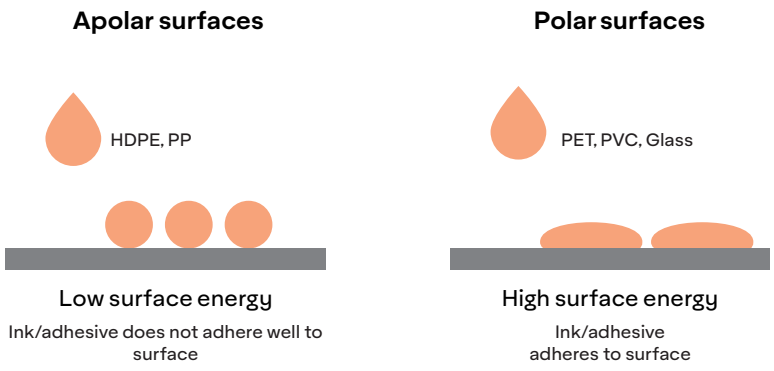
Glass Surface Considerations

From the vine to the table, every stage in wine manufacturing is important - perhaps none more than the label application stage. 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 application.

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. Any sinks or bulges in the bottle surface underneath the label panel will result in 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 Methods

Application Environment and Considerations

Applicator Settings

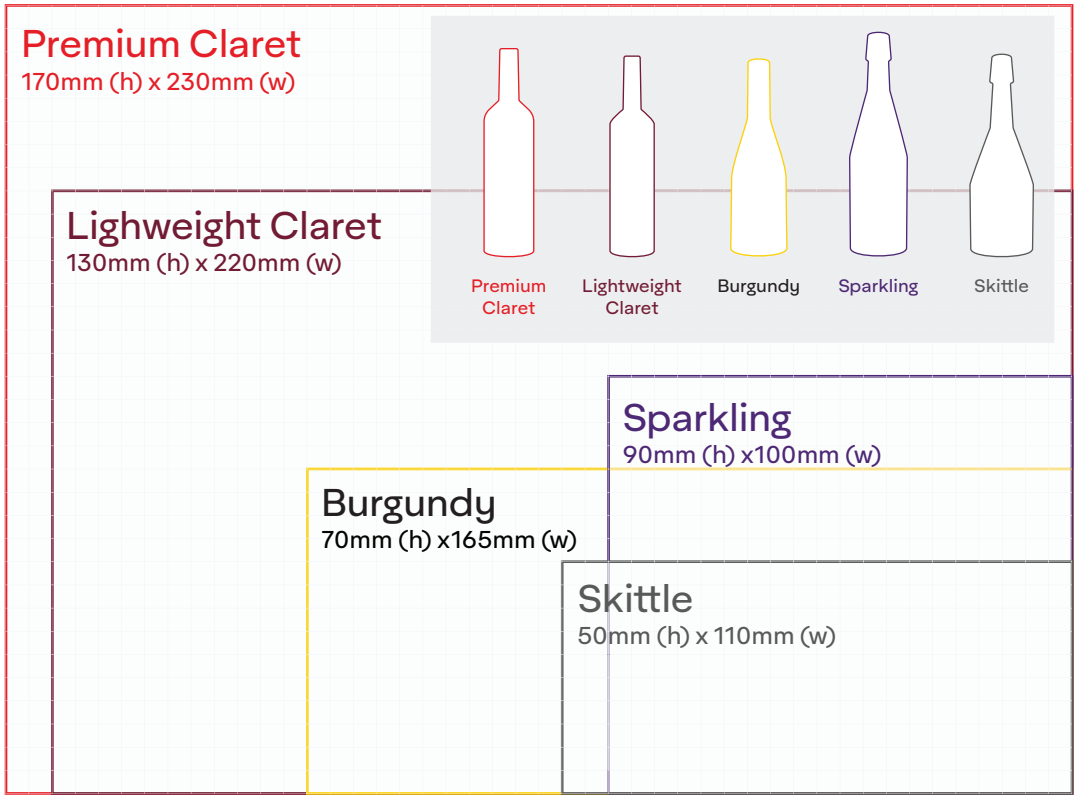
When applying pressure-sensitive labels, initial pressure is firmly applied across the complete surface of the label (in a 'wiping' motion) at the moment of first contact of the label to the bottle, to ensure that full adhesion is achieved across the entire label surface.

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.

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.

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



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 and bubbling

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

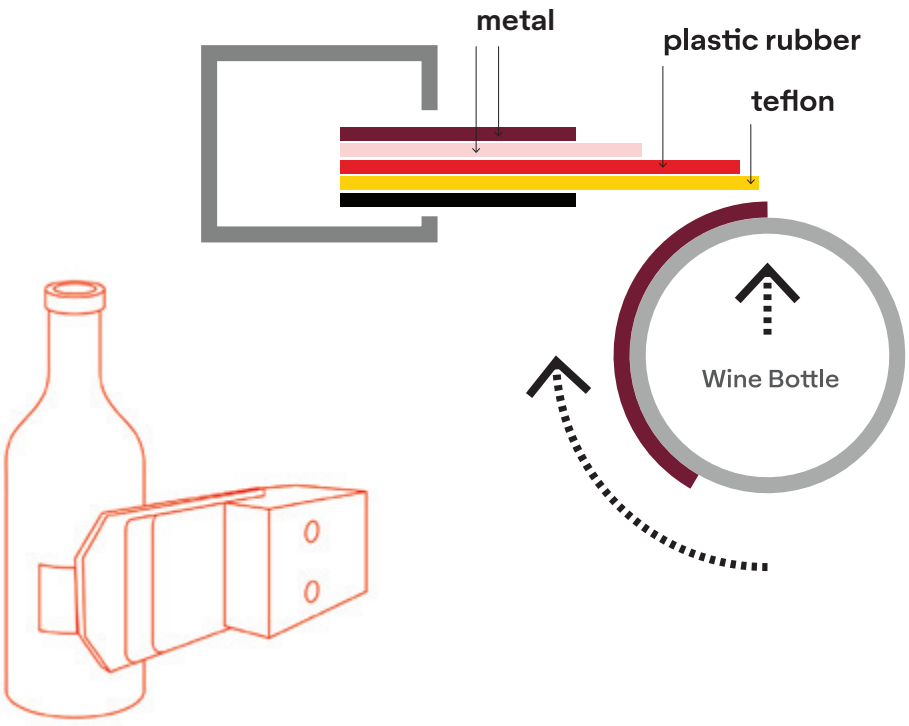
Note: Gloss and uncoated papers require different pressure. Uncoated papers have a much higher memory than gloss/metallic materials, and thus require higher pressure to activate the adhesive bond. Plastic pads should therefore be used in place of brushes and applicator settings should be adjusted to 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.

Test Methods

Ice Bucket Method

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 Avery Dennison has designed a protocol recommendation to obtain uniform results for wine label evaluation in the ice bucket environment.

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.

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

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.

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.


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Pressure Sensitive Labelling Checklist

Label Design	Complies with label panel size charts	Refer to page 28	Yes / No
	Minimum 3mm grain free edge	Refer to page 20	Yes / No / N/A
Bottles	Clean and to specification	Refer to page 27	Yes / No
	Dynes tested at 38 or higher	Refer to page 27	Yes / No
	Condensation on bottles	Refer to page 25	Yes / No
Applicator set-up	Settings adjusted to suit new substrate	Refer to page 28	Yes / No
	Z-wipes used	Refer to page 29	Yes / No
	Z- wipes positioned over label panel area	Refer to page 29	Yes / No
	Air blowers/knives used to remove excess moisture	Refer to page 24	Yes / No
	Bottle warmer used to bring bottles to desired temperature	Refer to page 25	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?	Refer to pages 24 & 25	Yes / No
	Have the labels been conditioned to room temperature?		Yes / No

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

Name _____ Date _____ Signed _____

Comments _____

Glossary

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.

Industry References

“Pressure sensitive labelling on glass bottles and jars”. Edition 2009.
- publaished by CETIE

www.label.averydennison.eu

“Specification for pressure sensitive labels”
- prepared by Wine Packagers of Australia Inc.

www.wpa.org.au

“WFA Wine Packaging Guidelines”
- published by Winemakers Federation of Australia Inc.

www.wfa.org.au

Who we are
As the pioneer in the pressure-sensitive industry, we bring one-of-a-kind capabilities to sustainable labeling. We combine decades of innovation with deep knowledge of both regulatory and legal requirements. We know about the real-world conditions in which our labels must perform and the technical challenges they have to meet. Whatever your product, wherever it's going, we can help you develop a sustainable label that performs.

What we stand for
Sustainability. Innovation. Quality. Service.

In 1935, we invented the first self-adhesive label, and we've never looked back. With each passing decade, our innovations have further shaped our industry by lifting the limits on what labels can do. The world's most successful brands know that innovation and evolution are the lifeblood of longevity and success. We're proud to help our clients continually expand the boundaries of what's possible.

Discover more possibilities
What else do you need? Let us know and we'll help you find or develop your desired labeling solution.

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Orders can be placed at:
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Find more sustainable label solutions at
label.averydennison.com

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