



Winemakers' Federation of Australia

For the Industry by the Industry

WINEMAKERS' FEDERATION OF AUSTRALIA

WINE PACKAGING GUIDELINES

Guidelines for the Use of Wine Packaging

WINEMAKERS' FEDERATION OF AUSTRALIA
INCORPORATED

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Wine Packaging Guidelines:

The following guidelines have been prepared by the Winemakers' Federation of Australia (WFA) Packaging Committee. The guidelines are intended to provide a basic level of understanding of fundamental wine packaging issues for small to medium wineries and new entrants to the industry.

The expert advice provided by members of the WFA Packaging Committee in the preparation of this document is gratefully acknowledged.

These guidelines are supplemented by 'The Code of Good Manufacturing Practice for the Australian Grape and Wine Industry' prepared by the Australian Wine Research Institute (AWRI) and available to download from the AWRI website: www.awri.com.au.

WFA Packaging Committee:

The Packaging Committee was established by the WFA to enable the development of a unified position for the wine industry in regard to packaging related issues. By maintaining a forum for direct discussion amongst industry stakeholders, the Packaging Committee is positioned to respond to political, technological, environmental, regulatory and market driven changes in wine, wine product and brandy packaging.

Further Information:

For further information contact the Executive Officer of the WFA Packaging Committee by phone on (08) 8222 9255 or email via wfa@wfa.org.au

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1. Wine Supply & Filling

Critical Issue	Description	Recommendation/Observation
Dissolved Oxygen	Can have a detrimental affect on product quality.	Ideally as low as possible. Presence can result in darkening of product, premature aging, loss of flavour and increased astringency and bitterness. Dissolved oxygen levels should be measured before during and after filling to ensure dissolved oxygen pick-up is controlled at a minimum.
Dissolved Carbon Dioxide	The level of dissolved carbon dioxide will determine the level of "spritz".	Dissolved carbon dioxide can lift and enhance fruit flavours. Can also cause filling problems due to fobbing if levels are high. Dissolved carbon dioxide should be measured before and after filling.
Dissolved Nitrogen	Used as an inert blanket during processing as a protection against oxidation.	Whilst very sparingly soluble, at low product temp. solubility increases which can cause excessive frothing during filling.
Filtration	Filtration shall reduce and /or remove particular and microbial contamination.	Integrity testing of absolute filters should be undertaken on a regular basis. Testing of product filterability index should be determined to extend filter life. With any wine with residual sugar, the use of 0.45 micron membrane filtration should be considered.
Other Additions	Sulphur dioxide, ascorbic and erythorbic acids provide preservation by inhibiting microflora and /or removal of dissolved oxygen.	<p>It is recommended that users of these guidelines request suppliers provide the following declarations:</p> <ul style="list-style-type: none"> • that their product is Food Grade (Codex compliant) • that all source materials are GMO free • that the product complies with FSANZ Food Standards and is suitable for use in wine and wine related products • a technical sheet stating specifications for analytical and physical properties; and • a Material Safety Data Sheet (MSDS). <p>All suppliers should also identify each product with:</p> <ul style="list-style-type: none"> • the substance name • suppliers name • a batch lot number • hazard warning (if applicable) • a "use by date if" if appropriate.

Fill Heights	The fill height has to be at a level that allows enough room (vacuity) for expansion of the wine at high temperatures.	With standard cetie finish bottles the vacuity should be greater than 12mm. With standard BVS finish bottles the vacuity should be greater than 30mm.
Fill Volume	The volume in the bottle must conform to the labelled volume under the "weights and measures" legislation that applies in the state in which you are filling.	Fill volumes must be measured using statistically reproducible systems. Do not use bottles which make it difficult to maintain the legislative fill volume with the correct vacuity.
Sanitation	Filling machines and filling heads are complex machines. Wine residues can remain in many places in a machine. High levels of spoilage bacteria and yeasts will develop if the machines are not cleaned.	Machines and supply systems should be sanitised at the completion of a bottling. If the bottling machine is unused for 72 hrs since its last sanitation it should be sanitised again.

2. Wine Bottle Closures

Natural Cork, Technical Cork, Sparkling Wine Cork, Synthetic Closures

		Recommendation/Observation			
Critical Issue	Description	Natural Cork	Technical Cork	Sparkling Wine Cork	Synthetic Closure
Visual Grade	The visual grade is assessed by correlating the number of defects or natural blemishes on the closure to a pre-set grade with the supplier.	Price and visual grade are directly related. Lower visual grades increase the risk of cork failure. A tolerance of +/- 5% can be set for each level of cork within the respective grade.	Price and visual grade are directly related. Lower visual grades increase the risk of cork failure. A tolerance of +/- 5% can be set for each level of cork within the respective grade.	Price and visual grade are directly related. Lower visual grades increase the risk of cork failure. A tolerance of +/- 5% can be set for each level of cork within the respective grade.	Not Applicable.
Critical Defects	These are defects that will potentially cause the closure to fail.	It is recommended that all cork grades should contain less than 2% critical defects.	It is recommended that all cork grades should contain less than 2% critical defects.	It is recommended that all cork grades should contain less than 2% critical defects.	Of little relevance with synthetic closures as they are a manufactured product.
Non Critical Defects	These are defects that although visible are unlikely to cause the closure to fail.	Non critical defect levels increase as the visual grade decreases.	Non critical defect levels increase as the visual grade decreases.	Non critical defect levels increase as the visual grade decreases.	Of little relevance with synthetic closures as they are a manufactured product.

Wine Bottle Closures continued...		Recommendation/Observation			
Critical Issue	Description	Natural Cork	Technical Cork	Sparkling Wine Cork	Synthetic Closure
Closure Treatment	Closures are usually treated with a coating to help insertion, extraction and wine travel reduction.	Cork extraction forces should be in the range of 25-40KG/F after 24 hours at room temperature (20°C) for red wine and at fridge temperature (5°C) for white wine. Wine travel up the side of the cork should not occur. Based on the treatment used the best before date should be 6 months from the production date.	Cork extraction forces should be in the range of 25-40KG/F after 24 hours at room temperature (20°C) for red wine and at fridge temperature (5°C) for white wine.	Removal of sparkling wine corks relies upon a twisting torque motion in the range of 2.2nm to 2.8nm. The treatment and insertion depth will affect the ease of extraction. Insertion depths should be monitored during the production run.	Cork extraction forces should be in the range of 25-40KG/F after 24 hours at room temperature (20°C) for red wine and at fridge temperature (5°C) for white wine. Wine travel up the side of the cork should not exist.
Closure Taint	All closure batches can cause some type of flavour modification. This ranges from the addition of highly flavoured wood related compounds to highly aromatic tainting compounds such as TCA, glue related flavours and plastic contaminants.	Cork batches should contain a minimal level of taint affected corks, as evaluated through an agreed sensory method.	Cork batches should contain a minimal level of taint affected corks, as evaluated through an agreed sensory method.	Cork batches should contain a minimal level of taint affected corks, as evaluated through an agreed sensory method.	No flavour modification should occur.
Flavour Scalping	Closures have the ability to mask or absorb the fruit flavours of the wine.	No masking or absorbing should occur.	No masking or absorbing should occur.	No masking or absorbing should occur.	No masking or absorbing should occur at bottling but will occur over time.
Closure Moisture	The moisture level of closures is critical to their stability and performance.	Treated corks should have a moisture level of 6-8%.	Treated corks should have a moisture level of 4-8%.	Treated corks should have a moisture level of 4-8%.	Not Applicable.

Wine Bottle Closures continued...		Recommendation/Observation			
Critical Issue	Description	Natural Cork	Technical Cork	Sparkling Wine Cork	Synthetic Closure
Storage	Storage of closures is critical to the stability and performance. Closures readily absorb and desorb moisture. Closures readily absorb volatile compounds from the environment.	Corks must be stored in a clean dry and cool environment. Refer to supplier for temperature and humidity recommendations. They must not be stored with other chemicals /cleaning agents/paints etc. Corks should be transport and stored separate from all timber products to prevent contamination	Corks must be stored in a clean dry and cool environment. Refer to supplier for temperature and humidity recommendations They must not be stored with other chemicals /cleaning agents/paints etc. Corks should be transport and stored separate from all timber products to prevent contamination	Corks must be stored in a clean dry and cool environment. Refer to supplier for temperature and humidity recommendations They must not be stored with other chemicals /cleaning agents/paints etc. Corks should be transport and stored separate from all timber products to prevent contamination	Closures must be stored in a clean dry and cool environment. Refer to supplier for temperature and humidity recommendations They must not be stored with other chemicals /cleaning agents/paints etc.

Wine Bottle Closures continued...		Recommendation/Observation			
Critical Issue	Description	Natural Cork	Technical Cork	Sparkling Wine Cork	Synthetic Closure
Usage	Maintenance and set-up of corking machinery is critical to closure performance.	<p>Corker jaws must be clean and free from chips/cracks or abrasions.</p> <p>Only food grade lubricants can be used.</p> <p>Compression diameter is critical and the cork should only be compressed to 16mm.</p> <p>Vacuum corking equipment should be used to maintain a vacuum of 0 to -35kPa under the closure.</p> <p>Headspace (vacuity) should be maintained at a minimum of 12mm (for a 750mL bottle), from the bottom of the closure to the wine surface, when the wine is at 20 degrees, to reduce the likelihood of corks pushing out due to increases in storage temperature.</p>	<p>Corker jaws must be clean and free from chips/cracks or abrasions.</p> <p>Only food grade lubricants can be used.</p> <p>Compression diameter is critical and the cork should only be compressed to 16mm.</p> <p>Vacuum corking equipment should be used to maintain a vacuum of 0 to -35kPa under the closure.</p> <p>Headspace (vacuity) should be maintained at a minimum of 12mm (for a 750mL bottle), from the bottom of the closure to the wine surface, when the wine is at 20 degrees, to reduce the likelihood of corks pushing out due to increases in storage temperature.</p>	<p>Corker jaws must be clean and free from chips/cracks or abrasions.</p> <p>Only food grade lubricants can be used.</p> <p>The recommended Insertion is 23mm +/- 1mm after muselet application.</p>	<p>Corker jaws must be clean and free from chips/cracks or abrasions.</p> <p>Only food grade lubricants can be used.</p> <p>Compression diameter is critical and the closure should only be compressed to 16mm.</p> <p>Vacuum corking equipment should be used to maintain a vacuum of 0 to -35kPa under the closure.</p> <p>Headspace (vacuity) should be maintained at a minimum of 12mm (for a 750mL bottle), from the bottom of the closure to the wine surface, when the wine is at 20 degrees, to reduce the likelihood of closures pushing out due to increases in storage temperature.</p>

Roll-On Tamper Evident (ROTE) Closures		
Critical Issue	Description	Recommendation/Observation
Dimension	Length: Diameter: Ovality: Compatibility:	As specified (+/- 0.25mm) As specified (+/- 0.05mm) Tolerance (+/- 0.4mm) Check compatibility with bottle type.
Material & Thickness	Aluminium Alloy 8011 Thickness Hardness	As specified (+/- 0.01mm) Different specifications for hardness exist - essential to discuss with supplier as will impact on application
Liner	Tin Saran Saran Aluminium Saranex Synthetic Liner Compound Liner	Essential to discuss wadding specifications with supplier/s as different liners provide different sealing capability which has an effect on shelf life Defects or scratches on the wadding will result in oxidation and/or leakage.
Decoration	As specified by Artwork. Scuff resistance	As per agreed colour tolerances with suppliers (high/low colour ranges). Scuff testing specification to be discussed with supplier
Knurling & Bridges	These are areas where defects can occur in the manufacturing process such as broken bridges or poorly defined knurlings.	Regular inspection should occur to ensure that these defects do not occur.
Storage & Transportation	Storage of ROTE capsules is critical to the stability & performance. ROTE capsules handled & stored incorrectly can be damaged and not dispense and apply correctly. The wadding material can absorb external flavour contaminants and the storage should reflect this possibility.	ROTE closures must be stored in a clean dry cool environment. Capsules must not be stored with other goods or goods stored on top which can damage the capsules. Ensure palletised cartons are to be placed onto pallets with no overhang.
Usage	Maintenance and set-up of ROTE capping heads is critical to capsule performance.	Refer to capping machine & cap manufacturer manuals for capping head set up. Critical points to be covered are head pressure, redraw and thread/tuck Specifications of bottle finish, capsule and capping machinery must be compatible.

Crown Seal		
Critical Issue	Description	Recommendation/Observation
Dimension	Height: Diameter External: Diameter Internal: Flange Angle: Dome radius: Compatibility:	As specified (+/- 0.35mm) As specified (+/- 0.55mm) As specified (+/- 0.25mm) 10 degrees – 20 degrees 140mm to 200mm Check compatibility with bottle type.
Material & Thickness	Tin Plate Stainless Steel Type AESI -430	As specified (+/- 0.03mm) As specified (“ 0.01mm)
Liner	High oxygen barrier wadding is recommended for long term sealing of wine. Liner Type: Foam Vinyl plastic Liner type: Plastic compound Ensure sealants used have good barrier properties for O2 & CO2 Ensure sealants do not taint/contaminate wine with any off flavours.	Daraseal A-700 (recommended weight 380 – 420grams) Designed for sealing product with high pressures
Decoration	As specified by Artwork.	As per agreed colour tolerances with suppliers (high/low colour ranges). Specify varnishes used are resistant to alcohol water & abrasion
Varnish	Food grade, varnishes used to meet standards	
Storage & Transportation	Storage of ROTE capsules is critical to the stability & performance. ROTE capsules handled & stored incorrectly can be damaged and not dispense and apply correctly. The wadding material can absorb external flavour contaminants and the storage should reflect this possibility.	ROTE closures must be stored in a clean dry cool environment. Capsules must not be stored with other goods or goods stored on top which can damage the capsules. Ensure palletised cartons are to be placed onto pallets with no overhang.
Usage	Maintenance and set-up of Crown capping heads is critical to capsule performance.	Refer to capping machine & cap manufacturer manuals for capping head set up.

Crown Seal continued...		
Critical Issue	Description	Recommendation/Observation
Performance	Pressure resistance: Recommend secure seal testing /bubble point test of product using an approve test pressure vessel at start up & regular intervals during bottling Test application using no/go gauge at regular intervals during bottling	Bubble point: failure at 120 PSI. Stop Recheck capping head set up retest before bottling commenced. As specified: refer to supplier specifications as to pass/fail dimensions,

Alternative Closures Increased number of alternative closures available – manufacturing and application specifications are very specific. Comprehensive investigation to be undertaken with supplier
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Decorative Capsules		Recommendation/Observation		
Critical Issue	Description	PVC / PET / Spinnable Poly laminate	Metal	Poly laminate Sparkling Wine Hoods
Dimension	Length: Top Diameter: Taper: Ovality: Orientation Mark:	Per product specification (+/- 1mm) Per product specification (+/- 0.5mm) 1.0 - 1.2 degrees 1.0mm max Not Applicable.	Per product specification (+/- 1mm) Per product specification (+/- 0.5mm) 1.0 - 1.2 degrees 1.0mm max Not Applicable.	Per product specification (+/- 1mm) Per product specification (+/- 0.5mm) 4.5 degrees 2.0mm max Per product specification.
(Top Disc) Air Holes	Size: Number of holes: Distance from centre:	1.0mm - 1.5mm Per product specification. 5mm approx	1.0mm - 1.5mm Per product specification. 5mm approx	1.0mm - 1.5mm Per product specification. Not Applicable.
Tear Tabs	Performance: Width: Protruding Section:	Per product specification. PVC 4.5mm +/- 0.5mm PVC 3.5mm +/- 1.0mm (length)	Not Applicable.	Tears cleanly along the edges of the tear tab strip. 4.5mm +/- 0.5mm 3.5mm +/- 1.0mm (length)
Material Thickness		PVC: As specified (+/- 0.01mm) Foil: As specified (0.04mm thick)	As specified (+/- 0.01mm)	Body: As specified (+/- 0.01mm) Foil: As specified (+/- 0.1mm)
Decoration	As specified by Artwork.	As per agreed colour tolerances with suppliers (high/low colour ranges).	As per agreed colour tolerances with suppliers (high/low colour ranges).	As per agreed colour tolerances with suppliers (high/low colour ranges).
Spacing of Caps on Stick		8 - 11mm	8 - 11mm	9 - 11mm
Appearance		Not damaged/crushed. Not stuck together.	Not damaged/crushed. Not stuck together.	Not damaged/crushed. Not stuck together.
Seam		Good adhesion. No excessive glue.	Not Applicable.	Good adhesion. No excessive glue.
Bottle Application		No tearing/splitting. No puckering/blistering/ripping. No scuffing. No upturned edges.	No tearing/splitting. No puckering/blistering/ripping. No scuffing. No upturned edges.	No tearing/splitting. No puckering/blistering/ripping. No upturned edges. No glue failure. No seam opening up.
Length Per Stick		Less than 600mm	Less than 600mm	Less than 600mm

Decorative Capsules continued...		Recommendation/Observation		
Critical Issue	Description	PVC / PET / Spinnable Poly laminate	Metal	Poly laminate Sparkling Wine Hoods
Packing		Sticks packed horizontally.	Sticks packed horizontally	Sticks packed horizontally.
Identification Label		Product description. Quantity of capsules per carton. Product code. Job number. Carton number.	Product description. Quantity of capsules per carton. Product code. Job number. Carton number.	Product description. Quantity of capsules per carton. Product code. Job number. Carton number.
Storage & Palletisation	Storage of capsules is critical to the stability and performance. Capsules handled and stored incorrectly can be damaged and not dispense automatically on line.	PVC must be stored in clean dry and cool environment. The capsules must not be stored with other goods or goods stacked on top which can damage the capsule. Ensure palletised cartons are to be placed onto pallets with no overhang.	Metal must be stored in clean dry and cool environment. The capsules must not be stored with other goods or goods stacked on top which can damage the capsule. Ensure palletised cartons are to be placed onto pallets with no overhang.	Capsules must be stored in clean dry and cool environment. The capsules must not be stored with other goods or goods stacked on top which can damage the capsule. Ensure palletised cartons are to be placed onto pallets with no overhang.
Usage	Maintenance and set-up of closure dispenser and heat unit (PVC) / spinning unit and rollers (Metal) / pleater and smoother (Poly) is critical to capsules performance.	The correct heat setting is critical to the capsules performance. Capsules are not to split or separate either during application or the shelf life of the product.	Correct rollers and tension is critical to the capsules performance.	Pleaters and smoothers settings must be set to the correct pressure at start up to ensure no blistering occurs.

Sparkling Wine Muselets		
Critical Issue	Description	Recommendation/Observation
Dimension	Length: Top Diameter: Height:	Per product specification (+/- 0.8mm) Per product specification (+/- 0.5mm) Per product specification (+/- 0.6mm)
Body Wire	Specification: Galvanisation: Purity Level: Mechanical Strength:	Galvanised/Lacquered Wire Diameter: 0.95mm +/- 0.03mm First fusion zinc (French Standard: NF A 91.131) 99.995 Minimal elongation: 16% Minimal tensile strength: 19kg Minimal torsion for wire 210mm long: 44 rotations with a 4mm diameter ring.
Belt Wire	Specification: Galvanisation: Purity Level: Mechanical Strength:	As per supplier specifications. First fusion zinc (French Standard: NF A 91.131) 99.995 Minimal elongation: 18% Minimal tensile strength: 28% Minimal torsion for wire 210mm long: 44 rotations with a 4mm diameter ring.
Disk Steel	Tin Plated Steel: Coloured Steel:	Thickness: 20µm - 22µm +/- 0.2µm Minimal tin coating: E = 5.6µm Thickness of tin: 5.6µm on both faces Thickness: 21µm - 23µm +/- 0.2µm Colour coating: 1. Pre treatment varnish 2. Ink 3. Over coating varnish Colour coating made on: 1. Electrolytic tin plated steel 2. Chromium tin plated steel
Spacing of Muselet on Stick		Spaced evenly to dispense automatically.
Appearance		Packed to prevent damage and not damaged. Crushed and not stuck together.
Bottle Application		No breaking of wire when loop twisted.
Length Per Stick		Less than 600mm
Packing		Sticks packed horizontally.

Sparkling Wine Muselets continued...		
Critical Issue	Description	Recommendation/Observation
Identification Label		Product description. Quantity of capsules per carton. Product code. Job number. Carton number.
Storage & Palletisation	Storage of muselets is critical to the stability and performance. Muselets handled and stored incorrectly can be damaged and not dispense automatically.	Muselets must be stored in a clean dry environment. Goods must not be stacked on top which can damage the muselets. Ensure palletised muselets are placed onto pallets with no overhang.
Usage	Maintenance and set up of muselet dispensers and applicators is critical to muselet performance.	

3. Labels

		Recommendation/Observation	
Critical Issue	Description	Wet Gum	Pressure Sensitive
Size	<p>It is recommended that the maximum label dimension be restricted in height by 3mm at the top and bottom of the label panel to avoid puckering at the label extremities due to inconsistencies in application (especially for bottles with small label panels such as premium sparkling and burgundy bottles).</p> <p>Label edges must be perfectly cut in accordance with Artwork specifications and free from burrs.</p> <p><u>Wet Gum</u>: Maximum tolerance for any label size on all directions shall be +/- 0.25mm. Maximum variance between smallest and largest label shall be 0.5mm.</p> <p><u>Pressure Sensitive</u>: Size variation is not applicable.</p> <p>Distance between labels on a web shall be in accordance with manufacturer's specification or recommendation for the machine.</p> <p>Large labels are more susceptible to bubbling/creasing especially when applied to irregular/uneven bottles. Generally the larger the label the greater the risk. Large labels on uncoated paper increases the risk further.</p>	<p>Particular attention to die cut, rule cut, and guillotine cut labels.</p> <p>Attention should be taken to ensure variances do not occur too frequently in a bundle or batch.</p>	<p>Once a die or rule has been made there will be no size variation from that tool.</p>
Colour	<p>Labels shall lie between approved colour tolerances. Foil edges to be clean without chipping or feathering.</p>	<p>Colour specifications should be established from first print run and be agreed between printer and print purchaser.</p>	<p>Colour specifications should be established from first print run and be agreed between printer and print purchaser.</p>

Labels continued...		Recommendation/Observation	
Critical Issue	Description	Wet Gum	Pressure Sensitive
Label Integrity	Images shall be as per label Artwork approval. Text and legal requirements shall be as per Artwork approval.	Refer to specific National and International Regulations. Refer to AWBC Plain English Wine Law: http://www.awbc.com.au/winelaw/wine_label_law.asp Refer to AWBC Wine Label Law: http://www.awbc.com.au/winelaw/index.asp	Refer to specific National and International Regulations. Refer to AWBC Plain English Wine Law: http://www.awbc.com.au/winelaw/wine_label_law.asp Refer to AWBC Wine Label Law: http://www.awbc.com.au/winelaw/index.asp
Print Registration	Print registration movement shall not cause image distortion, colour shift or visual misalignment.		
Adhesive	Adhesive shall not bleed from the interface between the stock and the backing medium. Select Adhesive for requirements.		Adhesive should be selected based on requirements for aggression, repositionability, moisture resistance and specialized applications etc. eg, clarity when using clear plastic stocks requiring window effects.
Paper Grain	Grain is to be horizontal with the application orientation on the container.	ie grain should lay lengthways around the curve of the container and cause the label to curl top to bottom when wet.	
Embossing	Embossing is to be evident, in correct position and in accordance with the Artwork. Grain emboss will reduce the surface area contact of adhesive to bottle. Grained labels should be test applied to ensure edge lift does not occur and adhesion is sufficient.	Reference should be made to the colour specification for customer approval.	Reference should be made to the colour specification for customer approval. Emboss should not so deep that damage to the liner occurs.
Screen printing	Large areas of screen "varnish grain" create surface tension. Screen Grain labels should be test applied to ensure adhesion is sufficient and edge lift does not occur.		

Labels continued...		Recommendation/Observation	
Critical Issue	Description	Wet Gum	Pressure Sensitive
Neck Labels/Strips	Uncoated paper should be avoided as lifting/pinging can occur. Permanent adhesive should be used for all necks. Non-Varnish (Reverse Glue Flap) to be provided for overlap of wrap around necks.		Permanent adhesive should be used. Non-Varnish (Reverse Glue Flap) to be provided for overlap of wrap around necks.
Storage & Conditioning	Labels are to be delivered supported, bound and shrink wrapped. Store in a stable environment.	All care to be taken to avoid extremes of humidity variation to allow labels to stabilize moisture content thus avoiding bending and movement of the stock. Labels should be delivered at least 24 hours before use and stored in similar conditions to the applicator environment to ensure they are stabilized to the same temperature conditions. Remove from sealed packs only as required to load applicator.	All care to be taken to avoid extremes of humidity variation to allow labels to stabilize moisture content thus avoiding bending and movement of the stock. Labels should be delivered at least 24 hours before use and stored in similar conditions to the applicator environment to ensure they are stabilized to the same temperature conditions. Remove from sealed packs only as required to load applicator. Shelf life for self-adhesive labels 18 months to avoid adhesive deterioration
Release Liner	Release Liner must remain uniform in colour for total production run. Labels shall not pre-release from the Release Liner Release Liner shall not break application.		This shall not occur during storage or in the application process.

Labels continued...		Recommendation/Observation	
Critical Issue	Description	Wet Gum	Pressure Sensitive
Scuff Resistance	Labels should be resistant to label damage during transit.	Labels should pass predetermined number of rubs and weight settings using Sutherland scuff test. Refer Australian Standard AS2581 - Pressure Sensitive adhesive labels for general purpose use, for method. Refer to printer for particular attention when divider-less shippers are used.	Labels should pass predetermined number of rubs and weight settings using Sutherland scuff test. Refer Australian Standard AS2581 - Pressure Sensitive adhesive labels for general purpose use, for method. Refer to printer for particular attention when divider-less shippers are used.
Paper Selection	Stock to be compatible with machines, adhesives and application speed. Stock to be selected for moisture integrity.	Trials should be conducted under production conditions to confirm compatibility of unproven stocks to the conditions of each bottling line. Where labels are required to be submitted to high humidity and wet conditions, trials should be conducted on printed and varnished stock to ensure they meet expectations under these adverse conditions.	Trials should be conducted under production conditions to confirm compatibility of unproven stocks to the conditions of each bottling line. Where labels are required to be submitted to high humidity and wet conditions, trials should be conducted on printed and varnished stock to ensure they meet expectations under these adverse conditions.

4. Cartons

Corrugated and Pre-Print Fibreboard Cartons		
Critical Issue	Description	Recommendation/Observation
Carrying Capacity	Performance: For any box to provide satisfactory service in the field depends upon many factors. It is necessary to match the function of the carton to the nature of the contents, and the relevant distribution system (handling processes).	Reference: AS 2400 (1981) Supplier/client negotiation - fitness for purpose.
Corrugated Glue Bond Strength	Corrugated glue bond strength is measured by the liner adhesion test.	Reference: AS 1301.430s Note: Where A, B or C flute are used, the liner adhesion shall not be less than 0.5 kN/m of flute.
Dimension/Size	Panel Sizes: Slotting Position: Under/Oversize Slotting: Height: Other:	Panel size of +/- 1mm with no more than 3mm accumulated. Slotting position +/- 3mm from the centre of crease and clean cut slots. Under/Oversize slotting +/- 2mm unless specified (the aim is 3mm past the score line). Height +/- 2mm Centre of slot to line up (same plane). Minimal evidence of torn edges of board as a result of blunt cutter blades.
Board Material - Flute Grade to be Specified.	Flute Grade: Flute B: Flute C: Lay Down: Carton - Paper Weight:	As per negotiated specification between supplier and client. Thickness: 2.4mm - 3.2mm Thickness: 3.4mm - 4.2mm Lay down to be formed using a "C" Flute board grade. Paperweight to be negotiated between supplier/client to performance.
Crush	Flute:	To be specified between supplier/client. Overall non print area 0.08mm Printed area 0.2mm Pull straps, folding belts 0.25mm

Corrugated and Pre-Print Fibreboard Cartons continued...		
Critical Issue	Description	Recommendation/Observation
Print Quality	<p>Colour (cartons shall be between colour tolerances):</p> <p>Register (colours and print):</p> <p>Appearance/Neatness (imperfections shall be eliminated ie Smear/Offset/Spattering/Imperfections)</p> <p>Stereo Placement/Alignment:</p>	<p>Colour: specifications should be established, and agreed between supplier and client using PMS standards.</p> <p>Registration: specifications for register +/- 2mm for each colour and +/- 3mm registration print to each carton.</p> <p>Appearance: specifications should be established between supplier and client.</p> <p>Stereo Alignment: specifications should be established between supplier and client (printing should be squared to the carton panel(s) within +/- 6mm).</p>
Pre-print/Gloss Cartons	<p>Top and Bottom long flaps:</p> <p>Gloss Varnish:</p>	<p>A minimum gap of 4mm +/- 2mm.</p> <p>Specifications to be set by supplier/client, however no gloss print to occur on internal flaps (glue sealing surfaces).</p>
Presentation/Integrity	Text and Images shall be as per approved artwork, inclusive of legal requirements.	<p>Text and images should be established and agreed between supplier and client</p> <p>Refer to Domestic and International regulations (FSANZ).</p>
Quantity/Palletisation/Delivery		To be agreed between supplier and purchaser, inclusive of shrink or stretch wrap - to reduce moisture changes or possible contamination/damage during storage and distribution.
Supplier Identification	Supplier /Pallet Identification	Each carton should have supplier identification and production details.
Storage Conditions	Critical to the aesthetics and performance of the carton.	<p>All cartons must be stored in a clean and dry environment.</p> <p>Store in temperatures above 5 degrees and Below 35 degrees.</p> <p>Excessive dry/wet conditions should be avoided – air humidity affects the material and the usability of the carton. Further reference: Australian Standards.</p>
Quality Levels	AQL Standards	Such specific level can be set to standard AQL levels of Non-conformance. These will need to be agreed between supplier and client.
Specifications for general purpose corrugated fibreboard boxes and blanks	Definitions/Descriptions and Terminology	Reference: AS 3537-1998

5. Bag-in-Box / Softpack

Plastic or Metallised Plastic Wine Packs with Dispensing Tap		
Critical Issue	Description	Recommendation/Observation
Oxygen Transmission - Tap	The tap is a large window for oxygen transmission.	Quoted oxygen transmission measurements should be done using ASTM D3985-81.
Oxygen Transmission - Cask Film Material	Unlike glass, plastic films allow oxygen to permeate through their structure. The oxygen transmission rate is quoted as cc oxygen/square meter /24hrs. As films are flexed their oxygen transmission rate increases.	When comparing film structures always use measurements of pre-flexed films. Measurements should be done using the ASTM D3985-81.
Flex-Cracking	Plastic films can "crack" due to flexing during the packing and transport of softpacks. This cracking increases the oxygen transmission rate of the film and in extreme cases can lead to leakage.	During packing, the pouches need to be handled with care to minimise shocks and excessive flexing.
Box-Pouch Compatibility	The size and dimensions of the cardboard cask and the pouch are interdependent and will affect the performance of the whole package. Flex-cracking and pack deformation can be improved by optimising the compatibility of the sizes.	Your pouch supplier should provide you with the optimum size combination for you to consider.
Wine Preservatives	Due to the oxygen permeability of the pack particular attention needs to be paid to preservative levels at filling to maximise the shelf-life of the pack.	Typical preservative levels at bottling are: - White wines: free sulphur 40-55ppm - Ascorbic acid: 100-150ppm - Red wines: free sulphur 30-45ppm - Total sulphur: 130-150ppm
Dissolved Gases	Wine contains dissolved carbon dioxide in various quantities. If the level is high at filling the gas can come out of solution during transport and storage causing the bag to balloon (and in extreme cases burst).	Typical dissolved carbon dioxide levels at bottling are less than 0.7grams per litre.
Best Before Dates	Softpacks are required by law to carry "Best Before" dates, as does any product which has a shelf life of less than two years.	Due to the distances and logistical issues in Australia, it is recommended that the wine and package should be "Best Before" a maximum of nine months after packing.

6. General Product Specifications

Critical Issue	Description	Recommendation/Observation
General	Customers will require a full product specification.	
Bottle Shape & Style	This will indicate if the production line has the capabilities to run it down the line. Glass label panel will dictate the label sizes and shapes appropriate for bottle. Neck finish with dictate the closure that can be applied, namely screw capsule, cork length and diameter. Size and shape of the carton needed.	Obtain bottle drawings that include required (critical) dimensions.
Carton Shape	Will depend on the quantity of bottles required for packaging ie gift box, 6 pack, 12 pack. Bottle shape and size.	Customer / market requirement. Length by width by height and weight will be required by customers.
Carton Orientation (Upright/Laydown)	Closure used on bottle has an important impact on bottle orientation.	Carton orientation will be required by customers and be customer or brand specific.
Pallet Configuration	Carton stacking and palletisation is determined by the type of bottle used and the carton orientation. Pallet configuration will be required by customer specification.	Refer Correx palletising chart.
Slip Sheet	Required for some customers to aid depalletisation.	Size and thickness of slip sheet will be determined by pallet size, pallet configuration and carton weight.
Carton Identification (Stencil/Sticker)	Not a mandatory requirement but if required, artwork will need to include an un-printed area for ink jet application or stickers.	Customer requirement. Warehouse requirement.
Divider	Used as an aid for carton stabilisation and to help minimise label damage.	Recommended for all sparkling products, cartons that are designed for lay down or inverted bottles, multi-packs ie 24x single serve bottles, brandy. Refer to the Export Market Grid USA and Canadian requirements.
Carton Strength	A function of the corrugated flute and liner used.	Determined by carton weight and orientation. Customer requirement. Product security ie sparkling cartons are generally stronger.
Barcode Requirements	A standardised approach to numbering and bar coding trade items.	Refer to GS1 Australia User Manual - Numbering and Bar coding.

General Product Specifications continued...		
Critical Issue	Description	Recommendation/Observation
Mandatories / Sparkling Warnings / Display	Carton artwork to consider bottle orientation symbol, Stanley knife warning, carton display cuts. Using 6 pack cartons as a retail unit	Product specific. If a customer requires a 13 digit barcode on a pack, ensure relevant labelling mandatory requirements for retail packages are met. Refer to AWBC Wine Label Law for these requirements.
Mandatories	Using six pack cartons as a retail unit	If a customer requires a 13 digit barcode on a pack, must ensure relevant labelling mandatory requirements for retail packages are met. Refer to AWBC label law for these requirements.
Capsule	Composition of capsule is determined by product design or customer requirement (some require capsules to be PET for recycle).	Capsule composition will be determined by customer specifications.
Neck Tags / Accessories	A promotional item that can be applied to individual bottles. Number applied per carton is limited to line capabilities.	Promotional requirement.

7. Glass Bottles

Critical Issue	Description	Recommendation/Observation
Dimensions		Glass bottle dimensions shall be as per approved drawings provided by their suppliers.
Finish	The specific glass finish affects type, style and size of closure usage. The most common finishes available for the Australian domestic and export markets are “cork mouth”, “BVS”, and Crown/Sparkling.	The finish of each bottle shall be as per approved manufacturer drawings & shall perform with the appropriate/specified closure. The sealing surface/s on all bottles must be smooth & undistorted and within the specified tolerances.
Capacity	Bottle capacities do vary from that nominated/specified (i.e. 750ml) due to manufacturing variances, however actual capacity must be within the specified/acceptable tolerances.	Any measurement of bottle capacity must be an average of 12 bottles, and must achieve the stated volume capacity. <i>Note: Of the 122 bottles tested, no more than one bottle can be under the stated volume and may not exceed 5% of the stated volume.</i>
Exterior Surface Coating	Bottles are coated to inhibit scuffing during transport.	Minimal scuffing should exist. Excess surface coating can lead to poor label adhesion.
Label Panel	Sink & Bulge	Maximum 0.1mm per 25mm length of label panel.
Bottle Colour	Bottle colour does vary during manufacturing within a specified range (refer supplier specifications and tolerances).	Bottle colour must be within the specified supplier range unless notified by the supplier, and agreed to use.
Glass Contaminants	The manufacture, handling and transport of glass bottles can attribute to glass fragments in containers.	Bottles supplied that contain contaminants such as glass fragments are classified as critical defects.
Lot Marking	Glass pallets should be labelled with manufacturing time and batch-lot numbers and plant reference code/s	During usage, pallet numbers and production dates should be recorded to assist with traceability.
Handling & Storage	Storage is critical to the performance of bottles. Ideally glass bottles should be stored under cover.	Where possible, glass should be supplied to the bottling line at a consistent temperature <i>Note: the closer to the wine fill temperature the better.</i>
Packing	Pallets, divider board and wrapping can deteriorate over time. <i>Note: As there is a cost and return associated with this packing material care should be taken to avoid any damage.</i>	When using glass, particular attention should be paid to the dividers. Pallets and dividers must be free of foreign materials, pests and dust. <i>Note: Stacked dividers boards must be stored whilst awaiting collection.</i>

Glass Bottles continued...		
Critical Issue	Description	Recommendation/Observation
Critical Defects	Unacceptable. Any defect that is likely to result in a health risk.	Bird swing, loose glass internal, external stuck glass, internal fused glass, overpressed finish, stuck plunger, sugary finish, open internal blister, carbon or any foreign objects, any other defects that could be hazardous to a consumer. Any object that is likely to result in glass/product contamination or that could be considered hazardous to a consumer <u>should not be used</u> .
Major Defects	Any functional defect that may cause the container to fail.	Defined as line over finish, split ring, chipped finish, offset finish, choked neck, body check or split, sloping finish, out of round or oval, split seams, crizzled finish, stones (stressed) split bottoms, split seams, air marks, any other defects that may result in container failure or disruption to bottling.
Minor Defects	Any defect that is generally aesthetic in nature, but does not affect the functionality of the container.	Colour off standard, wave laps, wash board, brush marks, loading marks, knurling, excessive coating, slug necks, sunken ware, cold wve, take out check, hard blisters, any other defects that noticeably affect appearance and may affect stability. Any defect that does not impact on the function of the container but is a departure from acceptable standards and appearance.
Glass Glossary/Terminologies	Colour off standard	The bottle colour is outside of the colour tolerances specified for the bottle.
	Bent neck	A neck which is tilted away from the vertical.
	Thin glass	The bottle has an area of thin glass, which is not thick enough to enable the bottle to fulfil the purpose for which it was designed.
	Wash Board/Wave Laps	Horizontal fine laps or ripples, on the neck or body of the bottle.
	Loading marks	Surface marks in the upper region of the bottle
	Sunken or bulged panel	A convex or concave distortion of the walls of the bottle [label panel].
	Line over finish	A line across the sealing surface

Split ring	A finish which is offset to the neck of the bottle.
Cracked or chipped finish	A finish from which a small section is broken on top or side of the finish.
Offset finish	A finish which is offset to the neck of the bottle.
Pinched neck	A distorted neck which has been pinched or pushed.
Out of round/oval	The body of the bottle is oval/elliptical and is out of round to specifications.
Split seam	A vertical crack in the region forming the seam between two parts of the mould.
Crizzled finish	A deep surface fracture, of any length that does not penetrate into the glass surface that exceeds 2 mm.
Stones/Seed	Pieces of metal or metal oxide, stones or small bubbles.
Birds wine [Note: not gap between bird and swing]	A thread of glass across the inside of the bottle.
Over height	The overall height of the container exceeds the maximum specified for the bottle.
Under height	The overall height of the bottle is less than the minimum specified for the bottle.
Over size bore	The bore of the bottle is greater than the maximum specified diameter for the bottle.
Under size bore	The bore of the bottle is smaller than the minimum specified diameter.
Slug necks	The neck has an internal thickening of the glass.
Excessive coating	The bottle shows either a reflective appearance (Hot End coating) or dribbles of Cold End coating.

8. PET Containers

Critical Issue	Description	Recommendation/Observation
Dimensions		PET bottle dimensions shall be as per approved drawings.
Finish		The finish of each bottle shall be as per approved drawings & shall perform with the specified closure. The sealing surface on all PET bottles must be smooth & undistorted.
Capacity		Brimful capacity & fill point tolerances shall be as specified on approved drawings. Suppliers must ensure PET bottles supplied can maintain Australian average fill requirements.
Exterior surface coating		The exterior surface of PET wine bottles is to be treated with approved materials. Consult with PET bottle manufacturer as to type of material used.
Label Panel	Sink & Bulge	Max 0.1mm per 25mm
PET Colour		Agreed to between supplier & customer with colour tolerances.
Fragments		PET bottles supplied that contain any foreign matter are classified as major defects and will not be accepted.
PET Supplier Container defects	Any defects that that is visual or has an affect on the performance or appearance of the container	Colour off standard, any defects that noticeably affect the appearance and may affect stability. Any defect that does not impact on the function of the container but is a departure from acceptable standards and appearance.
Storage of containers (Pre fill & Post fill)	Critical do not expose to heat or direct sun light.	Critical. Do not expose PET to any heat, moisture or direct sunlight which will damage the container and will shorten the shelf life if O2 barriers in the container are used.
Handling & storage	Critical, manage stock rotation Storage is critical to the performance of bottles	Pallet ticket to include, ID, production date & warnings. Pallet alert tickets state no exposure to sunlight hea or moisture. Stock rotation is critical to this product, ensuring the oldest containers first. For each day a container is not filled the shorter the shelf life of the filled product when containers are made with O2 scavengers. Each individual pallet shall contain a batch ticket identifying the bottle, colour, code, quantity, production date, production time, address of manufacture & pallet number.

PET Containers continued...		
Critical Issue	Description	Recommendation/Observation
Packing (Prefilled)		The bottle must be kept clean, free of dirt, free of foreign materials & be dust proof & moisture resistant. Wrap must ensure bottles are stable during shipment & storage. Dividers must be of a clean contamination resistant material ideally made of a plastic material, which is washed before use, using food grade material. Pallets & dividers must be able to be automatically handled by bottler's depalletisers. Ensure bottlers are advised in advance of any changes to packaging material.
Traceability		The supplier is required to maintain records to identify all delivery batches & production dates
Product Identification & Traceability (Post)	Packed on date	It is preferred that individual bottles be batch coded to identify the date & time of manufacture. Preference is for laser batch coding to be on the side of the bottle, preferred method best before/packed on printed on individual bottles & outer shipper. Reference Standard 1.2. 5 Date Marking of Packaged Food.
Warehousing finished product		Stack pallets two high
Stock rotation.		Ensure oldest stock is used first,(first in first out) shelf life of product is shortened for each day the containers are packaged.
PET Type	Use of O2 barriers inPET containers,	PET containers are available with different combinations of PET or PET with O2 scavengers that assists in extending the shelf life of the packaged product. Consult with your PET supplier as to what types of containers are available.
Filling & Capping Machine Set up.	Critical, correct filling & capping machine set.	Consult with bottle supplier as to correct filling & capping machine set up, trial bottles on equipment to ensure equipment is capable of handling PET

9. Packaging Usage & Safety

Critical Issue	Description	Recommendation/Observation
General	The primary purpose of these packaging guidelines is to offer guidance for what is considered industry best practice for those companies who procure and use packaging.	Reference should always be to supplier specifications for usage.
Product Identification	Identification labels should be mandatory for all packaging deliveries.	Each shipper has a label with the following information: <ul style="list-style-type: none">- Supplier company name.- Supplier capsules code.- Customer company name.- Capsule type, description & dimensions.- Units per carton.- Progressive carton number.- Production date & lot number.
Packaging Usage	Documentation of the usage of packaging is an important process to comply with Australian and international product traceability requirements.	Systems to record and maintain the usage of packaging should be incorporated in the company's packaging operating procedures.