Summary

The purpose in this application is to apply for an amendment to the Australia New Zealand Food Standards Code to permit the use of silver chloride, ammonium bisulphite, chitin-glucan and PVI/PVP as processing aids for wine.

Under the AGREEMENT BETWEEN AUSTRALIA AND THE EUROPEAN COMMUNITY ON TRADE IN WINE (Wine Agreement), if one Contracting Party proposes to authorise a new, or modify an existing, oenological practice, process or a compositional requirement for commercial use in its territory which is not authorised by the other Contracting Party they notify the other Contracting Party. The European Union have formally requested Australia authorize the use of silver chloride, ammonium bisulphite, chitin-glucan and PVI/PVP as processing aids for use in wine. In response WFA have prepared the following application/s to FSANZ to amend the Australia and New Zealand Food Standards Code to permit the use of these processing aids for the manufacture of wine and to satisfy Australia's obligations the Wine Agreement.

Under Article 6 of the Wine Agreement each party is required to notify the other party of new (or changes to) oenological practices.

The most recent notifications from the European Commission have included:

- Use of protein from potatoes for clarification (OIV-OENO 495-2013)
- Use of yeast autolysate to encourage yeast development (OIV-OENO 496-2013)
- Use of inactivated yeast (OIV-OENO 459-2013)
- Treatment of wines using a membrane technology coupled with activated carbon to reduce excess 4-ethylphenol and 4-ethylguaiacol (OENO-TECHNO 12-504)
- Use of PVP/PVI (OIV-OENO 145-2009)
- Use of silver chloride (OIV-OENO 1/07 and 2/07)

We have also recently undertaken an audit of Standard 1.3.1 and Standard 1.3.3 of the Australia New Zealand Food Standards Code to ensure compliance with the Wine Agreement. This has shown that ammonium bisulphite and chitin-glucan from fungal origin have both been approved for use in the European Union and been requested for approval for use in Australia but are not yet formally permitted in the Australia New Zealand Food Standards Code. PVI/PVP and silver chloride are also not yet permitted. We believe all other additive/processing aid permissions are now in force.

This application to Food Standards Australia New Zealand will enable Australia to fulfil its treaty obligations under the Wine Agreement and also to satisfy World Trade Organisation obligations to ensure equal treatment with our trading partners. This application is submitted on behalf of Winemakers Federation of Australia – the peak industry body for Australia's winemakers. We have also consulted with the Australian Department of Agriculture and Water Resources and New Zealand Winegrowers - New Zealand Winegrowers is the national organisation for New Zealand's grape and wine sector with around 850 grower members and 700 winery members.

We have attached completed applications that meet the requirements of the Handbook for each of the processing aids.

<u>Ammonium bisulphite</u>

Ammonium bisulphite belongs to the functional class microbial nutrients and microbial nutrient adjuncts. Ammonium bisulphite is listed in the Codex Alimentarius Commission Inventory of Processing aids for use in Food Category No. 14.2.3 (Grape wines). Ammonium bisulphite is permitted for use in wines produced in Australia for export to the European Union under Part A of Annex 1 of the European Union – Australia Agreement on Trade in Wine (the Wine Agreement). Point 7 permits

> *Addition of culture of micro organisms including yeast ghosts with or without one of the following substances to encourage the growth in yeasts:*
>
> - *Ammonium sulphite or ammonium bisulphite*

Ammonium bisulphite is permitted for use in wines produced in the European Union and sold in Australia under Part B of Annex 1 of the Wine Agreement-Point 9 permits:

> *Addition of one or more of the following substances to encourage the growth in yeasts:*
>
> - *ammonium sulphite or ammonium bisulphite up to 0.2 grams per litre*

For consistency it is requested to amend the table to clause 18 Permitted microbial nutrients and microbial nutrient adjuncts of Standard 1.3.3 of the (current) Food Standards Code to include Ammonium bisulphite. Under the revised Food Standards Code this would require an amendment to section S18-5 of Schedule 18.

It is also requested to amend Standard 4.5.1 Wine Production Requirements (Australia only). There are two possible alternatives to amending Standard 4.5.1:

First amend the table to clause 4 to include ammonium bisulphite, or;

To amend 4 (2):

> In this clause – cultures of microrganisms means yeasts or bacteria (including yeast ghosts) used in wine manufacture with or without the addition of any one or more of thiamine hydrochloride, niacin, pyridoxine, panthenic acid, biotin and inositol, ***or Permitted microbial nutrients and microbial nutrient adjuncts in the Table to clause 18 of Standard 1.3.3 (Section S18-5 of Schedule 18 of the revised Code)***.

WFA believes that the second option is more appropriate and would support this approach.

Ammonium bisulphite is used exclusively for fermentation operations. It makes available sulfur dioxide and ammonium ions, which can be directly assimilated by the yeast. It is used as a processing aid to assist fermentation. Nitrogenous compounds play an important role in winemaking. They serve as nutrients for the growth and metabolic activity of the yeast during fermentation; and as proteins, they also influence wine stability, particularly in white wine. Quantitatively, next to sugars, nitrogenous compounds are the most important nutrient substances found in grape must. Ammonia, which exists as ammonium (NH4+) ions in must, and amino acids are the predominant nitrogen-containing compounds that are utilized by yeast. Ammonium bisulfite breaks down to provide ammonium that acts as a yeast nutrient and SO_2.

Sulphites have been associated with the full range of food intolerance symptoms and label declarations are required on wine. Wine already has limits for SO_2 in the Food Standards Code, so this application will have no impact on dietary intake.

Silver chloride

Silver chloride is used for the treatment of wines to remove fermentation and storage-related abnormal odours (odours caused by reduction reactions, characterised by the presence of hydrogen sulphide and thiols). Silver chloride added to wine must be applied to an inert support, like kieselguhr (diatomaceous earth), bentonite, kaolin, etc. The precipitate must be eliminated by any appropriate physical procedure.

Silver sulphide formed during the treatment remains adsorbed by the inert carrier material and together they can be separated by filtration.

The European Union requested the addition silver chloride to the Annex of the Wine Agreement in late 2015. Provisional approval was granted for the use of this product in European wine exported to Australia under the Wine Agreement. To ensure consistency with the Food Standards Code it is requested to amend the table to clause 14 (Permitted processing aids with miscellaneous functions) of Standard 1.3.3 of the Food Standards Code to include silver chloride as a processing aid. In the revised food Standards Code it would probably fall under Schedule 18-9 (Processing Aids that perform various technological purposes). As the Australian wine industry does not wish to use silver chloride as a processing aid no request is being made to amend Standard 4.5.1.

The inert carrier materials, such as, for instance, kieselguhr (diatomaceous earth), bentonite, kaolin, etc. should comply with the prescriptions of the Food Standards Code. The precipitates silver chloride forms with unwanted components in alcoholic beverages during processing are removed via filtration or similar processes.

Standard 1.3.4 requires that substances added to food, including processing aids, comply with relevant specifications as detailed in the Code. Silver Chloride meets the OIV specification which is one of the secondary references for specifications in Standard 1.3.4 (Identity and Purity). Therefore, no new specification is required for the Code.

The OIV recommended dose is not over 1 g/hl. Although the silver complex will be filtered out, any residual silver must be minimised and meet the Food Standards Code requirements.

Chitin-glucan

To ensure consistency with the Food Standards Code it is requested to amend the table to clause 14 (Permitted processing aids with miscellaneous functions) of Standard 1.3.3 of the Food Standards Code to include chitin-glucan as a processing aid. In the revised food Standards Code it would fall under Schedule 18-9 (Processing Aids that perform various technological purposes). It is also requested that Standard 4.5.1 Wine Production Requirements (Australia only) be amended to include chitin-glucan in the table to clause 4.

The European Union requested the addition of chitosan and chitin-glucan of fungal origin to the Annex of the Wine Agreement in November 2010. Provisional approval was granted for the use of

these products in European wine exported to Australia under the Wine Agreement. In 2004, FSANZ approved permission to use chitosan sourced from *A. niger* as a processing aid in the manufacture of various alcoholic beverages.

Chitin-glucan is of fungus origin and is a natural polymer, the main component of the cellular walls of *Aspergillus niger*. It is initially extracted and purified from the mycelium of *Aspergillus niger*. This fungal resource is a by-product of the citric acid produced for the food and pharmaceutical markets.

Chitin-glucan is composed of polysaccharides chitin (repeat units N- acetyl-D-glucosamine) and 1,3-ß-glucan (repeat unit D-glucose). The two polymers are covalently connected and form a three-dimensional network. The chitin/glucan ratio ranges from 25:75 to 60:40 (m/m).

It is used as a fining agent of musts during racking in order to reduce the colloid content and cloudiness.

It is also used for stabilising wines prior to bottling after alcoholic fermentation. This polymer has a stabilising capacity with respect to ferric breakages. It also helps eliminate undesirable compounds such as heavy metals (lead, cadmium), mycotoxins, etc.

Chitin-glucan is insoluble in alcoholic beverages. The precipitates it forms with unwanted components in alcoholic beverages during processing are removed via filtration or similar processes. Therefore, no analytical method is needed to check for chitosan residues. Standard 1.3.4 requires that substances added to food, including processing aids, comply with relevant specifications as detailed in the Code. Chitin-glucan meets the OIV specification which is one of the secondary references for specifications in Standard 1.3.4 (Identity and Purity). Therefore, no new specification is required for the Code.

Chitin has been assessed by EFSA and approved for use in the European Union. According to Bornet and Teissedre (2008) , in rats, there were no changes indicating obvious toxicity of chitins in clinical signs, body weight, food intake, hematology, serum, biochemistry or histopathological findings except a slight decrease in body weight gain. Chitosan derived from shrimp was recognized as GRAS substance (Substance Generally Recognized as Safe) through scientific procedures for use in foods in general, including meat and poultry, for multiple technique effects by the US Food and Drug Administration.

Polyvinylimidazole-polyvinylpyrrolidone copolymers (PVI/PVP)

Polyvinylimidazole-polyvinylpyrrolidone copolymers (PVI/PVP) is an insoluble adsorbent resin with two main properties of interest in winemaking:

- The specific adsorption capacity for heavy metals such as copper and iron, as well as for aluminium, allows higher concentrations to be removed, thereby preventing hazes in wines.
- By eliminating heavy metals, such as copper, it prevents the destruction of varietal thiols (A3MH, 3MH, 4MMP, etc.) present in several white varietals such as Sauvignon Blanc, as well in certain red wines.
- The prevention of browning through the adsorption of phenolic compounds such as 3,4-dihydroxycinnamic acid derivatives, which otherwise enter into enzymatic and nonenzymatic reactions. The products of these reactions are responsible for the undesirable brown discoloration of white and rosé wines.

- Prevention of pinking by eliminating catalysers of oxidation such as iron and copper and by reducing the polyphenolic content of wine.
- Iron and copper should not be completely removed, as traces of these elements (0.05 to 0.1 mg/L for copper and 2 to 3 mg/L for iron) are important for the oxido-reductive potential of wine(see for example Oenartis, 2015b).

The European Union requested the addition of PVI/PVP copolymer to the Annex of the Wine Agreement in late 2015. Provisional approval was granted for the use of these products in European wine exported to Australia under the Wine Agreement. To ensure consistency with the Food Standards Code it is requested to amend the table to clause 14 (Permitted processing aids with miscellaneous functions) of Standard 1.3.3 of the Food Standards Code to include PVI/PVP copolymer. In the revised food Standards Code it would probably fall under Schedule 18-9 (Processing Aids that perform various technological purposes). It is also proposed to include PVI/PVP copolymer in the table to clause 4 of Standard 4.5.1 to permit the use of PVI/PVP copolymer as a processing aid by Australian producers.

PVI/PVP copolymer is insoluble in alcoholic beverages. The precipitates it forms with unwanted components in alcoholic beverages during processing are removed via filtration or similar processes. Therefore, no analytical method is needed to check for residues. Standard 1.3.4 requires that substances added to food, including processing aids, comply with relevant specifications as detailed in the Code. PVI/PVP copolymer meets the OIV specification which is one of the secondary references for specifications in Standard 1.3.4 (Identity and Purity). Therefore, no new specification is required for the Code.