

Cellarguard PLUS Wine Contact Trial

Purpose & Scope of the Trial:

Cellarguard PLUS is the most advanced technology providing non toxic, non allergenic, anti fungal and anti microbial treatments to many industries. It is defined as a “bound anti-microbial coating”. When applied to a non-porous surface it will not leach, dissolve, diffuse or migrate. **Cellarguard PLUS** is, amongst other industries, currently in use in direct contact with milk products in the dairy industry and in direct contact with water in the water bottling industry.

Cellar Group have keen interest from NZ wineries and the bulk wine transport companies to use **Cellarguard PLUS** for the purpose of ultimate sterilization of the stainless steel surfaces in contact with wine.

Determination of the effects, if any, of Cellarguard Plus on sensory evaluation and analytical testing of wine has therefore been conducted.

Wine Evaluation:

The wines selected for the trial were classed as being of high commercial quality, and are described as follows;

- 1) Trinity Hill Hawkes Bay Pinot Gris 2011
- 2) Paritua Hawkes Bay Bordeaux Red Blend 2011
(53% Merlot, 17% Cabernet Sauvignon, 14% Cabernet Franc, 7% Malbec, 7% Syrah)

These wine varieties were used after consultation with various winemakers, as it was felt that Pinot Gris and Merlot (or merlot predominant blends) would show any sign of non-wine derived faults or taint most readily.

The wines were siphoned via gravity from tank under inert conditions into sterile 50L kegs. For each variety there was a control keg with no internal surface treatment. The trial keg had **Cellarguard PLUS** correctly applied to the internal surfaces.

There was no addition of Potassium Metabisulphite at transfer. The wines were then left in a winery cellar for 5 weeks. With the high surface area contact in the keg this time frame should have been long enough for any taint or instability to occur.

Summary of Physical Wine Analysis:

Wine Analysis Completed	White Wine Pre-Trial BASELINE	White Wine Post-Trial CONTROL	White Wine Post-Trial CGP TRIAL	Red Wine Pre-Trial BASELINE	Red Wine Post-Trial CONTROL	Red Wine Post-Trial CGP TRIAL
Alcohol (% by Vol.)	12.47	12.36	12.36	13.24	13.12	13.09
Volatile Acidity (g/L)	0.22	0.20	0.20	0.40	0.42	0.41
Malic Acid (g/L)	-	-	-	0.05	0.04	0.04
Residual Sugar (g/L)	2.92	2.95	2.98	0.40	0.41	0.41
pH	3.58	3.50	3.50	3.65	3.66	3.66
Total Acidity (g/L)	5.55	5.46	5.49	5.26	5.16	5.18
Free SO ₂ (ppm)	24.48	23.36	25.68	21.84	21.04	18.88
Total SO ₂ (ppm)	108.00	108.24	109.44	65.04	60.80	56.24
Filterability Index	1.30	1.23	1.20	2.43	2.57	2.77
Density in Specific Gravity	0.9928	0.9928	0.9929	0.9938	0.9939	0.9939
Dissolved Oxygen (mg/L)	0.13	0.147	0.052	0.57	0.216	0.423
Dissolved CO ₂ (g/L)	0.84	0.85	0.90	0.72	1.01	0.91
Clarity (N.T.U)	0.32	0.44	0.51	16.0	13.7	17.0
Colour @ 420nm	0.060	0.061	0.060	2.744	2.762	2.835
Colour @ 520nm	0.014	0.011	0.011	3.418	3.427	3.529

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It has to be noted that the Pinot Gris was in “bottle ready” condition, whilst the Bordeaux Red blend was fully stable but was yet to undergo final preparation for bottling.

The production state of the Bordeaux Blend was important to determine if the colour and phenolic components in red wine were precipitated or became unstable, in the presence of **Cellarguard PLUS**.

Samples for chemical analysis were taken from the winery tank for the pre-trial analysis and directly from each keg for the post-trial analysis.

The conclusion of the chemical analysis is that the only differences are well within the industry margin of error for all analytical methods used.

The analysis was conducted by the WineWorks Hawkes Bay Wine laboratory.

Sensory Evaluation:

Wine samples were removed under inert and sterile conditions from each of the kegs. There were 3 x 750ml bottles sampled from each of the kegs.

The following Hawkes Bay winemakers were enlisted to complete a blind triangulated tasting of the wines, independently of each other;

Warren Gibson Chief Winemaker at Trinity Hill

Jason Stent

Chief Winemaker at Paritua Vineyards

Rod Easthope Consulting Winemaker & Winemaker at Easthope Wines

There were two flights of triangulated wine samples presented to each Winemaker, containing an undisclosed mix of the control and trial wines.

Summary of Sensory Evaluation:

The winemakers were requested to taste the wines giving an objective assessment of the quality of the samples and looking for any significant differences due to fault and/or taint.

Across all three winemakers there was absolutely no sign of any winemaking faults or taint when compared with the original control wine.

The common statement that was made was “no discernible difference between the wines”.

This applied to wines within the flight and between the flights of the same wine.

The wines were unanimously deemed to be “without fault” and “vinous and varietal”. The Pinot Gris displayed “ripe pear characteristics with spice, and fresh acid”. The Bordeaux Red had common descriptions of “fresh ripe plum fruit, chocolate present” for the trial and control wines.

Conclusions:

1. It is clear that wine stored in contact for 5 weeks with **Cellarguard PLUS**, was in no way altered, either physically or organoleptically.
2. The Winemakers involved will endorse the independence and objectivity of the tasting conducted, as well as the results of that tasting.
3. We can now make the claim that wine can be safely stored or transported for prolonged periods in contact with **Cellarguard PLUS**.