Vinifera master thesis inscription and abstract

Thesis title:

Dissolved oxygen at bottling and the interest of inerting with nitrogen

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Abstract

Topic position & objectives: Oxygen at bottling can be detrimental for wine quality. It can change the properties of the wines and diminish the shelf life of them. All this, triggered mainly by free sulfur dioxide losses. Controlling oxygen pick up at conditioning is essential if we want to avoid negative consequences. The purpose of this experiment was to investigate the effect of inerting with nitrogen by comparing two modalities of bottling. One with nitrogen and the other one without. The objective is to check how nitrogen can affect the levels of oxygen pick up at bottling, and in consequence, the free sulfur dioxide losses and organoleptic properties of the wines.
Methods: Using luminescence technology, dissolved oxygen and headspace oxygen were measured after bottling. Free sulfur dioxide measurements were made at bottling, after a month and after a year of bottle storage. A triangle taste test and a preferential taste was performed after a year of bottle storage.

Results: No differences on free sulfur dioxide losses were found after a month between both modalities, probably because headspace oxygen was controlled for both modalities. Nevertheless, bigger contents on free sulfur dioxide were found after a year of storage for the nitrogen modality, due to differences in dissolved oxygen at bottling. No difference or preference between the two modalities at tasting was found after a year of bottle storage.
Main conclusions: Inerting with nitrogen at bottling represents a good tool to lower oxygen dissolution. Demonstrating better preservation of free sulfur dioxide after a year in the bottle, with no damaging effects on the sensory properties of the wines.

Keywords (5): bottling, sulfur dioxide, headspace oxygen, dissolved oxygen, total package oxygen.