

# Analytical characterization of Oloroso Sherry in *Sherry Cask*<sup>®</sup> seasoning and its influence in the ageing of Brandy de Jerez

## ABSTRACT

Oloroso Sherry is a fortified wine from Jerez de la Frontera (south of Spain) commonly used in the seasoning of oak barrels, called *Sherry Cask*<sup>®</sup>, destined in this area for ageing brandies or condiments as wine vinegars. Brandy de Jerez is an European Geographical Indication for grape-derived spirits with special organoleptic characteristics, due to its traditional dynamic ageing, known as *Criaderas and Solera* system, in *Sherry Cask*<sup>®</sup>. The casks are not only containers, they are involved in several physicochemical process with the Sherry or the distillate during the ageing period. Oak wood is the responsible of the presence of many compounds in the products, affecting their aroma and chemical composition and having a high influence in their final quality. Moreover, the seasoned wood with Sherry wine could transfer the compounds from wine into the brandy, improving its aroma and flavor. The objective of this work was to study the evolution of the Oloroso Sherry after 4 years of seasoning wood and the impact of the seasoning in the ageing of brandy for 1 year. Two ageing systems were used for the experiences: dynamic (*Criaderas and Solera*) and static (*Añadas*). Brandy de Jerez must be aged in *Criaderas and Solera* system, but there are other brandies that are aged in static system. The results have been also compared with brandy aged in new casks.

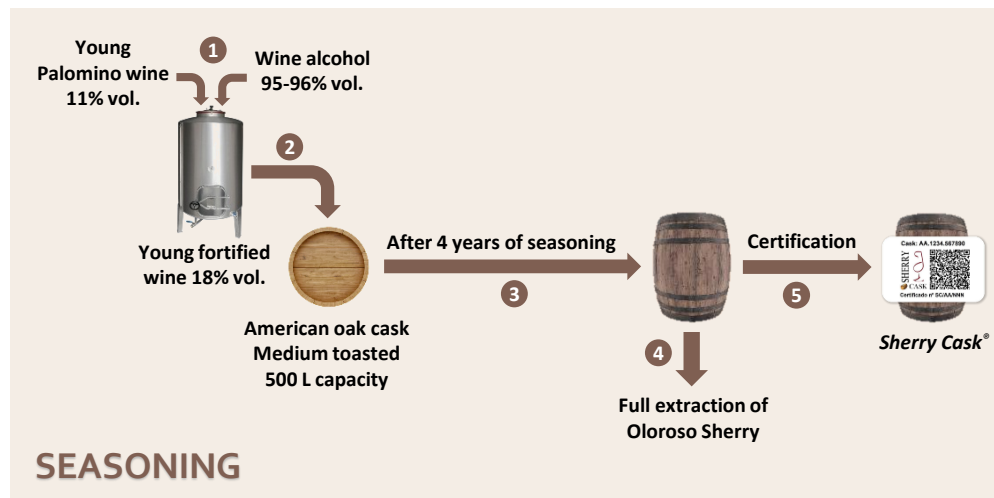
## CONCLUSIONS

The seasoning process has an impact in the Oloroso Sherry used: levels of potassium, calcium and tartaric acid decrease after 4 years of seasoning wood. Total acidity, acetic acid, ethyl acetate, ethyl lactate, ethyl succinate, Phenolic Total Index and the absorbance at 470 nm increase during the process. A similar evolution was observed between brandies aged in static and dynamic system, although wood release into brandy more compounds in dynamic ageing than in static ageing. Comparing the results with brandies aged in new casks, big differences were found. The level of wood compounds detected in brandies aged in new casks were much larger than in brandies aged in seasoned casks. However, the brandies aged in *Sherry Cask*<sup>®</sup> were judged more balanced than those aged in new barrels.

## REFERENCES:

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- International Organization of Vine and Wine. *Compendium of International Methods of Analysis of Wine and Must Analysis*. Paris (France), 2021.
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## SEASONING AND AGEING PROCESS



### SEASONING

## RESULTS

### Oloroso Sherry

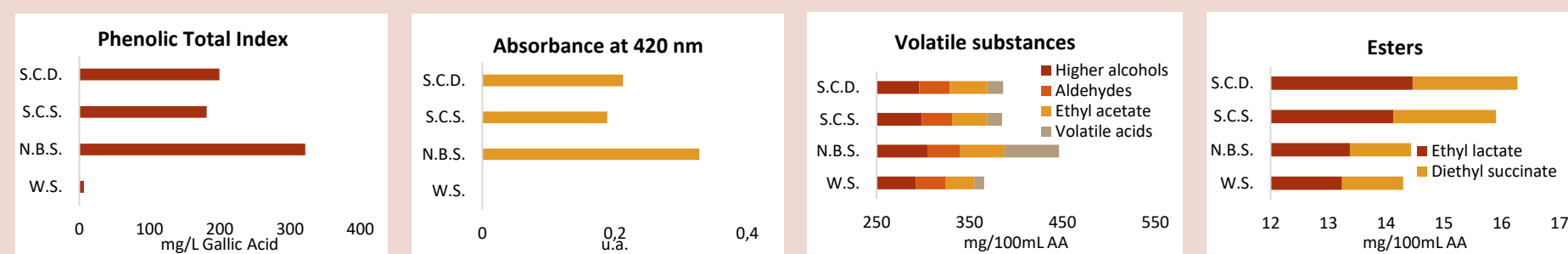
Analytical parameters	Y.F.W.	O.S.
Alcoholic strength (%vol)	17.9 ± 0.1	18.6 ± 0.1
Total acidity (g TH2/L)	4.6 ± 0.0	5.0 ± 0.0
Acetic acid (g/L)	0.2 ± 0.0	0.5 ± 0.0
Tartaric acid (g/L)	3.8 ± 0.2	2.4 ± 0.1
Succinic acid (g/L)	0.6 ± 0.0	0.6 ± 0.0
Lactic acid (g/L)	0.7 ± 0.0	0.8 ± 0.0
Potassium (g/L)	1.4 ± 0.0	0.9 ± 0.0
Calcium (g/L)	0.10 ± 0.0	0.09 ± 0.0
Acetaldehyde (mg/L)	69.0 ± 3.0	132.0 ± 5.0

Y.F.W.: Young Fortified Wine; O.S.: Oloroso Sherry after 4 years of seasoning

Tartaric acid, potassium and calcium decrease their concentration during seasoning due to precipitation of salts, as potassium bitartrate and calcium tartrate, which remain in the cask

Acetic acid and acetaldehyde increase due to the oxidative ageing of Oloroso Sherry. Acetic acid is also provided by wood

### Brandy

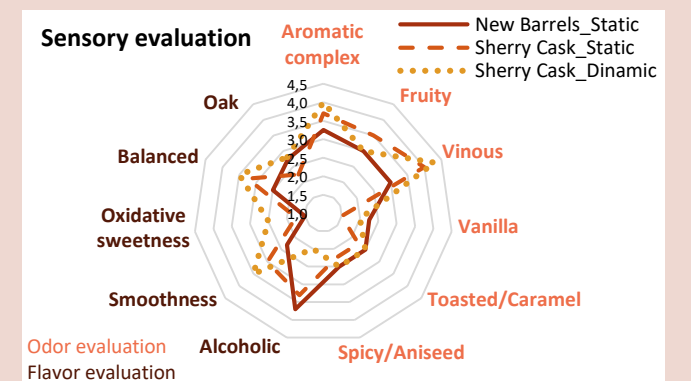


W.S.: Wine Spirit; N.B.S.: Brandy aged in New Barrel\_Static; S.C.S.: Brandy aged in Sherry Cask\_Static; S.C.D.: Brandy aged in Sherry Cask\_Dynamic

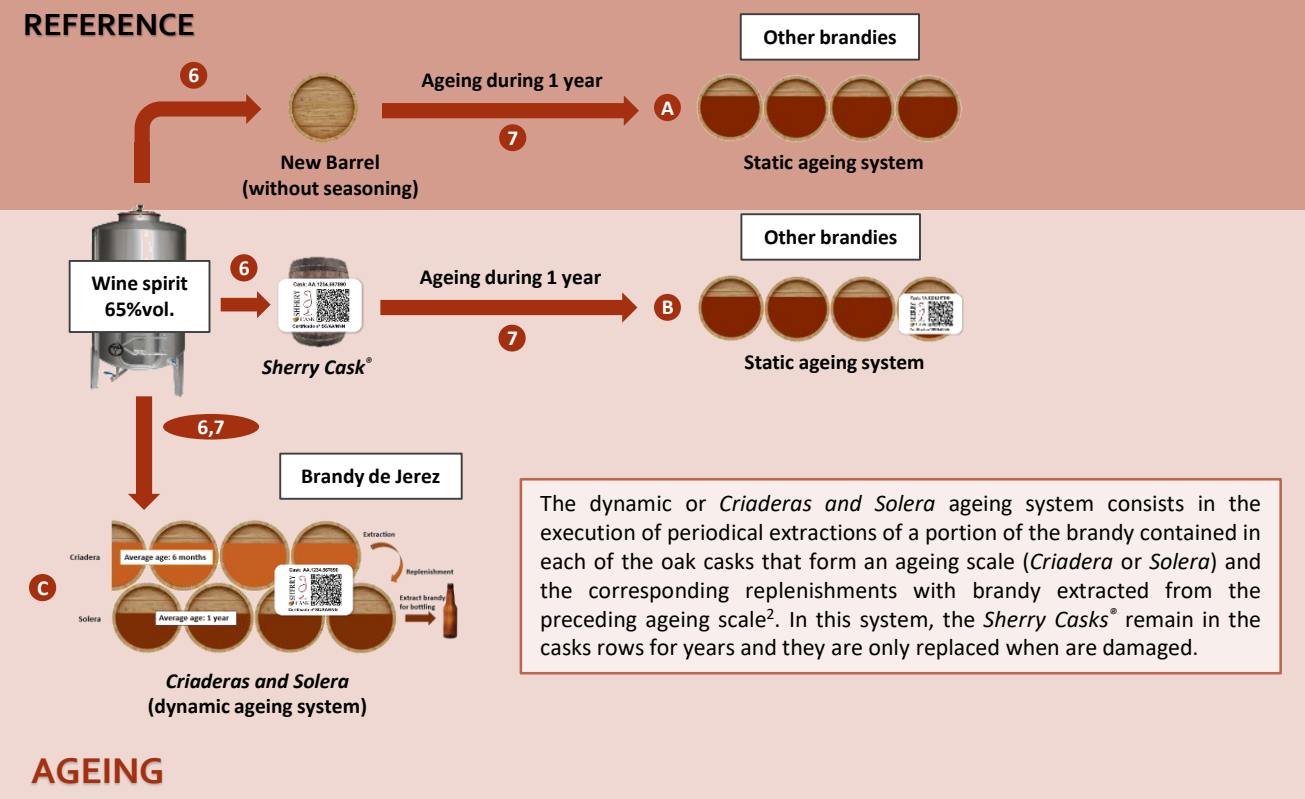
Phenolic Total Index, Absorbance at 420 nm and volatile substances increase during ageing, specially in brandies aged in new barrels

Wood release into brandy more compounds in dynamic ageing than in static ageing

The concentration of esters is higher in brandies aged in *Sherry Cask*<sup>®</sup> than those aged in new barrels, as a consequence of seasoning



Brandies aged in *Sherry Cask*<sup>®</sup> were considered more balanced. The large amount of compounds release from new wood is considered as astringency and bitter in sensory evaluation



The dynamic or *Criaderas and Solera* ageing system consists in the execution of periodical extractions of a portion of the brandy contained in each of the oak casks that form an ageing scale (*Criadera* or *Solera*) and the corresponding replenishments with brandy extracted from the preceding ageing scale<sup>2</sup>. In this system, the *Sherry Casks*<sup>®</sup> remain in the casks rows for years and they are only replaced when are damaged.

## METHODS

Alcoholic strength, total acidity, organic acids, potassium, calcium, volatile substances, esters, absorbances and Phenolic Total Index were determined according to the official methods established by OIV<sup>3,4</sup>



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