



Minerality in Sauvignon Blanc – Part 1

A Research Summary

Dr. Carien Coetzee
[Basic Wine](#)

5 April 2019

There are so many questions regarding the perception of “minerality” in wine. The lack of scientific evidence leaves the many questions unanswered, but researchers are slowly inching closer to gaining valuable insights into this controversial attribute.

A study titled “[Perceived minerality in Sauvignon wines: Influence of culture and perception mode](#)”¹ by Parr and co-authors published in 2015 aimed to investigate:

- 1) cultural differences in the perception of minerality
- 2) under what conditions minerality is perceived (do we taste it, or do we smell it?)
- 3) if the perception of minerality is related to the perception of any other sensation / attribute?

Method

The wines:

All 100% Sauvignon Blanc

- » 8 wines from France (approx. 13 months post-harvest)
- » 8 wines from New Zealand (approx. 18 months post-harvest)

Wines were selected on the following criteria

- » the wines must reflect well its origin and vintage
- » the wines must be described using a range of terms of perceived minerality as judged by available, reputable wine reviews

The judges:

- » 32 French wine professionals
- » 31 New Zealand wine professionals

The conditions:

- » Orthonasal olfaction alone (smell only)
- » Global perception (all sensations: smell and taste)
- » Palate sensation alone (taste only – nose clip)

The evaluation:

Judges were asked to evaluate the wines by rating a list of given descriptors according to their intensity. This was done for each of the conditions.

The descriptors comprised of

- » 5 Sauvignon Blanc aroma characteristics (herbaceous; boxwood; citrus; green; passion fruit)
- » 3 Tastes (sweet; bitter; sour)
- » 5 Mineral and/or reductive characteristics (flinty/stony/smoky; chalky/calcareous; iodine/oyster shell; pencil/graphite; matchstick/burnt; rubber/sulphide)
- » 6 Other characteristics (astringency; freshness; concentration; complexity; familiarity; liking)

Results

Cultural differences when scoring minerality

- » New Zealand tasters tended to score minerality higher in intensity for all the wines compared to the French tasters
- » The tasters from the two countries relied on different information when they performed the evaluations during the global conditions
 - French participants relied on olfactory
 - New Zealand participants relied equally on palate and olfactory evaluation

Under what conditions did the participants report minerality?

- » There was no clear difference between evaluation conditions
- » Minerality is perceived both via smell and taste

Which wines were scored higher for minerality?

- » Participants from both countries agreed when identifying wines with higher minerality
- » The same 6 wines (3 x FR; 3 x NZ) were evaluated as more “mineral” compared to the rest of the wines tested

What descriptors were associated with minerality?

- » Minerality is linked to several wine characteristics
- » Definitions:
 - **Positive correlation:** When the listed descriptors were rated as **high** in intensity, the descriptor, minerality, was also rated **high** in intensity
 - **Negative correlation:** When the listed descriptors were rated as **high** in intensity, the descriptor, minerality, was rated **low** in intensity
- » FR & NZ below refers to the country of origin of the participating evaluators

When evaluating both smell and taste (Global)

- » Positive correlation
 - FR & NZ: citrus, flinty/smoky, chalky/calcareous
 - FR: lead/graphite
 - NZ: fresh/zingy
- » Negative correlation
 - FR: passion fruit, sweet
 - NZ: green, astringent

When evaluating smell only (Olfactory)

- » Positive correlation
 - FR & NZ: citrus, flinty/smoky, chalky/calcareous, lead/graphite
 - FR: fresh/zingy
- » Negative correlation
 - FR & NZ: passion fruit

When evaluating taste only (Palate)

- » Positive correlation
 - FR & NZ: flinty/smoky, chalky/calcareous, fresh/zingy
 - NZ: lead/graphite, bitter, concentration/palate weight
- » Negative correlation
 - FR & NZ: sour
 - FR: sweet



The more flavoursome a Sauvignon Blanc wine was considered to be, the less minerality was reported.

- » One of the hypotheses that the author wanted to test was to see if the descriptor “mineral” is used when there is a lack of perceived flavour in the wine. Results would suggest that this is in fact, true. The descriptors typically associated with Sauvignon Blanc aroma, such as “passion fruit” and “green” were negatively associated with “mineral”, meaning that when these descriptors were used, the word “mineral” was not.

There was no evidence that perceived acidity, in the form of sour taste, predicted increased minerality

- » In another study², a positive correlation was observed between perceived acidity and mineral character. The current study, sour taste was negatively correlated to minerality.

Perceived reductive notes are not an indicator of minerality in wine

- » The researchers of this study expected to see a correlation between reductive notes and the use of minerality as a descriptor, however, the results of this study showed that there was no significant correlation, providing evidence that the participants did not link minerality to sulphide reductive notes.

Citrus could be a good predictor of minerality

- » Consensus between both FR and NZ participants showed a positive correlation between citrus and minerality.

Mineral / minerality as a descriptor is a shared mental representation amongst international wine professionals

- » The term is not a result of clever marketing, but rather constructed with cognitive processing from what’s in the glass.

With all of this said, the author urged caution: In spite of the apparent consensus, strong disagreement exist between wine experts regarding the minerality² and it remains an ill-defined sensory concept. A topic that needs more research.

Contact Carien: carien@basicwine.co.za

References

- (1) Parr, W. V.; Ballester, J.; Peyron, D.; Grose, C.; Valentin, D. Perceived Minerality in Sauvignon Wines: Influence of Culture and Perception Mode. *Food Qual. Prefer.* **2015**, *41* (March 2018), 121–132. <https://doi.org/10.1016/j.foodqual.2014.12.001>.
- (2) Ballester, J.; Mihnea, M.; Peyron, D.; Valentin, D. Exploring Minerality of Burgundy Chardonnay Wines: A Sensory Approach with Wine Experts and Trained Panellists. *Aust. J. Grape Wine Res.* **2013**, *19* (2), 140–152. <https://doi.org/10.1111/ajgw.12024>.