Changes in metal ion concentration from bentonite treatment

Overview
- Bentonite is used as a protein fining agent in wine production.
- It is a clay, naturally occurring in sodium or calcium forms.
- During use, other trace metals in the bentonite may be transferred into the wine.

Trial scope
- 14 commercial bentonite products used to treat three unstable 2017 wines (Chardonnay, Sauvignon Blanc and Viognier)
- Wines dosed at optimal rate and overdosed by 50%, to evaluate trace metal transfer.

Results
- Potassium showed biggest increase, while copper and strontium decreased
- Increases in manganese, zinc and iron were around 30-50%. Increases in aluminium were much higher (100%-700%), dependent on wine type
- Overdosing can lead to some elements approaching or exceeding regulatory limits for some markets

Conclusion
- Metal concentrations in wine can be significantly influenced by bentonite treatment
- Use of excessive dosing may, in some cases, threaten regulatory compliance in some international markets

Summary of changes in metal concentration in three white wines treated with 14 bentonite products at optimal dose rate (note different y-axis scales for the different metals).

Percentage of metal concentration change from overdosing of bentonite (compared to optimal dose rate). Dotted line shows expected increase according to dose increase.