

Abstract Submitted
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Are Those Diamonds In My White Wine? VERONICA SMITH, EDWARD KINTZEL, Western Kentucky University — White wine is composed of a number of different compounds including tartaric acid, which is primarily found in grapes. Tartaric acid does also take the form of potassium tartrate ($K_2C_4H_4O_6$). Since this acid is only partially soluble, it does not necessarily completely dissolve in wine even though visual inspection shows no indication of their presence. Over time, and in particular at low temperatures, the acid crystallizes over time and ends up deposited on the bottom of the bottle. Wine diamonds themselves are natural and harmless. Using the Large Chamber Scanning Electron Microscope at the WKU Nondestructive Analysis Center, the surface morphology of “diamonds” that were harvested from the bottom a white wine bottle was carried out. Results will show the formation of pyramidal crystal structures of potassium tartrate. To complement this real-space imaging, a single crystal of potassium tartrate was studied using XRD. The sample was maintained at 298K during measurement, and the results indicate this is an orthorhombic crystal system for a rhombic-bipyramidal class with $a = 7.6 \text{ \AA}$, $b = 7.8 \text{ \AA}$, $c = 10.6 \text{ \AA}$.

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