What Does 'Minerality' Mean in Wine?

BY STACY BRISCOE

Illustration by Alyssa Nassner

"Minerality is difficult to fully explain," says Evan Goldstein, MS, president and chief education officer of Full Circle Wine Solutions. "There is no accepted definition of minerality in wine, no complete consensus on the characteristics that are associated with it, nor even whether it is perceived primarily as a smell, a taste or a mouthfeel sensation."

Jancis Robinson, MW, calls the term "imprecise" and an "elusive wine characteristic" in The Oxford Companion to Wine.

Words that are most associated with minerality are earthy terms like gunflint, wet stone, chalk and asphalt. Minerality is different than organic earthiness, says Goldstein, which he believes connotes something more alive and "filled with microfauna" like compost, potting soil, freshly turned earth or forest floor.

So, what is minerality, and how does it get inside a wine? “That is the million-dollar question,” says Goldstein.

“We can really go through a rabbit hole here very quickly,” says Federico Casassa, associate professor of enology at California Polytechnic State University, San Luis Obispo. “Linking minerality in wine is sexy and is a great sales pitch … However, to date, there is no clear scientific evidence connecting a specific terroir with the term. But we have some clues.”

Minerality is often associated with cool climates and stony terroirs. Casassa gives the classic example of Chablis, whose minerality is attributed to Kimmeridgian soils filled with marine sediment.

“As it turns out, research has shown that, yes, there is some perceived minerality in Chablis wines,” he says. “But this is more related to methanethiol, a volatile sulfur compound that kind of smells like shellfish.”

Similarly, wines from Spain’s Priorat appellation show minerality associated with the llicorella soils, lid to residual levels of malic acid.

“This begs the question: Would blocking malolactic fermentation result in more ‘mineral wines’?” asks Casassa. “Would having a comparatively low pH work in the same direction?”

Quite possibly, he says.

“A case could be made that soil composition can impact fermentation, which, in turn, can impact the production of volatile sulfur,” says Casassa. “Another case can be made that soil pH and composition would impact juice/must and wine pH.”

People may use “stony mineral” descriptors to describe aromas and flavors, but it also relates to a wine’s texture.

“A second important category is palate sensations, related to acidity and freshness, but also to gritty or chalky,” says Goldstein.

This is most commonly related to the structure of a wine’s tannins: astringent, grippy, fine-grained or coarse.

“In red wines, [minerality] is also found in cool climates,” says Dr. Laura Catena, founder of the Catena Institute of Wine, and also managing director of Bodega Catena Zapata in Mendoza, Argentina. “We find it in extreme high-altitude Malbec from our Adrianna Vineyard at 5,000 feet [of] elevation, but not in the lower altitudes, where it’s warmer.” She says the same tends to be true of high-altitude Pinot Noir.

“The aromas are a bit like flint, gunpowder or chalk,” says Catena. “On the palate, one immediately feels the acidity, and there’s a drying grip on the tongue, followed by the burning desire to eat something fatty.”

She’s convinced that soil has an impact, possibly related to microbes and yeasts that vary according to altitude and soil type. “But [our researchers] are still in the process of studying this,” she says.

Regions associated with producing minerally wines include Champagne, Etna, Campania, Swartland and Priorat, among others.

However you describe minerality, “it is beloved,” says Goldstein. “For better, for worse, it’s considered a sign of pedigree, when in reality, it’s just…there.”