



TESTING GRAPES AND WINES FOR SMOKE IMPACT: OPTIONS AND CURRENT RECOMMENDATIONS

PRE-HARVEST: GRAPE SAMPLES AND MICROFERMENTS

- [VOLATILE GUAIACOL AND 4-METHYLGUAIACOL IN WHOLE BERRIES](#) (volatile fraction) is the routine pre-harvest screening test for smoke impact at ETS laboratories. Submit approximately 250 berries per sample, undamaged as much as possible. Use preferably hard plastic “Tupperware-style” container - necessary if you are shipping samples. Avoid submitting cluster samples: the additional sample preparation time in the lab will delay results. We do not recommend submitting juice samples.
- [GUAIACOL AND 4-METHYLGUAIACOL](#) (volatile fraction) in small scale ferments, also called “bucket ferments” or “microferments” is a useful complement to direct grape tests and have gained popularity in recent years. A protocol for preparing microferments can be found here: https://www.awri.com.au/wp-content/uploads/small_lot_fermentation_method.pdf. At (or near) completion of fermentation (brix <0), transfer fermented wine into a bottle, let settle in fridge for a few hours, decant and submit sample in a 60 mL plastic tube.

GRAPE TESTS VS. MICROFERMENTS AS PREDICTION TOOLS

	GRAPES	MICROFERMENTS
Sample Preparation Time (before sending to the laboratory)	Immediate	>1 week
Sensory Evaluation	Not very useful	Useful, but difficult (need for multiple trained tasters including sensitive individuals)
Prediction of Smoke Characters in Production Wines	Indirect (variable “multipliers” between grape and wine results)	Reds: more direct, but delayed Whites: uncertain (ferment with skins for “worst case scenarios”?)

POST-HARVEST : PRODUCTION WINES

- [VOLATILE GUAIACOL AND 4-METHYLGUAIACOL](#) are useful to assess smoke impact in unoaked wines, starting right at completion of primary fermentation, when quick answers are needed for production wines.
- [VOLATILE MARKERS - EXTENDED PANEL](#)- We have chosen to not offer this during the 2020 firestorm emergency. In addition to guaiacol and 4-methylguaiacol, this panel includes cresols, phenol and syringols.
- [GLYCOSYLATED MARKERS](#) -We have chosen to not offer this during the 2020 firestorm emergency. Grape purees can be frozen and analyzed later, as well as wines can be aged in contact with oak and analyzed later, as results which will not be impacted by oak aging.

ALL SAMPLES SHOULD BE SHIPPED TO OUR ST. HELENA LOCATION:

ETS LABORATORIES
899 Adams St. Ste A
St. Helena, CA 94574



FREQUENTLY ASKED QUESTIONS:

I WANT TO TEST GRAPES FOR SMOKE, WHAT KIND OF SAMPLE SHOULD I BRING?

The preferred sample for red or white grapes is a representative 250-300 berry sample, with berries as intact as possible. Transport in small rigid “sandwich boxes” works well.

WITH WHITE GRAPES, SHOULDN'T I BRING JUICE SAMPLES?

Since smoke compounds are mostly in skins we still prefer whole berry samples for white grapes.

SHOULD I CRUSH BERRIES AND LET THEM SOAK IN THEIR JUICE BEFORE BRINGING THEM?

We do not recommend this. When we have control of the sample preparation our interpretation guidelines are more applicable.

CAN I MIX BERRIES FROM DIFFERENT VARIETIES AND BRING A COMPOSITE SAMPLE?

This is not advisable . We've seen in previous years drastic differences in pick-up of smoke compounds between grape varieties, with Petit Verdot often much more impacted than other cultivars.

CAN YOU TEST SYRAH?

Yes, but Syrah naturally contains variable amounts of guaiacol, the main smoke marker. This makes it difficult to assess smoke impact, unless exposure to smoke has been relatively severe. One (unperfect) strategy is to use other varieties grown next to Syrah blocks as “proxies”.

WHEN IS A GOOD TIME TO BRING SAMPLES?

The typical recommendation is about 10-7 days prior to harvest. Keep in mind that the impact of smoke is cumulative and that “negative” results too early may give a false sense of security especially if more exposure to smoke happens.

CAN YOU TEST FOR MORE THAN JUST GUAIACOLS?

For pre-harvest tests, grape or microferments, we are prioritizing volatile guaiacols.

WHAT IS YOUR TURNAROUND TIME?

For the most accurate turnaround time we recommend taking a look at our website (Analyses - Smoke Markers). We'll keep our TAT information for grape and wine tests updated regularly.

FOR EVEN MORE INFORMATION VISIT OUR WEBSITE: [HTTPS://WWW.ETSLABS.COM/LIBRARY/2](https://www.etslabs.com/library/2)

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