

TECH POINT

# SMOKE TAINT

## ITS MECHANISMS AND THE SOLUTIONS TO IMPROVE AFFECTED WINES

### WHERE DOES SMOKE TAINT COME FROM AND HOW DOES IT IMPACT WINES?

With global warming and hotter summers come droughts and an increasing number of bush fires. When smoke occurs near vineyards before harvesting, grapes accumulate **free volatile phenols** produced when wood is burnt. Directly absorbed by grapes, these volatile compounds can bind to sugars to form non odorant **glycosides** in the plant. These glycosides can break apart and release the volatile phenols into the must or wine later throughout winemaking process, during fermentation, ageing and storage. These free volatile phenols are responsible for **unpleasant smoke taint aromas and masking fruity notes**. Moreover, the salivary enzymes also make it possible to release the volatile phenols contained in glycosylated forms accentuating the perception of smoky flavours in the mouth, which can explain why certain wines are more marked in the mouth than in the nose.

### EFFECTIVE WAYS TO ACT AGAINST SMOKE TAINT

- Reverse osmosis & oenological charcoal
- Styrene divinylbenzene resin (S-DVB) 
- Addition of enzymes followed by fining 

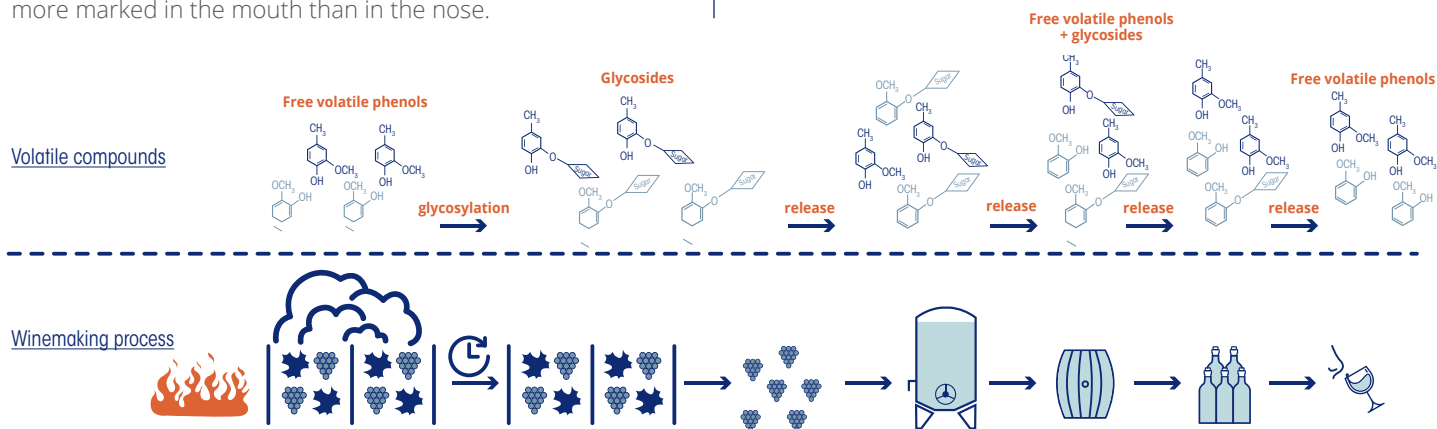


Figure 1. Evolution of volatile compounds released during fires, from vineyard to tasting, throughout the winemaking process.

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## TWO KEY STAGES OF THE PROCESS IDENTIFIED BY OENOFRANCE®

**1**  
Addition  
of enzymes

*Lysis*® **Essentia**

An enzymatic preparation that contains **glycosidases that will cleave the glycosylated molecules**, thus releasing the volatile phenols. The objective is to accelerate this process which normally occurs during the aging of the wine and thus allow their **elimination during the fining stage**.

**2**  
Fining

**OENOVEGAN**® Extra

A **100% natural fining** product, resulting from a long research work first in Australia, then in the United States and **specifically formulated to eliminate the volatile phenols** responsible for the smoke taint.

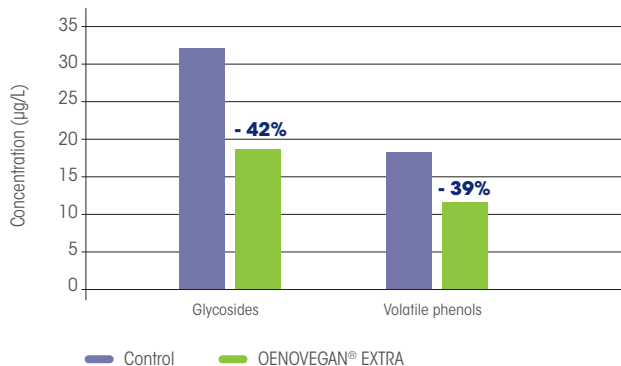
- ELIMINATES VOLATILE PHENOLS
- RESTORES FRUITINESS AND FRESHNESS
- CLARIFIES AND FINES



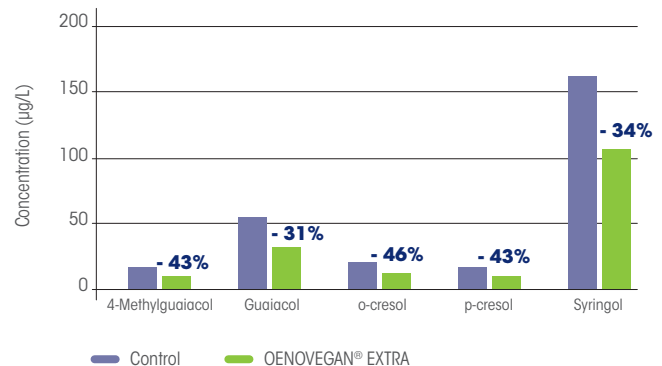
Contact our oenologists for a **personalized protocol**

## RESEARCH FINDINGS

The results of this study started in 2018 in Australia (Figure 2.) and continued in California in 2021 (Figure 3.) showed that **enzymatic treatment with LYSIS® ESSENTIA followed by fining with OENOVEGAN® EXTRA reduces the concentration of several volatile phenols and their glycosides**, identified as playing a key role in smoke taint, including 4-methylguaiacol and guaiacol, by nearly 40%.



**Figure 2.** Total concentrations of glycosides and volatile phenols in wines made from Australian Pinot Noir with OENOVEGAN® EXTRA compared to a control wine.



**Figure 3.** Volatile phenol concentrations in California wines treated with OENOVEGAN® EXTRA compared to a control wine.

## ON GRAPE



### WHITE AND ROSÉ WINEMAKING PROCESS

#### DIRECT PRESSING

Clarify by depectinization: **LYSIS<sup>®</sup> ULTRA** at 0.5 mL/hL

#### STEP 1

Use **OENOVEGAN<sup>®</sup> EXTRA** at 30 g/hL wait 12 hours then rack

#### STEP 2

Yeast + nutrition (as usual)  
AT MID FERMENTATION (D 1020)  
Add **LYSIS<sup>®</sup> ESSENTIA** at 3 g/hL

#### STEP 3

To prevent inhibiting the enzyme **wait a few days before adding bentonite**

#### STEP 4

Treat with **OENOVEGAN<sup>®</sup> EXTRA** at 20 g/hL, wait 24 hours then rack

#### STEP 5

Taste! If smoke taints are still presents, contact your consultant oenologist



### RED CLASSICAL WINEMAKING PROCESS

#### STEP 1

Vatting of the harvest, during the pumping over for the tank homogenization add **OENOVEGAN<sup>®</sup> EXTRA** at 40 g/hL. No racking. **OENOVEGAN<sup>®</sup> EXTRA** can remain throughout the alcoholic fermentation.

#### STEP 2

Yeast + nutrition (as usual).  
Pump over the tank 2 times per day for 3 days - then the following days pump over according to cellar protocol, favor short maceration max 5 days

#### PRESSING

#### STEP 3

Finish AF in liquid phase and add **LYSIS<sup>®</sup> ESSENTIA** at 3 g/hL

#### STEP 4

Add **OENOVEGAN<sup>®</sup> EXTRA** at 30 g/hL, wait 24 hours then rack

#### STEP 5

Taste! If smoke taints are still presents, contact your consultant oenologist

## ON WINE



### TREATMENT ON FINISHED WINES: ALL COLORS

#### STEP 1

Add **LYSIS<sup>®</sup> ESSENTIA** at 3 g/hL - wait 10 days

#### STEP 2

**OENOVEGAN<sup>®</sup> EXTRA** at 80 g/hL, carry out several pumping over for the homogenization of the entire tank. Wait 24-48 hours.

#### STEP 3

Rack

#### STEP 4

Taste! If smoke taints are still presents, repeat step 2 with 20 g/hL of **OENOVEGAN<sup>®</sup> EXTRA**

### IMPORTANT

Take care to homogenize the tank well after each addition of **OENOVEGAN<sup>®</sup> EXTRA**, by pumping over at least twice the total volume of the tank.

### Recommendations

Prefer manual harvesting, if mechanical harvesting: use a double-bottomed trailer, separate the juice from the grapes and apply a specific treatment. Avoid crushing the berries, skin maceration and stalling.

### Maximum legal

**dose for use:** 100 g/hL

### OENOVEGAN<sup>®</sup> EXTRA:

Preparation to be mixed exclusively with water as 1 kg per 10 L of water!



OENOFRANCE

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79, av. A.A. Thévenet - CS 11031

51530 Magenta - France

Tél. : + 33 3 26 51 29 30

Fax : + 33 3 26 51 87 60

[oenofrance.com](http://oenofrance.com)

