Micro-oxygenation 101

Wine Grenade
Wine Maturation – Redefined.
Wine Grenade gives winemakers the **control** and **insight** needed to create great wine, year after year.

It’s micro-oxygenation, but not as you know it. Our patented oxygen diffusion process delivers superior maturation outcomes with less expense. Our smart, cloud-connected devices have been described as a step-change in wine maturation technology.
When to micro-ox?

1. Oxygen addition for yeasts: 5-10mg/l punctual addition at Vmax (end of yeasts growth phase)

2. Phase 1: Structuration phase: From 0 to 60 mg/l/m. Rates depend on: Tannins/anthocyanins ratio / Types of tannins (Reactive, non-reactive, dry) / Level of concentration of wine / Final target of wine profile

3. Phase 2: Harmonization phase with Wine Grenade
   1. Target:
      1. Softening and harmonization of structure / tannins
      2. Protection of aromatic freshness (prevent reductive characters)
      3. Decrease dryness
      4. Increase oxidation resistance
   2. Rules: 10 x less than phase 1 (0 to 6mg/l/m)
      1. Use low addition rates (barrel model)
      2. Never reach acetaldehydes
      3. Keep working if reactive tannins remains / stop working if dry tannins appear
      4. Decrease the dose relative to temperature in winter

4. Before bottling: Cliquage to manage reductive power (punctual addition of 2 mg/liter)
Temperature management

**First zone of risk**
- Oxygen consumption slows down immensely

**Second zone of risk**
- Increase of oxygen consumption
- Risks of wine oxidation
- Increase of microbiological risk

Maximum addition flow of O2 (in mg/l/m) in function of temperature
Optimal micro-ox efficiency

Potential risks of oxidation

Micro-ox is ineffective on the structure

Random, uncontrolled micro-ox

Optimal micro-ox efficiency

Turbidity management

Manage turbidity: Early blending to rebalance the wine / Cool tank / Enzymatic treatment / Clarification / Centrifugation or filtration
Perfect for **balanced varietals**

Micro-oxygenation is effective on wines that you would otherwise mature in oak barrels and is generally safe in Phase 2 (Malolactic fermentation). However, unbalanced varietals require more care.

<table>
<thead>
<tr>
<th>Balanced</th>
<th>Unbalanced</th>
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<tbody>
<tr>
<td>(4 tannins + 1 anthocyanin)</td>
<td>(any other ratio)</td>
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**Balanced**
- Syrah
- Carignan
- Cabernet-Sauvignon
- Malbec
- Gamay
- Merlot

**Unbalanced**
- Grenache
- Mouevèdre
- Pinot Noir
- Cabernet Franc
- Sangiovese
- Merlot

**Most effective**

**Effective, but caution required**
Contact us

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