



WINEMAKING GUIDELINES

Low SO₂ Winemaking White and Rosé Wines

Critical steps for reducing use of SO₂ in white and rosé wines:

- pH management is an essential parameter to increase the effect of SO₂ as an antioxidant and antimicrobial. Bacteria are pH sensitive and will be under better control in a low pH environment.
- Work **ONLY** with healthy grapes.
- Increase antioxidasic protection on grapes to inhibit polyphenol oxidase, laccase and lipoxygenases with gallic tannins.
- Limit oxidation reactions by chelating metals which are catalyzers of oxidation reactions and using antioxidant peptides in the early stages of winemaking.
- Remove oxidation precursors such as hydroxycinnamic acids and phenols through fining.
- Increase anti-radical protection during ageing with radical scavenger sacrificial tannins.
- Protect against oxidation by using high oxygen consumption lees during ageing.
- Antimicrobial protection: Limit the development of spoilage microbes at juice stage and during ageing.
- Pay extra attention to sanitation and quality control (microscan/PCR, VA, FSO₂ and tasting) to prevent any wine spoilage.

WINEMAKING STAGE	OBJECTIVE	ENARTIS RECOMMENDATION	DOSAGE
<i>Adjust pH as soon as possible.</i>			
Crusher	Antimicrobial	Enartis STAB MICRO M (pre-activated chitosan and purified yeast hulls) to remove spoilage microorganisms such as <i>Brettanomyces</i> , lactic acid, acetic acid bacteria, and non- <i>Saccharomyces</i> yeasts.	100 g/ton
	Antioxidant	Enartis TAN BLANC (gallic tannins) to limit the oxidasic activity of grape enzymes. <i>To reduce SO₂ dosage, use AST: Blend of ascorbic acid, gallic tannins and SO₂ for complete antioxidant protection. 100 ppm of AST = 28 ppm SO₂.</i>	150 g/ton
Fermentation	Antioxidant	Enartis PRO FT (PVI/PVP and yeast derivatives rich in antioxidant peptides) at inoculation to remove metals which are precursors to oxidation.	20 g/hL
Ageing	Antioxidant + Antimicrobial	SO₂ 15-20 DAYS AFTER END OF FERMENTATION AND RACKING. <i>Essential SO₂ addition to protect wine during ageing. Mange Free SO₂ level with pH to be above 0.6 ppm molecular SO₂.</i>	
	Antimicrobial	Enartis STAB MICRO (pre-activated chitosan, removes spoilage microorganisms such as <i>Brettanomyces</i> , lactic acid, acetic acid bacteria) to prevent development of spoilage microorganisms. <i>RE-SUSPEND LEES EVERY 2 WEEKS</i>	5-10 g/hL
	Antioxidant	Enartis TAN SLI (untoasted American oak tannins) for its strong anti-radical effect and to stabilize wine redox potential.	2 g/hL
		Enartis Stab SLI (active lees, PVPP and untoasted tannins) to consume dissolved oxygen, extends wine shelf-life and protect against oxidation. <i>RE-SUSPEND LEES EVERY 2 WEEKS</i>	20-30 g/hL

Recommended:

WINEMAKING STAGE	OBJECTIVE	ENARTIS RECOMMENDATION	DOSAGE
Clarification	Settling	Enartis ZYM RS (pectinase) to accelerate settling.	2 g/hL
	Fining	Claril SP (Bentonite, PVPP, potassium caseinate and silica) to remove precursors of oxidation.	20-40 g/hL
Fermentation	Yeast Nutrition	MEASURE YAN TO CALCULATE NUTRITIONAL NEEDS Nutriform ENERGY (amino acids, vitamins, minerals and micro-nutrients) at inoculation. Nutriform ADVANCE (complex nutrient with DAP, yeast hulls and cellulose) at 1/3 of AF. Nutriform NO STOP (purified and selected yeast cell walls rich in sterols and unsaturated fatty acids) after 1/2 AF.	10-20 g/hL