WINEMAKING GUIDELINES

Low SO_2 Winemaking
Red Wines

Critical steps for reducing use of SO_2 in white and rosé wines:

- pH management is an essential parameter to increase the effect of SO_2 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 and low pH.
- Increase antioxidasic protection on grapes to inhibit polyphenol oxidase, laccase and lipoxygenases with gallic tannins.
- Increase antioxidant protection with sacrificial tannins to limit color loss, browning and aroma oxidation.
- Increase antiradical protection during ageing with radical scavenger sacrificial tannins.
- Protect against oxidation by using high oxygen consumption lees during ageing.
- Antimicrobial protection: Limit development of spoilage microbes at juice stage and during ageing.
- Pay extra attention to sanitation and quality control (microscan/PCR, VA, FSO_2 and tasting) to prevent any wine spoilage.

WINEMAKING STAGE	OBJECTIVE	ENARTIS RECOMMENDATION	DOSAGE
Adjust pH as soon as possible.			
Crusher	Antimicrobial	**Enartis STAB MICRO M** (pre-activated chitosan and purified yeast hulls) to remove spoilage microorganisms such as *Brettanomyces*, lactic acid, acetic acid bacteria, and non-*Saccharomyces* yeasts.	150 g/ton
	Antioxidant	**Enartis TAN ROUGE** (condensed and hydrolysable tannins) to act as a sacrificial tannin and limit the oxidasic activity of grape enzymes.	200 g/ton
		*To reduce SO_2 dosage, use **AST**: Blend of ascorbic acid, gallic tannins and SO_2 for complete antioxidant protection. 100 ppm of AST = 28 ppm SO_2.*	
Fermentation	Color Stabilization	**Enartis TAN COLOR** (gallic and condensed tannins from grape seeds with yeast derivatives rich in antioxidant peptides) at inoculation to improve color stability and protect against oxidation.	20 g/hL
		Enartis PRO TINTO at 1/3 alcoholic fermentation (yeast derivatives and grape seed tannins) to promote color stability and balance mouthfeel.	20-30 g/hL
Ageing	Antioxidant + Antimicrobial	***SO_2*** *20-30 DAYS AFTER END OF FERMENTATION AND RACKING.* *Essential SO_2 addition to protect wine during ageing. Mange Free SO_2 level with pH to be above 0.6 ppm molecular SO_2.*	
	Antimicrobial	*EVERY RACKING* **Enartis Stab Micro** (pre-activated chitosan, removes spoilage microorganisms such as *Brettanomyces*, lactic acid, acetic acid bacteria) to prevent development of spoilage microorganisms.	3-5 g/hL
	Antioxidant	*EVERY RACKING* **Enartis TAN SLI** (untoasted American oak tannins) for its strong antiradical effect and to stabilize wine redox potential.	2-3 g/hL

Recommended:

WINEMAKING STAGE	OBJECTIVE	ENARTIS RECOMMENDATION	DOSAGE
Fermentation	Yeast Nutrition	MEASURE YAN TO CALCULATE NUTRITIONAL NEEDS **Nutriferm ENERGY** (amino acids, vitamins, minerals and micro-nutrients) at inoculation. **Nutriferm ADVANCE** (complex nutrient with DAP, yeast hulls and cellulose) at 1/3 of AF. **Nutriferm NO STOP** (purified and selected yeast cell walls rich in sterol and unsaturated fatty acids) after ½ AF.	10-20 g/hL 20-30 g/hL 20 g/hL
Malolactic Fermentation	ML Bacteria	Rehydrate **ML Silver** with **Nutriferm OSMOBACTI** (activator and regulator of osmotic pressure specific for ML bacteria).	
Ageing	Antioxidant	**Enartis SURLI ONE** (active yeast derivatives) for wine ageing capacity, to consume dissolved oxygen and protect against oxidation.	20-30 g/hL

ENARTIS USA
7795 Bell Road - Windsor, CA 95492
Tel: 707 838 6312 - Fax: 707 838 1765
www.enartis.com
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