

A Step-by-Step Winemaking Guide for High pH Wines

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High pH in grapes and wines is a ubiquitous problem not only in Texas but in most hot climate grape-growing regions around the world. The following infographic is aimed at winemakers facing high pH problems. This easyto-follow publication is designed to help mitigate some of the most common issues associated with high pH in wines, such as microbiological instabilities, loss of color, lack of tannin structure, flabbiness, etc. This guide will walk you through all the stages of winemaking, from grapes to bottling and closure.

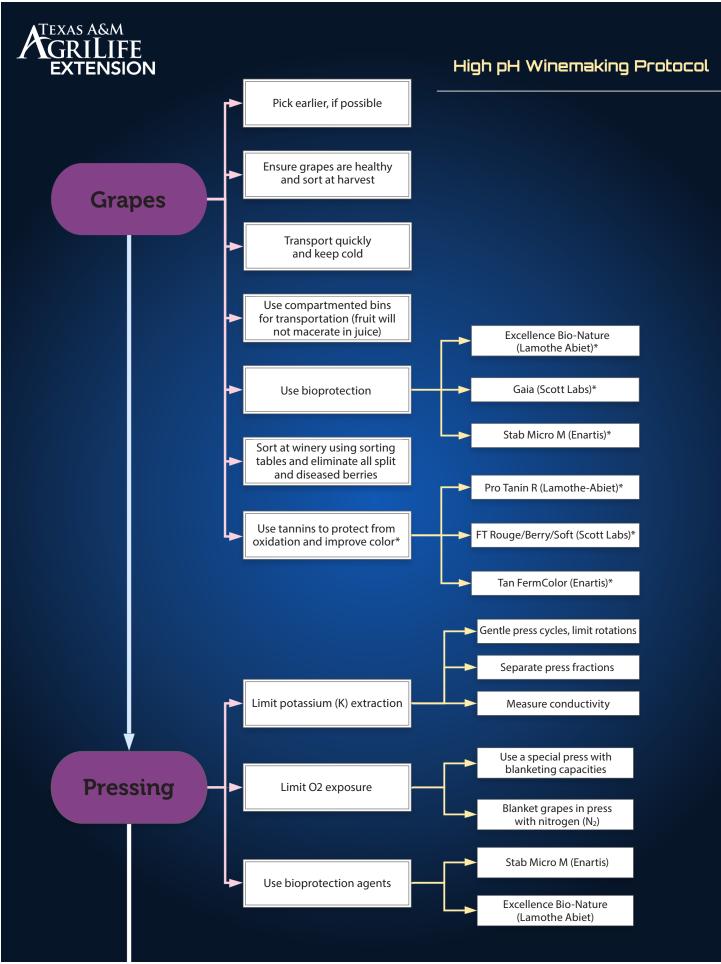
The products suggested in this publication are some of the most common on the market, but this list is by no means exhaustive. Boxes marked with an asterisk (*) are linked to web pages that offer more information on the subject or technical details about the products listed. Hover with the mouse above the box and click to follow the link.

Company	Product	Description	Time of addition	Dosage	Link to product
Enartis (continued on next page)	Tan FermColor	Sacrificial tannin is used to protect color and phenolics from oxidation. It can be used as early as harvest with mechanically harvested fruit or at the crusher with hand-harvested fruit.	As soon as there is liquid must	200–400 g/ton	Tan FermColor
	Stab Micro M	High pH wines are more susceptible to microbial spoilage. This pre-activated chitosan is an antimicrobial fining agent used on grapes, juice, must, and turbid wine to eliminate spoilage microbes. For mechanically harvested fruit destined for longer transport times, Enartis Stab Micro M can be added to picking gondolas before transport to protect against spoilage. It is recommended to do a pump over of the treated must at reception to increase Enartis Stab Micro M efficacy. Follow the link to the TDS for more details on application.	Must, juice, fermentation	10–30 g/hL	Stab Micro M
	Zym Color Plus	High pH wines can often lack structure. This pectolytic enzyme has cellulasic and hemicellulasic side activities which help to increase skin extraction for increased color and tannin. Protease side activity also breaks down grape proteins, improving tannin retention.	At fruit reception and crush	20–40 g/ton	Zym Color Plus
	Ferm ES U42	Saccharomyces uvarum + Saccharomyces cerevisiae ex ph. r. bayanus is a strain of yeast which produces wines with lower pH and higher acidity through the production of succinic acid. It also improves the mid-palate and decreases alcohol content with increased glycerol. Careful attention should be paid to rehydration of this yeast.	Fermentation	20–40 g/hL	Ferm ES U42
	Pro Tinto	Oxidation and loss of color are common in high pH wines. This blend of tannin and yeast-derived polysaccharides help to protect color while also improving the structure and body of red wines.	At ¹ / ₃ fermentation progression	200–400 g/ton	Pro Tinto
	Stab Micro	An antimicrobial fining agent. This pre-activated chitosan is used for microbial protection of white or red wines. It has a very strong impact on spoilage microbes with activity at any pH range. This product can be resuspended during aging for prolonged protection against all major spoilage microbes.	Post MLF and aging	2–15 g/hL	Stab Micro

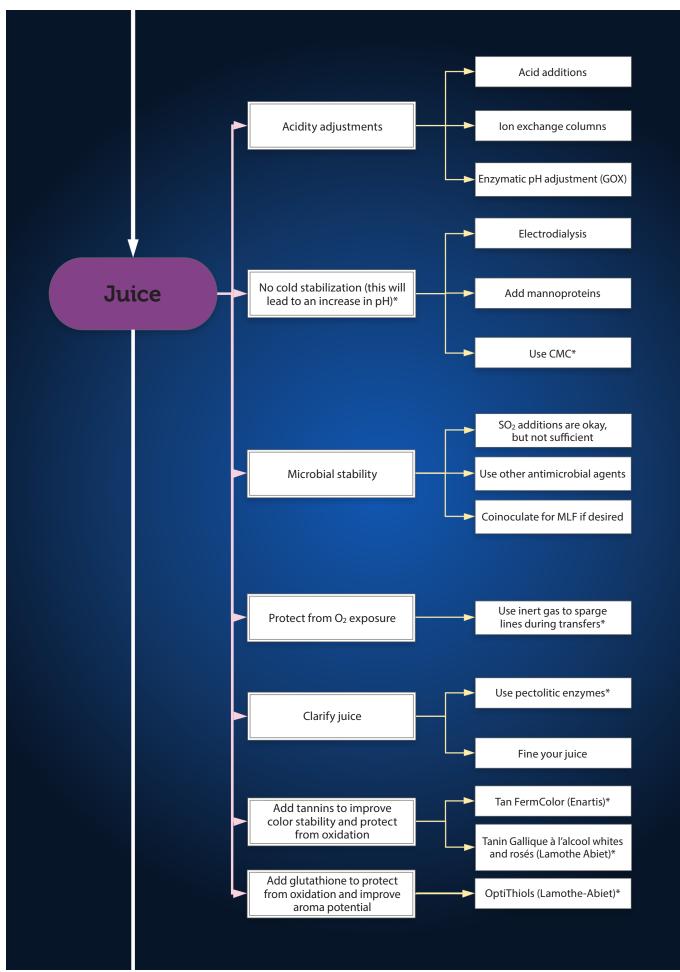
Table 1. Relevant products for high pH winemaking.

Table 1 continued

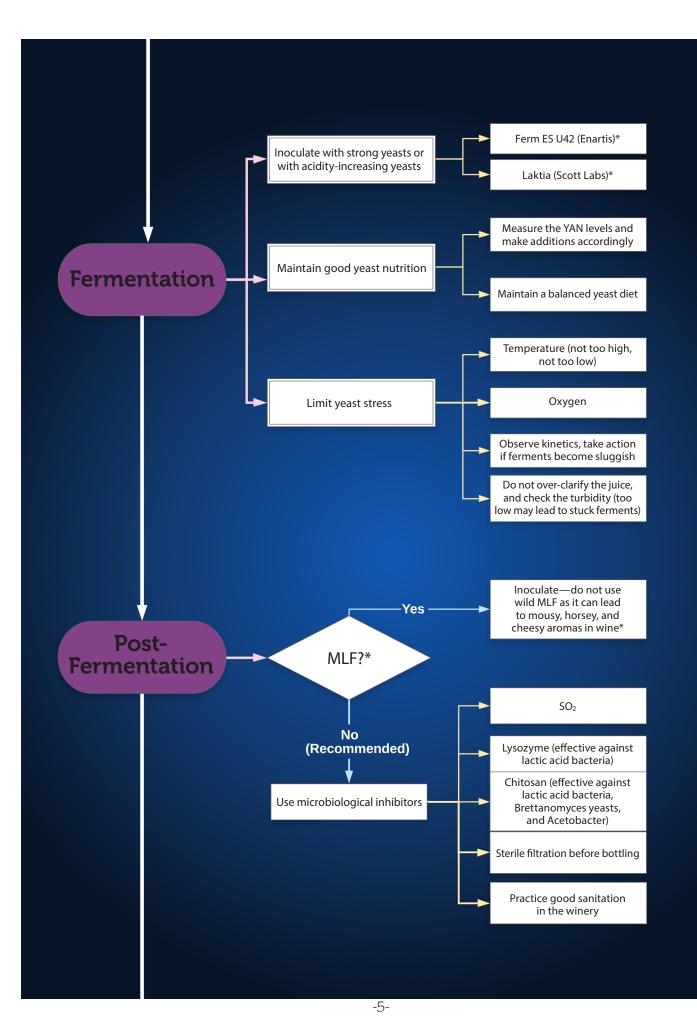
Company	Product	Description	Time of addition	Dosage	Link to product
Enartis	Tan E	Tan E is a highly reactive seed tannin that adds structure and mid- palate while also benefiting color stabilization. Bench trials will help determine the best rate for structure improvement.	Post fermentation/ pre aging	3–15 g/hL	Tan E
Lamothe- Abiet	Excellence Bio-Nature	Pure <i>Metschnikowia pulcherrima</i> is a non- <i>Saccharomyces</i> yeast that does not ferment and inhibits the development of spoilage non- <i>Saccharomyces</i> yeasts and bacteria.	At harvest or in must	50 g/ton	Excellence Bio-Nature
	KillBrett	A pure chitosan fining agent used to prevent the development of <i>Brettanomyces, Lactobacillus, Pediococcus, Oenococcus,</i> and <i>Acetobacter.</i> This product prevents spoilage in wine, after MLF, at 2-4 g/hL. It protects the wine for ~4 months. If contamination occurs, treat with KillBrett at 5-8 g/hL followed by racking and 2 g/hL to prevent further contamination.	Wine storage and aging	Varies based on goals	KillBrett
	Pro Tanin R	This is a sacrificial tannin for red and dark rosés. This product consists of pure proanthocyanidic tannin that is highly reactive with laccase, PPO, and proteins. Instantaneously soluble, it can be sprinkled directly on grapes.	At harvest	120–180 g/ton	Pro Tanin R
	Tanin gallique à l'alcool	This product contains sacrificial tannins and is for use in white and light rosés. It is highly reactive with proteins and oxygen radicals.	In must	10–15 g/hL	Tanin Gallique
	Aroma Protect	Aroma Protect provides protection against oxidation and facilitates aroma improvement.	After alcoholic fermentation	20 g/hL	Aroma Protect
Scott Labs	LalVigne Mature	Specific inactivated yeast foliar spray that advances and increases phenolic maturity. Usage of LalVigne in Texas would be geared toward earlier harvest (lower pH levels) with better phenological maturity.	First application: ~5% veraison	1.8lbs/acre	Lalvigne Mature
			Second application: 10–12 days later		
	Gaia	A non- <i>Saccharomyces</i> , non-fermenting strain of yeast known for its ability to help control spoilage organisms during grape transit and cold soak. This product can help prevent VA production and is a biological alternative to SO ₂ .	As soon as possible	25g/hL	Gaia
			Add in the harvest bin before grape shipment or pre fermentation		
	Laktia	A non- <i>Saccharomyces</i> , non-fermenting strain of yeast known for its ability to produce high levels of lactic acid to improve the acid profile and lower pH.	At grape reception, 24 hours prior to <i>Saccharomyces</i> inoculation	25g/hL	Laktia
	FT Rouge (Rouge, Berry,	Used to stabilize color, enhance mouthfeel, and offers antioxidant protection by inhibiting oxidative enzymes such as laccase.	As soon as possible	20-50g/hL	FT Rouge
	and Soft)		Add in the harvest bin before grape shipment or pre fermentation at crusher or during pump over		
	ScottZyme Color X	High pH fruit can sometimes struggle with color and structure. Usage of Color X releases anthocyanins, polymeric phenols, and tannins. Use Color Pro with lighter styled reds.	During pump over or at reception	60–100ml/ ton	Color X
	GoFerm Protect Evolution	This is a natural yeast rehydration nutrient developed specifically for problem musts and stuck fermentations. This product helps ensure yeast vitality and complete fermentations. Stuck fermentations are at high risk for spoilage at the elevated pH levels in Texas.	In yeast rehydration water prior to adding yeast	30g/hL	Goferm Protect
	Bactiless	A chitosan product used to control bacterial populations in wine post fermentation. It can be used to prevent MLF.	Post MLF if MLF is desired	20–50g/hL	Bactiless
	Pure Lees Longevity	An inactivated yeast formulation to help limit oxidative degradation. This product has high dissolved oxygen uptake capacity.	Post AF	20-40g/hL	Pure Lees Longevity

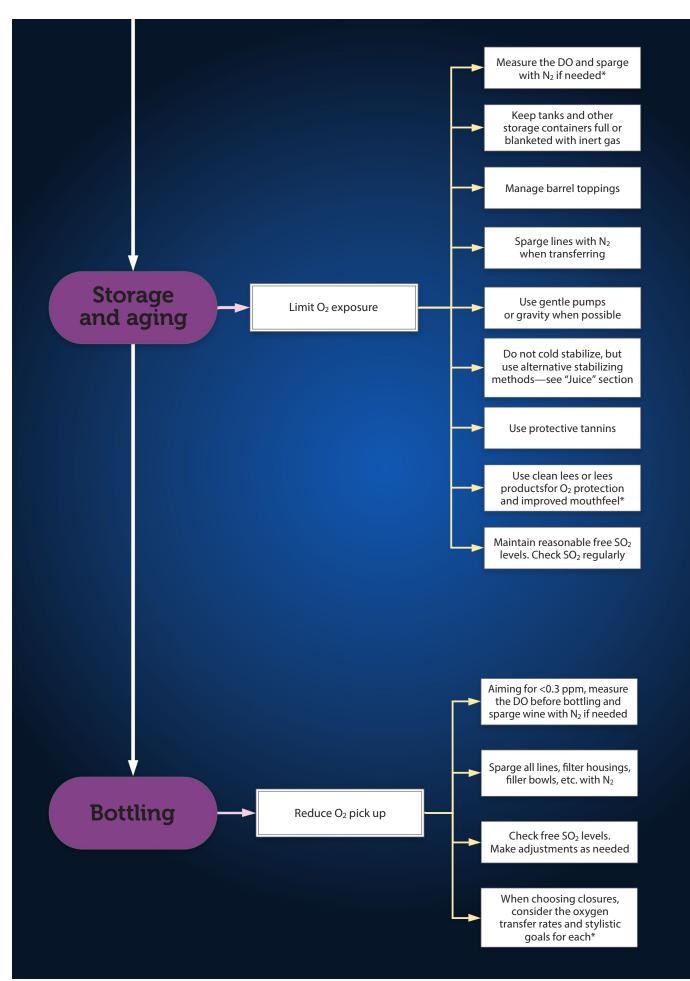


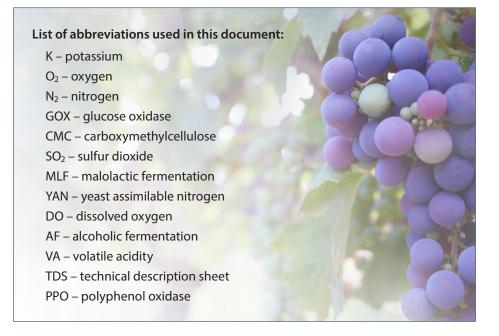
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