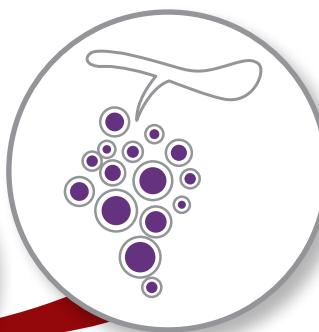


HARVEST Handbook

2012



BLENDING INNOVATIVE TECHNOLOGY WITH UNPARALLELED SERVICE

HARVEST Handbook

A good start is half the battle!

*A well-executed plan during the early phases of winemaking
will reduce the need for intervention down the road,
improve efficiency in the winery, and result in quality wine.*



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What's New

2012

WINE PHENOLIC FINGERPRINT PANEL - PANEL 16

New tool for looking at a red wine's phenolic profile.

CMC PANEL - PANEL 18

Series of tests to evaluate a wine's suitability for tartrate stabilization using Carboxymethyl Cellulose.

ENARTIS ZYM COLOR PLUS

Maceration enzyme for extraction and stabilization of color compounds.

INCANTO N.C. WHITE

Soluble powder, superior to typical oak alternatives for the fermentation of white must.

INCANTO N.C. RED

Soluble powder, superior to typical oak alternatives for the fermentation of red grapes.

ENARTIS FERM Q7

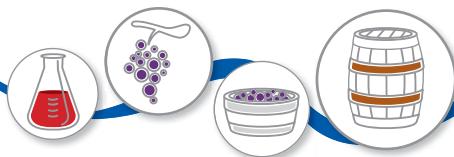
Liquid concentrated yeast for high-quality Pinot Noir and aromatic white wines.

ENARTIS FERM PRIMITIVO

Yeast for the production of Zinfandel and Italian varietals available in liquid concentrated and active dry yeast forms.

ENARTIS FERM Q T

Torulaspora delbrueckii yeast strain for use in sequential inoculation to enhance fruit and floral aromas.



HARVEST & FERMENTATION ANALYSES

Enartis Vinquiry offers a complete range of analytical, microbiological, and consulting services for winemaking. Our laboratory is TTB Certified for wine, distilled beverage, and beer testing and is ISO 17025:2005 Accredited. We have several locations and a team of experienced enologists and winemakers to serve your analytical needs.

When it comes to quality winemaking, we are with you every step of the way. This Harvest Handbook is dedicated to achieving the best quality wines during the critical stages of fermentation.

Following are guidelines for the most highly recommended analyses by stage, both individual tests and cost-effective panels. A complete list of services with pricing follows after this section. For the most current details about our analysis offerings, courier service, sample volume requirements and sample drop points, please visit our website at www.enartisvinquiry.com.

PRE-HARVEST

Grape Quality Monitoring Panel - Panel 11	\$ 55.00
A good way of monitoring fruit as it is ripening in the vineyard.	
<i>Includes: Berry Weight and Count, Brix, pH and Titratable Acidity.</i>	
Brix	\$ 15.00
pH	\$ 11.00
Titratable Acidity	\$ 13.00
pH & TA Combo	\$ 20.00
Tartaric Acid	\$ 20.00
L-Malic Acid	\$ 22.00
Organic Acid Profile for Juice <i>(Tartaric, Malic, Lactic, Acetic Acids)</i>	\$ 60.00
Potassium	\$ 24.00
Botrytis Risk Assessment	\$ 25.00
Mini Consult	\$ 50.00
Laccase Activity Test	\$ 34.00

Note: We charge a minimum \$ 50.00 Sample Preparation Fee for clusters/berries.

Juice Sampling Instructions

Enartis Vinquiry must receive juice samples before fermentation begins. They can be dropped off at any of Enartis Vinquiry's four offices, picked up by courier, or shipped.

- If shipping, Enartis Vinquiry recommends freezing samples in a plastic/Nalgene container and ship by Next Day Air with ice packs.
- Please note on the bottle how the sample has been treated.
- Please do not use glass containers in order to maintain the safety of our analysts. Using plastic bottles will also reduce the risk of sample loss due to leaking under pressure.
- Do not add excessive amounts of potassium metabisulfite to prevent fermentation; it may interfere with analysis.



JUICE/MUST

Juice Panel - Panel 3	\$ 130.00
<i>Includes: Brix (refractometer), pH, Titratable Acidity, Ammonia and Assimilable Amino Nitrogen, Potassium, Organic Acid Profile (Tartaric, Malic, Lactic, Acetic Acids), Botrytis Test.</i>	
Core Juice Panel - Panel 3.5	
	\$ 85.00
<i>Includes: Brix (refractometer), pH, Titratable Acidity, Malic Acid, Ammonia and Assimilable Amino Nitrogen.</i>	
Brix	\$ 15.00
pH	\$ 11.00
Titratable Acidity	\$ 13.00
pH & TA Combo	\$ 20.00
Assimilable Amino Nitrogen	\$ 27.00
Ammonia	\$ 26.00
Yeast Assimilable Nitrogen (YAN)	\$ 45.00
Tartaric Acid	\$ 20.00
L-Malic Acid	\$ 22.00
Organic Acid Profile for Juice <i>(Tartaric, Malic, Lactic, Acetic Acids)</i>	\$ 60.00
Potassium	\$ 24.00
Buffering Capacity	\$ 15.00
Percent Solids	\$ 15.00
Turbidity	\$ 12.00
Botrytis Risk Assessment	\$ 25.00
Free SO ₂	\$ 14.00
Total SO ₂	\$ 25.00
Volatile Acidity	\$ 20.00
Microscopic Scan	\$ 24.00
Direct Yeast Count	\$ 40.00
Laccase Activity Test	\$ 34.00
Glucan Screening	\$ 30.00

PREDICTIVE GUIDE FOR ACID ADJUSTMENT

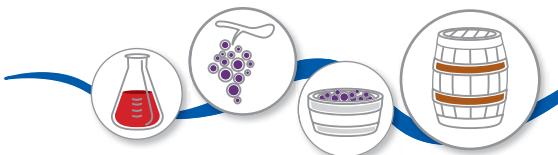
\$ 50.00

(Requires Panel 3 and buffering capacity analysis)

It can be difficult to get a handle on predicting the pH shifts that occur after MLF. To help our clients with this challenge, we offer predictive acid reports for juices which calculate the final pH of wines post-MLF, including calculated levels of tartaric acid additions required to target specific pH ranges.

We've offered this service for several harvests now, with many satisfied and repeat customers! The quality of the result is based on the quality of the input. Solid analytical numbers and timing of sampling are critical. We suggest sampling for this test as close as possible to the onset of fermentation (without actually fermenting!) to allow for as much skin/juice/pulp interaction as possible.

HARVEST AND FERMENTATION ANALYSES



FERMENTATION TROUBLESHOOTING

In order to minimize financial and quality impacts, it is critical that the stuck wine be evaluated for feasibility of completion and that a baseline be established which allows for a well-considered action plan.

FERMENTATION ASSESSMENT PANEL - PANEL 9 \$ 85.00

After many years of consulting with our clients on stuck/sluggish fermentations, we find that this panel really covers the bases! While each component is critical to the overall picture, the combination of tests allows for decisive action in regaining control of the fermentation and, ultimately, the wine's quality.

Includes: GC Alcohol, Microscopic Scan, Volatile Acidity, Malic Acid, Glucose + Fructose and a brief consultation with our Enologist.

MALOLACTIC FERMENTATION ASSESSMENT PANEL - PANEL 10 \$ 122.00

Includes: Alcohol, Volatile Acidity, Total SO₂, Glucose + Fructose, Microscopic Scan, pH and Malic Acid.

Glucose + Fructose	\$ 22.00
L-Malic Acid	\$ 22.00
Microscopic Scan	\$ 24.00
Volatile Acidity	\$ 20.00
Free SO ₂	\$ 14.00
Total SO ₂	\$ 25.00
pH	\$ 11.00
Alcohol by GC	\$ 24.00
Sulfide Detection Trial	\$ 25.00
PCR - Rapid and Quantitative Genetic Detection for <i>Brettanomyces</i> , <i>Pediococcus</i> , Lactobacillaceae (includes <i>Lactobacillus</i> and <i>Pediococcus</i>), <i>Zygosaccharomyces bailii</i>	
Primary Test	\$ 60.00
Each Additional Test on the Same Sample	\$ 20.00
Ethyl Phenols (4-ethylphenol and 4-ethylguaiacol)	\$ 60.00
Ethyl Acetate	\$ 80.00
Acetaldehyde	\$ 80.00

MINI CONSULT \$ 50.00

Whether it's calculating acid additions, recalling biochemical pathways, managing a spoilage situation or naming that funk, we've got you covered! While we offer project-based consulting, our staff winemaker is also available for a "Mini Consult" - a 15 minute reality check, road map or, perhaps, shoulder to cry on. With a lifetime of experience to offer, Don Frazer is worth the call!

AFTER FERMENTATION

POST FERMENTATION PANEL - PANEL 8 \$ 45.00

After primary fermentation, we suggest at a minimum Glucose + Fructose, Malic Acid and Volatile Acidity to establish a good baseline before proceeding with MLF.

Includes: Glucose + Fructose, Malic Acid and Volatile Acidity.

BASIC CHEMISTRY PANEL - PANEL 1 \$ 98.00

The name says it all! It covers the basics of what you should know about your wine at this stage.

Includes: Alcohol, pH, Titratable Acidity, Free and Total SO₂, Volatile Acidity, Malic Acid and Glucose + Fructose.

QC Panel - Panel 2 \$ 55.00

Includes: pH, Titratable Acidity, Free and Total SO₂ and Volatile Acidity.

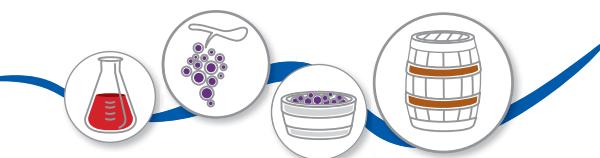
BRETT MANAGEMENT PANEL - PANEL 7 \$ 115.00

*Includes: Culture for *Brettanomyces*, Ethyl Phenols (4-ethylphenol and 4-ethylguaiacol), Free SO₂ and a Brett Sensory Impact Rating.*

Alcohol by GC	\$ 24.00
Alcohol by NIR	\$ 20.00
pH	\$ 11.00
Titratable Acidity	\$ 13.00
pH & TA Combo	\$ 20.00
Free SO ₂	\$ 14.00
Total SO ₂	\$ 25.00
Volatile Acidity	\$ 20.00
Glucose + Fructose	\$ 22.00
L-Malic Acid	\$ 22.00
Organic Acid Profile for Wine <i>(Citric, Tartaric, Malic, Lactic, Succinic, Acetic Acids)</i>	\$ 75.00
Adams Tannin Assay	\$ 105.00
Wine Phenolic Fingerprint with Benchmarking	\$ 65.00
Color (420, 520 nm)	\$ 85.00
Cultures for:	\$ 30.00
• <i>Brettanomyces</i>	\$ 25.00
• Yeast	
• Bacteria	

PCR - Rapid and Quantitative Genetic Detection for *Brettanomyces*, *Pediococcus*, Lactobacillaceae (includes *Lactobacillus* and *Pediococcus*), *Zygosaccharomyces bailii*

Primary Test	\$ 60.00
Each Additional Test on the Same Sample	\$ 20.00
Microscopic Scan	\$ 24.00
Mini Consult	\$ 50.00
Wine Improvement Panel	\$ 275.00



MALOLACTIC FERMENTATION

The time period leading up to, during and right after malolactic fermentation is critical because it presents opportunities for a winemaker to truly shape the direction of the wine. Preparation for a successful MLF and crafting a balanced and stable wine for the duration of the aging period are the key goals.

Before MLF:

pH	\$ 11.00
Free SO ₂	\$ 14.00
Total SO ₂	\$ 17.00
Alcohol	\$ 20.00
Glucose + Fructose	\$ 22.00
L-Malic Acid	\$ 22.00
Volatile Acidity	\$ 20.00

Post Fermentation Panel - Panel 8	\$ 45.00
Glucose + Fructose, L-Malic Acid, Volatile Acidity	

MICRO-OX PANEL - PANEL 15	\$ 110.00
Includes: Wine Phenolic Fingerprint Panel, Free SO ₂ , Volatile Acidity, Color: Absorbance at 420/520 nm.	

These tests are recommended bi-weekly during micro-oxygenation treatment to monitor critical wine parameters and the development of stable color.

Predictive Acid Guide	\$ 50.00
We calculate the expected final pH of wines post-MLF, including calculated levels of tartaric acid additions required to achieve specific pH ranges. It is desirable to make acid adjustments before MLF, if possible.	

(Fundamental analysis required – Tartaric Acid, Malic Acid, Potassium, Alcohol, pH, TA and Buffer capacity.)

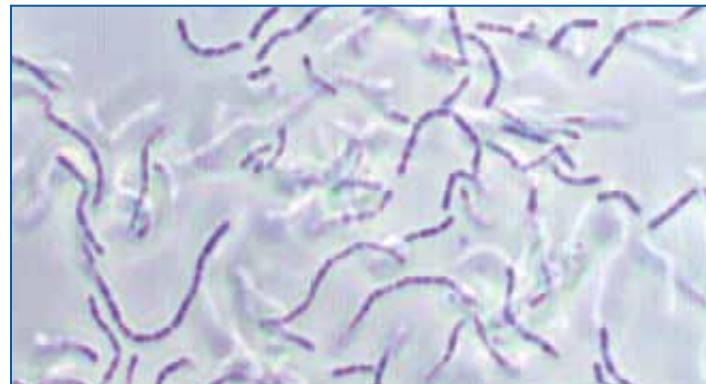
Monitoring - Starter Cultures and During MLF:

L-Malic Acid	\$ 22.00
Volatile Acidity	\$ 20.00
pH	\$ 11.00
Titratable Acidity	\$ 13.00
Microscopic Scan	\$ 24.00
PCR for Lactobacillaceae	\$ 60.00

Problematic MLF:

Alcohol	\$ 20.00
pH	\$ 11.00
Volatile Acidity	\$ 20.00
Free SO ₂	\$ 14.00
Total SO ₂	\$ 17.00
Glucose + Fructose	\$ 22.00
L-Malic Acid	\$ 22.00
Microscopic Scan	\$ 24.00
Lactic Acid	\$ 30.00
Acetic Acid	\$ 35.00
PCR for Lactobacillaceae	\$ 60.00
PCR for <i>Pediococcus</i>	\$ 60.00

Malolactic Fermentation Assessment Panel - Panel 10	\$ 122.00
Alcohol, Volatile Acidity, Total SO ₂ , Glucose + Fructose, pH, L-Malic Acid, Microscopic Scan	

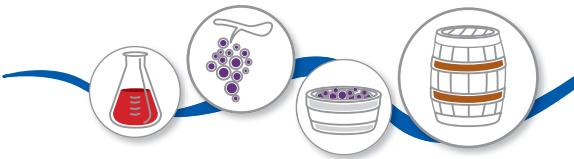


OENOCCOCUS OENI (MALOLACTIC BACTERIA). PURE, HEALTHY ML CULTURE.



MIXED CULTURE OF OENOCCOCUS OENI AND ACETOBACTER.

HARVEST AND FERMENTATION ANALYSES



After Malolactic Fermentation:

Alcohol	\$ 20.00
Glucose + Fructose	\$ 22.00
L-Malic Acid	\$ 22.00
Free SO ₂	\$ 14.00
Total SO ₂	\$ 17.00
pH	\$ 11.00
Titratable Acidity	\$ 13.00
Volatile Acidity	\$ 20.00
Culture for Bacteria	\$ 25.00
Culture for <i>Brettanomyces</i>	\$ 25.00
PCR for Spoilage Organisms	from \$ 60.00
Ethyl-phenols	\$ 60.00
Sensory Evaluation	\$ 50.00
Wine Improvement Panel <i>(Includes Wine Assessment, Sample Treatment and Consultation)</i>	\$ 275.00
Consulting Services - Standard rate	\$ 150.00/hr
Pricing dependent upon scope of project	
Adams-Harbertson Assay - Phenolics, Tannins and Anthocyanins	\$ 105.00

Post Fermentation Panel - Panel 8

Flavor Character Panel - Panel 1

\$ 45.00

Basic Chemistry Panel - Panel 1

Alcohol, pH, Titratable Acidity, Free and Total SO₂, Volatile Acidity, L-Malic Acid and Glucose + Fructose

BASELINE BRETT CHECK:

Brett Management Panel - Panel 7

Plating for Brettanomyces, 4-ethylphenol & 4-ethylguaiacol,

Free SO₂: Brett Sensory Impact Rating

MICRO-OX PANEL - PANEL 15

Includes: Wine Phenolic Fingerprint Panel, Free SO₂, Volatile

Acidity, 420/520nm color absorbance reading.

Recommended bi-weekly for monitoring critical wine parameters and the development of stable color during micro-oxygenation treatment.



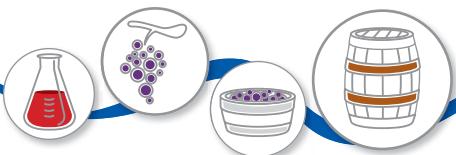
WINE PHENOLIC FINGERPRINT PANEL- PANEL 16

A great new option for looking at the status of a red wine's phenolic profile and color stability, powered by the optical tool offers rapid results compared to labor-intensive methods. The benchmarking of your vintage with others of the same scale. Or perhaps there are competitor submit for benchmarking purposes.

Includes: Total Phenolics, Total Tannin, Total Pigment, Free Anthocyanins and Pigmented Tannin \$ 65.00

Wine Phenolic Fingerprint Panel with Benchmarking \$ 85.00

Wine Phenolic Fingerprint Panel with Benchmarking \$ 65.00



HARVEST AND FERMENTATION ANALYSES

ANALYSIS BY STAGE

	GRAPES	JUICE/MUST	STARTER CULTURES	DURING FERMENTATION	TROUBLESHOOTING PRIMARY FERMENTATION	POST FERMENTATION	DURING MLF	TROUBLESHOOTING MLF
Brix	critical	critical	critical	critical	critical			
pH	critical	critical	critical	critical	critical	critical	suggested	critical
Titratable Acidity	critical	critical		optional		critical	optional	optional
YAN - Ammonia + AAN	highly recommended	critical						
Tartaric Acid	highly recommended	optional				optional		
L-Malic Acid	optional	optional	optional		critical	critical	critical	critical
Organic Acid Profile	highly recommended	highly recommended				highly recommended		
Potassium	optional	optional						
Buffering Capacity		optional						
Percent Solids		highly recommended						
Turbidity		highly recommended						
Free SO ₂	optional	optional	highly recommended		optional	highly recommended		critical
Total SO ₂		highly recommended			optional	optional		critical
Volatile Acidity	highly recommended	optional	optional	optional	critical	critical	optional	critical
Glucose + Fructose	highly recommended				critical	critical		optional
Alcohol					critical	optional		critical
Ethyl Phenols (4-ethylphenol and 4-ethyguaiacol)						highly recommended		
Adams Tannin Assay						highly recommended		
Wine Phenolic Fingerprint								
Color and Phenolics						optional		
Microscopic Scan	optional	critical	highly recommended	critical		optional	highly recommended	critical
Direct Yeast Count		optional	highly recommended	optional				
PCR - Rapid and Quantitative Genetic Detection for:								
<i>Brettanomyces</i>				highly recommended		highly recommended		
<i>Pediococcus</i>			optional		optional	optional		
Lactobacillaceae (includes <i>Lactobacillus</i> and <i>Pediococcus</i>)			highly recommended		optional	optional		
<i>Zygosaccharomyces bailii</i>			highly recommended		optional			
Cultures for:								
<i>Brettanomyces</i>						highly recommended		
Yeast						highly recommended		
Bacteria						highly recommended		
Botrytis Risk Assessment	highly recommended	highly recommended						
Mini Consult	highly recommended		optional		critical			
Predictive Guide for Acid Adjustment		highly recommended				optional		
Sulfide Detection Trial				optional	optional			
Acetaldehyde					optional		optional	
Ethyl Acetate					optional		optional	
Laccase Activity Test	highly recommended	highly recommended						
Glucan Screening		highly recommended						

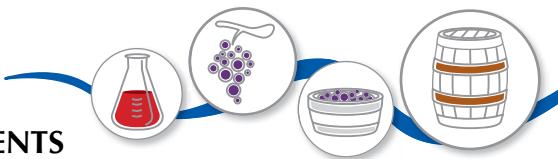
critical

highly recommended

suggested

optional

HARVEST AND FERMENTATION ANALYSES



SAMPLE VOLUME REQUIREMENTS

TEST	50 mL Tube	250 mL Bottle	500 mL Bottle	750 mL Bottle
pH	•			
Titratable Acidity	•			
Ammonia		•		
Assimilable Amino Nitrogen	•			
Volatile Acidity	•			
Free SO ₂	•			
Total SO ₂	•			
Alcohol	•			
Malic Acid	•			
Glucose + Fructose	•			
Adams Tannin Assay	•			
Iron	•			
Copper	•			
Conductivity		•		
Bentonite Trials for Stability				•
Heat Stability		•		
Filterability				• • •
Haloanisoles		250 mL GLASS BOTTLE WITH FOIL-LINED CAP		
Laccase Activity Test	•			
Glucan Screening	•			
Ethyl Phenols (4-ep + 4-eg)	•			
Microscopic Scan	•			
PCR for Spoilage Organisms	•			
Culture for Bacteria		•		
Culture for <i>Brettanomyces</i>		•		
Culture for Yeast		•		
Bottled Wine Sterility				•
PANEL 1 - Basic Chemistry Panel			•	
PANEL 2 - QC. Panel			•	
PANEL 3 - Juice Panel			•	
PANEL 3.5 - Core Juice Panel		•		
PANEL 4 - Unfiltered Bottling Panel			•	
PANEL 5 - Export Panel				• •
PANEL 6 - Wine Improvement Panel				• • •
PANEL 7 - Brett Management Panel	•			
PANEL 8 - Post Fermentation Panel		•		
PANEL 9 - Fermentation Assessment Panel		•		
PANEL 10 - MLF Assessment Panel		•		
PANEL 11 - Grape Quality Monitoring Panel		FRESH FRUIT		
PANEL 12 - Monthly Check Panel		•		
PANEL 14 - Micro Monitoring Panel		•		
PANEL 15 - Micro-Ox Panel		•		
PANEL 16 - Wine Phenolic Fingerprint Panel	•			
PANEL 17 - Predictive Tartrate Stability Panel			•	
Panel 18 - CMC Panel			• • •	

ONE • PER BOTTLE REQUIRED



ANALYTICAL SERVICES

ANALYTICAL PANELS

BASIC CHEMISTRY PANEL FOR WINEMAKING

PANEL 1

The wine world's general checkup. Covers baseline chemistry tests for assessing wine from fermentation through finishing. Even if you just want to know more about your wine, Panel 1 is often a cost-effective start, adding other tests as line items.

Includes: Alcohol, Titratable Acidity, pH, Volatile Acidity, Free SO₂, Total SO₂, Malic Acid, Glucose + Fructose

\$ 98.00

(if priced separately: \$ 139.00)

QC PANEL

PANEL 2

Standard tests for routine monitoring. To ensure acid and pH are in the desired ranges, SO₂ is where you want it, and volatile acids remain in check.

Includes: Titratable Acidity, pH, Free SO₂, Total SO₂, Volatile Acidity

\$ 55.00

JUICE PANEL - PANEL 3

PANEL 3

A vital test series to help ensure successful fermentation. Provides information on fruit maturity, composition, and balance that will affect the characteristics of the finished wine. Assesses yeast nutritional status with regard to assimilable nitrogen and offers data on potential potassium effects. Also includes the Botrytis Risk Assessment.

Includes: Brix (Refractometer), Ammonia, Assimilable Amino Nitrogen, pH, Titratable Acidity, Potassium, Organic Acid Profile (Tartaric, Malic, Lactic, Acetic), Botrytis Test

\$ 130.00

(if priced separately: \$ 201.00)

Call Enartis Vinquiry for handling and shipping instructions.

CORE JUICE PANEL

PANEL 3.5

Provides the basic information of winegrape juice including information on fruit maturity and nutritional status.

Includes: Brix (Refractometer), Ammonia, Assimilable Amino Nitrogen, pH, Titratable Acidity, Malic Acid

\$ 85.00

(if priced separately: \$ 114.00)

Call Enartis Vinquiry for handling and shipping instructions.

UNFILTERED BOTTLING PANEL

PANEL 4

Provides information for use in deciding whether to bottle a wine unfiltered. For both red and white wines, this panel checks for fermentation stability with regard to sugar and malic acid. Turbidity looks at aesthetic acceptability while volatile acids analysis checks for evidence of past bacterial spoilage. Bacteria cultures report on current presence of these organisms and their populations. The Red Wine Panel is extended with *Brettanomyces* testing while the White Wine Panel assesses the potential for yeast refermentation.

Red Wine Includes: Glucose + Fructose, Malic Acid, Turbidity, Volatile Acidity, Culture for Brettanomyces, Culture for Bacteria, 4-ethylphenol, 4-ethylguaiacol

\$ 149.00

White Wine Includes: Glucose + Fructose, Malic Acid, Turbidity, Volatile Acidity, Culture for Yeast, Culture for Bacteria

\$ 99.00

Panel includes written evaluation by an Enartis Vinquiry enologist.

EXPORT PANEL

PANEL 5

Including the typical "long form" analyses required for many exports, the panel covers the VI-1 Long Form for EU, Japan, and Taiwan. It also provides a basis for a certificate of analysis for some other nations and foreign importers of U.S. wines. Requires submission of two finished, labeled bottles exactly as intended for export.

Includes: Actual Alcohol, Total Alcohol, Titratable Acidity, Extract, Total SO₂ (A/O), Sorbic Acid, Volatile Acidity, Citric Acid, Glucose + Fructose

\$ 198.00

*Includes one VI-1 Long form and one Japan form.
Reissues \$ 25.00/each*

WINE IMPROVEMENT PANEL

PANEL 6

Used to help winemakers diagnose and treat common wine defects. Includes a sensory analysis before and after recommended treatment, fining trial, and a brief consultation with an experienced winemaker on the results. Further trials or additional analysis may be necessary to complete the panel.

Includes: Wine Improvement Assessment, Wine Enhancement Series, Consultation with Staff Winemaker

\$ 275.00

BRETT MANAGEMENT PANEL

PANEL 7

Usually focused on red wines and often part of a winery's comprehensive *Brettanomyces* management program, this panel monitors the presence and growth of the organism and assesses its impact on the wine.

Includes: Plating for Brettanomyces, 4-ethylphenol, 4-ethylguaiacol, Free SO₂, Brett Sensory Impact Rating

\$ 115.00

(if priced separately: \$ 149.00)

ANALYTICAL SERVICES



POST FERMENTATION PANEL

PANEL 8

Intended to verify successful fermentation to "dryness" in both sugar and malic acid. The panel also provides a baseline value for volatile acidity, allowing for meaningful assessment of VA numbers over time in the evolving wine.

Includes: Volatile Acidity, Malic Acid, Glucose + Fructose

\$ 45.00

(if priced separately: \$ 64.00)

FERMENTATION ASSESSMENT PANEL

PANEL 9

When a fermentation does not seem to be finishing as it should, this is the panel to choose. Starting with the same tests as Panel 8 to assess the degree of completion and possible start of spoilage, it goes on to look for inhibitory influences in the form of alcohol or microscopically visible bacteria. Also estimates the viability level of yeast to help assess prospects for completing fermentation.

Includes: GC Alcohol, Microscopic Scan, Volatile Acidity, Malic Acid, Glucose + Fructose

\$ 85.00

(if priced separately: \$ 112.00) Price includes brief consultation.

MALOLACTIC FERMENTATION ASSESSMENT PANEL

PANEL 10

Addresses issues present in wine that can cause inhibition of bacteria. This panel provides answers needed to assess the status of wine and enables the winemaker to make informed decisions on how to move forward with the completion of the malo-lactic conversion.

Includes: Alcohol, Volatile Acidity, Total SO₂, Glucose + Fructose, Microscopic Scan, pH, Malic Acid

\$ 122.00

(if priced separately: \$ 136.00)

GRAPE QUALITY MONITORING PANEL

PANEL 11

In order to obtain optimal grape ripeness for premium winemaking, field samples should be collected and tested over time. The parameters below give one a good idea of the fruit's condition and its ability to ripen further.

Includes: Berry Weight and Count, Brix, Titratable Acidity, pH

\$ 75.00

MONTHLY CHECK PANEL

PANEL 12

A snap-shot view of a wine's protection and microbial status during aging.

Includes: Free SO₂, Volatile Acidity and a Microscopic Scan

\$ 30.00

MICRO MONITORING PANEL

PANEL 14

This panel assesses the presence of spoilage organisms in wines during aging. The combination of techniques, traditional microbiology and genetic detection methods, allows for both quantification and determination of population viability.

White Wines - Includes: PCR for Pediococcus and Lactobacillaceae, Cultures for Yeast and Bacteria, pH, Free SO₂, Volatile Acidity

\$ 110.00

Red Wines - Includes: PCR for Brettanomyces, Pediococcus and Lactobacillaceae, Ethyl-phenols, Cultures for Bacteria and Brettanomyces, pH, Free SO₂, Volatile Acidity

\$ 190.00

MICRO-OX PANEL

PANEL 15

The goals of micro-oxygenation are to speed the development of stable color in red wine as well as to improve mouthfeel and reduce green/vegetative characteristics. During this process, it is important to evaluate whether these goals are being accomplished and to control over-processing the wine, which can result in browning. Recommended bi-weekly for monitoring critical wine parameters and the development of stable color during micro-ox treatment.

Includes: Wine Phenolic Fingerprint Panel, Free SO₂, Volatile Acidity, 420/520nm absorbance reading

\$ 110.00

new

WINE PHENOLIC FINGERPRINT PANEL

PANEL 16

A great new option for looking at the status of a red wine's phenolic profile and color stability, powered by the AWRI Tannin Portal. This practical tool offers rapid results compared to other more finicky and labor-intensive methods. The benchmarking feature allows for the comparison of your vintage with others of the same varietal on a global or regional scale. Or perhaps there are competitive wines that you would like to submit for benchmarking purposes.

Includes: Total Phenolics, Total Tannin, Total Pigments, Free Anthocyanins, Pigmented Tannins

\$ 65.00

(Wine Phenolic Fingerprint Panel with Benchmarking: \$ 85.00)

PREDICTIVE TARTRATE STABILITY PANEL

PANEL 17

Includes: Alcohol, Tartaric Acid, Potassium, pH, Titratable Acidity, Density, Volatile Acidity, and an estimate of the effect of your choice of wine treatments (acidification, de-acidification, increase/decrease in alcohol) on the tartrate stability of a test wine. Predictions for changes in TA and pH given different treatment scenarios are also available!

\$ 100.00

new

CMC PANEL

PANEL 18

Using CMC (Carboxymethyl Cellulose) for tartrate stabilization is a wonderful new tool for winemaking. It is critical to check the wine's suitability for a CMC addition before treatment in the cellar. As such, Enartis has developed a range of tests for screening individual wines and ensuring the effectiveness of the product.

Includes: Cold Stability, Conductivity; Turbidity, Heat Stability Test, CMC Addition Trial with Subsequent Conductivity Test, and a Colloidal Stability Test

\$ 125.00



INDIVIDUAL ANALYSES

Ten or more samples submitted at once for the same individual analysis receive a 15% discount.

ALCOHOLS (WINE AND JUICE)

	UNITS	PRICE
Alcohol, NIR	% by volume	\$ 20.00
Alcohol, Gas Chromatography	% by volume	\$ 24.00
Methanol, Gas Chromatography	mg/L	\$ 80.00

ACIDS, ALDEHYDES & ESTERS

Acetaldehyde, Gas Chromatography	mg/L	\$ 80.00
Acetic Acid, Enzymatic	g/100mL	\$ 35.00
Ascorbic Acid, Enzymatic	mg/L	\$ 35.00
Citric Acid, Enzymatic	g/100mL	\$ 25.00
Ethyl Acetate, Gas Chromatography	mg/L	\$ 80.00
Grain Strength (includes TA as acetic)		\$ 30.00
Lactic Acid, Enzymatic	mg/100mL	\$ 30.00
Malic Acid, Enzymatic	mg/100mL	\$ 22.00
Organic Acid Profile for Wine (citric, tartaric, malic, lactic, succinic, acetic)	g/100mL	\$ 75.00
Organic Acid Profile for Juice (tartaric, malic, lactic, acetic)	g/100mL	\$ 60.00
Oxalic Acid	g/100mL	\$ 45.00
pH		\$ 11.00
pH and Titratable Acidity Combo		\$ 20.00
Sorbic Acid	mg/L	\$ 30.00
Tartaric Acid	g/100mL	\$ 20.00
Titratable Acidity	g/100mL	\$ 13.00
Volatile Acidity	g/100mL	\$ 20.00

COLOR AND PHENOLICS

Adams Assay for Phenolics, Tannins and Anthocyanins		\$ 105.00
Anthocyanins	mg/L GAE	\$ 45.00
Color Stability, Chill Haze		\$ 50.00
Color: Absorbance @ 420/520		\$ 30.00
Ethyl-phenols (4-ethylphenol and 4-ethylguaiacol)	µg/L	\$ 60.00
Phenolic Fingerprint for Wine		\$ 65.00
Phenols, Flavonoid	mg/L GAE	\$ 30.00
Phenols, Non-flavonoid	mg/L GAE	\$ 30.00
Total Phenols, Folin-Ciocalteu	mg/L GAE	\$ 35.00

SUGARS

Brix, Hydrometer	°	\$ 20.00
Brix, Refractometer	°	\$ 15.00
Glucose, Enzymatic	mg/100mL	\$ 25.00
Fructose, Enzymatic	mg/100mL	\$ 25.00
Glucose + Fructose, Enzymatic	mg/100mL	\$ 22.00
Glucose + Fructose, Enzymatic, Inverted	mg/100mL	\$ 35.00
Sucrose, Enzymatic	mg/100mL	\$ 30.00



JUICE, MUST AND BERRY ANALYSES

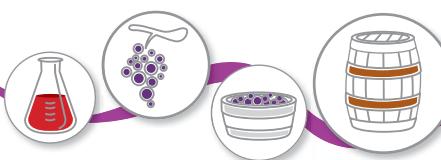
	UNITS	PRICE
Acetic Acid, Enzymatic	g/100mL	\$ 35.00
Ascorbic Acid	mg/L	\$ 35.00
Assimilable Amino Nitrogen	mg/L	\$ 27.00
Ammonia	mg/L	\$ 26.00
Berry Variability		\$ 450.00
Botrytis Risk Assessment		\$ 25.00
Brix, Hydrometer	°	\$ 20.00
Brix, Refractometer	°	\$ 15.00
Buffering Capacity	mmol/pH	\$ 15.00
Citric Acid, Enzymatic	g/100mL	\$ 25.00
Glucan Screening		\$ 30.00
Glucose + Fructose, Enzymatic	mg/100mL	\$ 22.00
Lactic Acid, Enzymatic	mg/100mL	\$ 30.00
Malic Acid, Enzymatic	mg/100mL	\$ 22.00
Organic Acid Profile for Juice	g/100mL	\$ 60.00
Percent Solids	%	\$ 15.00
pH		\$ 11.00
pH and Titratable Acidity Combo		\$ 20.00
Predictive Guide for Acid Adjustment in Juice (requires Panel 3 and buffering capacity analysis, priced separately)		\$ 50.00
Potassium	g/100mL	\$ 24.00
Tartaric Acid	g/100mL	\$ 20.00
Titratable Acidity	g/100mL	\$ 13.00
Titratable Acidity (as acetic or citric)		\$ 20.00
Volatile Acidity	g/100mL	\$ 20.00
Sample Preparation (Clusters and Berries)		from \$ 50.00

PRESERVATIVES

Ascorbic Acid	mg/L	\$ 35.00
Sorbic Acid	mg/L	\$ 30.00
Free SO ₂ , Aeration-Oxidation or Segmented Flow	mg/L	\$ 14.00
Free SO ₂ , Ripper	mg/L	\$ 26.00
Total SO ₂ , Aeration-Oxidation	mg/L	\$ 25.00
Total SO ₂ , Ripper or Segmented Flow	mg/L	\$ 17.00

INORGANIC ANALYSES

Ammonia	mg/L	\$ 26.00
Calcium, AA	mg/L	\$ 26.00
Carbon Dioxide, Carbodoseur	mg/L	\$ 24.00
Copper, AA	mg/L	\$ 26.00
Iron, AA	mg/L	\$ 26.00
Oxygen, Dissolved, OSE	mg/L	\$ 25.00
Potassium, AA	mg/L	\$ 24.00
Sodium, AA	mg/L	\$ 26.00



PHYSICAL MEASUREMENTS

	UNITS	PRICE
Density		\$ 27.00
Extract (<i>Includes Alcohol and Specific Gravity</i>)	g/100mL	\$ 59.00
Pressure/Vacuum		\$ 50.00
Specific Gravity, Densitometer @ 20°C		\$ 27.00
Volume, Bottle Fill Level	mL@ 20°C	\$ 50.00

STABILITY TESTS, EVALUATIONS AND PROBLEM SOLVING

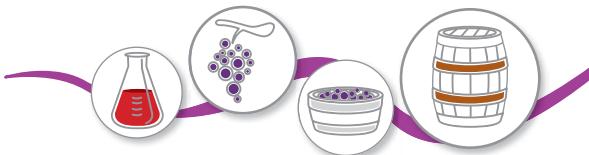
Bentonite Fining Trial		\$ 75.00
Cold Stability, Conductivity		\$ 35.00
Cold Stability, Freeze Test		\$ 45.00
Colloid Solubility		\$ 40.00
Filterability		\$ 130.00
Glucan Screening		\$ 30.00
Haloanisoles <i>(2,4,6-Trichloroanisole/2,3,4,6-Tetrachloroanisole/2,3,4,5,6-Pentachloroanisole/2,4,6-Tribromoanisole)</i>		\$ 150.00
Haloanisoles: Environmental TCA with Kit		\$ 150.00
Heat Stability		\$ 20.00
Laccase Activity Test		\$ 34.00
Mini Consult		\$ 50.00
Ochratoxin		\$ 200.00
Pectin Test		\$ 20.00
Pinking Potential, Peroxide Test		\$ 40.00
Problem ID/Characterization	from	\$ 40.00
Protein Material Fining Trial	from	\$ 80.00
Sediment/Haze Identification	from	\$ 40.00
Smoke Taint Markers <i>(Includes Guaiacol, 4-Methylguaiacol, 4-Ethylphenol and 4-Ethylguaiacol)</i>		\$ 120.00
Sulfide Detection Trial		\$ 25.00
Turbidity	NTU	\$ 12.00
Wine Enhancement Series		\$ 175.00
Wine Improvement Assessment		\$ 100.00

CORK ANALYSES

Haloanisoles by GC/MS (50 or 100 batch-soaked) <i>(2,4,6-Trichloroanisole/2,3,4,6-Tetrachloroanisole/2,3,4,5,6-Pentachloroanisole/2,4,6-Tribromoanisole)</i>	\$ 170.00
For Cork Sensory Analysis, please refer to the Sensory and Consulting Section of the Handbook.	

DISTILLED BEVERAGE ANALYSES

Distilled Beverage Analyses Panel <i>(Includes Fusel Oils, Acetaldehyde, Ethyl Acetate, Methanol)</i>		\$ 250.00
Acetaldehyde, Gas Chromatography	mg/L	\$ 80.00
Alcohol (Ethanol), Gas Chromatography	% (v/v)	\$ 26.00
Apparent Proof, Hydrometer	°	\$ 30.00
Ethyl Acetate, Gas Chromatography	mg/L	\$ 80.00
Extract, Evaporation	mg/100mL	\$ 45.00
Furfural, UV	mg/L	\$ 85.00
Fusel Oils, Gas Chromatography <i>(Includes n-propanol, Isobutanol, 1-Butanol, Isoamyl alcohol, Active Amyl alcohol, Methanol)</i>	mg/L	\$ 145.00
Methanol, Gas Chromatography	mg/L	\$ 80.00
Titratable Acidity	g/100mL	\$ 20.00
True Proof, Distillation	°	\$ 75.00



MICROBIOLOGICAL SERVICES

Anaerobic Culture for Bacteria	\$ 25.00
Bottled Wine Sterility	\$ 26.00
Calcium Carbonate Culture	\$ 18.00
Culture for Bacteria	\$ 25.00
Culture for <i>Brettanomyces</i>	\$ 25.00
Culture for Yeast	\$ 25.00
Culture Maintenance & Preparation of Proprietary Strains	per year \$ 75.00
Direct Yeast Count	\$ 40.00
Glucose Fermentation	\$ 16.00
Identification of Bacteria	Please inquire
Identification of Yeast	Please inquire
Isolation of Bacteria	each \$ 150.00
Isolation of Yeast	each \$ 150.00
Lysozyme Challenge - determine effective dosage rates	from \$ 140.00
Lysozyme Trial with Color	each \$ 220.00
Lysozyme Trial without Color	each \$ 140.00
Microscopic Scan	\$ 24.00
PCR for <i>Brettanomyces</i> , <i>Pediococcus</i> , Lactobacillaceae, <i>Zygosaccharomyces bailii</i>	
Primary Test per target organism	\$ 60.00
Each Additional Test per target organism (on same sample)	\$ 20.00
Serial Dilution/Plate Count	\$ 115.00
Yeast Activity Test	\$ 150.00
Velcorin® Challenge at 200 ppm (other concentrations available)	\$ 220.00
Velcorin® Series Addition, 3 concentrations	\$ 300.00

OTHER SERVICES

CALIBRATION & REPAIR

Reagent Standardization	from	\$ 25.00
Laboratory Equipment Calibration and Repair		Call for pricing

GRAPE SAMPLE PREPARATION FOR ANALYSIS

Sample Preparation (Clusters and Berries)	from	\$ 50.00
Special Sample Handling Fee		\$ 25.00

REGULATORY ANALYSIS

Please submit two finished bottles intended for export for the following analyses:

Analysis/Forms for Japan Requirements (standard)	\$ 124.00
Includes Alcohol (actual), Total SO ₂ (A/O), Extract, Sorbate, Specific Gravity, signed by Enartis Vinquiry	
Analysis/Forms for China Requirements	\$ 164.00
Includes Alcohol (actual), Total SO ₂ (A/O), Extract, Sorbate, Specific Gravity, Glucose + Fructose, signed by Enartis Vinquiry	
Ochratoxin	\$ 200.00
VI-1 Analysis/Forms for EU, short form	\$ 78.00
Includes Alcohol (actual), Titratable Acidity, Total SO ₂ (A/O)	
VI-1 Analysis/Forms for EU, long form	\$ 192.00
Includes Alcohol (actual), Alcohol (total), Titratable Acidity, Volatile Acidity, Citric Acid, Extract, Total SO ₂ (A/O), signed by Enartis Vinquiry	
Reissue of Forms	\$ 25.00
Additional Forms (1 form already included with VI-1)	\$ 20.00

Export analysis and forms available for EU countries, Japan and other countries.



SENSORY & CONSULTING SERVICES

CONSULTING SERVICES

WINE IMPROVEMENT PANEL

This panel combines sensory consulting with an arsenal of wine treatment options to improve the quality of your wine. Whether you have a noticeable defect or merely want to improve an already good wine, Enartis Vinquiry consultants will perform a sensory evaluation, set-up a trial with common wine additives or products, and report the results back to the client with recommendations. Further trials or additional analyses may be necessary to complete the panel.

Wine Improvement Panel per wine \$ 275.00

LABORATORY SET-UP

Setting up a laboratory can, at times, be difficult and overwhelming. Enartis Vinquiry will provide a knowledgeable consultant to set-up lab equipment and give training on performing analyses.

Laboratory Set-up per hour \$ 150.00

MINI CONSULT

Mini Consults are designed to give our customers access to the valuable expertise of Enartis Vinquiry Staff Winemakers (with over 20 years winemaking experience). This allows you to address winemaking issues and to acquire advice and perspective without hiring a full-time consultant. Even for professional winemakers, there are times when a consultant can offer valuable advice, guidance, and insight into a particular issue in the process of making great wines. While Enartis Vinquiry enologists, chemists, and product specialists answer routine questions on laboratory results and product selection at no charge, winemaking style choices, cellar actions, or bottling problems often require further exploration and a deeper understanding of the issue(s) at hand.

\$ 50.00 for a 15-20 minute session

WINE IMPROVEMENT REVIEW

Wine Improvement Reviews are designed to help winemakers with a specific issue or just provide a fresh perspective from a wine industry veteran. Through individualized sessions with experienced Enartis Vinquiry Staff Winemakers, clients can gain a fresh look at a specific area of the winemaking process and identify the issues standing between them and making better wine.

Choose one of the reviews proposed below or suggest a topic of your own. Once a topic is selected, a customized questionnaire will be provided. Upon completion, the questionnaire will be reviewed by a Staff Winemaker before the one hour session begins. The information gathered will highlight the unique situation and enable the Staff Winemaker to address current practices, facility capabilities and how they fit with desired goals.

Suggested topics include:

- Wine Style Review
- Grape Sourcing and Vineyard Evaluation
- Harvest and Fermentation Review: White Wines
- Harvest and Fermentation Review: Red Wines
- Post Harvest Review
- Finishing and Bottling Review

A Wine Improvement Review can also be used whenever a winemaker is looking to incorporate a new winemaking style, utilize new research, review the way things are done, or has any obstacle to overcome during the winemaking process.

\$ 150.00 for one hour session

SENSORY SERVICES

STANDARD SENSORY EVALUATION

For a standard evaluation, at least two trained analysts will evaluate the appearance, aroma, taste and overall impression of the wine. Winemaking corrections will be recommended for wines with defects.

Written Sensory Evaluation \$ 50.00

CORK AROMA EVALUATION

STILL WINE

Corks are individually soaked in a neutral alcohol-water solution. The solutions are transferred to tasting glasses and corks are tracked by bale (or bag) and lot number. Up to 140 glasses can be evaluated in one session, including an appropriate number of TCA and MIB spikes. The minimum number of panelists in each session is four, including one sensory professional.

\$ 350.00

SPARKLING WINE

For each cork, the first disk only is soaked in an alcohol-water solution. Corks are tracked by bale (or bag) and lot number. Up to 130 glasses can be evaluated in one session, including an appropriate number of TCA and MIB spikes. The minimum number of panelists in each session is four, including one sensory professional.

\$ 450.00

Additional panelists can be provided by Enartis Vinquiry at \$ 35.00/person.

The Client may use their own panelists at no extra charge. Prices above include a Cork Aroma Evaluation Report which details the descriptors used, their intensity, acceptability information, and an R-index interpretation of acceptability.

SEMINARS AND TRAINING

Enartis Vinquiry hosts seminars and workshops to further your staff's knowledge of enology and winemaking topics.

Some are large, full-day seminars that cover various wine related topics. Others are smaller, in-house workshops on specific equipment or products. Additionally, Enartis Vinquiry conducts training programs on topics such as microbiology, sensory techniques and lab analyses.

For up-to-date information check our website, www.enartisvinquiry.com, or call our main branch at 707 838 6312 for scheduled opportunities.

PROTECTION OF MUST & GRAPES



Adequate protection of grapes and must during the pre-fermentation stage prevents the action of oxidative enzymes, which cause the loss of primary grape aromas and the formation of compounds responsible for herbaceous and bitter flavors.

WINY HIGH PURITY POTASSIUM METABISULFITE

Pure and high quality potassium metabisulfite. Winy's multiple functions are indispensable in winemaking. It is capable of oxygen scavenging, preventing oxidation, killing unwanted microflora, rendering polyphenols more soluble and it acts as an antioxidant agent against oxidases (laccase and tyrosinase).



Application: Anti-oxidant and antioxidant protection; anti-microbial action.

Dosage: 1 g of Winy develops approx. 0.56 g of SO₂

25 kg	(Item #35-820-0025)	\$ 70.00
1 kg	(Item #35-820-0001)	\$ 4.30

20% WATER SOLUTION OF POTASSIUM METABISULFITE

COMPETITION



WINY



EFFERGRAN

Effervescent granulated potassium metabisulfite designed to be added directly to wine and grapes. When added to the bottom of picking bins, it assures a rapid release of SO₂ into the atmosphere occupied by the grapes, minimizing oxidation during transport from the vineyard to the winery.

Application: Anti-oxidant protection; anti-microbial action; easy-to-use SO₂.

Dosage: 125 g (50 g SO₂) packet for gondolas of 4-5 tons
250 g (100 g SO₂) packet for gondolas of 8-10 tons
1 kg (400 g SO₂) economic package

1 kg	(Item #35-810-0001)	\$ 15.00
250 g	(Item #35-815-0000)	\$ 5.00
125 g	(Item #35-810-0000)	\$ 3.00

AST

Contains potassium metabisulfite, ascorbic acid and hydrolysable tannin in carefully balanced amounts to maximize antioxidant and antimicrobial action. When used on grapes, AST provides the antibacterial and antioxidant protection provided by sulfur dioxide, while limiting macerating action. It is suitable for the treatment of grapes intended for sparkling wine base, white grapes rich in phenolic substances and for grapes that have been machine harvested. When used in the treatment of must derived from grapes rich in aromatic precursors, it assists in the production of wines with intense varietal aromas. AST is very effective in preventing atypical ageing off-flavors.

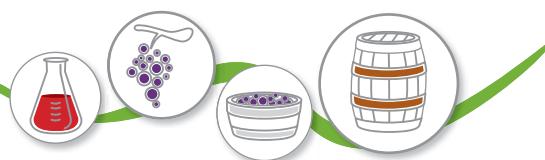
Application: Anti-oxidant protection for moldy grapes; aromatic grapes; must for base wine for sparkling wines; varieties sensitive to atypical ageing.

Dosage: 150-200 g/ton of grapes
15-20 g/hL (1.2-1.7 lb/1,000 gal) in juice
10 g/hL (0.8 lb/1,000 gal) of AST provide approx 28 ppm SO₂

1 kg	(Item #35-825-0001)	\$ 37.00
0.5 kg	(Item #35-825-0500)	\$ 20.00

SULFITING AGENTS

	QTY	SO ₂ ADDED	ASCORBIC ACID	GALLOTANNIN
WINY	per 100 g	56 g	0 g	0 g
EFFERGRAN 125 g	1 bag	50 g	0 g	0 g
EFFERGRAN 250 g	1 bag	100 g	0 g	0 g
EFFERGRAN 1 Kg	1 bag	400 g	0 g	0 g
AST	per 100 g	28 g	30 g	20 g



WHITE WINE FERMENTATION

MUST CLARIFICATION

Clean must is fundamental for obtaining white wines with finesse and aromatic cleanliness. Efficient removal of the suspended solids is done for quality reasons as well as for economic reasons such as space and energy costs in the cellar.

PECTOLYTIC ENZYMES

ENARTIS ZYM 1000 S

An extremely pure and active powdered pectolytic enzyme preparation that is particularly useful for the cold settling of must. Enartis Zym 1000 S carries out a hydrolytic action on grape pectins, accelerating juice clarification.

Application: Settling of must.

Dosage: 1-2 g/hL (0.08-0.2 lb/1,000 gal)

0.25 kg	(Item #35-100-0250)	\$ 32.00
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ENARTIS ZYM RS

Enartis Zym RS (Rapid Settling) was created to resolve fining problems in musts that are notoriously difficult to clarify, such as Muscat, Sauvignon Blanc, Verdejo and others. It has strong pectinolytic and hemicellulasic activities. In fact, this liquid enzyme has a very intense clarification action that takes place in a short amount of time. It can also be used to clarify musts that are particularly rich in pectins resulting from mechanical grape processing and high temperatures during harvest.



ENARTIS ZYM QUICK

Enartis Zym Quick is a liquid enzyme developed for juice clarification by flotation. Two basic requirements must be fulfilled for effective flotation: a quick decrease in juice viscosity and the formation of floccules that are large and light enough to move rapidly to the juice surface. For these reasons, the various pectolytic activities of Enartis Zym Quick (pectinlyase, polygalacturonase and pectinesterase) are present in different proportions compared to traditional fining enzymes for faster pectin hydrolysis, resulting in a faster decrease of the viscosity.

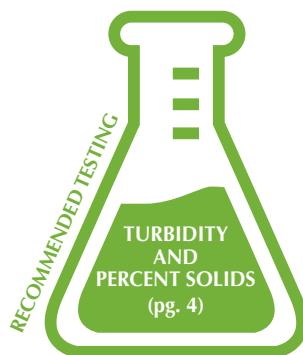
Application: Must clarification using flotation.

Dosage: 0.5-2 mL/hL (19-76 mL/1,000 gal)

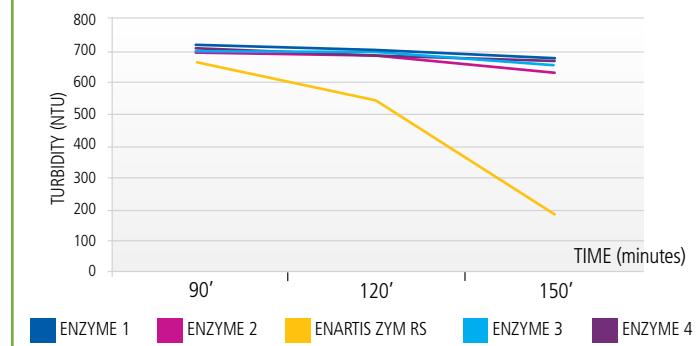
25 kg	(Item #35-110-0020)	\$ 1,800.00
1 L	(Item #35-110-0001)	\$ 95.00

1 kg	(Item #35-160-0001)	\$ 150.00
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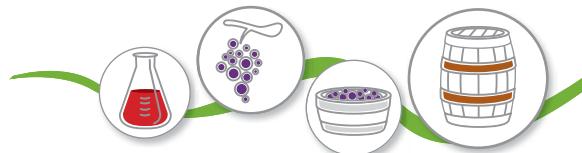
CLARIFYING EFFECT OF ENARTIS ZYM RS
Addition of 2 mL/100L, 20 minutes contact



CLARIFYING EFFECT OF ENARTIS ZYM RS
DURING THE SETTLING OF DURELLO JUICE
Initial turbidity > 1000 NTU and pH 2.97



WHITE WINE FERMENTATION



ENARTIS ZYM AROM MP

Micro-granulated enzymatic preparation for maceration of white grapes. Its secondary activities, hemicellulases and proteases, break cell walls and membranes localized in the skin. This not only causes the solubilization of aromatic precursors contained in the vacuole, but also those bound to solid cell structures. Wines treated with Arom MP have an aromatic profile characterized by intense fruit aromas with complexity and persistence. Moreover, the protease activity contributes to protein stabilization thus reducing bentonite additions.

Application: Maceration of white grapes; aromatic white wines with improved protein stability.

Dosage: 20-30 g/ton

1 kg	(Item #35-130-0001)	\$ 160.00
0.25 kg	(Item #35-130-0250)	\$ 47.00

ENARTIS ZYM CARACTÈRE

Powdered enzyme for maximizing juice yield and aroma expression. Its high concentrations of pectolytic and hemicellulase activities cause a rapid cell breakdown and reduction of juice viscosity, factors that are fundamental for high juice yields and good extraction of aroma precursors. Subsequently, the β -glycosidase activity transforms these odorless glycosylated precursors into free aromatic compounds characteristic of the grape variety, thus allowing the production of more intense and complex wines. When used in wine, Enartis Zym Caractère enhances aromatic intensity and improves clarification.

Application: Maceration of terpenic varieties.

Dosage: 10-30 g/ton in maceration
30-40 g/hL (2.5-3.4 lb/1,000 gal)

0.25 kg	(Item #35-125-0250)	\$ 60.00
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ENZYME PROPERTIES IN WHITE WINE VINIFICATION

PRODUCT	FORM	ACTIVITY	APPLICATIONS	ENOLOGICAL EFFECTS	DOSAGE
ENARTIS ZYM 1000 S	Powder	Pectinase	Settling in white juice	Rapid clarification of must	1-2 g/hL (0.08-0.2 lb/1,000 gal)
ENARTIS ZYM QUICK	Liquid	Pectinase	Flotation	Reduce the time of enzyme contact Increased flotation capacity Reduce the volume of lees	0.5-2 mL/hL (19-76/1,000 gal)
ENARTIS ZYM CARACTÈRE	Powder	Pectinase Hemicellulase β -Glucosidase	Maceration of white grapes	Transformation of odorless aromatic precursors into active aromatic compounds	10-30 g/ton
ENARTIS ZYM AROM MP	Powder	Pectinase Hemicellulase Protease	Skin maceration	Increased aromatic potential Reduced treatment with bentonite	20-30 g/ton
ENARTIS ZYM RS	Liquid	Pectinase Hemicellulase	Difficult settling	Rapid settling and clarification	1-3 mL/hL (38-114 mL/1,000 gal)

CLARIFYING AGENTS

CLARIL SP

Claril SP is a complex clarifying agent consisting of bentonite, PVPP, potassium caseinate and silica. It is recommended for the prevention and correction of the oxidative phenomena associated with phenolic components of must and wine. Wines treated with Claril SP have a more intense and elegant nose and age better. Claril SP can also be used to increase clarity and reduce bitterness.

Application: Clarification and stabilization of must; prevention of pinking.
Dosage: 50-150 g/hL (4.2-12.6 lb/1,000 gal) in juice

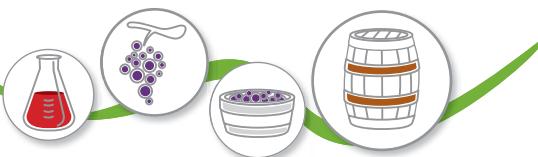
10 kg	(Item #35-665-0010)	\$ 260.00
1 kg	(Item #35-665-0001)	\$ 30.00

PROTOCLAR

Pure potassium caseinate containing over 90% protein that removes oxidized phenols. Manufactured using a special method designed to produce a product meeting the specific requirements of the wine industry. Protoclar dissolves readily in water without forming lumps and causing minimal foaming.

Application: Removal of oxidized phenols.
Dosage: 20-100 g/hL (1.7-8.3 lb/1,000 gal)

25 kg	(Item #35-645-0025)	\$ 800.00
1 kg	(Item #35-645-0001)	\$ 45.00



STABYL-PVPP

A pure polyvinyl-polypyrrolidone, Stabyl is highly effective in removing oxidized and oxidizable polyphenols. Thus, it is recommended to prevent and treat oxidation in all types of wine. Stabyl can also be used to reduce bitterness and prevent pinking.

Application: Removal of oxidized and oxidable phenols; prevention of pinking.

Dosage: 5-50 g/hL (0.4-4.2 lb/1,000 gal)

30 kg	(Item #35-655-0030)	\$ 1,170.00
1 kg	(Item #35-655-0001)	\$ 73.00

CLARGEL

A new gelatin with a high molecular weight in a liquid solution. It is very effective in clarifying both juice and wine.

Dosage: 40-150 mL/hL (1.5-5.7 L/1,000 gal) in juice

25 kg	(Item #35-635-0025)	\$ 175.00
1 L	(Item #35-635-0001)	\$ 7.00

HYDROCLAR 30

A 30% liquid solution of food grade gelatin. This medium hydrolyzed gelatin can be successfully used for the clarification of juice and wine and for removing excessive astringency. It is particularly effective in reducing the sensations of dryness and astringency that can be felt at the middle-end of the palate. It is also ideal for clarification of white juice by flotation.

Dosage: 15-40 mL/hL (0.6-1.5 L/1,000 gal) in juice

25 kg	(Item #35-610-0025)	\$ 200.00
1 L	(Item #35-610-0001)	\$ 10.00

SIL FLOC

A stable, pure silicon dioxide in aqueous dispersion. Sil Floc contains homogeneous, negatively-charged particles of silicon dioxide. The ultra-fine size offers a large contact surface and consequently acts as a co-finishing agent with protein fining agents.

Dosage: 40-100 mL/hL (1.5-3.8 L/1,000 gal) in juice

25 L	(Item #35-690-0025)	\$ 142.00
1 L	(Item #35-690-0001)	\$ 7.00

TANNINS AND OAK DERIVATIVES

ENARTIS TAN BLANC

This pure gallotannin can be used to improve the antimicrobial and antioxidant action of sulfur dioxide. It can also be useful in preventing copper and iron haze due to its ability to sequester metals. It also inactivates oxidasic enzymes (laccase and tyrosinase). The light color of Enartis Tan Blanc makes it particularly suitable for white wines.

Application: Anti-oxidant protection of must; inactivation of laccase and tyrosinase.

Dosage: 3-10 g/hL (0.25-0.8 lb/1,000 gal) during fermentation

1 kg	(Item #35-310-0001)	\$ 53.00
0.5 kg	(Item #35-310-0500)	\$ 27.50

ENARTIS TAN CITRUS

A blend of gallic and condensed tannins for the fermentation of white wines. The low temperatures used during the extraction process of the condensed tannin preserve aromatic precursors in the wood which enhances the fruit and floral notes of the resulting wines. These characters are especially evident when paired with high β -glycosidase activity yeast (Enartis Ferm Top Essence, Aroma White, Vintage White and ES 181).

Application: Enhancement of floral and fruit characters in white wines.

Dosage: 5-15 g/hL (0.4-1.2 lb/1,000 gal) during fermentation

1 kg	(Item #35-306-0001)	\$ 145.00
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new

INCANTO N.C. WHITE

Soluble powder, superior to typical oak alternatives. Incanto N.C. White is composed of oak and acacia tannins and yeast polysaccharides. It can be used during wine fermentation to mimic the effect of untoasted oak powder or chips. Incanto N.C. White protects juice from oxidation and prevents the appearance of reductive odors. Additionally, it provides light notes of flower and vanilla, increases the flavor of fresh fruit, and enhances softness and volume.

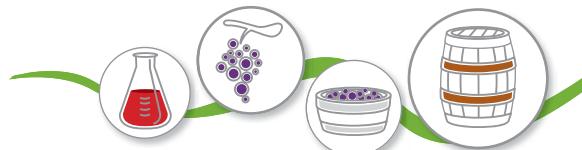
Application: Anti-oxidant protection; enhance aromatic complexity; increase volume and structure.

Dosage: 5-30 g/hL for white must

10-50 g/hL for rosé and young red must

10 kg	(Item #35-918-0010)	\$ 700.00
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WHITE WINE FERMENTATION



ENARTIS TAN CLAR

Pure ellagic tannin with high protein removal action. Its chemical properties favor the natural action of endogenous tannins, enhancing structure, improving the fining process and balancing flavor. Enartis Tan Clar also helps to fix and stabilize color pigments during the vinification of red wines, and enhance antimicrobial and antioxidant action of sulfur dioxide.

Dosage: 3-6 g/hL (0.25-0.5 lb/1,000 gal) in juice

12.5 kg	(Item #35-315-0012)	\$ 137.50
1 kg	(Item #35-315-0001)	\$ 14.00
0.5 kg	(Item #35-315-0500)	\$ 11.00

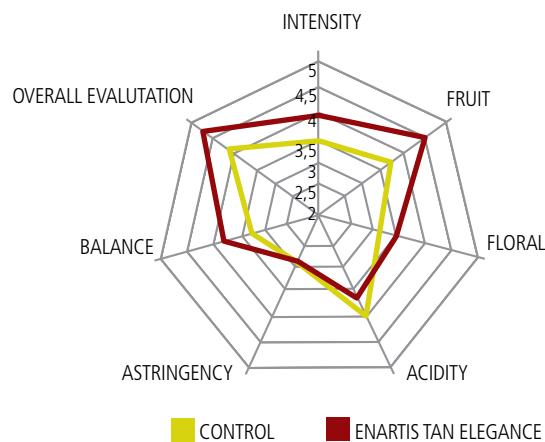
ENARTIS TAN ELEGANCE

Enartis Tan Elegance is a mixture of condensed tannins, mostly from white grape skins. When used in white and rosé wines during fermentation and maturation, it possesses an intense antioxidant activity guaranteed to maintain long term color stability and aromatic freshness. On a sensory level, it enhances fruit and floral notes and increases structure and softness.

Application: Anti-oxidant protection; structure and aromatic complexity.
Dosage: 10-15 g/hL (0.8-1.2 lb/1,000 gal) during fermentation

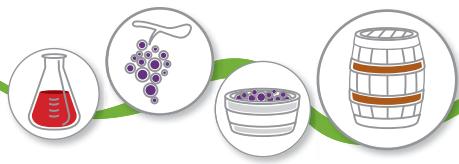
1 kg	(Item #35-350-0001)	\$ 170.00
0.25 kg	(Item #35-350-0250)	\$ 46.25

SENSORY EFFECTS OF ENARTIS TAN ELEGANCE: Addition of 100 ppm to a clarified Sauvignon Blanc must



TANNINS FOR WHITE WINE FERMENTATION

	PROTEIN REMOVAL	ANTIOXIDANT EFFECT	STRUCTURE	AROMA INTENSITY	TYPES OF AROMAS	
ENARTIS TAN BLANC Pure gallotannin	★	★★★★★	★★★	★	ELDERBERRY	
ENARTIS TAN CLAR Pure ellagic tannin	★★★★	★★★	★★★	★	OAK	
ENARTIS TAN CITRUS Blend of condensed and gallic tannin	★★★	★★★★	★★	★★★★	CITRUS, WHITE FLOWERS	
ENARTIS TAN ELEGANCE Grape skin based tannin	★★★★	★★★★	★★	★★★	WHITE FRUIT, WHITE FLOWERS	



WHITE WINE FERMENTATION

PRIMARY FERMENTATION

Primary fermentation is the most crucial phase of winemaking; a well-conducted fermentation will surely result in a quality wine. Especially in white wine fermentation, yeast are important contributors to the aromatic characteristics of wine because they enhance the varietal character of the grape and produce fermentation aromas. The choice of yeast strain, its nutrition needs and the use of biological coadjuncts are fundamental in determining the final characteristics of wine.

ACTIVE DRY YEAST

VQ 10

A white wine strain recommended for preserving varietal fruit character and contributing to mouthfeel. This strain is alcohol tolerant up to 17% and completes fermentations quickly. It also works well at the lower temperatures desired for white wine fermentations.

Application: Tank fermentation of aromatic varieties.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-500-0010)	\$ 570.00
0.5 kg	(Item #45-500-0500)	\$ 44.00



ENARTIS FERM ES 123

Produces very intense and fresh aromas of green apple, pear and flowers. These aromas are very stable over time, therefore it's recommended for the vinification of white wines obtained from neutral grapes and for the production of very aromatic wines destined for the production of spirits.

Application: Fruity white wines obtained from neutral grapes; wines destined for the production of spirits.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-105-0010)	\$ 480.00
0.5 kg	(Item #45-105-0500)	\$ 39.00

VQ ASSMANSHAUSEN

With its desirable characteristics of long lag time and alcohol tolerance up to 15%, this yeast is perfect for enhancing spicy characters. It contributes excellent complexity and good structural enhancement. Because of its exceptional characteristics, VQ Assmanshausen is also a good choice for Zinfandel, Syrah, Sangiovese, Barbera, and some white wine varietals like Riesling and Gewürztraminer.

Application: Complex white wines.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-510-0010)	\$ 570.00
0.5 kg	(Item #45-510-0500)	\$ 44.00



ENARTIS FERM AROMA WHITE

Aroma White is a large producer of fermentation aromas (tropical fruit, citrus, flowers, etc.), therefore it's recommended for the production of white and rosé wines obtained from neutral grapes. It also produces small amounts of riboflavin thus preventing the appearance of the light-struck defect.



Application: Fruity white and rosé wines obtained from neutral grapes; prevent the development of the light-struck defect in wines stored in bottles without UV protection.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-110-0010)	\$ 480.00
0.5 kg	(Item #45-110-0500)	\$ 39.00

WHITE WINE FERMENTATION



ENARTIS FERM VINTAGE WHITE

Increases varietal aromas and releases large quantities of polysaccharides during the sur lie stage. Its tendency to form lightly compacted lees reduces the number of bâtonnage and pump-overs.



Application: White wines with varietal characteristics; fermentation and ageing in barrels; wines with large volume on the palate.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-115-0010)	\$ 480.00
0.5 kg	(Item #45-115-0500)	\$ 39.00

ENARTIS FERM ES 181

Ferments well at low temperatures and with adequate nutrition. Produces fermentation aromas which integrate without overshadowing varietal character. It possesses intense β -lyase activity, therefore it's recommended for the fermentation of aromatic varieties such as Sauvignon Blanc.



Application: Fermentation at low temperatures; reductive fermentation; varietal white wines; Sauvignon Blanc.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-120-0010)	\$ 480.00
0.5 kg	(Item #45-120-0500)	\$ 39.00

ENARTIS FERM ES PERLAGE

A strain selected for the production of traditional method sparkling wines. It produces wines with very elegant and clean aromas that express the characteristics of the grape variety and of the region. It is resistant to high sugar and alcohol concentrations, low pH and low temperatures. It allows for complete and quick sugar consumption and avoids the production of undesirable compounds. It can also be successfully used during primary fermentation of white wines.

Application: Fermentation of base wine for sparkling wines; varietal white wines; bottle and tank fermented sparkling wines.

Dosage: 20 g/hL (1.7 lb/1,000 gal) in primary fermentation
10-20 g/hL (0.8-1.7 lb/1,000 gal) in sparkling wine production

10 kg	(Item #45-180-0010)	\$ 480.00
0.5 kg	(Item #45-180-0500)	\$ 39.00

ENARTIS FERM TOP 15

A vigorous strain with high alcohol tolerance (17%), able to ferment at low temperatures. It can be used in the vinification of white, red and rosé wines as well as in the production of sparkling wine fermented in the bottle and stainless steel tanks. It produces wines with very clean aromas that express the characteristics of the grape.

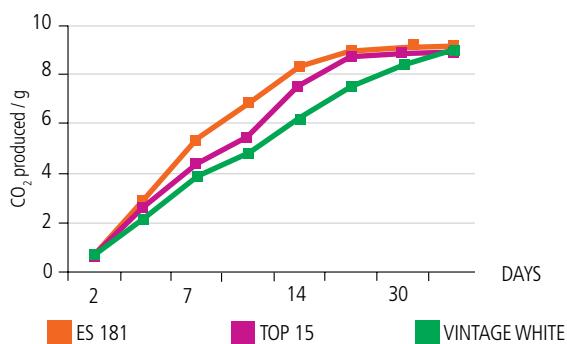


Application: White, red and rosé wines; sparkling wine.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-150-0010)	\$ 420.00
0.5 kg	(Item #45-150-0500)	\$ 24.50

FERMENTATION KINETICS AT 59°F (15°C)



ENARTIS FERM TOP ESSENCE

Yeast with good fermentation properties. It is suitable for the production of young white wines from grapes low in primary aromas in order to enhance the aromatic expression of pineapple, passion fruit, banana, grapefruit, etc.

Application: Fruity white wines obtained from neutral grapes.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-165-0010)	\$ 420.00
0.5 kg	(Item #45-165-0500)	\$ 24.50

ENARTIS FERM TOP FLORAL

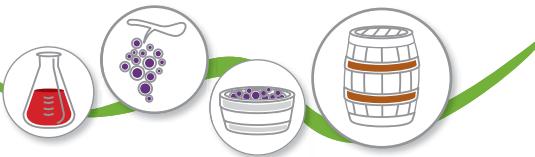
A strain that produces intense floral aromas of white roses, hawthorn, etc. and of sweet white fruit such as pear and apricot. It is suitable for the fermentation of white wines as well as rosé and young red wines to enhance aromatic complexity.



Application: Fresh and easy to drink wines.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-160-0010)	\$ 420.00
0.5 kg	(Item #45-160-0500)	\$ 24.50



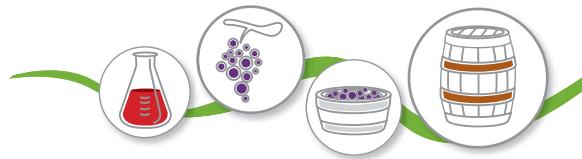
ENARTIS FERM YEAST: QUICK REFERENCE CHART FOR WHITE WINES

	VQ 10	VQ ASSMANN-SHAUSEN	TOP 15	TOP ESSENCE	TOP FLORAL	ES 123	AROMA WHITE	VINTAGE WHITE	ES 181	ES PERLAGE	Q7
SPECIES	<i>S. cerevisiae ex ph.r bayanus</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae ex ph.r bayanus</i>	<i>S. cerevisiae</i>	<i>S. bayanus</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae ex ph.r bayanus</i>	<i>S. cerevisiae ex ph.r bayanus</i>	<i>S. cerevisiae</i>
TEMPERATURE	10-25°C (50-77°F)	20-30°C (57-86°F)	10-28°C (50-82°F)	15-25°C (59-77°F)	10-25°C (50-77°F)	10-25°C (59-77°F)	15-24°C (59-75°F)	14-24°C (57-75°F)	10-20°C (50-68°F)	10-30°C (50-86°F)	15-26°C (59-79°F)
LAG PHASE	Short	Long	Short	Short	Medium	Short	Medium	Short	Short	Short	Short
FERMENTATION SPEED	Medium-High	Slow	High	Medium	Medium	Medium	Medium	Medium	High	High	High
ALCOHOL TOLERANCE	17%	15%	17%	15%	15%	14%	15%	15.5%	16.5%	17%	15%
KILLER FACTOR	Killer	Neutral	Killer	Killer	Neutral	Killer	Killer	Killer	Killer	Killer	Neutral
COMPATIBILITY WITH MLF	Neutral	Good	Neutral	Poor	Good	Poor	Neutral	Good	Poor	Poor	Good
NITROGEN NEED	Low	Medium	Low	Medium	Medium	High	Medium-High	High	Low	Low	Low
OXYGEN DEMAND	Low	Low	Low	Medium	Medium	Medium	Medium	Medium-High	Medium-Low	Low	Low
SENSORY CHARACTERISTICS	Neutral	Enhances Varietal Character	Neutral	Esters	Esters	Esters	Esters	Enhances Varietal Character	Enhances Varietal Character	Neutral	Enhances Varietal Character
APPLICATIONS	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE	YOUNG WHITE
	WHITE TO BE AGED	WHITE TO BE AGED	WHITE TO BE AGED						WHITE TO BE AGED	WHITE TO BE AGED	WHITE TO BE AGED
			SPARKLING				SPARKLING			SPARKLING	

YEAST/VARIETAL RECOMMENDATIONS FOR WHITE WINES

VARIETAL	VQ ASSMANNSHAUSEN	VQ 10	AROMA WHITE	ES 123	ES 181	Q7	TOP 15	ES PERLAGE	TOP ESSENCE	TOP FLORAL	VINTAGE WHITE	WILLIAMS SELVEM	ENARTIS VINQUIRY STYLE SHEET
ALBARIÑO		★				★	★	★	★		★		Aromatic Whites
ARNEIS			★	★			★				★		Aromatic Whites
CHARDONNAY	★		★	★			★	★		★	★	★	Oak Aged Whites, Aromatic Whites
CHENIN BLANC			★	★	★	★	★	★		★			Aromatic Whites
GEWÜRZTRAMINER	★	★	★	★	★	★	★	★					Aromatic Whites
MARSANNE			★	★		★				★			Aromatic Whites
MUSCAT			★	★	★	★					★		Aromatic Whites
PETIT MANSENG				★	★								Aromatic Whites, Oak Aged Whites
PETIT MANSENG - LATE HARVEST			★		★			★					Aromatic Whites, Oak Aged Whites
PINOT BLANC			★	★	★	★	★	★				★	Aromatic Whites
PINOT GRIS		★	★	★		★	★	★	★				Aromatic Whites
RIESLING	★	★	★		★	★	★	★		★			Aromatic Whites
ROUSANNE			★	★					★				Aromatic Whites, Oak Aged Whites
SAUVIGNON BLANC		★	★	★	★		★	★			★	★	Aromatic Whites, Oak Aged Whites
SEMILLON			★	★		★	★			★			Aromatic Whites
VIognier		★	★	★	★	★	★	★			★		Aromatic Whites

Go to www.enartisvinquiry.com to download the Enartis Vinquiry Style Sheets in the Winemaker's Corner section, under Technical Information, Winemaking.



YEAST CULTURES ON SLANTS

Enartis Vinquiry maintains a supply of freshly prepared cultures from August 1st to November 15th. Cultures can also be prepared out of season upon client request. Each slant is provided with 400 mL grape juice medium and detailed instructions for propagation and handling. Yeast slants can be refrigerated up to 2 weeks before use.

YEAST STRAIN	CHARACTERISTICS	ITEM #	PRICE PER SLANT
ASSMANSHAUSEN, UCD 679	Favored for spicy, fruit aromas. Improved color due to low phenol adsorption by yeast.	30-046-0000	\$ 45.00
FRENCH WHITE, PASTEUR INSTITUTE	Slow to moderate fermenter for Chardonnay and other whites.	30-050-0000	\$ 45.00
PRISE DE MOUSSE, UCD 594	Slow starting and slow fermenting, higher ester production. Easy to stop with residual sugar.	30-052-0000	\$ 45.00
STEINBERG, GEISENHEIM	Single strain isolate that originates from polyculture for Riesling and other fruity whites.	30-056-0000	\$ 45.00
STEINBERG, UCD 529	Used for Riesling and Gewurztraminer. Cold tolerant, moderate fermenter at cool temperatures. Fruit and ester aromas.	30-055-0000	\$ 45.00

LIQUID YEAST CULTURES

new

ENARTIS FERM Q7

Pinot noir isolate from Napa, CA. Can be used in the production of aromatic white wines to enhance aromas of citrus and tropical fruit. Due to its low nutrient requirements, very low production of H₂S and VA, and steady fermentation rate, it is the ideal strain to ensure complete fermentations with added aromatic complexity. Particularly useful for fermentations in reductive conditions.

2 L (Item #30-057-0002) \$ 325.00

PROLIE BLANCO

A yeast hull derivative obtained by the thermal treatment of a strain which is very high in glutathione (3%). When used during the fermentation of white must, it assures elevated antioxidant protection and contributes large quantities of immediately free mannoproteins. At the end of fermentation, wines are fresher, have more intense and lasting aromas, are softer on the palate and are chemically more stable. Color is maintained for a longer period of time and the increased freshness improves the longevity of the wine. Recommended for big white and rosé wines. Helps to integrate the oak aromas of oak fermented whites. Promotes tartrate and protein stability.

Application: Complex and structured white wines; white wines with improved ageing capacity; rosé wines.

Dosage: 10-30 g/hL (0.8-2.5 lb/1,000 gal)

1 kg (Item #35-410-0001) \$ 99.00

YEAST BIOPRODUCTS

PROLIE R

A pure yeast derivative. When used during the fermentation of white and red grapes, it contributes large quantities of mannoproteins that help improve the sensation of volume.

Dosage: 20-30 g/hL (1.7-2.5 lb/1,000 gal)

25 kg (Item #35-450-0025) \$ 775.00
1 kg (Item #35-450-0001) \$ 35.00

PROLIE AROM

A yeast hulls derivative obtained by the thermal treatment of a strain which is high in glutathione (1.5%). When used during the fermentation of white must, it assures elevated antioxidant protection and contributes large quantities of mannoproteins. At the end of fermentation, wines are fresher and have more intense aromatic profiles. Recommended for young white wines.

Application: Fresh and young whites; improved mouthfeel and anti-oxidant protection.

Dosage: 30-50 g/hL (2.5-4.2 lb/1,000 gal)

2.5 kg (Item #35-400-0002) \$ 155.00

ANTI-OXIDANT EFFECT OF PROLIE BLANCO Rosé wine treated with 200 ppm of Prolie Blanco at the juice stage after 12 hours of skin contact



	CONTROL	PROLIE BLANCO
VOLATILE ACIDITY (g/L)	0.31	0.2
TOTAL PHENOLS INDEX (O.D. 280 nm)	15.5	17.5
ANTHOCYANINS (ppm)	123	180
TANNINS (g/L)	0.45	0.58
COLOR INTENSITY	1.67	1.91
HUE	0.56	0.47

PROLIE RANGE: CHARACTERISTICS AND APPLICATIONS

	PROLIE R	PROLIE AROM	PROLIE BLANCO
COMPOSITION	Yeast derivative	Yeast derivative	Yeast derivative
CONTRIBUTION TO THE WINE	Mannoproteins	Mannoproteins Antioxidant peptides 1.5%	Immediately free mannoproteins Antioxidant peptides 3%
ENOLOGICAL EFFECT	Mouthfeel Color stabilization Soften astringency	Aroma protection Color protection	Aroma protection Color protection Mouthfeel
APPLICATION	White wines Red wines	Light whites	Structured whites Rosé wines
HOW TO USE	Addition at yeast inoculation	Addition at yeast inoculation	Addition at yeast inoculation



RED WINE FERMENTATION

MACERATION

The final quality of wine – aromatic profile, color stability and intensity, structure, tannic quality and ageing potential - is largely dependent on maceration. Maceration enzymes and tannins are effective tools to aid the winemaker in obtaining the desired results.

MACERATION ENZYMES

ENARTIS ZYM COULEUR

Powdered pectinolytic enzyme with side activities specifically developed for the maceration of red grapes. It accelerates and intensifies the extraction of polyphenolic substances (anthocyanins and tannins in particular) contained in grape skins. Wines produced using Enartis Zym Couleur are therefore richer in phenolic substances, more intense and fruity on the nose and more structured on the palate. Enartis Zym Couleur also enhances color stability and often color intensity. Recommended for a faster extraction of color and tannins from unripe or moldy grapes.

Application: Young or medium-aged reds; optimal color extraction with minimal solids contact.

Dosage: 20-40 g/ton

0.5 kg (Item #35-135-0500) \$ 80.00

ENARTIS ZYM BALANCE

Enartis Zym Balance is the outcome of three years of experimentation conducted by the R&D Department of Enartis. The result is an optimal formulation for the maceration of good quality red grapes. It is a powdered pectolytic enzyme containing a spectrum of complementary activities. This product extracts polyphenolic substances from the skins, resulting in the stabilization of color compounds. Enartis Zym Balance allows for the production of wines which are not only richer in polyphenolic substances but possess greater antioxidant capacity as well. Wines produced using Enartis Zym Balance have better color, aroma complexity, structure and balance when compared to others. Enartis Zym Balance is recommended for the production of big red wines.

Application: Structured and complex red wines; wines with improved ageing capacity.

Dosage: 20-40 g/ton

0.25 kg (Item #35-140-0250) \$ 53.00

new

ENARTIS ZYM COLOR PLUS

Micro-granulated enzyme for maceration of red grapes. Enartis Zym Color Plus is particularly effective in the extraction and stabilization of color compounds. Its secondary activities, cellulase and hemicellulase, degrade cell walls, thus accelerating and increasing the solubility of anthocyanins and tannins associated with cellular structures. The protease activity degrades proteins and decreases their ability to precipitate tannins and pigments. Color Plus results in wines with intense and stable color.

Application: extraction and stabilization of color from red grapes.
Dosage: 20-40 g/ton

1 kg (Item #35-141-0001) \$ 180.00
0.25 kg (Item #35-141-0250) \$ 47.50

ENARTIS ZYM T-RED

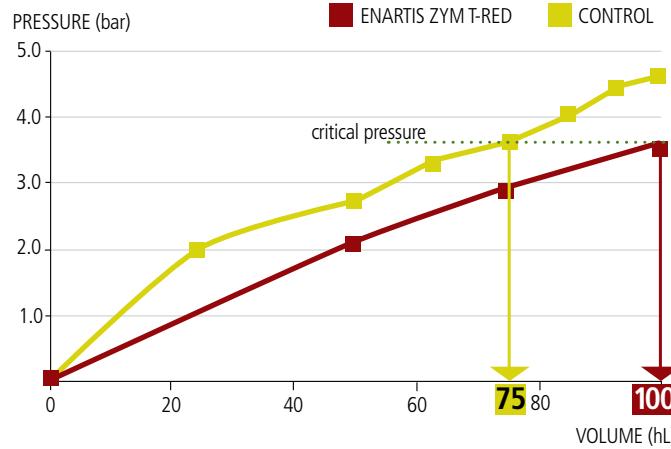
This liquid enzyme possesses pectinolytic and macerative activities and is resistant to temperatures over 70°C (158°F). Therefore, it can be used in musts destined for thermovinification to improve the extraction and stabilization of color substances, as well as preserve the structure of wines produced with this technology. When used in either thermovinification or in classic maceration, it is very effective in improving clarification as well as the filterability of must and wine.

Application: Young reds; red wines produced using thermovinification.

Dosage: 5-40 mL/ton

1 kg (Item #35-145-0001) \$ 70.00

PRESSURE EVOLUTION DURING FILTRATION



ENARTIS ZYM AROM MP

Enartis Zym Arom MP is a micro-granular preparation for the maceration of white and red grapes. The secondary hemicellulase and protease activities that it possesses aggressively degrade the cell walls and membranes of grape skins. This action results in the solubilization of not only aromatic precursors which are contained in the vacuoles, but also of those which are immobilized in the cell wall and membrane structure. Wines produced using Enartis Zym Arom MP, present an aromatic profile characterized by intense primary aromas of fruit which are complex and persistent, with increased structure and roundness on the palate.

Application: Aromatic and structured red wines.

Dosage: 20-30 g/ton

1 kg (Item #35-130-0001) \$ 160.00
0.25 kg (Item #35-130-0250) \$ 47.00



ENZYME PROPERTIES IN RED WINE VINIFICATION

PRODUCT	FORM	ACTIVITY	APPLICATIONS	ENOLOGICAL EFFECTS	DOSAGE
ENARTIS ZYM COULEUR	Powder	Pectinase Hemicellulase Cellulase	Maceration of red grapes destined for early to market red wines	Improved color stability Increased organoleptic balance	20-40 g/ton
ENARTIS ZYM T-RED	Liquid	Pectinase Hemicellulase Cellulase	Thermovinification and maceration of red grapes destined for early to market red wines	Improved color stability Easier clarification Increased filtration yield	5-40 mL/ton
ENARTIS ZYM BALANCE	Powder	Pectinase Hemicellulase Cellulase	Maceration of red grapes destined for grand red wines	Increased structure Increased polyphenolic potential Better olfactory complexity Improved color stability	20-40 g/ton
ENARTIS ZYM AROM MP	Powder	Pectinase Hemicellulase Cellulase Protease	Rosé and fruity red wines	Increased fruit aroma potential Reduced astringency Improved color stability	20-30 g/ton
ENARTIS ZYM COLOR PLUS	Powder	Pectinase Hemicellulase Cellulase Protease	Red wines with intense, stable color	Improved color stability Improved balance	20-40 g/ton

TANNINS AND OAK DERIVATIVES

ENARTIS TAN FP

Enartis Tan FP is a mixture of condensed tannin and ellagitannin. When added to red grapes during crushing or cold-soak, it acts in synergy with natural wine tannins to protect anthocyanins from oxidation while favoring the formation of stable color compounds. The ellagitannin fraction of Enartis Tan FP assures a good reaction with must proteins which favors the removal of oxidative enzymes (laccase) and facilitates the natural clarification process which occurs at the end of primary fermentation. It is recommended for additions at the crusher for a more complete anti-oxidant effect with SO₂.

Application: "Sacrificial" tannin; anti-oxidant protection; color stabilization in red and rosé wines.

Dosage: 150-400 g/ton at the crusher or during fermentation

15 kg	(Item #35-300-0015)	\$ 290.00
0.5 kg	(Item #35-300-0500)	\$ 15.00

ENARTIS TAN ROUGE

Enartis Tan Rouge is a mixture of tannins specifically designed to favor the stabilization of red wine color. When added during crushing, cold soak or maceration, it protects color molecules from oxidation and participates in the formation of tannin-anthocyanin complexes which are stable with time. Additionally, Enartis Tan Rouge reinforces the structure of the wine and imparts balance because it is not astringent.

Application: Anti-oxidant protection; color stabilization in red and rosé wines.

Dosage: 100-400 g/ton at the crusher or during fermentation

15 kg	(Item #35-305-0015)	\$ 414.45
1 kg	(Item #35-305-0001)	\$ 34.00
0.5 kg	(Item #35-305-0500)	\$ 18.00

ENARTIS TAN FERMCOLOR

Enartis Tan Fermcolor is a blend of condensed and hydrolysable tannins designed specifically for the production of red wines intended for medium-long ageing. When used during cold-soak maceration, it contributes to color stabilization, imparts aromatic complexity by increasing oak and fruit notes, and increases structure due to the sweet and low astringency tannins that it releases.

Application: Structured red wines with medium to long ageing potential.

Dosage: 200-400 g/ton during fermentation

10 kg	(Item #35-304-0010)	\$ 360.00
1 kg	(Item #35-304-0001)	\$ 42.00

INCANTO N.C.

Soluble powder, superior to typical oak alternatives for the fermentation of white and red grapes. It can be used to mimic the effect of medium-toasted oak powder or chips. Incanto N.C. contributes all oak chip-extractable compounds that can impact color stabilization, aromatic complexity and balance. The use of Incanto N.C. during alcoholic fermentation provides all the benefits of oak, while avoiding operational problems such as clogging mechanical parts, difficult sanitation, waste treatment/elimination, etc.

Application: color stabilization, increase aromatic complexity, increase volume and structure.

Dosage: 20-50 g/L for red grapes

10 kg	(Item #35-916-0010)	\$ 650.00
1 kg	(Item #35-916-0001)	\$ 75.00



RED WINE FERMENTATION

new

INCANTO N.C. RED

Soluble powder, superior to typical oak alternatives for the fermentation of red grapes. Incanto N.C. Red is a soluble mixture of toasted oak tannin and yeast polysaccharides that can be used to mimic the effect of medium-plus toasted oak powder or chips. Incanto N.C. Red decreases green aromas of unripe grapes, prevents reduction, and increases color stability. Its use provides notes of toasted oak and increases structure, volume and the sensation of sweetness.

Application: prevent reduction, reduce green notes, increase aromatic complexity, increase volume and structure.

Dosage: 20 to 50 g/hL for red must.

10 kg	(Item #35-917-0010)	\$ 700
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ENARTIS TAN RED FRUIT

A blend of condensed tannins, many extracted from the wood of red fruit trees. These proanthocyanidinic tannins enrich wine with aromatic precursors that are responsible for notes of berries and red fruit. During primary fermentation these precursors can be liberated by yeast strains (Enartis Ferm Red Fruit, ES 488 and ES 454) with an intense β -glycosidase activity. Because of their liberation, the wine is enriched with fruit forward aromas that integrate the varietal aromas and those produced during fermentation.

Application: Wines with increased fruit aromas; color stabilization in red and rosé wines.

Dosage: 100-200 g/ton during fermentation

1 kg	(Item #35-385-0001)	\$ 185.00
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ENARTIS TAN FRUITAN

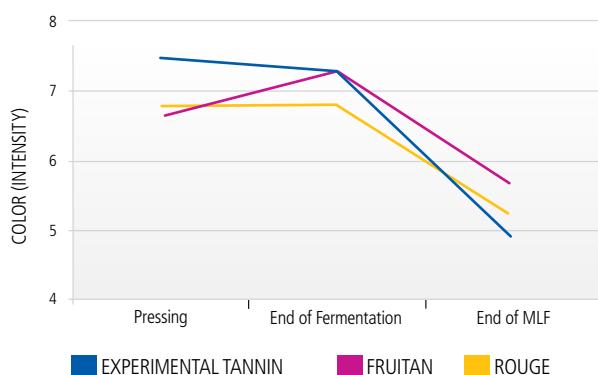
A blend of condensed tannins, many extracted from fresh, ripe, white grape seeds. These proanthocyanidinic tannins interact with anthocyanins (the molecules responsible for color in red wines), binding and protecting them from oxidation. Its use during maceration, or immediately after primary fermentation, allows for better development and retention of color and improved color stability over time, as well improved structure, without imparting astringency. When used in both red and white wine, it helps to reduce herbaceous notes, enhance fruit characters and to freshen the aroma.

Application: Color stabilization of red and rosé wines; structured red wines.

Dosage: 50-200 g/ton during fermentation

1 kg	(Item #35-345-0001)	\$ 155.00
0.5 kg	(Item #35-345-0500)	\$ 82.50

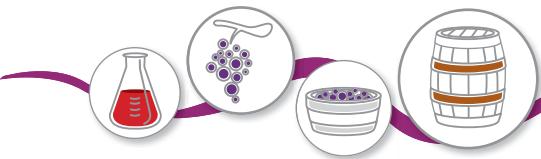
ENARTIS TAN ROUGE AND FRUITAN EFFECT ON COLOR STABILITY 200ppm addition during the maceration of Dolcetto grapes



TANNINS FOR RED WINE FERMENTATION

	PROTEIN REMOVAL	ANTIOXIDANT EFFECT	STRUCTURE	AROMA INTENSITY	TYPES OF AROMAS
ENARTIS TAN FP Blend of condensed and ellagic tannins	★★★★★	★★★★★	★★★	★★	OAK, SPICES
ENARTIS TAN ROUGE Blend of condensed and ellagic tannins	★★★★★	★★★★★	★★★	★★	SPICES, OAK
ENARTIS TAN FERM COLOR Blend of condensed and ellagic tannins	★★★★★	★★★★★	★★★★	★★★	OAK, CHERRY
ENARTIS TAN RED FRUIT Condensed tannins	★★★★	★★★★★	★★★	★★★★★	STRAWBERRY, PRUNES, CHERRY
ENARTIS TAN FRUITAN Grape seed based tannin	★★★★	★★	★★★	★★★	RED FRUIT, SPICES

RED WINE FERMENTATION



PRIMARY FERMENTATION

The use of yeast and fermentation coadjuncts allows wine to develop to its full potential while limiting the imperfections inherent in this phase. Their use also minimizes corrective interventions in the later stages of winemaking.

ACTIVE DRY YEAST

ENARTIS FERM TOP 20

A good fermenter, and with adequate nutrition, it produces fermentation esters that enhance the fruit character of wine, while respecting the varietal characteristics of the grape. It is also able to remove a portion of malic acid (about 25%).

Application: Rosé wines; young or moderately aged red wines.

Dosage: 200 g/ton

10 kg	(Item #45-130-0010)	\$ 420.00
0.5 kg	(Item #45-130-0500)	\$ 24.50

ENARTIS FERM RED FRUIT

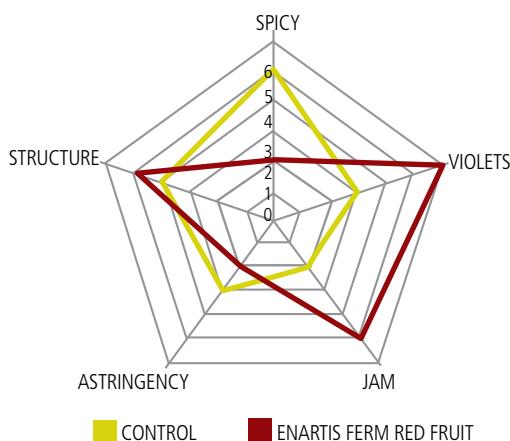
One of the most loved strains of the Enartis Ferm range! It produces very intense aromas of fruit and violets along with elevated quantities of glycerol and polysaccharides. The resulting wines are round on the palate and have good color and aroma.

Application: Rosé wines; specialty wines such as Beaujolais Nouveau; fruity, young or moderately aged red wines.

Dosage: 200 g/ton

10 kg	(Item #45-140-0010)	\$ 480.00
0.5 kg	(Item #45-140-0500)	\$ 39.00

SENSORY PROFILE OF MERLOT FERMENTED WITH ENARTIS FERM RED FRUIT



VQ ASSMANSHAUSEN

The most popular yeast for Pinot Noir production. With its desirable characteristics of long lag time and alcohol tolerance up to 15%, this yeast is perfect for enhancing spicy characters. It contributes excellent complexity and good structural enhancement. Because of its exceptional characteristics, VQ Assmanshausen is also a good choice for Zinfandel, Syrah, Sangiovese, Barbera, and some white wine varietals like Riesling and Gewürztraminer.



Application: Complex red wines.

Dosage: 20 g/hL (1.7 lb/1,000 gal)

10 kg	(Item #45-510-0010)	\$ 570.00
0.5 kg	(Item #45-510-0500)	\$ 44.00

ENARTIS FERM ES 488

Wines produced with this strain are powerful on both the nose and palate and can satisfy the demands of international markets. ES 488 produces intense fruit aromas that are evident during the first stages following fermentation and remain persistent. Given its high extraction capacity, it results in wines with great structure and color. It also helps mask herbaceous notes in grape varieties that are rich in methoxypyrazines.



Application: Red wines of medium to long ageing: New World style, grand red wines.

Dosage: 200 g/ton

10 kg	(Item #45-185-0010)	\$ 480.00
0.5 kg	(Item #45-185-0500)	\$ 39.00

ENARTIS FERM VINTAGE RED

This strain is characterized by the production of good fruit and spicy aromas, along with its capacity to ferment within a wide temperature range (18-35°C, 64-95°F) and its low nutritional requirements. Because of these characteristics, it allows for the production of regal red wines even under difficult conditions.

Application: Red wines of medium to long ageing times; grand red wines; oak aged red wines.

Dosage: 200 g/ton

10 kg	(Item #45-125-0010)	\$ 480.00
0.5 kg	(Item #45-125-0500)	\$ 39.00



RED WINE FERMENTATION

VQ 51

The classic red Bordeaux isolate for high quality red wine production including Merlot, Zinfandel, Cabernet, Syrah, and other varietals. VQ 51 enhances varietal aromas and adds to complexity by improving fruit notes. Thanks to the abundant release of mannoproteins, it contributes to color stability and increased mouthfeel.



Application: Structured, complex red wines; Bordeaux varietals.

Dosage: 200 g/ton

10 kg	(Item #45-505-0010)	\$ 570.00
0.5 kg	(Item #45-505-0500)	\$ 44.00

ENARTIS FERM ES 454

Yeast for the production of red wines destined for ageing. It gives the best results when fermenting very ripe and high quality grapes. It produces unique wines characterized by elegant, ripe fruit and spicy aromas and smooth mouthfeel.

Application: Red wines of medium to long ageing; grand red wines.

Dosage: 200 g/ton

10 kg	(Item #45-170-0010)	\$ 480.00
0.5 kg	(Item #45-170-0500)	\$ 39.00

new

ENARTIS FERM PRIMITIVO

Isolated from Primitivo grapes in the South of Italy. Recommended for the production of Primitivo and Zinfandel destined for medium to long-term aging. It respects the aromatic profile of the grape variety and terroir as well as increases ripe berry aromas and spicy notes. Ideal for the production of complex and well-structured wines with an elegant bouquet of cherries and plums.

10 kg	(Item #45-054-0010)	\$ 480.00
0.5 kg	(Item #45-054-0500)	\$ 39.00

ENARTIS FERM EZ FERM

This blend of two different strains (*Saccharomyces cerevisiae* + *bayanus*) is highly successful in preventing sluggish and stuck fermentations with high alcohol tolerance (16.5%), scarce nitrogen needs, wide range of fermentation temperatures (12-34°C, 54-93°F), and a great capacity to dominate. It respects the varietal aromatic characteristics of the grape.

Application: Prevention of sluggish and stuck fermentations; wine with high alcohol content; late-harvest wines.

Dosage: 200-400 g/ton

10 kg	(Item #45-145-0010)	\$ 480.00
0.5 kg	(Item #45-145-0500)	\$ 39.00

ENARTIS FERM EZ FERM 44

EZ Ferm improved! This strain combines high alcohol tolerance (17.5%), strong fermentation kinetics and scarce nutritional needs with a strong predisposition to consume fructose. New to the Enartis Ferm range, EZ Ferm 44 is the recommended yeast to solve the problems of sluggish and stuck fermentations.

Application: Restarting sluggish and stuck fermentations.

Dosage: 400 g/ton or 40 g/hL (3.4 lb/1,000 gal)

10 kg	(Item #45-175-0010)	\$ 480.00
0.5 kg	(Item #45-175-0500)	\$ 39.00

ENARTIS FERM Q T

Q T is a *Torulaspora delbrueckii* yeast strain in active dry form. It is for use in sequential inoculation to enhance fruit and floral aromas, as well lower volatile acidity when levels are already high before alcoholic fermentation (such as *Botrytis* infected grapes or grapes used in late harvest wines). The sequential inoculation better mimics the biodiversity of grape must fermentations, resulting in increased complexity. High compatibility with the yeast strains Enartis Ferm ES 454, ES 488, and Red Fruit.

0.5 kg

Please inquire for pricing.

ENARTIS FERM YEAST: QUICK REFERENCE CHART FOR RED AND ROSÉ WINES

	VQ 51	VQ ASSMAN-SHAUSEN	TOP 20	TOP FLORAL	RED FRUIT	VINTAGE RED	ES 454	ES 488	EZ FERM	EZ FERM 44	PRIMITIVO	Q7
SPECIES	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>	<i>S. bayanus</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i> + <i>S. bayanus</i>	<i>S. bayanus</i>	<i>S. cerevisiae</i>	<i>S. cerevisiae</i>
TEMPERATURE	20-30°C (57-86°F)	20-30°C (57-86°F)	15-30°C (59-86°F)	10-25°C (50-77°F)	14-34°C (57-93°F)	18-35°C (64-90°F)	18-30°C (64-86°F)	15-28°C (59-82°F)	12-34°C (54-93°F)	15-30°C (59-86°F)	18-30°C (64-86°F)	15-26°C (59-79°F)
LAG PHASE	Short	Long	Medium	Medium	Short	Short	Medium	Short	Short	Short	Medium	Short
FERMENTATION SPEED	Moderate	Slow	Moderate	Moderate	High	Moderate	Moderate	Moderate	High	Moderate	Moderate	Moderate
ALCOHOL TOLERANCE	16%	15%	15%	15%	16%	16%	16%	16%	16.5%	17.5%	16.5%	15%
KILLER FACTOR	Sensitive	Neutral	Neutral	Neutral	Killer	Neutral	Sensitive	Killer	Neutral	Neutral	Neutral	Neutral
COMPATIBILITY WITH MLF	Good	Good	High	Good	Neutral	High	High	High	High	Neutral	Good	Good
NITROGEN NEED	Medium	Medium	Medium	Medium	High	Medium	Medium	High	Low-Medium	Neutral	Medium	Low
OXYGEN DEMAND	Medium-High	Low	Medium	Medium	High	Medium-High	Medium	High	Low	Low	Medium	Low
SENSORY CHARACTERISTICS	Enhance Varietal Character	Enhance Varietal Character	Esters	Esters	Esters	Enhance Varietal Character	Varietal + Esters	Enhance Varietal Character	Neutral	Enhance Varietal Character	Enhance Varietal Character	Enhance Varietal Character
APPLICATIONS	ROSÉ	ROSÉ	ROSÉ	ROSÉ	ROSÉ							ROSÉ
	YOUNG RED	YOUNG RED	YOUNG RED	YOUNG RED	YOUNG RED		YOUNG RED		YOUNG RED			YOUNG RED
	RED TO BE AGED	RED TO BE AGED				RED TO BE AGED	RED TO BE AGED	RED TO BE AGED	RED TO BE AGED	RED TO BE AGED	RED TO BE AGED	RED TO BE AGED
									LATE HARVEST	LATE HARVEST	LATE HARVEST	
											STUCK FERMENTATION	

RED WINE FERMENTATION



YEAST/VARIETAL RECOMMENDATIONS FOR RED AND ROSÉ WINES

VARIETAL	VQ ASSMANHAUSEN	VQ 51	E5 454	E5 488	EZ FERM	EZ FERM 44	PRIMITIVO	Q7	RED FRUIT	TOP 20	VINTAGE RED	WILLIAMS SELVEM	ENARTIS VINQUIRY STYLE SHEET
AGLIANICO			★	★			★				★		Bordeaux Varietals, Fruit Forward Reds
BARBERA	★		★	★			★	★					Bordeaux Varietals
CABERNET FRANC	★		★				★				★		Bordeaux Varietals, Rosé Wines
CABERNET SAUVIGNON	★	★	★		★	★			★	★			Bordeaux Varietals, Rosé Wines
CARIGNANE/MONESTEL	★								★			★	Fruit Forward Reds, Rosé Wines
CARMENERE	★		★										Bordeaux Varietals
CHARBONO/DOLCETTO	★	★							★				Fruit Forward Reds
CINSAULT		★	★						★				Fruit Forward Reds, Pinot Noir, Rosé Wines
DORNFELDER		★	★						★				Fruit Forward Reds
GRENACHE			★				★	★			★		Fruit Forward Reds, Rosé Wines
MALBEC	★	★	★			★			★		★		Bordeaux Varietals, Fruit Forward Reds, Rosé Wines
MERLOT	★	★	★		★	★				★	★		Bordeaux Varietals, Rosé Wines
MOURVEDRE		★	★			★			★				Fruit Forward Reds, Rosé Wines
NEBBIOLI	★	★					★	★	★				Fruit Forward Reds, Bordeaux Varietals, Rosé Wines
PETITE SIRAH	★		★			★				★			Bordeaux Varietals, Rosé Wines
PETIT VERDOT		★	★			★							Bordeaux Varietals
PINOTAGE	★		★					★					Pinot Noir, Bordeaux Varietals
PINOT NOIR	★		★					★			★		Pinot Noir, Rosé Wines
SANGIOVESE	★			★				★	★				Fruit Forward Reds, Pinot Noir, Rosé Wines
SYRAH	★		★	★	★		★	★	★		★	★	Fruit Forward Reds, Bordeaux Varietals, Rosé Wines
TANNAT		★	★						★				Fruit Forward Reds
TEMPRAÑILLO		★		★				★		★			Fruit Forward Reds, Rosé Wines
TEROLDEGO	★			★				★					Fruit Forward Reds
ZINFANDEL	★	★	★	★	★	★	★	★			★		Fruit Forward Reds, Rosé Wines

Go to www.enartisvinquiry.com to download the Enartis Vinquiry Style Sheets in the Winemaker's Corner section, under Technical Information, Winemaking.

YEAST CULTURES ON SLANTS

Enartis Vinquiry maintains a supply of freshly prepared cultures from August 1st to November 15th. Cultures can also be prepared out of season upon client request. Each slant is provided with 400 mL grape juice medium and detailed instructions for propagation and handling. Yeast slants can be refrigerated up to 2 weeks before use.

YEAST STRAIN	CHARACTERISTICS	ITEM #	PRICE PER SLANT
ASSMANHAUSEN, UCD 679	Favored for spicy, fruit aromas. Improved color due to low phenol adsorption by yeast.	30-043-0000	\$ 45.00
DE SUREMAIN, BURGUNDY ISOLATE	High intensity fruit aromas in barrel fermentations. Slightly higher VA production.	30-045-0000	\$ 45.00
FRENCH RED, PASTEUR INSTITUTE	Classic yeast for red fermentations.	30-049-0000	\$ 45.00
WILLIAMS-SELYEM	Isolate from late harvest Zinfandel. Fermentation to 19% alcohol.	30-057-0000	\$ 45.00

LIQUID YEAST CULTURES

WS YEAST

The Williams-Selyem strain of yeast in a concentrated liquid culture. 2-liter container suitable for inoculating 200 gallons of juice or must, or for 200 gallons of starter (enough to inoculate 4,000 gallons of juice or must).

Application: Fermentation of must with high °Brix; restart stuck or sluggish fermentations.

2 L (Item #30-057-2000) \$ 325.00

new ENARTIS FERM PRIMITIVO

Isolated from Primitivo grapes in the South of Italy. Recommended for the production of Primitivo and Zinfandel destined for medium to

long-term aging. It respects the aromatic profile of the grape variety and terroir as well as increases ripe berry aromas and spicy notes. Ideal for the production of complex and well-structured wines with an elegant bouquet of cherries and plums.

2 L (Item #30-057-0002) \$ 325.00

new

ENARTIS FERM Q7

Pinot noir isolate from Napa, CA. Recommended for the production of high quality Pinot noir wines characterized by rich aromas of wild berries and black cherries combined with elegant spicy notes. Due to its low nutrient requirements, very low production of H₂S and VA, and steady fermentation rate, it is the ideal strain to ensure complete fermentations with added aromatic complexity. Particularly useful for fermentations in reductive conditions.

2 L (Item #30-057-0002) \$ 325.00

METHOD TO RE-START STUCK FERMENTATIONS

From Enartis Vinquiry's 30 years of expertise in microbiology, an easy to handle protocol for restarting stuck fermentations.

CAUSES OF STUCK FERMENTATIONS

The principal causes of stuck fermentations are:

- Nutrient deficiency (nitrogen and vitamins)
- Oxygen deficiency (necessary for synthesis of sterols)
- Deficiency of survival factors
- Presence of inhibitors (alcohol, low chain fatty acids, acetic acid)
- Uncontrolled temperature increase
- Presence of residual pesticides (especially in the case of dry summers)
- Incorrect yeast strain (little resistance to alcohol).

CONSEQUENCES

Sluggish or stuck fermentation kinetics involve two types of problems:

1. **Quality problems:** in a must or wine which is rich in sugar and poor in SO₂, indigenous strains of malolactic bacteria can develop and can degrade the residual sugars while producing elevated levels of lactic and acetic acids;
2. **Economic problems:** stuck fermentations can not only cause delays in production, but necessitate the use of extraordinary practices and procedures which result in increased costs.

For these reasons, it is preferable to act proactively and prevent the problem rather than be forced to correct it.

METHOD TO RESTART STUCK FERMENTATIONS**Pre-treatment of the stuck wine**

In the case of a stuck fermentation, before re-inoculation, the following pre-treatment steps are recommended:

1. Timely intervention to prevent the development of undesired bacteria by use of the following:
 - Filtration or racking
 - Sulfur dioxide addition to a maximum of 1 g/hL (0.08 lbs/1,000 gal) (10ppm)
 - Add 30-40 g/hL (2.6-3.4 lbs/1,000 gal) of Enartis Zym Lyso if there is a risk of malolactic fermentation onset.
2. Add 10-20 g/hL (1-2 lb/1,000 gal) of yeast hulls or cellulose together with 5 g/hL (0.4 lb/1,000 gal) of bentonite, Bentolit Super. Yeast hulls and the cellulose will eliminate medium-chain fatty acids and pesticide residues which may act as fermentation inhibitors while Bentolit Super will help the settling of the lees.

Allow yeast hulls or cellulose to act for 24 hours and then remove it by racking or filtration without worrying about clarity. Alternatively, the cellulose can be left in the must/wine; however, some of the fermentation aromas will be lost by adsorption onto the cellulose or yeast hulls.

After this, inoculate with a yeast starter prepared as follows.

Selection and rehydration of active dry yeast

1. Select a strain that is both alcohol tolerant and a vigorous fermenter, such as Enartis Ferm EZ Ferm 44 or Enartis Ferm Top 15.
2. Calculate the amount of yeast required for the total volume of stuck wine at 25-50 g/hL (2-4 lb/1,000 gallons).
3. Rehydrate this amount of yeast in ten times its weight in clean water at 35-38°C (95-100°F).
4. Allow 15 minutes to rehydrate then continue with the preparation of the starter.

Preparation of the starter

The nutrient content of the stuck fermentation will be low and unable to support adequate yeast growth. In addition, the culture will require adaptation to the alcohol content of the wine.

1. Prepare an initial mixture made of 50% stuck wine and 50% water. This solution must be 5% of the total volume of stuck wine.

2. Calculate the amount of Nutriferm Energy required for the total volume of stuck wine at 10-15 g/hL (0.8-1.2 lb/1,000 gal) and add it to the water/wine mixture.
3. Adjust the sugar content of the mixture wine/water up to 50 g/L (5° Brix) by adding concentrate, juice or sugar.

Start of the fermentation and addition of the stuck wine

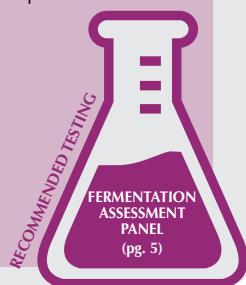
1. Add the rehydrated yeast to the wine/water mix and maintain the temperature at 21-24°C (70°-75°F). Note: Avoid cold shock! The temperature difference between the yeast suspension and the wine/water solution must be less than 10°C (18°F).
2. Monitor the sugar level of the starter. Attention: never let the sugar drop to zero.
3. When the sugar level has dropped by half (<2.5°Brix), add 20% of stuck wine to the starter. Also add the amount of Nutriferm Advance required for the 20% of stuck wine at 25 g/hL (2 lb/1,000 gal).
4. When the sugar has dropped by half, add another batch of 20% of the total stuck wine volume.
5. Repeat step 4, 3 more times. At every step check that the temperature difference between the starter and the stuck wine is lower than 10°C (18°F).

PRACTICAL EXAMPLES**EXAMPLE FOR 1,000 GALLONS**

1. Prepare the initial mixture with:
 - 25 gal of stuck wine
 - 25 gal of water
 - 0.5 lb Nutriferm Energy
 - Sugar or juice concentrate in order to adjust the sugar level of this mixture to 5°Brix
2. Rehydrate 4 kg of yeast in 40 L (14.5 gal) of clean water at 35-38°C (95-100°F).
3. Wait 15 minutes. Stir and then add the yeast suspension to the initial mixture. Note: Avoid cold shock!
4. Monitor the sugar content of the starter.
When the sugar has dropped by half, add:
 - 200 gal of stuck wine
 - 0.3 lb of Nutriferm Advance
5. When the sugar has dropped by half, add other 200 gal of stuck wine.
6. Repeat Step 5, 3 more times.

EXAMPLE FOR 10,000 L (100hL)

1. Prepare the initial mixture with:
 - 250 L of stuck wine
 - 250 L of water
 - 1 kg Nutriferm Energy
 - Sugar or juice concentrate in order to adjust the sugar level of this mixture to 50 g/L (5°Brix)
2. Rehydrate 4 kg of yeast in 40 L of clean water at 35-38°C (95-100°F).
3. Wait 15 minutes. Stir and then add the yeast suspension to the initial mixture. Note: Avoid cold shock!
4. Monitor the sugar content of the starter.
When the sugar has dropped by half, add:
 - 2,000 L of stuck wine
 - 500 g of Nutriferm Advance
5. When the sugar has dropped by half, add other 2,000 L of stuck wine.
6. Repeat Step 5, 3 more times.





YEAST BIOPRODUCTS

PROLIE R

A pure yeast derivative. When used during the fermentation of white and red grapes, it contributes great quantities of mannoproteins that help improve the sensation of volume. In the case of red wines, it also softens astringency and improves color stability.

Dosage: 25-35 g/hL (2.0-3.0 lb/1,000 gal)

25 kg	(Item #35-450-0025)	\$ 775.00
1 kg	(Item #35-450-0001)	\$ 35.00

PROLIE ROUND

A mixture of cell walls with a high content of soluble mannoproteins and condensed and ellagic tannins, specifically designed for red grape fermentation. Wines treated with Prolie Round have more vibrant and stable color, intense fruit aromas and a softer and well balanced profile. Recommended for rosé and young red wines, especially with high acidity and astringency.

Dosage: 150-500 g/ton

25 kg	(Item #35-405-0025)	\$ 725.00
2.5 kg	(Item #35-405-0002)	\$ 77.50
1 kg	(Item #35-405-0001)	\$ 33.00

PROLIE TINTO

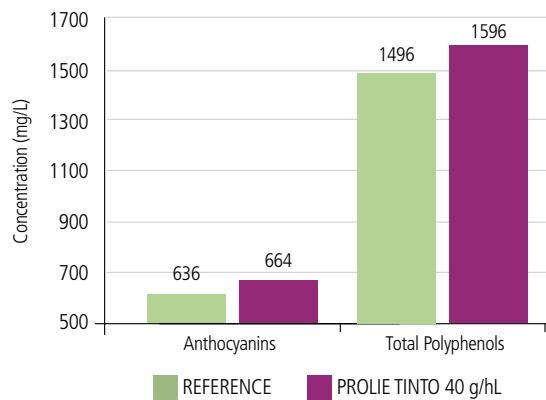
A fermentation coadjunct which is a mixture of cell wall polysaccharides high in soluble mannoproteins, grape seed tannins and ellagitannins. It is specifically designed to favor the condensation of anthocyanins/tannins during the fermentation of red grapes. Wines treated with Prolie Tinto have vibrant color, more intense and persistent fruit aromas and are softer and better balanced. Particularly recommended to soften the astringency of grapes destined for the production of grand red wines.

Dosage: 150-400 g/ton

1 kg	(Item #35-415-0001)	\$ 138.00
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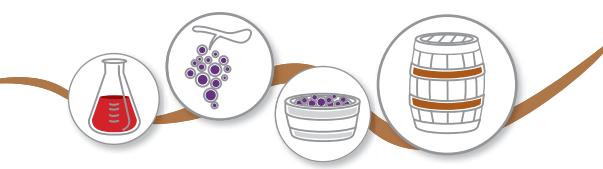
PROLIE TINTO

Increases the phenolic potential of wine: Cabernet Sauvignon



PROLIE RANGE: CHARACTERISTICS AND APPLICATIONS

	PROLIE R	PROLIE ROUND	PROLIE TINTO
COMPOSITION	YEAST DERIVATIVE	YEAST DERIVATIVE CONDENSED TANNINS ELLAGIC TANNINS	YEAST DERIVATIVE GRAPE SEED TANNINS ELLAGIC TANNINS
CONTRIBUTION TO WINE	MANNOPROTEINS	MANNOPROTEINS TANNINS	IMMEDIATELY FREE MANNOPROTEINS TANNINS
ENOLOGICAL EFFECT	MOUTHFEEL COLOR STABILIZATION SOFTEN ASTRINGENCY	AROMA PROTECTION COLOR STABILIZATION MOUTHFEEL	AROMA PROTECTION COLOR STABILIZATION MOUTHFEEL SOFTEN ASTRINGENCY
APPLICATION	WHITE WINES RED WINES	LIGHT REDS ROSÉ WINES	STRUCTURED REDS ASTRINGENT REDS
HOW TO USE	ADDITION AT YEAST INOCULATION	ADDITION AT YEAST INOCULATION	ADDITION AT YEAST INOCULATION



YEAST NUTRIENTS

The understanding of nutritional requirements for yeast is fundamental in order to accomplish a successful fermentation and prevent stuck fermentations. Managing nutrient requirements not only allows for regular and complete fermentations, but enhances sensory quality.

NUTRIFERM ENERGY

Nutriferm Energy provides β -amino acids, trace elements and mineral salts naturally contained in the yeast cell. The addition of nutrients and vitamins are strategic in the initial phases of yeast multiplication, when external elements such as alcohol, sulfur dioxide and lack of oxygen have not yet intervened to modify yeast metabolism and its ability to select nutrients. That is why Nutriferm Energy is recommended during the preparation of the starter culture and at yeast inoculation. Because of its nutritional and energetic contributions, it shortens the lag phase, prevents the formation of hydrogen sulfide and acetic acid, and increases the production of glycerol and polysaccharides.

Application: Complete nutrition for yeast; prevention of stuck or sluggish fermentations; organic nutrient for yeast.

Dosage: 5-15 g/hL (0.4-1.2 lb/1,000 gal)

10 kg	(Item #35-200-0010)	\$ 330.00
1 kg	(Item #35-200-0001)	\$ 38.00

NUTRIFERM AROM

A nutrient obtained from yeast derivatives. Nutriferm Arom provides high quantities of amino acids that can be used as precursors for the synthesis of aromatic compounds. In fact, when it's used in combination with a yeast that has the metabolic pathways necessary to exploit this aminoacidic content, Nutriferm Arom significantly increases the aromatic intensity and complexity of the wine.



Application: Improved fermentation aromas; organic nutrient for yeast.

Dosage: 20-30 g/hL (1.7-2.5 lb/1,000 gal)

10 kg	(Item #35-210-0010)	\$ 310.00
1 kg	(Item #35-210-0001)	\$ 40.00

CELFERM

Fermentation aid composed of pure powdered cellulose. It promotes clean, healthy fermentations by removing medium chain fatty acids (particularly C8 and C10) and their esters which are responsible for inhibiting yeast growth. It also provides solids to promote yeast growth in very clean juice, removes elemental sulfur thus reducing the formation of sulfide aromas during fermentation and assists in the removal of excess copper from wine.

20 kg	(Item #35-220-0020)	\$ 120.00
1 kg	(Item #35-220-0001)	\$ 8.50

NUTRIFERM ADVANCE

Alcohol and high temperatures are the main factors which are responsible for stuck fermentations. These factors cause degradation of the cellular membrane of yeast which results in the loss of the ability to use sugar. The addition of Nutriferm Advance at 1/3 of the way into the fermentation prevents irregular kinetics while maintaining an efficient sugar transport system until the fermentation is complete. A complex additive made from yeast hulls, ammonium phosphate and cellulose, it helps the yeast with alcohol tolerance and exerts a detoxifying action, thus assuring optimal aroma cleanliness while preventing the formation of hydrogen sulfide.

Application: Nutrient correction at 1/3 sugar depletion; prevention of off-flavors and stuck or sluggish fermentations.

Dosage: 20-30 g/hL (1.7-2.5 lb/1,000 gal)

10 kg	(Item #35-215-0010)	\$ 145.00
1 kg	(Item #35-215-0001)	\$ 21.00

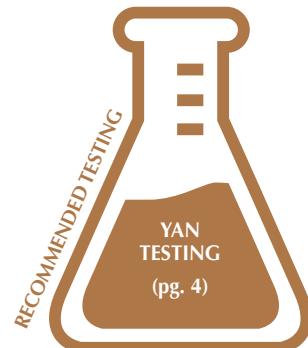
NUTRIFERM SPECIAL

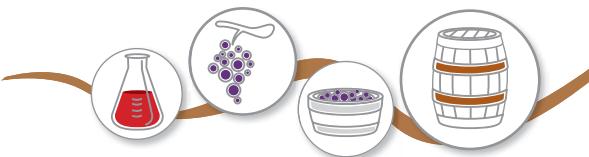
Complex nutrient containing mineral and aminoacidic nitrogen, thiamine and purified cell walls. Designed to facilitate primary fermentation and to prevent stuck fermentations due to biochemical causes. Providing suitable amounts of YAN, vitamins and mineral salts, it ensures that the yeast will produce a pleasant aroma as well as low levels of hydrogen sulfide and other unwanted characteristics.

Application: Correction of musts with low nitrogen content; nutrient correction of very clean white and rosé musts.

Dosage: 30-40 g/hL (2.5-3.4 lb/1,000 gal) in juice

10 kg	(Item #35-225-0010)	\$ 145.00
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CONTRIBUTION PER 10g/hL

PRODUCT	COMPOSITION	ADDITION OF NUTRIENT			TYPE OF NITROGEN	APPLICATION
		SULFATES (mg/L)	YAN (mg/L)	MAGNESIUM (mg/L)		
NUTRIFERM ENERGY	Yeast Hulls Thiamine	0	13	2	Organic	Difficult fermentations Pied de cuve Stuck fermentations
NUTRIFERM AROM	Yeast Hulls Thiamine	0	18	2	Organic	Stimulate the production of fermentation aromas
NUTRIFERM SPECIAL	Yeast Hulls Thiamine Diammonium Phosphate	0	16	0.8	Organic Inorganic	White and Rosé vinification Stuck fermentations
NUTRIFERM ADVANCE	Yeast Hulls Cellulose Diammonium Phosphate	0	15	0.8	Organic Inorganic	Assuring a complete fermentation Preventing the production of sulfur compounds Stuck fermentations
CELFERM	Activated Cellulose	0	0	0	N/A	Detoxify must and juice Remove inhibitors from stuck fermentations before restart

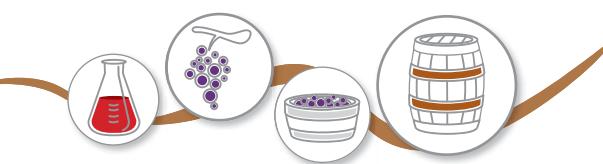
To be added with yeast

To be added after yeast inoculation

To be added at 1/3 sugar depletion

ADDITIONAL FERMENTATION AIDS

FERMENTATION AID	DESCRIPTION	ITEM #	PACKAGING	PRICE
ANTIFOAM FG9030	30% active to aid in control of fermentative foaming.	30-026-0237	250 mL	\$ 24.00
		30-026-0437	500 mL	\$ 33.00
		30-026-0946	1 L	\$ 49.00
DIAMMONIUM PHOSPHATE (DAP)	Provides immediately assimilable inorganic ammonia nitrogen. 21 ppm N/10g/hL	30-015-0000	1 lb	\$ 3.00
		30-015-0005	5 lb	\$ 15.00
		30-015-0055	50 lb	\$ 90.00
YEAST HULLS	Cell walls that adsorb autotoxic yeast metabolites and inactive yeast residues. 1.7 ppm N/10g/hL	30-024-0000	1 lb	\$ 8.25
		30-024-0005	5 lb	\$ 41.25
		30-024-0050	50 lb	\$ 212.00



NUTRIENT GUIDELINES WITH ENERGY, AROM AND ADVANCE

Yeast nutrition is an essential factor in the overall health and success of fermentation. Without the proper nutrition introduced at the right stage in their growth cycle, yeast can come under stress and produce undesirable characteristics. Stuck or sluggish fermentations are other hazards of poor yeast nutrition. To determine what nutritional supplements are needed, the following values for juice or must are necessary.

- Brix

- Yeast Assimilable Nitrogen (YAN)

The YAN is analytically determined by calculating the sum of the ammonia and the assimilable amino nitrogen (AAN). The results of the Brix and YAN tests will set the parameters for proper nutritional guidelines. The following charts are designed to give an understanding of the best nutrients to use and the proper time to add them. The synergistic use of oxygen can offer additional protection for yeast when added during the first 1/3 of sugar depletion.

How much DAP (g/hL) to add to bring the YAN up to 150 mg N/L? Use the following equation:
[150 mg N/L - (original YAN of juice + Nitrogen of Energy/Arom)] ÷ 2 = g/hL of DAP

MUST OR JUICE CONTAINING LOW YAN (<125mg N/L)

BRIX	ADD AT INOCULATION	FIRST DAP ADDITION 12 HOURS AFTER INOCULATION	ADD AROUND 1/3 SUGAR DEPLETION
22°	Nutriferm Energy 15 g/hL (1.25 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	DAP to bring YAN to150 mg N/L	Nutriferm Advance 40 g/hL (3.34 lb/1,000 gal)
23°	Nutriferm Energy 15 g/hL (1.25 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	DAP to bring YAN to150 mg N/L	Nutriferm Advance 40 g/hL (3.34 lb/1,000 gal)
24°	Nutriferm Energy 15 g/hL (1.25 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	DAP to bring YAN to150 mg N/L	Nutriferm Advance 40 g/hL (3.34 lb/1,000 gal) and DAP 10 g/hL (0.83 lb/1,000 gal)
25°	Nutriferm Energy 15 g/hL (1.25 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	DAP to bring YAN to150 mg N/L	Nutriferm Advance 40 g/hL (3.34 lb/1,000 gal) and DAP 15 g/hL (1.25 lb/1,000 gal)
26°	Nutriferm Energy 15 g/hL (1.25 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	DAP to bring YAN to150 mg N/L	Nutriferm Advance 40 g/hL (3.34 lb/1,000 gal) and DAP 20 g/hL (1.67 lb/1,000 gal)
27°	Nutriferm Energy 15 g/hL (1.25 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	DAP to bring YAN to150 mg N/L	Nutriferm Advance 40 g/hL (3.34 lb/1,000 gal) and DAP 25 g/hL (2.09 lb/1,000 gal)

Nutriferm Energy 15 g/hL = 20 mg/L Nitrogen Content Nutriferm Arom 30 g/hL = 55 mg/L Nitrogen Content	DAP 1 g/hL = 2 mg/L Nitrogen Content	Nutriferm Advance 40 g/hL = 60 mg/L Nitrogen Content DAP 1 g/hL = 2 mg/L Nitrogen Content
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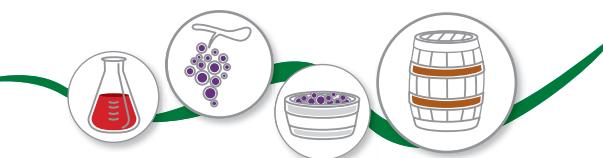


MUST OR JUICE CONTAINING MEDIUM YAN (125-225mg N/L)

BRIX	ADD AT INOCULATION	ADD AROUND 1/3 SUGAR DEPLETION
22°	Nutriferm Energy 10 g/hL (0.83 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 30 g/hL (2.5 lb/1,000 gal)
23°	Nutriferm Energy 10 g/hL (0.83 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 30 g/hL (2.5 lb/1,000 gal)
24°	Nutriferm Energy 10 g/hL (0.83 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 30 g/hL (2.5 lb/1,000 gal) and DAP 5 g/hL (0.42 lb/1,000 gal)
25°	Nutriferm Energy 10 g/hL (0.83 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 30 g/hL (2.5 lb/1,000 gal) and DAP 10 g/hL (0.83 lb/1,000 gal)
26°	Nutriferm Energy 10 g/hL (0.83 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 30 g/hL (2.5 lb/1,000 gal) and DAP 15 g/hL (1.25 lb/1,000 gal)
27°	Nutriferm Energy 10 g/hL (0.83 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 30 g/hL (2.5 lb/1,000 gal) and DAP 20 g/hL (1.67 lb/1,000 gal)
Nutriferm Energy 10 g/hL = 13 mg/L Nitrogen Content or Nutriferm Arom 30 g/hL = 55 mg/L Nitrogen Content		Nutriferm Advance 30 g/hL = 45 mg/L Nitrogen Content DAP 1 g/hL = 2 mg/L Nitrogen Content

MUST OR JUICE CONTAINING HIGH YAN (>225mg N/L)

BRIX	ADD AT INOCULATION	ADD AROUND 1/3 SUGAR DEPLETION
22°	Nutriferm Energy 5 g/hL (0.42 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 20 g/hL (1.67 lb/1,000 gal)
23°	Nutriferm Energy 5 g/hL (0.42 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 20 g/hL (1.67 lb/1,000 gal)
24°	Nutriferm Energy 5 g/hL (0.42 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 20 g/hL (1.67 lb/1,000 gal)
25°	Nutriferm Energy 5 g/hL (0.42 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 20 g/hL (1.67 lb/1,000 gal)
26°	Nutriferm Energy 5 g/hL (0.42 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 20 g/hL (1.67 lb/1,000 gal)
27°	Nutriferm Energy 5 g/hL (0.42 lb/1,000 gal) or Nutriferm Arom 30 g/hL (2.5 lb/1,000 gal)	Nutriferm Advance 20 g/hL (1.67 lb/1,000 gal)
Nutriferm Energy 5 g/hL = 6 mg/L Nitrogen Content or Nutriferm Arom 30 g/hL = 55 mg/L Nitrogen Content		Nutriferm Advance 20 g/hL = 30 mg/L Nitrogen Content



MICRO-OXYGENATION

Oxygen is an important ingredient in the production of wine.

When added without control, it can cause major problems; however, if used properly, it becomes an important tool in the production of quality wines and for different wine styles intended to meet specific needs of the market.

ENARTIS MICROOX



Enartis MicroOx is an oxygen doser for micro and macro oxygenation that accurately measures the effective flow rate in weight (mg/L) of oxygen delivered. Enartis MicroOx ensures a linear and constant dose of oxygen. Compared to other systems available on the market, Enartis MicroOx doesn't have a dosing chamber, but rather contains a high accuracy sensor that measures the oxygen flow rate in real-time. A microprocessor with dedicated software makes required

calculations in order to maintain the oxygen flow rate at the desired value, automatically adjusting the dosing rate at every variation of the outlet pressure. Oxygen is delivered at the minimum pressure required in order to minimize the size of the bubbles to increase their solubility in wine. Enartis MicroOx is available in the standard version with 1, 2, 5 and 10 dosing points. Upon request, customized systems can be manufactured.

Application: Micro-oxygenation; macro-oxygenation; mimic racking or delestage.

Please inquire for pricing.

ENARTIS MICROOX PERLE

Enartis MicroOx version specifically developed to dose oxygen during secondary fermentation in pressure vessels for the production of sparkling wines. Enartis MicroOx Perle operates with a maximum delivery pressure of 9.5 bar. It can be used at every step during the production of sparkling wines: during the first fermentation and early stages of "prise de mousse" to ensure more regular and complete fermentation kinetics; during the preparation of the "pied de cuve" to stimulate yeast cell multiplication and increase its alcohol tolerance; and when "prise de mousse" is complete to prevent and resolve reduction problems. Enartis MicroOx Perle is available in the standard version with 1, 2, 5, and 10 dosing points. On request, customized systems can be manufactured.

Application: Micro-oxygenation and macro-oxygenation during "prise de mousse" in pressure vessels.

Please inquire for pricing.

ENARTIS TAN MICROFRUIT

Enartis Tan Microfruit is a formulation of condensed and hydrolysable tannins specifically developed to be used in conjunction with the oxygenation of red and rosé wines. Microfruit, along with the synergistic action of oxygen, contributes to color stabilization, enhances aromas of fresh red fruit, increases the softness and sweetness of wine, and reduces bitterness and vegetal characters. Microfruit is particularly suitable during micro-oxygenation but it can be added for the same applications post-fermentation up until one month prior to bottling, any time wine comes in contact with oxygen (racking, filtration, refrigeration...).

Application: Micro-oxygenation of red and rosé wines.

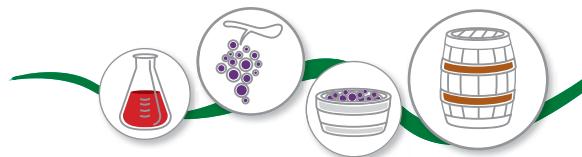
Dosage: 5-20 g/hL

1 kg

(Item #35-303-0001)

\$ 190.00





Use of Oxygen during Primary Fermentation

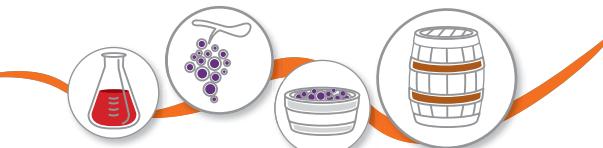
AIM	WHAT TO DO	WHY
Prevention of fermentation anomalies	1. At 1/3 of the fermentation, add 20 g/hL of Nutriferm Advance. 2. Along with the nutrient, dose 5-10 mg/L of O ₂ over a 3-5 hour period.	Alcohol produced during fermentation solubilizes the fatty acids and sterols of yeast cell membranes causing the cell to lose capacity to consume sugar. The combined use of a complex nutrient (adds fatty acids) and oxygen (stimulates the sterol synthesis) maintains membrane functionality to avoid stuck fermentations.
Resolve problems of reduction during the second half of primary fermentation of white wines	1. Add 3-5 g/hL of Enartis Tan Max Nature. 2. Dose 1-2 mg/L of O ₂ over a 1-2 hour period.	Two mechanisms allow for elimination of sulfur compounds responsible of reduction: 1. Direct reaction between tannins and sulfur compounds 2. Oxidation of tannin with subsequent formation of hydroperoxides and free radicals able to destroy sulfur compounds
Resolve problems of reduction during the second half of primary fermentation of red wines	1. Add 3-5 g/hL of Enartis Tan Fruitan. 2. Dose 2-3 mg/L of O ₂ over a 1-2 hour period.	Reduction of sulfur compounds due to tannin activity is facilitated by the presence of oxygen.

Use of Oxygen between Primary and Malolactic Fermentation

AIM	WHAT TO DO	WHY
Color stabilization	1. Add 10-20 g/hL of Enartis Tan Fruitan or Enartis Tan Microfruit. 2. Dose 1-2 mg/L of O ₂ per day over a 5-7 day period.	The pre-malolactic phase is the ideal time to intervene to stabilize color due to the presence of free anthocyanins, acetaldehyde not yet combined with SO ₂ , and low molecular weight condensed tannins.

Examples of the Use of Oxygen after Malolactic Fermentation

AIM	WHAT TO DO	WHY
Enhance softness and fruit aromas	1. Once malolactic fermentation is over, rack the wine and add SO ₂ . 2. Add 5-10 g/hL of Enartis Tan Microfruit and 20-40 g/hL of Surli Natural or Surli One. 3. Micro-oxygenate for one month with a dosing rate of O ₂ of 1-2 mg/L/month.	The combined use of specifically selected tannins, yeast polysaccharides, and oxygen stabilizes fruit aromas and reduces astringency.
Enhance aromatic complexity and structure	1. Once malolactic fermentation is over, rack the wine and add SO ₂ . 2. Add 5-10 g/hL of Enartis Tan Fruitan and 20-40 g/hL of Surli One. 3. Micro-oxygenate for two months with a dosing rate of O ₂ of 2-4 mg/L/month. 4. During the last 3 weeks of micro-oxygenation, add 3-5 g/hL of Enartis Cœur de Chêne (complexity and elegance) or 3-5 g/hL of Enartis Extra (vanilla and sweetness).	The controlled addition of oxygen, in conjunction with oak tannins and polysaccharides, increases wine structure without increasing astringency and highlights complex oak notes.



MALOLACTIC FERMENTATION

Properly conducted malolactic fermentations are not only synonymous with good sensory characteristics, but they are also a measure of security. Because of this, it is important to use selected and guaranteed bacteria strains which have the ability to dominate the fermentation.

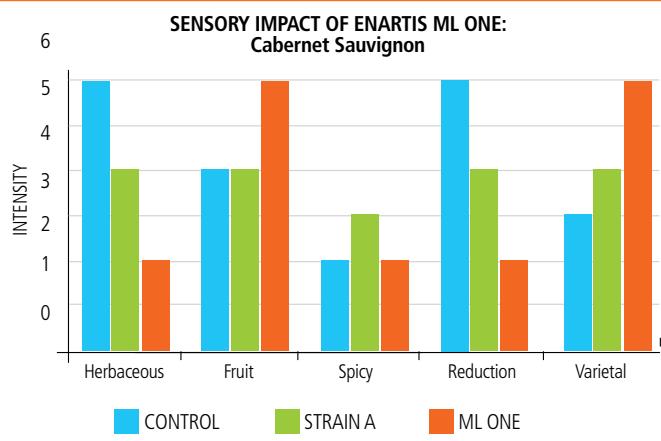
ENARTIS ML ONE

This strain of *Oenococcus oeni* guarantees a fast and complete malolactic fermentation in red and white wines. It produces clean and fruit forward aromas and helps to reduce the impact of herbaceous notes that are sometimes present in red wines.

Application: ML fermentation of white and red wines.

Dosage: Doses designed for volumes of:

2.5 hL (66 gal)	(Item #35-500-0000)	\$ 13.00
25 hL (660 gal)	(Item #35-500-0025)	\$ 68.00
250 hL (6,600 gal)	(Item #35-500-0250)	\$ 565.00



ENARTIS ML SILVER

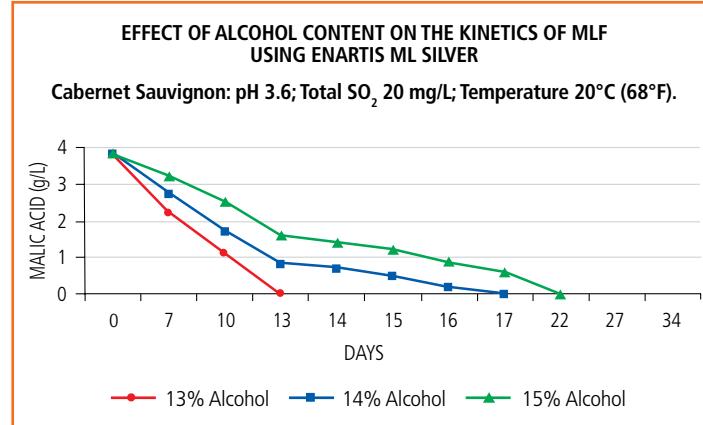
A strain of *Oenococcus oeni* isolated from the Sonoma area of California. It was chosen among hundreds of different strains from wines all over the world. Enartis ML Silver assures the progress of malolactic fermentation even under difficult conditions due to high alcohol (>15%) and polyphenol content. It respects the aromatic characteristics of the wine and does not produce biogenic amines.



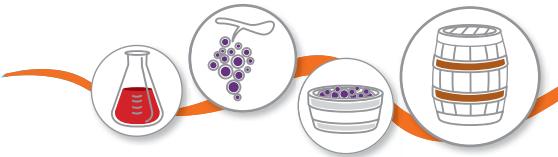
Application: ML fermentation of wines with high alcohol or low pH; ML fermentation of fruity wines.

Dosage: Doses designed for volumes of:

2.5 hL (66 gal)	(Item #35-505-0000)	\$ 19.00
25 hL (660 gal)	(Item #35-505-0025)	\$ 115.00
250 hL (6,600 gal)	(Item #35-505-0250)	\$ 695.00



MALOLACTIC FERMENTATION



MCW

The MCW strain of *Oenococcus oeni* (isolated, tested and developed by Enartis Vinquiry) has been used commercially for over 25 years. It is the bacterial strain of choice for many winemakers in the production of red and white still wines and sparkling wines. MCW provides a large population of malolactic (ML) bacteria for timely ML inoculations. Its superior tolerance to low temperatures, pH below 3.0, and alcohol levels above 15% make it suitable for the most difficult ML fermentations.

Application: ML fermentation at low temperatures, high alcohol or low pH.

Liquid Culture:

500 mL	(Item #30-038-0473)	\$ 35.00
1 L	(Item #30-038-0946)	\$ 50.00
3.8 L	(Item #30-038-3785)	\$ 145.00

Freeze-Dried:

10 g	(Item #30-031-0010)	\$ 45.00
40 g	(Item #30-031-0040)	\$ 75.00
120 g	(Item #30-031-0120)	\$ 175.00
500 g	(Item #30-031-0500)	\$ 515.00

ML-34

Classic UCD isolate; for pH 3.4 and above. Available as liquid suspension only.

500 mL	(Item #30-039-0473)	\$ 40.00
1 L	(Item #30-039-0946)	\$ 55.00
3.8 L	(Item #30-039-3785)	\$ 150.00

NUTRIFERM ML

Nutriferm ML is a nutrient specifically for malolactic bacteria. Increasing nutrients in wine stimulates the growth of bacteria at inoculation and improves cell division. Nutriferm ML provides polysaccharides, amino acids, co-factors and vitamins. The cellulose contained in the preparation acts as a support for bacteria cells and absorbs compounds that may inhibit cell growth. The combined effect of Nutriferm ML's components ensures the domination of the inoculated strain over natural flora and dramatically reduces the length of malolactic fermentation. It's particularly recommended to promote malolactic fermentation in difficult wines.

Dosage: 20-30 g/hL (1.7-2.5 lb/1,000 gal)

1 kg	(Item #35-510-0001)	\$ 25.00
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ENARTIS ZYM LYSO

Enartis Zym Lyso is a purified, microgranulated preparation of lysozyme. When added to must or wine, it imparts an antibacterial activity specifically for the control of malolactic bacteria. It will not interfere with primary fermentation or the organoleptic profile of the wine. Enartis Zym Lyso can be added as an alternative to sulfur dioxide to control the development of malolactic bacteria, even at elevated pH, while still maintaining its activity.

Dosage: 10-50 g/hL (0.8-4.2 lb/1,000 gal)

1 kg	(Item #35-155-0001)	\$ 275.00
0.25 kg	(Item #35-155-0250)	\$ 70.00

POTASSIUM CARBONATE

Deacidifying material useful for preparing malolactic cultures.

1 lb	(Item #30-020-0000)	\$ 5.50
5 lb	(Item #30-020-0005)	\$ 27.50
50 lb	(Item #30-020-0050)	\$ 170.00



REFERENCE

EQUIPMENT RECOMMENDATIONS

Equipment and reagents required to set-up popular analyses.

COLD STABILITY TESTING BY CONDUCTIVITY

Conductivity Meter
4-Cell Conductivity Probe
Refrigerated Circulating Water Bath
250 mL Beaker
Stirplate
Stir Bar, Egg-shaped
Amber Latex Tubing with Quick Disconnects
Potassium Bitartrate, Reagent Grade
Conductivity Standard, 1413uS
Filtration Assembly for Pre-Treatment of Sample

TITRATABLE ACIDITY

FOR DIRECT EVALUATION OF WINE

Buret and Stand
0.1N Sodium Hydroxide
Deionized Water
5 mL Volumetric Pipet
Pipet Safety Bulb
Wash Bottle
Kimwipes

FOR VISUAL ENDPOINT TITRATION

1% Phenolphthalein
Hot Water Source
250 mL Erlenmeyer Flasks

FOR MEASURED PH ENDPOINT

pH Meter
Good Quality pH Electrode
ATC Probe
pH Buffers
150 mL Beakers
Stirplate
Stirbars

OPTIONAL, BUT RECOMMENDED

Centrifuge
Vacuum Pump and Accessories for Degassing
0.1N Hydrochloric Acid and Flasks for Reagent Standardization

WINE MICROSCOPY

FOR DIRECT EVALUATION OF WINE

Light Microscope with Phase Contrast Objectives,
1000x Magnification
Slides
Cover Slips
Resolve Immersion Oil
Methylene Blue, Yeast Viability Stain
Pasteur Pipets
Kimwipes
Lens Paper
Levy Counting Chamber (optional)

FOR EVALUATION OF COLONIES FROM CULTURE

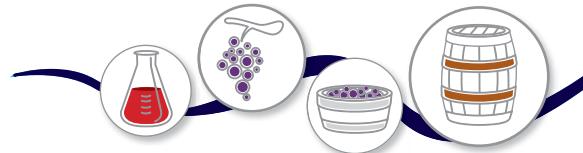
All equipment listed above, plus the following:
Reagent Alcohol, 95%
Glass Alcohol Burner
Inoculating Loop
Loop Holder
Sterile Water Source
70% Isopropyl Alcohol
Spray Bottle

SPECTROPHOTOMETRIC ANALYSIS

(Possible analyses include: L-Malic, Lactic, Citric, Acetic, Ascorbic and Sorbic Acids, Glucose + Fructose, NOPA, Ammonia, Color Absorbance and Phenolic Assays, etc.)

UV Spectrophotometer
Reagents or Enzymes for Specific Tests
Cuvettes, 10 mm Metacrylate
Eppendorf Pipets
Eppendorf Pipet Tips
Volumetric Pipets and Flasks for Dilutions
Cuvette Rack
Parafilm
Timer
Kimwipes
Quartz Cuvettes (required for certain tests)

REFERENCE



VOLATILE ACIDITY

TO ASSEMBLE A CASH STILL SYSTEM, WE RECOMMEND THE FOLLOWING EQUIPMENT

Cash Still, Complete Assembly
Support Stand, 5" Support Ring
2 Medium Clamps, 2 Clamp Holders
Tygon and Latex Tubing
2 Quick-Disconnects
1 T or Y Connector
2 Tubing Clamps
Source of Distilled Water
Water Hookup for Condenser
Water Flow Indicator

TO TEST FOR VOLATILE ACIDITY, YOU NEED

Cash Still System (above)
250 mL Erlenmeyer Flask
10 mL Class A Volumetric Pipet
Titration Assembly for 0.1N Sodium Hydroxide
(25 mL or 50 mL Buret, Clamp & Support Stand, or Autoburet)
Titration Assembly for 0.02N Iodine
(25 mL or 50 mL Buret, Clamp & Support Stand, or Autoburet)
Phenolphthalein and Starch Indicators
Antifoam B
1+3 Sulfuric Acid

AERATION-OXIDATION SO₂ ANALYSIS

Aeration-Oxidation Assembly
20 mL Class A volumetric Pipet for Sample
SO₂ Indicator
10 mL Pipet or Dispenser for 25% Phosphoric Acid
Titration Assembly for 0.01N Sodium Hydroxide
(25 mL Buret, Clamp & Support Stand, or Autoburet)
3% Hydrogen Peroxide Adjusted to pH 5.7
(Do not use pharmaceutical peroxide)
Timer

RIPPER, FREE & TOTAL SO₂

250 mL Erlenmeyer Flasks
25 mL Serological Pipet
5 mL Repipettor (for Sulfuric Acid)
10 mL Serological Pipet
Pipet Safety Bulb
Titration Assembly
Optional: 10 mL Tilting Pipette (for 1N NaOH)
250 mL Red Dispensing Bottle (for Starch)
0.02 N Iodine
Starch Indicator
1+3 Sulfuric Acid
1N Sodium Hydroxide

pH

pH Meter with Electrode and ATC Probe
50 mL Glass Beakers
100 mL Nalgene Beakers
Optional: Magnetic Stirrer with Stir Bars
Distilled Water
pH 4.00 Buffer
pH 7.00 Buffer
pH 3.00 Buffer

GOLD COAST SUGAR PROCEDURE

REQUIRED

250 mL Erlenmeyer Flasks
2 mL and 1 mL Class A Volumetric Pipets for Sample Measurement
Boiling Chips
Hot Plate
Ice Bath
Buret Assembly including a 25 mL or 50 mL Buret
(25 mL preferred for accuracy)
10 mL Class A Volumetric Pipet for Gold Coast Solution #1
Safety Bulb or Pipet Filler

OPTIONAL, BUT RECOMMENDED

Variable Volume Dispensers for Gold Coast Solutions #3 and #5
Dispenser or 5 mL Volumetric Pipet for Gold Coast Solution #2
Glass Repipet for Dispensing 1+3 Sulfuric Acid
Volumetric Pipets and Volumetric Flasks for Appropriate Sample Dilutions

ENZYMATIC ANALYSIS

MALIC ACID, GLUCOSE + FRUCTOSE, AMMONIA
Spectrophotometer with UV Capability
Cuvettes & Cuvette Rack
10-100 uL Adjustable Eppendorf Pipettor with Tips
100-1000 uL Adjustable Eppendorf Pipettor with Tips
Volumetric Glassware for Dilutions
Appropriate Test Kits and Standards

ALPHA AMINO NITROGEN

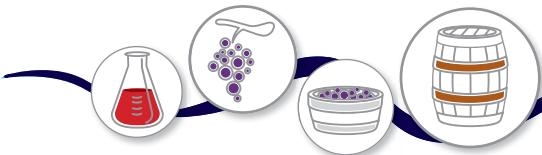
Spectrophotometer, UV 335 nm
Cuvettes & Cuvette Rack
50 uL Pipettor with Tips
10-100uL Adjustable Pipettor with Tips
Centrifuge & Centrifuge Tubes
Scientific Calculator or Spreadsheet Software such as Excel
Reagent Kit with Standards: 10mM IsoLeucine Standard
5% OPA
NAC Buffer
Distilled Water

Please see our website at www.enartisvinquiry.com for price information on the equipment and reagents listed above.



STORAGE & STABILITY GUIDELINES FOR REAGENTS COMMONLY USED IN WINE ANALYSIS

REAGENT	WARNING	SHELF LIFE	RECOMMENDED STORAGE AFTER OPENING
Alcohol, Isopropyl, 70%	poison, flammable	1 year	flammable liquid storage, closed container
Alcohol, Anhydrous	poison, flammable	1 year	flammable liquid storage, closed container
Ammonium Hydroxide	corrosive	indefinite	general storage
Buffers	not a health hazard	4–12 months	general storage
Cadmium Sulfate, 1%	poison, do not taste treated wine samples	indefinite	general storage
Copper Sulfate, 1%	poison	indefinite	general storage
Dextrose, 0.5%	not a health hazard	3–6 months (or until mold forms)	refrigerate
Fehlings A (Copper Sulfate)	poison	3–6 months	general storage, in dark
Fehlings B (Alkaline Potassium-Sodium Tartrate)	corrosive, irritant	3–6 months	general storage, in dark
Folin-Ciocalteu	corrosive, severe poison, reproductive toxin	6–12 months	tightly closed in dark
Gold Coast Solutions #1 (Copper Sulfate)	poison	indefinite	general storage, in dark
#2 (Alkaline Potassium-Sodium Tartrate)	corrosive, irritant	3–6 months	general storage, in dark
#3 (Potassium Iodide)	irritant, will stain	3–6 months	general storage, in dark
#4 (Sulfuric Acid)	corrosive, irritant	indefinite	acid storage
#5 (Starch)	slight irritant	6 months (or until mold forms)	general storage, in dark
#6 (Sodium Thiosulfate)	irritant	3–6 months	tightly closed in dark



REAGENT	WARNING	SHELF LIFE	RECOMMENDED STORAGE AFTER OPENING
Hydrochloric Acid, 0.01N or 0.1N	not a health hazard	6–12 months	general storage
Hydrogen Peroxide, 3%	irritant	2–4 months	refrigerate
Hydrogen Peroxide, 30%	strong oxidizer; do not touch	6 months	refrigerate
Iodine, 0.02 N	irritant, stains, standardize frequently	3–6 months	refrigerate or cool dark place
Chromatography Solvent, Malolactic	flammable, stains, irritant, avoid breathing fumes	1 year	tightly closed in dark
Phenolphthalein Indicator, 1%	flammable, irritant	indefinite	general storage
Phosphoric Acid, 25%	corrosive	indefinite	acid storage with secondary containment
SO ₂ Indicator	flammable, stains	indefinite	general storage
Sodium Hydroxide, 0.01 N	standardize frequently	1–3 months	general storage, tightly closed
Sodium Hydroxide, 0.1 N	irritant, standardize frequently	3–12 months	general storage
Sodium Hydroxide, 1 N	corrosive	indefinite	general storage
Sodium Hydroxide, 10%	corrosive	indefinite	general storage
Sodium Thiosulfate, 0.02 N	irritant	3–6 months	refrigerate
Starch, 1%	poison when preservative added	6 months	refrigerate
Sulfuric Acid, 1+3	corrosive, poison, very reactive	indefinite	acid storage with secondary containment
NAC (N-acetyl-L-cysteine)	contact & inhalation hazard	3–6 months (dry) 1–3 days (mixed)	refrigerate
OPA (phthalodialdehyde)	irritant	3–6 months (dry) 1–5 days (mixed)	refrigerate



HOURS

Enartis Vinquiry is open Monday-Friday 8:30 AM to 5:00 PM (extended hours during harvest)

PRICING

Enartis Vinquiry makes every attempt to keep our pricing stable, but as our suppliers' prices change, we must pass along changes, whether an increase or decrease. Prices vary slightly every year; this catalog is a guideline to pricing. If you require confirmed prices for your purchase, please contact the supply department at our Windsor branch: 707 838 6312.

RETURNS & ORDER CANCELLATIONS

All returns must be authorized; call 707 838 6312 and ask for a Merchandise Return Authorization (MRA) number. Include the MRA number with your shipment. Returns must be made within 30 days of receipt and are subject to a 10% restocking charge. All items must be returned in an unused and resalable condition.

All winemaking products along with supplies that require refrigeration or freezing cannot be returned.

Live cultures, analytical standards, and special order items are available according to demand. Orders of these products are considered to be final.

Any cancellation or modification of a pending order may result in a charge up to the full dollar amount of the order.

HAZARDOUS MATERIALS



Materials considered hazardous to ship are marked with this symbol in the catalog. Hazardous materials are subject to a shipping surcharge, must be shipped via ground service and may have other limitations on their shipment. Ask us for details.

DAMAGED SHIPMENTS

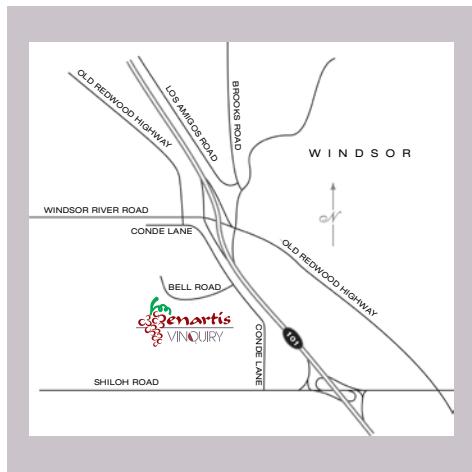
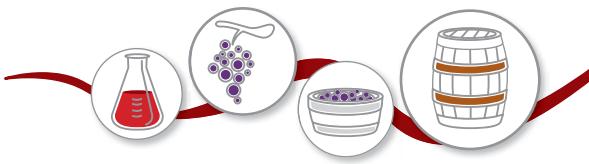
Items damaged in shipping should be reported to the carrier immediately. Containers and packing material must be kept for inspection.

TERMS

Ten or more samples submitted together for the same analysis will be discounted by 15%. Shipping charges and sales tax (as required) are additional. Due to manufacturers' changes, our prices may change without prior notice.

Terms for payment are 30 days net. A service charge of 2% (minimum \$ 5.00) will be added to any outstanding balance after 30 days.

For international orders, please call or fax for details of shipment and payment.



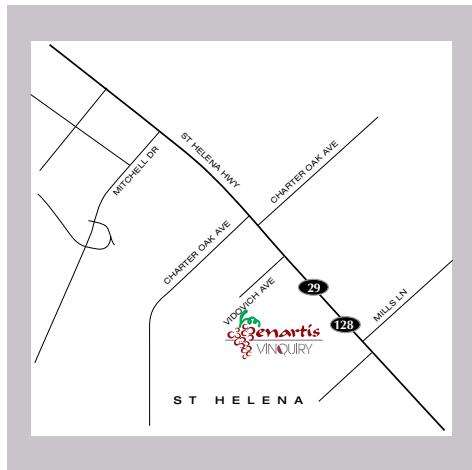
MAIN BRANCH

7795 Bell Road
Windsor, CA 95492
Tel: 707 838 6312
Fax: 707 838 1765



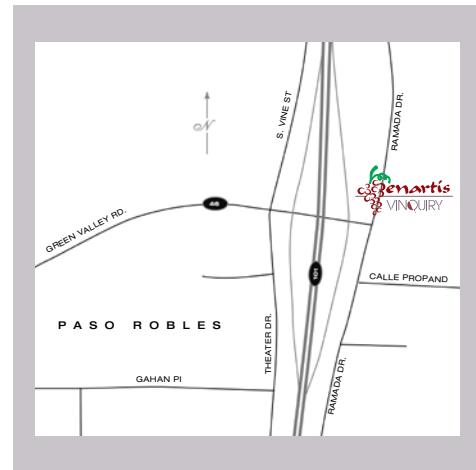
SANTA MARIA BRANCH

2717 Aviation Way
Suite 100
Santa Maria, CA 93455
Tel: 805 922 6321
Fax: 805 922 1751



NAPA VALLEY BRANCH

1282 Vidovich Avenue
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PASO ROBLES BRANCH

1850 Ramada Drive
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