HANDBOOK OF SERVICES AND SUPPLIES

2017

enartis USA

About Enartis USA

Beginning as the pioneering Vinquiry Wine Laboratory in the early days of the modern US wine industry, Enartis USA is now a leading supplier to the North American Wine Industry.

In addition to the high-quality analytical services provided by its network of laboratories, Enartis USA is a leading supplier of winemaking products and laboratory supplies.

The analytical and consulting services provided by Vinquiry Laboratories (a brand of Enartis USA), are tailored to the needs of modern winemaking and are fundamental tools in crafting great wines.

The ISO 17025:2005 Accreditation of our main laboratory verifies the high-quality of analytical services that we provide our clients, which range from basic chemistry testing to most recent techniques such as Real Time Quantitative PCR (RT-qPCR), a molecular biology technique for the detection of spoilage microorganisms, and grape and wine phenolic analysis (Phenolic Fingerprint), among many others. Our laboratories are also TTB certified for testing of wine, beer and distilled beverages.

In January of 2009, we became part of the multi-national company Esseco Group, which manufactures the Enartis range of premium winemaking products. Being part of the world leading manufacturer of winemaking products has allowed us to incorporate the technologically advanced Enartis range into our extensive product offerings, as well to develop tailored solutions for the US wine industry. These solutions include Enartis Ferm WS active dry yeast isolated from late harvest Zinfandel from Williams-Selyem Winery and considered one of the most robust California yeast strains, and Enartis ML MCW for Direct Addition, a bacteria strain isolated in 1981 from Chardonnay produced at Matanzas Creek Winery (Sonoma, California) that has become the choice for many winemakers for its sensory characteristics and resistance to harsh conditions.

Enartis USA is a leading supplier of winemaking products, with the capability to meet the needs of wineries of all sizes. Enartis' primary pledge is geared toward the quality of Enological coadjuncts. Quality is indispensable in order to guarantee food safety and to provide wine producers with peace-of-mind. The Food Safety System Certification FSSC 22000 granted to Enartis guarantees the safety, purity and quality consistency of our products which conform to technical specifications and originally established applications.

Coordinated and continuing work between Enartis' laboratories and some of the most important international research centers sustains our leadership in the Enological sector. It also enriches innovations and processes used to produce a "universally" better wine which is in touch with the times.

What's New

NEW ANALYTICAL SERVICES
New individual tests and panels from grape quality management through bottling.

SLI PROGRAM (SHELF LIFE IMPROVEMENT)
Strategies and products to extend wine freshness and shelf life.

ENARTIS ZYM RS(P)
Micro-granulated pectolytic enzyme with hemicellulasic and other side activities to break down “hairy zone” of pectins.

ENARTIS TAN SLI
Protects from oxidation, strengthens protective action of SO_2 and improves wine shelf life.

ENARTIS TAN VANILLA
Increases vanilla, custard and coconut aromas and prevents reductive notes.

ENARTIS TAN TOFFEE
Increases custard, butterscotch and toffee aromas and prevents reductive notes.

ENARTIS FERM MB15
Pinot noir yeast isolate from Sonoma Coast, California. It respects varietal character and terroir, while enhancing floral, fruit and spice expression.

ENARTIS FERM D20
Cabernet Sauvignon yeast isolate from Daou Vineyards & Winery (California). Selected for its high temperature resistance (up to 95°F) and high alcohol tolerance (up to 17%). It produces powerful, complex, and structured wines with long ageing potential.

NUTRIFERM GRADUAL RELEASE
Innovative nutrient composed of DAP, gallic tannin and untoasted oak tannins. Its unique and specific packaging releases slowly and in a controlled way nutrients into the wine during fermentation.

ENARTIS STAB MEGA
Complete and highly efficient stabilizer against tartrate and color precipitation.

ENARTIS STAB MICRO M
Allergen-free, vegan alternative to lysozyme.

ENARTIS STAB SLI
Prevents degradation and oxidation of wine aroma during storage.

STABYL MET
Co-polymer PVI/PVP and silica to prevent oxidation, browning and destruction of varietal thiols.

CLARIL HM
Co-polymer PVI/PVP and pre-activated chitosan to prevent oxidation, browning, pinking and destruction of varietal thiols.

CLARIL QY
Purified yeast hulls and pre-activated chitosan to reduce astringency and bitterness, treat reduction and prevent and treat browning.

FERMENTEST
Reducing sugars analysis tablets.

ALLA FRANCE CHROMATOGRAPHY KIT
Kit includes glass dome, revealer bottle, 25 paper strips (15x10 cm), petri plate 120mm, petri bo80mm, 25 plastic transfer pipettes and paperclips.

MICROSCOPE STARTER KIT
Professional microscope and supplies for use in winery laboratories.

pH ELECTRODES FROM VWR
Economical electrodes for use in wine and juice.

Table of Contents

ANALYTICAL SERVICES 8

SENSORY AND CONSULTING SERVICES 19

WINEMAKING PRODUCTS 20

- 20 SULFITING AGENTS
- 23 ENZYMES
- 27 TANNINS
- 36 YEAST
- 44 YEAST NUTRIENTS
- 47 YEAST & GRAPE POLYSACCHARIDES
- 51 OAK ALTERNATIVES
- 56 MALOLACTIC FERMENTATION
- 59 MICRO-OXYGENATION
- 62 STABILIZING AGENTS
- 68 FINING AGENTS
- 77 SPARKLING WINE PRODUCTS
- 84 WINEMAKING CHEMICALS

CHEMICALS AND REAGENTS 85

LABWARE AND SUPPLIES 90

REFERENCE 114

INDEX 118

... About Excellence in Customer Service

COURIER SERVICE

Going the Extra Mile for You - **Free Sample Pick-up Services** in the areas surrounding our offices. Call your local office to request a sample pick-up:

Windsor (707) 838-6312
Napa Valley (707) 967-0290
Santa Maria (805) 922-6321
Paso Robles (805) 591-3321

VINQUIRY LABS SAMPLE EXPRESS

This service allows our customers that are located far from our facilities to be closer to us! You can use our UPS account to send us an unlimited number of sample shipments for one year for a flat fee. No shipping costs for you! Your samples for Enartis USA analytical, microbiology and consulting services will arrive to us in a timely manner.
California: $150/year
Other States: $ 200/year

SAMPLE TYPE	California	Other States
WINE	UPS Ground	UPS 2nd Day Air
JUICE	UPS Ground*	UPS Next Day Air
DISTILLED BEVERAGES	UPS Ground	UPS 2nd Day Air
BEER	UPS Ground	UPS 2nd Day Air
CIDER	UPS Ground	UPS 2nd Day Air
OTHER SAMPLES	UPS Ground	UPS 2nd Day Air

**Next Day Air for samples sent from Southern California to our Windsor office.*

WEB RESULTS - ACCESS YOUR DATA ANY TIME, ON ANY DEVICE!

Enartis USA offers its clients the ability to access analysis reports and current and historical data relative to all testing performed at our labs. In addition, our customers can pre-submit samples online, print labels and sample submission forms, making the sample submission process simple and fast. To set-up your account, contact our laboratory customer service team at (707) 838-6312.

SAMPLE DROP BOX LOCATIONS

SONOMA COUNTY

Windsor Branch
7795 Bell Road
Windsor, CA 95492

Punchdown Cellars
1160 Hopper Avenue
Santa Rosa, CA 95403

NAPA COUNTY

Napa Valley Branch
1282 Vidovich Avenue
Suite C
St. Helena, CA 94574

Napa Fermentation
575 3rd Street
Suite A
Napa, CA 94559

CENTRAL COAST

Central Coast Branch
2717 Aviation Way
Suite 100
Santa Maria, CA 93455

Paso Robles Branch
1850 Ramada Drive
Suite 3
Paso Robles, CA 93446

Paso Robles Wine Services
6305 Buena Vista Drive
Paso Robles, CA 93446

Lucas & Lewellen
123 Easy Street
Buellton, CA 93427

Stolpman
1700 Industrial Way
Lompoc, CA 93436

MENDOCINO COUNTY

McNab Ridge Winery
2350 McNab Ranch Road
Ukiah, CA 95482

Analytical Services

VINQUIRY LABORATORIES by enartis USA

Path to Quality

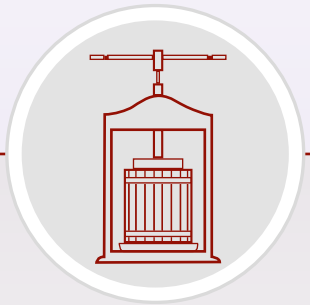
WINEMAKING PRODUCTS ANALYSIS

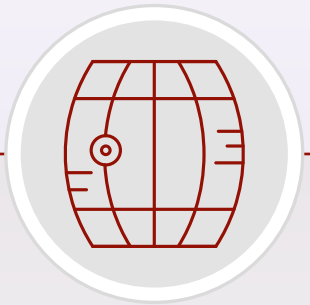
GRAPES	Price
Grape Quality Monitoring Panel White Grapes	$ 75.00
Grape Quality Monitoring Panel Red Grapes	$ 225.00
Grape Phenolic Fingerprint Panel	$ 150.00

JUICE/MUST	Price
Juice Panel	$ 130.00
pH and Acid Management Panel for Juice	$ 95.00
Mold and Bacteria Panel for Juice	$ 120.00

FERMENTATION	Price
Post-Fermentation Panel	$ 50.00
Fermentation Assessment Panel	$ 120.00
Malolactic Fermentation Assessment Panel	$ 135.00
Core Chemistry Panel for Sparkling Base Wine	$ 200.00

POST-FERMENTATION	Price
Core Wine Chemistry Panel	$ 98.00
Wine Phenolic Fingerprint Panel	$ 80.00
Micro-Ox Panel	$ 110.00
QC Panel	$ 80.00





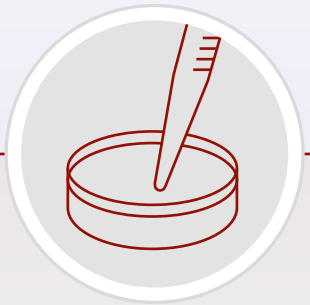
ENZYMES
SULFITING
TANNINS

FINING
ENZYMES

YEAST
YEAST NUTRIENTS
MALOLATIC BACTERIA
TANNINS
OAK ALTERNATIVES
POLYSACCHARIDES

WINE QUALITY MONITORING	Price
Monthly Check Panel	$ 70.00
PCR Panel	$ 110.00
Wine Improvement Panel	$ 275.00

PREPARATION FOR BOTTLING	Price
Predictive Acid and Tartrate Stability Panel	$ 100.00
CMC Panels for White/Rosé Wines	$ 125.00
CMC Panel for Sparkling Wines	$ 100.00
CMC Panel for Red Wines	$ 155.00
Unfiltered Bottling Panel for White/Rosé Wines	$ 99.00
Unfiltered Bottling Panel for Red Wines	$ 149.00



STABILIZING
OAK ALTERNATIVES
POLYSACCHARIDES
MICRO-OXYGENATION
TANNINS
SULFITING
ENZYMES

STABILIZING
FINING
TANNINS
POLYSACCHARIDES
SULFITING

VINQUIRY LABORATORIES by enartis USA

Individual Analyses

NEW DISCOUNT SCHEDULE FOR ANALYTICAL SERVICES

1 Sample	Standard Price
5-9 Samples	10% Discount
10-19 Samples	15% Discount
More than 20 Samples	20% Discount

Applicable for samples submitted for the same test. Panels excluded.

Microscopic Scan: If the result of a Microscopic Scan is positive, we can perform a PCR Panel at 15% discount.

PCR for *Brettanomyces*: If the result of PCR for *Brettanomyces* is positive, we can perform 4-ethylphenol and 4-ethylguaiacol analysis at a 15% discount.

Analysis	Price	Minimum Sample Volume
Acetaldehyde	$ 80.00	50 mL
Acetic Acid	$ 35.00	50 mL
Alcohol (Ethanol) - GC	$ 24.00	50 mL
Alcohol (Ethanol) - NIR	$ 22.00	50 mL
Ammonia	$ 27.00	250 mL
Ammonia / NOPA Combination,	$ 45.00	250 mL
Anaerobic Culture for Bacteria	$ 27.00	50 mL
Apparent Proof	$ 30.00	500 mL
Arsenic	$ 150.00	750 mL
Ascorbic Acid	$ 35.00	50 mL
Assimilable Amino Nitrogen	$ 27.00	50 mL
Bentonite Fining Trial	$ 75.00	750 mL
Bentonite Fining Trial for heat and colloid stability (for wines that will use CMC for cold stability)	$ 95.00	750 mL
Berry Sample Prep (Berries)	$ 25.00	n.a.
Berry Sample Prep (Clusters)	$ 50.00	n.a.
Berry Weight	$ 20.00	n.a.
Bitterness Units	$ 35.00	50 mL
Blending Panel: White Wines	$ 170.00	750 mL
Blending Panel: Red Wines	$ 250.00	750 mL
Blending Panel: Descriptive Sensory Analysis	$ 500.00	2x750 mL
Botrytis Panel	$ 100.00	50 mL or 5-7 Grape Clusters
Bottled Wine Sterility	$ 30.00	1 Finished Bottle
Brett Assessment Panel	$ 120.00	250 mL
Brix	$ 19.00	50 mL
Buffer Capacity	$ 15.00	50 mL
Calcium	$ 26.00	50 mL

Analysis	Price	Minimum Sample Volume
Carbon Dioxide	$ 24.00	250 mL
Chloride	$ 50.00	250 mL
Citric Acid	$ 25.00	50 mL
Citrogum Panel	$ 70.00	500 mL
CMC Panel for White/Rosé Wines	$ 125.00	750 mL
CMC Panel for Sparkling Wines	$ 100.00	750 mL
CMC Panel for Red Wines	$ 155.00	750 mL
Cobalt	$ 100.00	250 mL
Cold Stability	$ 35.00	250 mL
Colloid Solubility	$ 40.00	50 mL
Color Stability	$ 50.00	250 mL
Color: Absorbance @ 420, 520, 620	$ 30.00	50 mL
Copper	$ 26.00	50 mL
Core Juice Panel	$ 85.00	250 mL
Core Wine Chemistry Panel	$ 98.00	500 mL
Core Wine Chemistry Panel for Sparkling Base Wine	$ 200.00	2x750 mL
Cork Aroma Evaluation for Sparkling Wine	$ 400.00	125 or 250 Corks
Cork Aroma Evaluation for Still Wine	$ 350.00	125 or 250 Corks
Cork Sterility	$ 75.00	1 Unopened Bag
Culture for Bacteria	$ 27.00	50 mL
Culture for *Brettanomyces*	$ 27.00	50 mL
Culture for Yeast	$ 27.00	50 mL
Density	$ 27.00	50 mL
Descriptive Sensory Evaluation	$ 500.00	750 mL
Direct Yeast Count	$ 40.00	50 mL
Dissolved Oxygen	$ 25.00	500 mL (No Headspace)
Distilled Beverages Panel	$ 250.00	250 mL
Enartis Stab Micro Trial	$ 280.00	750 mL
Ethyl Acetate	$ 90.00	50 mL
Ethylphenols (4EP/4EG)	$ 60.00	50 mL
Export Panel	$ 198.00	2 Finished Bottles
Export Panel, Brazil	$ 263.00	2 Finished Bottles
Export Panel, China	$ 146.00	2 Finished Bottles
Export Panel, EU, VI-1 Long Form	$ 192.00	2 Finished Bottles
Export Panel, EU, VI-1 Short Form	$ 78.00	2 Finished Bottles
Export, Japan	$ 124.00	2 Finished Bottles
Extract	$ 59.00	100 mL
Fermentation Assessment Panel	$ 120.00	250 mL
Filterability Panel (FI, Vmax)	$ 40.00	750 mL
Fluoride	$ 30.00	250 mL
Free SO_2	$ 15.00	50 mL
Fructose	$ 25.00	50 mL

Analysis	Price	Minimum Sample Volume
Furfural	$ 85.00	100 mL
Fusel Oils	$ 145.00	50 mL (No Headspace)
Glucans	$ 30.00	50 mL
Gluconic Acid	$ 30.00	50 mL
Glucose	$ 25.00	50 mL
Glucose + Fructose, Enzymatic	$ 22.00	50 mL
Glucose + Fructose, Inverted	$ 35.00	50 mL
Grape Phenolic Fingerprint Panel	$ 150.00	5-7 Grape Clusters
Grape Quality Monitoring Panel: White Grapes	$ 75.00	5-7 Grape Clusters
Grape Quality Monitoring Panel: Red Grapes	$ 225.00	5-7 Grape Clusters
Haloanisoles Panel for Cork (Soak): 2,4,6 -Trichloroanisole (TCA) 2,3,4,6 -Tetrachloroanisole (TeCA) 2,3,4,5,6 - Pentachloroanisole (PCA) 2,4,6 -Tribromoanisole (TBA)	$ 170.00	100 Corks
Haloanisoles Panel for Wine: 2,4,6 -Trichloroanisole (TCA) 2,3,4,6 -Tetrachloroanisole (TeCA) 2,3,4,5,6 - Pentachloroanisole (PCA) 2,4,6 -Tribromoanisole (TBA)	$ 150.00	250 mL Glass Bottle w/ Foil Cap
Haloanisoles: Environmental TCA with Kit	$ 150.00	Vial for Bentonite
Heat Stability	$ 20.00	250 mL
Identification of Bacteria	$ 350.00	50 mL
Identification of Yeast	$ 350.00	50 mL
Iron	$ 26.00	50 mL
Isolation of Bacteria	$ 150.00	50 mL
Isolation of Yeast	$ 150.00	50 mL
Juice Panel	$ 130.00	500 mL
Laccase Test	$ 35.00	50 mL
Lactic Acid	$ 30.00	50 mL
Lead	$ 100.00	250 mL
L-Malic Acid	$ 22.00	50 mL
Liqueur Concentration	$ 65.00	250 mL
Lysozyme Trial with color	$ 220.00	750 mL
Lysozyme Trial without color	$ 140.00	750 mL
Malolactic Fermentation Assessment Panel	$ 135.00	500 mL
Methanol	$ 80.00	50 mL
Micro-Ox Panel	$ 110.00	250 mL
Microscopic Scan	$ 24.00	50 mL
Mold and Bacteria Panel for Juice	$ 120.00	250 mL
Molecular SO_2 Panel	$ 29.00	50 mL
Monthly Check Panel	$ 70.00	250 mL
Oak Aroma Compounds	$ 165.00	250 mL
Ochratoxin	$ 200.00	1 Finished Bottle
Organic Acid Profile for Juice	$ 60.00	50 mL

Analysis	Price	Minimum Sample Volume
Organic Acid Profile for Wine	$ 75.00	50 mL
Oxidative Stability	$ 50.00	50 mL
PCR for Acetic Acid Bacteria (*Acetobacter, Gluconobacter and Gluconacetobacter*)	$ 55.00	50 mL
PCR for *Botrytis*	$ 55.00	1 Grape Cluster or 50 mL
PCR for *Brettanomyces*	$ 55.00	50 mL
PCR for *Lactobacillus*	$ 55.00	50 mL
PCR for *Oenococcus*	$ 55.00	50 mL
PCR for *Pediococcus*	$ 55.00	50 mL
PCR for *Saccharomyces*	$ 55.00	50 mL
PCR for *Zygosaccharomyces bailii*	$ 55.00	50 mL
PCR Panel for Yeast and Bacteria	$ 110.00	50 mL
PCR Panel for Yeast *(Brettanomyces, Saccharomyces, Zygosaccharomyces bailii)*	$ 60.00	50 mL
PCR Panel for Bacteria (Acetic Acid Bacteria, *Pediococcus, Lactobacillus, Oenococcus*)	$ 60.00	50 mL
Pectin Test	$ 20.00	50 mL
Percent Solids	$ 15.00	250 mL
pH	$ 12.00	50 mL
pH and Acid Management Panel for Juice	$ 95.00	250 mL
pH and Titratable Acidity Combo	$ 20.00	50 mL
Phenols, Flavanoid	$ 30.00	50 mL
Phenols, Non-Flavanoid	$ 30.00	50 mL
Pinking Potential	$ 40.00	250 mL
Post-Fermentation Panel	$ 50.00	250 mL
Potassium	$ 24.00	50 mL
Predictive Acid Adjustment	$ 50.00	250 mL
Predictive Acid and Tartrate Stability Panel	$ 100.00	500 mL
Pressure/Vacuum	$ 50.00	1 Finished Bottle
Problem Identification/Characterization	$ 40.00	750 mL
Protein Material Fining Trial	$ 80.00	500 mL
QC Panel: Panel 2	$ 65.00	250 mL
Quick ML Activity Test	$ 100.00	250 mL
Quick ML Activity Test with adjustment	$ 150.00	750 mL
Red Wine Chemistry Panel	$ 170.00	500 mL
Riddling Agent Swelling Test	$ 120.00	4x750 mL
Sediment/Haze Identification	$ 40.00	1 Finished Bottle
Sensory Evaluation	$ 50.00	750 mL
Serial Dilution/Plate Count	$ 115.00	50 mL
Smoke Taint Markers (Wine/juice)	$ 120.00	50 mL
Smoke Taint Markers (grapes)	$ 170.00 (Berry Sample Prep cost)	5-7 Grape Clusters
Sodium	$ 26.00	50 mL
Sorbic Acid	$ 30.00	50 mL

Analysis	Price	Minimum Sample Volume
Specific Gravity	$ 27.00	50 mL
Standard Sensory Evaluation	$ 50.00	500 mL
Succinic Acid	$ 30.00	50 mL
Sucrose	$ 30.00	50 mL
Sulfide Detection Trial	$ 25.00	500 mL
Tartaric Acid	$ 20.00	50 mL
TCA: 2,4,6-Trichloroanisole	$ 125.00	50 mL Glass w/ Foil cap
Titratable Acidity	$ 20.00	50 mL
Total Bacteria Plate Count	$ 60.00	250 mL
Total Phenols	$ 35.00	50 mL
Total SO_2 (Segmented Flow)	$ 25.00	50 mL
Total SO_2 (Aeration-Oxidation)	$ 25.00	50 mL
Total Solids	$ 45.00	250 mL
Transmittance, % @430nm	$ 10.00	50 mL
Transmittance, % @700nm	$ 10.00	50 mL
True Proof	$ 75.00	500 mL

Analysis	Price	Minimum Sample Volume
Turbidity	$ 12.00	50 mL
Unifiltered Bottling Panel for Red Wines	$ 149.00	500 mL
Unifiltered Bottling Panel for White Wines	$ 99.00	500 mL
Velcorin® Challenge at 200 ppm (other concentrations available)	$ 220.00	750 mL
Velcorin® Series Addition, 3 concentrations	$ 300.00	750 mL
Vineyard Variability: White Grapes	$ 300.00	10 Grape Clusters
Vineyard Variability: Red Grapes	$ 450.00	10 Grape Clusters
Volatile Acidity	$ 20.00	50 mL
Wine Adjustment Series	$ 80.00	750 mL
Wine Enhancement Series	$ 175.00	750 mL
Wine Improvement Assessment	$ 100.0	750 mL
Wine Improvement Panel	$ 275.00	3 x 750 mL
Wine Phenolic Fingerprint	$ 80.00	50 mL
Yeast Activity Test	$ 150.00	10 grams
Yeast Nutrition Panel for Juice	$ 45.00	50 mL
Zinc	$ 40.00	250 mL

Panels

Panels are designed to help winemakers grouping essential analysis for each step of winemaking process. at a discounted price. They provide important analysis essential to understand the wine composition and adapt, optimize and plan the future winemaking process. These Panels are great tools to make great wines!

GRAPE QUALITY MANAGEMENT

VINEYARD VARIABILITY

Helps to understand the uniformity of a vineyard and identify variability among different blocks. Berries are separated in five groups based on their density and analyzed separately. Weekly assessment of the vineyard from veraison until harvest is recommended.

Red Grapes include: Sample Prep, Density Separation by Flotation, Berry Weight, °Brix, pH, Titratable Acidity, Total Phenolics, Total Anthocyanins, Total Tannins, and Results Interpretation.

White Grapes include: Sample Prep, Density Separation by Flotation, Berry Weight, °Brix, pH, Titratable Acidity, and Results Interpretation.

Sample Requirement: 10 grape clusters randomly picked from different locations in the vineyard.

White Grapes $ 300.00 / Red Grapes $ 450.00

GRAPE QUALITY MONITORING PANEL

This crucial information helps winemakers to organize harvest, select optimal picking dates and adjust winemaking processes to grape quality and targeted wine style. Weekly assessment of the vineyard from veraison until harvest is recommended.

Red Grapes include: Sample Prep, Berry Weight, °Brix, pH, Titratable Acidity, Grape Phenolic Fingerprint.

White Grapes include: Sample Prep, Berry Weight, °Brix, pH, Titratable Acidity.

Sample Requirement: 5-7 grape clusters randomly picked from different locations in the vineyard.

White Grapes $ 75.00 / Red Grapes $ 225.00

GRAPE PHENOLIC FINGERPRINT PANEL

Designed to monitor phenolic development in red grapes after the onset of veraison. This panel provides key information for red winemakers to define picking dates, determine extraction protocols and adjust winemaking processes accordingly.

Total Tannins, Total Phenolics, Total Anthocyanins, Extractability Index (EA%), Seed Maturity Index (MP%).

White Grapes include: Sample Prep, Berry Weight, °Brix, pH, Titratable Acidity.

Sample Requirement: 5-7 grape clusters randomly picked from different locations in the vineyard.

$ 150.00

BOTRYTIS PANEL

Provides an overview of the presence and potential impact of Botrytis in grapes and juices.

Includes: PCR for Botrytis, Laccase Activity Test, Glucan Screening, and Gluconic Acid

Sample Requirement: 5-7 grape clusters or 50 mL of juice/ wine

$ 100.00

JUICE QUALITY MANAGEMENT

JUICE PANEL

Essential for managing alcoholic fermentation and making winemaking adjustments, if needed. This panel provides a complete snapshot of fruit maturity, fruit quality, acid balance and nutritional health.

Includes: °Brix, Ammonia, Assimilable Amino Nitrogen, YAN Calculation, Organic Acid Profile (Malic, Tartaric, Lactic and Acetic Acids), pH, Titratable Acidity, Potassium, Gluconic Acid

Sample Requirement: 500 mL

$ 130.00

CORE JUICE PANEL

Helps to understand fruit and juice maturity, acid balance, and nutritional health for a better management of alcoholic fermentation.

Includes: °Brix, Ammonia, Assimilable Amino Nitrogen, YAN Calculation, pH, Titratable Acidity, Malic Acid.

Sample Requirement: 250 mL

$ 85.00

YEAST NUTRITION PANEL

Provides information needed to manage yeast nitrogen nutrition and conduct a healthy alcoholic fermentation.

Includes: Ammonia, Assimilable Amino Nitrogen, YAN Calculation

Sample Requirement: 50 mL

$ 45.00

pH AND ACID MANAGEMENT PANEL FOR JUICE

Necessary tool to adjust juice or wine acid balance. This panel provides tartaric acid addition rates for specified pH targets (requires °Brix/pH/TA numbers).

Includes: Organic Acid Profile (Tartaric, Malic, Lactic and Acetic Acids), Potassium, Buffer Capacity, Predictive Acid.

Sample Requirement: 250 mL

$ 95.00

MOLD AND BACTERIA PANEL

Designed to identify the presence and the potential impact of spoilage organisms and mold on grapes, juice or wine. With these analyses, the winemaking process can be adjusted to prevent stuck or sluggish fermentations and limit off-flavors production and development of spoilage organisms.

Includes: PCR for Botrytis, PCR Panel for Bacteria, Gluconic Acid, Acetic Acid.

Sample Requirement: 250 mL

$ 150.00

FERMENTATION

POST-FERMENTATION PANEL

Essential analyses to verify the successful and healthy completion of both alcoholic and malolactic fermentation.

Includes: Acetic Acid, Malic Acid, Glucose + Fructose.

Sample Requirement: 250 mL

$ 50.00

FERMENTATION ASSESSMENT PANEL

Determines the degree of completion and helps identify possible reasons for stuck or sluggish alcoholic fermentation.

Includes: Alcohol, Microscopic Scan, Acetic Acid, Lactic Acid, Malic Acid, Glucose + Fructose.

Sample Requirement: 250 mL

$ 120.00

MALOLACTIC FERMENTATION ASSESSMENT PANEL

Determines the degree of completion and helps to identify possible reasons for stuck or sluggish malolactic fermentation.

Includes: Alcohol, Microscopic Scan, Acetic Acid, Lactic Acid, Malic Acid, Glucose + Fructose, Total SO_2, pH.

Sample Requirement: 500 mL

$ 135.00

POST-FERMENTATION

QC PANEL

Routine monitoring of wine quality. These analyses provide a basic look at acid, SO2, and microbial health.

Includes: pH, Titratable Acidity, Free SO_2, Total SO_2, Acetic Acid

Sample Requirement: 250 mL

$ 65.00 (add Microscopic Scan for $15.00)

CORE WINE CHEMISTRY PANEL

Covers baseline chemistry needed any time during the winemaking process.

Includes: Alcohol, Acetic Acid, pH, Titratable Acidity, Free SO_2, Total SO_2, Glucose + Fructose, Malic Acid.

Sample Requirement: 500 mL

$ 98.00

RED WINE CHEMISTRY PANEL

Complete snapshot of red wine composition at any time during the winemaking process. These analyses help to make decisions on ageing programs, blending and/or wine treatments.

Includes: Alcohol, Acetic Acid, pH, Titratable Acidity, Free SO_2, Total SO_2, Glucose + Fructose, Malic Acid, Wine Phenolic Fingerprint, Color Absorbance 420/520 nm.

Sample Requirement: 500 mL

$ 170.00

WINE PHENOLIC FINGERPRINT PANEL

Specific to the phenolic profile and color stability of red wines, this panel provides information on the phenolic extraction process. It can be used for blending decisions and benchmarking purposes.

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

Sample Requirement: 50 mL

$ 80.00

MICRO-OX PANEL

Helps to monitor color stability and phenolic evolution during ageing or micro-oxygenation as well as preventing possible over-processing of wine. Bi-weekly testing during the micro-oxygenation treatment is recommended.

Includes: Free SO_2, Acetic Acid, Wine Phenolic Fingerprint, Color Absorbance @420/520

Sample Requirement: 250 mL

$ 110.00

OAK AROMA COMPOUNDS PANEL

Providing insight into the aromatic compounds released by oak, this panel is useful for evaluating different oak treatments, monitoring the evolution of oak extraction and benchmarking. It is used for wines, distilled beverages and oak materials.

Includes: Lactones (cis and trans), Vanillin, Eugenol, Isoeugenol, Guaiacol, 4-Methylguaiacol, Furfural, 5-Methylfurfural

Sample Requirement: 250 mL

Wines and Distilled Beverages $ 165.00/ Wood $ 180.00

WINE QUALITY MONITORING

MONTHLY CHECK PANEL

Essential for monitoring wine microbial stability during ageing.

Includes: pH, Free SO_2, Molecular SO_2, Acetic Acid, Microscopic Scan

Sample Requirement: 250 mL

$ 70.00

BRETT ASSESSMENT PANEL

Comprehensive look at the presence, growth, and sensory effects of Brettanomyces.

Includes: PCR for Brettanomyces, 4-ethylphenol, 4-ethylguaiacol, Plating for Brettanomyces

Sample Requirement: 250 mL

$ 120.00

PCR PANEL

Detects main spoilage organisms (yeast and bacteria) in wine. Winemakers can easily identify contamination early in the winemaking process and prevent wine spoilage and further contamination.

Includes: PCR for Acetic Acid Bacteria (Acetobacter, Gluconobacter and Gluconacetobacter), Brettanomyces, Lactobacillus, Oenococcus, Pediococcus, Saccharomyces, and Zygosaccharomyces bailii.

Sample Requirement: 50 mL

$ 110.00
($ 60.00 for PCR for Bacteria only or PCR for Yeast only)

WINE IMPROVEMENT PANEL

Helps winemakers diagnose and correct wine faults and improve a wine's profile. After a sensory analysis and bench trials, we provide treatment options that improve and optimize a particular wine. It can be used to treat issues such as poor color, astringency, unbalanced mouthfeel, oxidation and off-flavors and aromas. This panel is available for distilled beverages, cider, beer, sparkling wine and dosage determination trials as well.

Includes: Sensory analysis before and after treatment, Fining Trials, Bench Trials with Tannins and/or Polysaccharides, Includes Mini-Consult.

Sample Requirement: 3 x 750 mL

$ 275.00
(Additional analyses may be required at extra cost)

PREPARATION FOR BOTTLING

PREDICTIVE ACID AND TARTRATE STABILITY PANEL

Evaluates acidity changes due to tartaric stabilization, acidification, de-acidification, or even alcohol removal.

Includes: Alcohol, Tartaric Acid, pH, Potassium, Titratable Acidity, Density, and Acetic Acid.

Sample Requirement: 500 mL

$ 100.00

BLENDING PANEL

With complete chemical and sensory analysis of the final wine, this panel helps winemakers make practical decisions about the final blend, benchmarking against previous vintages or other products in the market.

Whites include: Alcohol, pH, Titratable Acidity, Glucose + Fructose, Oak Aroma Compounds Panel, Wine Phenolic Fingerprint.

Reds include: Alcohol, pH, Titratable Acidity, Glucose + Fructose, Oak Aroma Compounds Panel.

Descriptive Sensory Analysis Optional (involve trained panel tasting, statistical analysis and written report)

Sample Requirement: 750 mL + 2 x 750 mL if Descriptive Sensory Analysis

Whites: $ 170.00 / Reds: $ 250.00
Descriptive Sensory Analysis $ 500.00

CMC PANEL

Using CMC (Carboxymethyl Cellulose) for tartrate stabilization is a wonderful new tool for winemakers. In order to assess a wine's suitability for CMC use, these panels test wine stabilities and evaluate the optimal dosage of CMC needed to bring wine to cold stability. For red wines, this panel evaluates both cold stability and color stability and determines the dosages of both CMC and colloidal stabilizer required for complete stability.

Please specify which CMC product to use.

White/Rosé include: Cold Stability by Conductivity, Turbidity, Heat Stability Test, CMC Addition Trial with Conductivity Tests, Colloidal Stability Test, and Results Interpretation.

Sparkling include: Cold Stability by Conductivity, Heat Stability Test, CMC Addition Trial with Conductivity Tests, Results Interpretation. (Note: wine will be adjusted by 1.5% alcohol prior to testing)

Red include: Cold Stability by Conductivity, Turbidity, Color/Colloid Stability Evaluation, CMC/Colloidal Stabilizer Addition Trial with Conductivity Tests, -4°C Cold Hold, Results Interpretation.

Sample Requirement: 750 mL

White/Rosé Wines: $ 125.00
Sparkling Wines: $ 100.00 / Red Wines: $ 155.00

CITROGUM PANEL

This panel tests for cold stability and evaluates the optimal dosage of Citrogum (Gum Arabic) needed to bring wines to cold stability. Please specify if sparkling wine.

Includes: Cold Stability by Conductivity, Citrogum Addition Trial with Conductivity Tests, Results Interpretation.

Sample Requirement: 500 mL

$ 70.00

UNFILTERED BOTTLING PANEL

Evaluates the risks of bottling unfiltered. It checks for stability with regards re-fermentation, malolactic fermentation, turbidity, and microbial health. A written review of the results and recommendations are provided with the report.

Whites/Rosés Wines include: Glucose + Fructose, Malic Acid, Turbidity, Acetic Acid, Culture for Yeast, Culture for Bacteria

Reds Wines include: Glucose + Fructose, Malic Acid, Turbidity, Acetic Acid, Culture for Brettanomyces, Culture for Bacteria, 4EP/4EG

Sample Requirement: 500 mL

Whites/Rosés Wines $ 99.00 / Reds Wines $ 149.00

SPARKLING WINES

CORE CHEMISTRY PANEL FOR SPARKLING BASE WINE

Critical analytical information needed prior to second fermentation. This panel provides essential chemistry on base wines and predicts potential wine instabilities that may occur as a result of future chemical changes arising from second fermentation.

Includes: Alcohol, Glucose + Fructose, Free SO_2, Total SO_2, pH, Titratable Acidity, Heat Stability Test, Cold stability by Conductivity, Malic Acid, Calcium, Potassium.

Sample Requirement: 2 x 750 mL

$ 200.00

RIDDLING AGENT SWELLING TEST

Determines the dosage of riddling agent needed to ensure good clarity and limited amount of lees. Please specify the riddling agent used (Adjuvant 92 or Adjuvant MC).

Includes: Riddling Agent Dosage Trial, Turbidity and Lees Volume Measurement.

Sample Requirement: 4 x 750 mL

$ 120.00

LIQUEUR CONCENTRATION

Provides accurate measurement of the sugar content in *liqueur* solutions used either for *tirage* or *dosage*.

Includes: Glucose + Fructose: Inverted, Free SO_2, Total SO_2

Sample Requirement: 250 mL

$ 65.00

POST-BOTTLING

EXPORT PANEL

Covers the analyses required for many exports (the VI-1 Long Form for EU, Japan, Korea, and Taiwan) and provides the basis for Certificate of Analysis for many other nations and importers. We recommend checking with your distributor to ensure which certificates are needed.

Includes: Actual Alcohol, Total Alcohol, Titratable Acidity, Extract, Total SO_2, Sorbic Acid, Volatile Acidity, Citric Acid, Glucose + Fructose

Sample Requirement: 2 x Finished Bottles

EU VI-1 Long Form and Japan: $ 198.00
Brazil: $ 263.00 / Mexico, Taiwan, Finland, Philippines: Call for Pricing / Reissues: $ 25.00/each

Beer Analysis

	UNITS	PRICE
INDIVIDUAL TESTS		
Alcohol by Volume, Gas Chromatography (GC)	%	$ 24.00
Alcohol by Weight, GC Plus Calculation	%	$ 50.00
pH		$ 12.00
Color, Spectrophotometer	Degree SRM	$ 30.00
Clarity/Turbidity	NTU	$ 12.00
Bitterness Units, Spectrophotometer	IBU's	$ 35.00
Specific Gravity, Densitometer		$ 27.00
Carbon Dioxide, Carbodoseur	mg/L	$ 24.00
Dissolved Oxygen, ISE	mg/L	$ 25.00
Total SO_2, Aeration-Oxidation	mg/L	$ 25.00
Volatile Acidity, Cash Still	g/100mL	$ 20.00
Ethyl Acetate, Gas Chromatography	mg/L	$ 90.00
Acetaldehyde, Gas Chromatography	mg/L	$ 80.00
Fusel Oils, Gas Chromatography	mg/L	$ 145.00
Ethylphenols	µg/L	$ 60.00
Calories	calories	$ 60.00
Microscopic Scan		$ 24.00
Bacteria Plate Count	CFU/mL	$ 60.00
Yeast Viability	%	$ 45.00
Yeast Isolation		each $ 150.00
Culture Maintenance		per year $ 100.00
Lysozyme Challenge		from $ 145.00
PCR for *Brettanomyces*, *Pediococcus*, *Lactobacillus* or *Zygosaccharomyces bailii*		
Primary Test per target organism		$ 55.00
Each Additional Test per target organism (on same sample)		$ 20.00
PANEL ANALYSIS		
Core Beer Panel *(Includes: Alcohol by Weight, Alcohol by Volume, Specific Gravity, Real Extract, Apparent Extract, Original Gravity, Apparent and Real Degrees of Fermentation, Density, and Calories)*		$ 60.00
Beer Export Panel *(Includes: Alcohol by Weight, Specific Gravity, Color and Bitterness Units)*		$ 95.00
Brew Review Panel *(Includes: Core Beer Panel plus pH, Color, Bitterness Units, and a Bacterial Plate Count)*		$ 165.00

Distilled Beverage Analysis

Distilled Beverage Analyses Panel *(Includes Fusel Oils, Acetaldehyde, Ethyl Acetate, Methanol)*		$ 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	$ 90.00
Extract, Evaporation	mg/100mL	$ 45.00
Furfural, UV	mg/L	$ 85.00
Fusel Oils, Gas Chromatography *(Includes n-propanol, Isobutanol, 1-Butanol, Isoamyl alcohol, Active Amyl alcohol)*	mg/L	$ 145.00
Methanol, Gas Chromatography	mg/L	$ 80.00
Oak Aroma Compounds		
Wine and Distilled Beverages		$ 165.00
Wood		$ 190.00
Titratable Acidity	g/100mL	$ 20.00
True Proof, Distillation	°	$ 75.00

GRAPE PHENOLIC FINGERPRINT FOR MEASURING GRAPE PHENOLIC MATURITY

WHY USE PHENOLIC DATA FROM GRAPES?

Grape maturity is a subjective process often evaluated in the context of wine style. Several tools exist to measure grape maturity such as chemical and berry sensory analysis. While these traditional methods of assessing grape ripeness can indicate certain degrees of maturity, the use of phenolic data can provide relevant information to directly link grape composition to wine quality. The extraction of anthocyanin compounds requires the degradation of berry cell walls to allow diffusion into must. Achieving the maximum anthocyanin content does not automatically indicate the entire extraction of these pigments: concentrations of anthocyanins found in wines are usually different from those initially found in grape skins. Additionally, tannin maturation is important for the organoleptic properties of red wines.

HOW TO OBTAIN EASY, APPROACHABLE PHENOLIC DATA FROM GRAPES

Vinquiry Laboratories has developed a practical tool that provides a complete picture of grape phenolic and extractability potential. The **Grape Phenolic Fingerprint Panel** helps vineyard managers and winemakers with harvest decisions, vineyard block selection, fruit grading, and allocation and winemaking decisions by giving quantitative measurements for:

Total Tannins: Tannins are responsible for the astringency of red wines. They are a major contributor to mouthfeel, balance and complexity.

Total Phenolics: Total phenolics include tannins, pigments and other phenolic compounds.

Total Anthocyanins: Total anthocyanins represent the total concentration of anthocyanins in grapes. They are generally responsible for red color.

EA%: Extractability index. Related to skin texture and phenolic maturity, it represents the percentage of potential anthocyanin extractable in wine. EA% higher than 70% is associated with ripe skin texture and good phenolic maturity.

MP%: Seed maturity index. It represents seed tannin maturity. The higher the contribution of seed tannins, the greater the risk of negative impact on wine mouthfeel. MP% lower than 30% indicates good seed tannin maturity.

MONITORING PHENOLIC EXTRACTION AND STABILIZATION

During the winemaking process, anthocyanins are extracted early in the liquid phase at a faster rate than tannins, and reach a maximum concentration between 3 to 9 days according to several studies. When tannins are present in solution, anthocyanins undergo polymerization to create stable color compounds. During this process, free anthocyanins decrease and large polymeric pigments are formed.

In this context, Vinquiry Laboratories developed a practical tool that provides a complete picture of phenolic extraction and color stabilization in wine. The **Wine Phenolic Fingerprint Panel** helps with winemaking decisions, process optimization and adaptation to grape quality and wine style. This panel gives quantitative measurements for:

Total Tannins: Tannins are responsible for the astringent mouthfeel of wine. They are a major contributor to balance and complexity and used to monitor maceration and ageing.

Total Phenolics: Total phenolics represent tannins, pigments and other phenolic compounds. Used to monitor maceration and ageing.

Free Anthocyanins: Monomeric pigments not associated with tannins. Used to monitor maceration and color stabilization during ageing and micro-oxygenation.

Pigmented Tannins: Also called polymeric pigments. Used mainly to monitor color stabilization during wine ageing and throughout the micro-oxygenation process.

Total Pigments: Total pigments include both pigmented tannins (polymeric pigments) and free anthocyanins. Used to monitor maceration and ageing.

VINQUIRY LABORATORIES OFFER AN ENTIRE RANGE OF RT-qPCR TESTING

Spoilage yeast and bacteria contamination can quickly become a costly problem for a winery. Once these organisms are introduced, they can easily be spread through hoses, equipment, humans and insect vectors. As soon as contamination is detected, proper procedures should be taken to minimize spoilage and maintain wine quality. To help winemakers in being proactive, Vinquiry Laboratories by Enartis USA offers individual RT-qPCR assays that cover a comprehensive range of wine microorganisms.

WHAT IS REAL-TIME QUANTITATIVE PCR (RT-QPCR)?

It is a rapid method to identify organisms by amplification and detection of unique sequences of their DNA while the polymerase chain reaction (PCR) is taking place. About an hour after DNA is isolated, millions of copies of the unique genetic sequence from the target organism are generated, detected and quantified with fluorescent probes. The fluorescence produced is proportionate to the number of DNA copies generated, which indicates the number of targeted microorganism cells in the sample. Vinquiry Laboratories has validated Real-Time PCR assays for *Brettanomyces, Saccharomyces cerevisiae, Zygosaccharomyces bailii, Acetic Acid Bacteria (Acetobacter, Gluconobacter, and Gluconacetobacter), Lactobacillus, Oenococcus and Pediococcus*

Consulting Services

LABORATORY SET-UP

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

$ 150.00/hour

MINI CONSULT

Designed to give our customers access to the valuable expertise of Enartis USA Staff Winemakers. Even for professional winemakers, consultant can offer valuable advice, guidance, and insight into a particular issue. While Enartis USA 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.

$ 50.00 for a 15-20 minute session

WINE IMPROVEMENT REVIEW

Designed to help winemakers with a specific issue or provide a fresh perspective. Also useful 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.

Includes: Individualized sessions with experienced Enartis USA Staff Winemakers, written reports.

$ 150.00/hour

Sensory Services

STANDARD SENSORY EVALUATION

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

$ 50.00

CUSTOM SENSORY SERVICES

In addition to the standard sensory services offered by our laboratories, Vinquiry Laboratories offers custom services adapted to the needs of specific projects. Please contact customer service for more information.

CORK AROMA EVALUATION

Corks, or only the first disk of the cork for sparkling wines are individually soaked in a neutral alcohol-water solution. Solutions are transferred to tasting glasses and evaluated by sniffing.
STILL WINES: Up to 140 glasses can be evaluated in one session, including TCA spikes.
SPARKLING WINES: Up to 130 glasses can be evaluated in one session, including TCA spikes.
Minimum of 4 panelists, including one sensory professional/ session.

Includes: Cork Aroma Evaluation Report, descriptors used, intensity, acceptability and an R-index interpretation of acceptability.

Still wine $ 350.00 / Sparkling wine $ 450.00
Additional panelist can be provided by Enartis USA at $ 35.00/person.

Seminars and Training

Enartis USA hosts seminars and workshops to further knowledge of enology and winemaking topics. We can organize large, full-day seminars and in-house private sessions. Additionally, Enartis USA conducts training programs on topics such as microbiology, sensory techniques and lab analysis. For up-to-date information check our website, www.enartis.com, or call our main branch at (707) 838-6312 for scheduled opportunities.

TCA THRESHOLD TESTING

Determine your sensory threshold of TCA (2,4,6-Trichloroanisole) with Enartis USA! It is a great opportunity to see if you, your cellar crew and/or your tasting room staff can identify TCA tainted wines. Testing takes approximately 45 minutes. Possible to test up to 24 people/day.

$ 100.00/person
For a large group, contact us regarding a private session.
Minimum of 9 people.

Because potassium metabisulfite is such a widely used winemaking additive, its quality is rarely considered. In reality, considering the dosages used, winemakers should feel confident that they are using the highest quality product possible.

Effervescent Sulfiting Agents

EFFERBARRIQUE/EFFERGRAN DOSE 5

Drawing on its experience in the enological field, Enartis has developed two products: Efferbarrique and Effergran Dose 5. These granular metabisulfite products have been created for use during the ageing of wine in barrels.

Recommendations: *Sulfiting barrel; small containers; adjustment SO_2.*

Dosage: *1 package of Efferbarrique releases 2 g of SO_2*
1 package of Effergran Dose 5 releases 5 g of SO_2

Efferbarrique		
40 packets	**(Item #35-800-0000)**	**$ 18.00**
Effergran Dose 5		
25 packets	**(Item #35-805-0000)**	**$ 17.00**

EFFERGRAN

- Effervescent, granulated potassium metabisulfite.
- Strong antioxidant effect.
- When added to grapes (bottom of picking bins), it assures a rapid release of SO_2 into atmosphere around the grapes, minimizing oxidation during transport from vineyard to winery.
- When added to wine, it rapidly dissolves, assuring a homogeneous and rapid distribution of SO_2 without requiring pump-overs in tank volumes of up to 50,000 L (13,200 gal).

Recommendations: *Sulfiting tank; homogeneous SO_2 released; wines; juices; grapes; harvest bins; grapes transport.*

EFFERGRAN ADDITION

Total SO_2 (mg/L)	g/Barrel	g/1,000 gal	lbs/1,000 gal
10	5	88	0.2
20	11	177	0.4
30	16	265	0.6
40	21	353	0.8
50	27	442	1

125 g	**(Item #35-810-0000)**	**$ 3.25**
250 g	**(Item #35-815-0000)**	**$ 5.25**
1 Kg	**(Item #35-810-0001)**	**$ 16.00**

ADVANTAGES OF USE

- Easy maintenance of ideal concentration of SO_2 in barrels
- Reduced risk of incorrect additions and poor distribution of SO_2 in wine
- Complete and uniform distribution without mixing
- Less time required for SO_2 additions to multiple small containers
- Reduced risk to cellar workers' health
- Rapid and homogeneous distribution of released SO_2 in barrels and tanks up to 50,000 L (13,200 gal).

Effergran (effervescent, granulated potassium metabisulfite) homogeneously dissolves throughout the iodine and starch indicator solution without stirring.

Sulfur dioxide added as gas or liquid solution tends to settle on bottom of the container if liquid is not stirred.

Complex Anti-Oxidant Blends

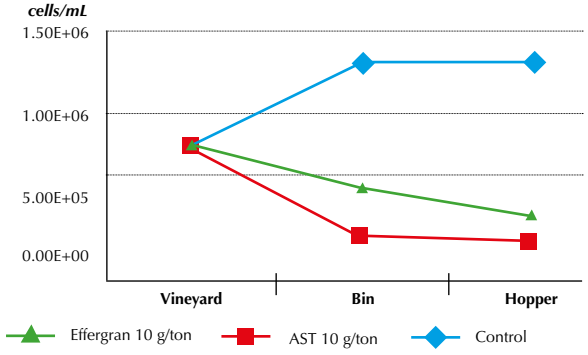
AST

- Potassium metabisulfite, ascorbic acid and hydrolysable tannins.
- Strong antioxidant and antimicrobial action. Used on grapes, AST acts as an antibacterial and antioxidant, while limiting macerating action.

Recommendations: *Antioxidant; moldy grapes; aromatic grapes; harvest machine; limit SO_2 extraction.*
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 SO_2

1 Kg **(Item #35-825-0001)** **$ 37.50**

ANTIMICROBIAL ACTION OF EFFERGRAN AND AST EFFECT IN GRAPES AND MUST



Potassium Metabisulfite

WINY

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

Recommendations: *Sulfiting for grapes, must and wine.*
Dosage: *1 g of Winy develops approx. 0.56 g of SO_2*

1 Kg **(Item #35-820-0001)** **$ 4.50**
25 Kg **(Item #35-820-0025)** **$ 72.50**

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

WINY - THE CELLAR'S CHOICE FOR METABISULFITE

WHY IS WINY THE BEST CHOICE?

1 Winy possesses elevated purity

Winy is produced with high quality raw material, i.e. without metals that could favor oxidation of potassium metabisulfite. Moreover, Winy sulfur dioxide undergoes a purification process that eliminates oxygen and sulfites that could create sulfates. Enartis controls and guarantees the technical specifications of its products. The specifications of Winy are often better than those specified by law and the average concentration values are often higher.

CHEMICAL CHARACTERISTICS OF WINY

	FOOD CHEMICAL CODEX	SPECIFICATIONS OF WINY	AVERAGE VALUES OF WINY
APPEARANCE	CRYSTALLINE POWDER	CRYSTALLINE POWDER	CRYSTALLINE POWDER
COLOR	WHITE	WHITE	WHITE
ODOR	SO_2	SO_2	SO_2
APPEARANCE OF 20% SOLUTION	CLEAR	CLEAR	CLEAR
CONTENT IN $K_2S_2O_5$	> 90%	> 97.2%	98.5%
IRON	< 10 mg/Kg	< 5 mg/Kg	0.2 -1 mg/Kg
SELENIUM	< 5 mg/Kg	< 5 mg/Kg	< 5 mg/Kg
LEAD	< 2 mg/Kg	< 2 mg/Kg	< 2 mg/Kg
COPPER	NOT REQUIRED	< 10 mg/Kg	6 mg/Kg
CHLORIDES	NOT REQUIRED	< 0.1%	
SULFATE	NOT REQUIRED	< 2.8%	1.4%
THIOSULFATE (S_2O_3)	< 0.1%	< 0.04%	< 0.04%

COMPETITOR'S KMBS - 20% W/V SOLUTION
WINY - 20% W/V SOLUTION

2 Winy does not smell bad or irritate the nose

Potassium metabisulfite ($K_2S_2O_5$) is odorless. The irritation and odor perceived while using it is the smell of Sulfur Dioxide (SO_2) set free after the degradation of metabisulfite. The following shows the reaction of metabisulfite degradation in water:

$$K_2S_2O_5 + H_2O \longrightarrow 2KHSO_3$$
(potassium metabisulfite) (water) (potassium bisulfite)

Potassium bisulfite, with oxygen, starts the following reaction:

$$KHSO_3 + \tfrac{1}{2}\, O_2 \longrightarrow KHSO_4$$
(potassium bisulfite) (oxygen) (potassium bisulfate)

Potassium bisulfate is a strong acidifying agent that reacts with potassium bisulfite, freeing sulfur dioxide and potassium sulfate:

$$KHSO_4 + KHSO_3 \longrightarrow SO_2 + K_2SO_4 + H_2O$$
(potassium bisulfate) (potassium bisulfite) (sulfur dioxide) (potassium sulfate) (water)

Sulfur dioxide formation means lack of concentration and the presence of the irritating odor, while the formation of potassium sulfate causes hardening of the product. This reaction depends on the quantity of water and oxygen absorbed by potassium metabisulfite.

During the production process, Enartis adopts a series of measures to minimize the absorption of water and oxygen.
As a result, the series of degradation actions outlined above are very limited. Therefore, we obtain a metabisulfite - WINY - that:

- **is almost odorless**
- **has a high concentration of metabisulfite (systematically superior to 99%)**
- **does not form rocks**

3 Winy is packaged to guarantee a long shelf life

Winy is packaged in a controlled atmosphere in a multi-layer film to insure the maximum integrity of the product during storage. Secondary forms of packageing and/or improper packageing conditions may contribute to a 2-3% loss of concentration during storage.

MULTI-LAYER POLYLAMINATE MEANS TOTAL GUARANTEE

- The **75 µm** internal neutral **polyethylene liner** is 100% food safe
- The **9 µm aluminium** liner in the middle guarantees zero permeability to gas and assures great puncture resistance
- The **12 µm** outer **polyester liner** guarantees a long lasting, readable label and greater puncture resistance
- A big, wide seal guarantees a perfectly tight package.

White and Rosé Wine Fermentation

ENARTIS ZYM RS

- Liquid pectolytic enzyme with hemicellulasic and other side activities to break down "hairy zone" of pectins.
- Intense and fast depectinization.

Recommendations: *"Difficult-to-clarify" juice; varieties rich in pectins; mechanical grape processing.*
Dosage: *1-3 mL/hL (38-114 mL/1,000 gal)*

1 Kg **(Item #35-160-0001)** **$153.00**

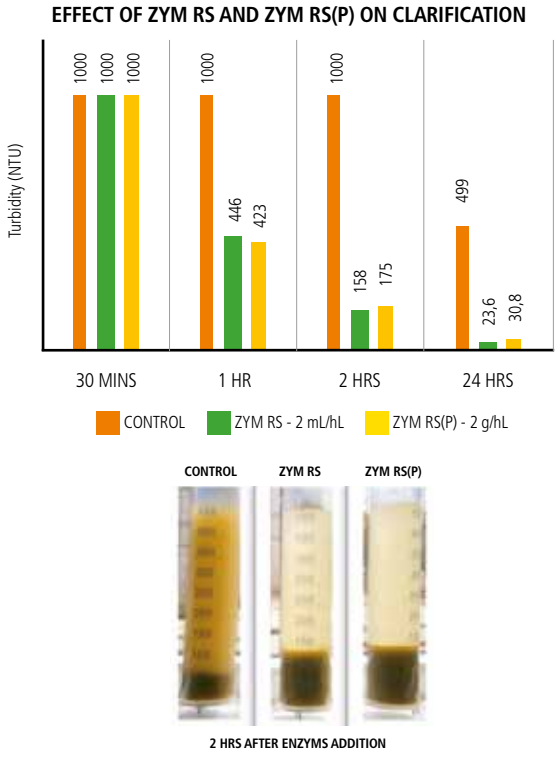
ENARTIS ZYM RS(P)

NEW

- Micro-granulated pectolytic enzyme with hemicellulasic and other side activities to break down "hairy zone" of pectins.
- Intense and fast depectinization.

Recommendations: *"Difficult-to-clarify" juice; varieties rich in pectins; mechanical grape processing.*
Dosage: *1-2 g/hL (0.08-0.17 lb/1,000 gal)*

0.1 Kg **(Item #35-160-0100)** **$ 16.50**



Enartis Zym RS and Zym RS(P) accelerates and improves clarification

ENARTIS ZYM QUICK

- Liquid pectolytic enzyme developed for juice clarification by flotation.
- High pectin lyase content for fast depectinization and rapid decrease in viscosity.

Dosage: *0.5-2 mL/hL (19-75 mL/1,000 gal)*

1 Kg **(Item #35-110-0001)** **$ 99.00**
20 Kg **(Item #35-110-0020)** **$ 1,900.00**

ENARTIS ZYM AROM MP

- Micro-granulated pectolytic enzyme rich in side activities such as hemicellulasic and proteasic.
- Enhances extraction of aromas and aroma precursors. Increases wine aromatic intensity and complexity.
- Contributes to protein stability.

Dosage: *20-40 g/ton*

0.25 Kg **(Item #35-130-0250)** **$ 52.50**
1 Kg **(Item #35-130-0001)** **$ 190.00**

Heat stability test at end of alcoholic fermentation (ΔNTU) (Wine considered stable when ΔNTU<2)	Sauvignon Blanc	Pinot Gris
Control	11	3.7
40 g/hL Pluxbenton N	5.3	2.1
80 g/hL Pluxbenton N	0.27	0
2 g/hL Enartis Zym Arom MP + 40 g/hL Pluxbenton N	0	0

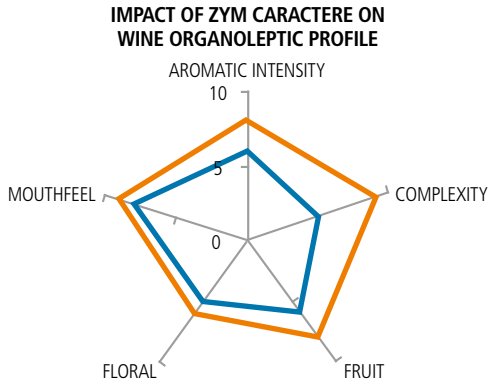
The use of Enartis Zym Arom MP during fermentation improves protein stability and reduces the amount of bentonite needed to stabilize wine.

ENARTIS ZYM CARACTÈRE

- Micro-granulated pectolytic enzyme with hemicellulasic and ß-glucosidasic activities.
- Reduces juice viscosity, maximizes juice yield, improves filterability and increases aromatic intensity of wines from grapes with glycosylated precursors (terpenes, norisoprenoids…).

Dosage: *10-30 g/ton or 3-4 g/hL (0.25-0.3 lb/1,000 gal)*

0.25 Kg **(Item #35-125-0250)** **$ 62.50**



After 2 months of contact, 2 g/hL of Enartis Zym Caractère enhance aromatic intensity, complexity and mouthfeel of wine

Red Wine Fermentation

The final quality of wine - aromatic profile, color stability and intensity, structure, tannic quality and ageing potential - is largely dependent on maceration. Enzymes are effective tools for winemakers to optimize and accelerate the effect of maceration.

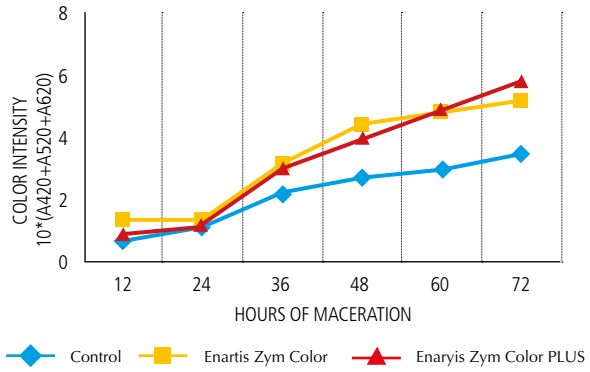
ENARTIS ZYM COLOR PLUS

- Micro-granulated enzyme with secondary activities such as proteasic, cellulasic and hemicellulasic.
- Accelerates and increases extraction of phenolic compounds.
- Hydrolyzes proteins and decreases precipitation of tannins and pigments.
- Improves color stability and intensity.
- Highly effective in improving clarification and filterability of flash détente treated musts.

Dosage: *20-40 g/ton*

0.25 Kg	**(Item #35-141-0250)**	**$ 48.75**
1 Kg	**(Item #35-141-0001)**	**$ 185.00**

IMPACT OF ENARTIS ZYM COLOR PLUS AND ENARTIS ZYM COLOR ON COLOR INTENSITY



Enartis Zym Color and Enartis Zym Color PLUS increased color extraction speed, color intensity and stability.

ENARTIS ZYM COLOR

- Micro-granulated pectolytic enzyme.
- Accelerates and intensifies extraction of polyphenolic substances (anthocyanins and tannins in particular).
- Enhances color stability and intensity.
- Increases intensity and complexity of wine aromas.

Recommendations: *Fast extraction of color and tannins; unripe and moldy grapes.*
Dosage: *20-40 g/ton*

0.5 Kg	**(Item #35-135-0500)**	**$ 82.50**

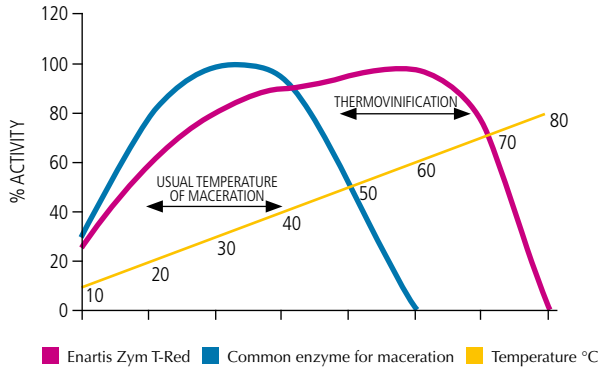
ENARTIS ZYM T-RED

- Liquid pectolytic enzyme, developed for thermovinification and flash-detente.
- Optimal activity at 55°C (131°F). Stays active at temperatures over 65°C (150°F).
- Improves extraction and stabilization of color compounds.
- Highly effective in improving clarification and filterability.

Dosage: *0.5-4 mL/hL (20-150 mL/1,000 gal) or 20-60 mL/ton*

1 Kg	**(Item #35-145-0001)**	**$ 75.00**

ACTIVITY OF ENARTIS ZYM T-RED



Enartis Zym T-RED has a strongest activity at high temperature than common macerating enzymes. Enartis Zym T-RED is highly active at temperatures used during thermovinification.

Maturation

ENARTIS ZYM ÉLEVAGE

- Micro-granulated pectolytic enzyme with significant ß-glucanase activity.
- Accelerates yeast cell lysis and increases mannoprotein content in wines matured on lees.
- Enhances roundness, volume and mouthfeel.
- Improves stability against tartrate precipitation, oxidation and browning.
- Improves filterability, especially for wines made with *Botrytis* infected grapes.

Dosage: *2-5 g/hL (0.17-0.4 lb/1,000 gal)*

0.25 Kg **(Item #35-150-0250)** **$ 82.50**

Lysozyme

ENARTIS ZYM LYSO

- Purified, micro-granulated preparation of lysozyme.
- Antibacterial activity specific for the control of lactic acid bacteria. Does not interfere with primary fermentation. Alternative to sulfur dioxide to control the development of lactic acid bacteria.
- Delays or prevents MLF.

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

0.25 Kg **(Item #35-155-0250)** **$ 72.50**
1 Kg **(Item #35-155-0001)** **$ 285.00**

	ENARTIS ZYM RS(P)	ENARTIS ZYM RS	ENARTIS ZYM QUICK	ENARTIS ZYM AROM MP	ENARTIS ZYM CARACTÈRE	ENARTIS ZYM COLOR PLUS	ENARTIS ZYM COLOR	ENARTIS ZYM T-RED	ENARTIS ZYM ÉLEVAGE	ENARTIS ZYM LYSO
CLARIFICATION/ COLD SETTLING	★★★	★★★	★★	★	★					
CLARIFICATION OF DIFFICULT JUICE	★★★	★★★								
CLARIFICATION BY FLOTATION	★★	★★	★★★							
MACERATION OF WHITE GRAPES				★★★	★					
ROSÉ WINES	★★	★★	★★	★★★		★★★				
MACERATION OF RED GRAPES						★★★	★★			
COLOR STABILITY IMPROVEMENT						★★★	★			
FLASH DÉTENTE/ THERMOVINIFICATION						★★		★★★		
AROMATIC IMPROVEMENT					★★★					
YEAST LYSIS									★★★	
IMPROVE FILTRATION	★	★	★	★	★	★	★	★★★	★★★★	
BOTRYTIS									★★★	
ANTI-BACTERIAL										★
FORM	Powder	Liquid	Liquid	Powder	Powder	Powder	Powder	Liquid	Powder	Powder
DOSAGE	1-2 g/hL	1-3 mL/hL	0.5-2 mL/hL	20-40 g/ton	3-4 g/hL	20-40 g/ton	20-40 g/ton	0.5-4 mL/hL	2-5 g/hL	10-50 g/hL
PACKAGE SIZE (Kg)	0.25 1	1	1 25	0.25 1	0.25	0.25 1	0.5	1	0.25	0.25 1

Enzymes are biological catalysts of reactions and naturally present in all living systems. Highly specific, they act on one or a limited number of substrates to facilitate and accelerate reactions. Enological enzymes are "cocktails" in which each enzyme's activity plays a role. They act in synergy with each other to reach a specific objective. Principal enological enzymes are pectinases, glucanases and glycosidases which contain naturally-occurring side activities such as hemicellulasic, cellulasic and/or proteasic.

WHY USE ENOLOGICAL ENZYMES?

Enzymes are essential for improving press yield, clarification, flotation, wine filterability, aroma and polyphenol extraction, as well as enhancing aromatic expression, improving mouthfeel, contributing to protein stability and helping to stabilize color.

WHAT ARE ENZYMES EXTRACTED FROM?

Enological enzymes are produced by diverse species of fungi such as *Aspergillus*, *Rhizopus* and *Trichoderma*, except for lysozyme which is extracted from egg whites.

WHY SO MANY PECTOLYTIC ENZYMES?

Pectolytic enzymes include enzymes (Figure 1) that break down homogalacturonan chains and enzymes that break down other pectin components such as rhamnogalacturonans I, II and their side chains. The balance between these pectolytic activities impacts the performance of the enzyme preparation.

- Pectin lyase (PL) randomly separates the pectin chain and releases midsize polymers. This activity promotes a fast depectinization and fast reduction of viscosity.
- Polygalacturonase (PG) separates galacturonic acids only when they are not esterified.
- Pectin methyl esterase (PME) de-esterifies galacturonic acid, allowing PG to perform.
- Rhamnogalacturonase, arabinanase and galactanase break down "branched pectins," commonly referred to as the "hairy zone." These activities are especially important to improve settling or filtration of difficult juices.

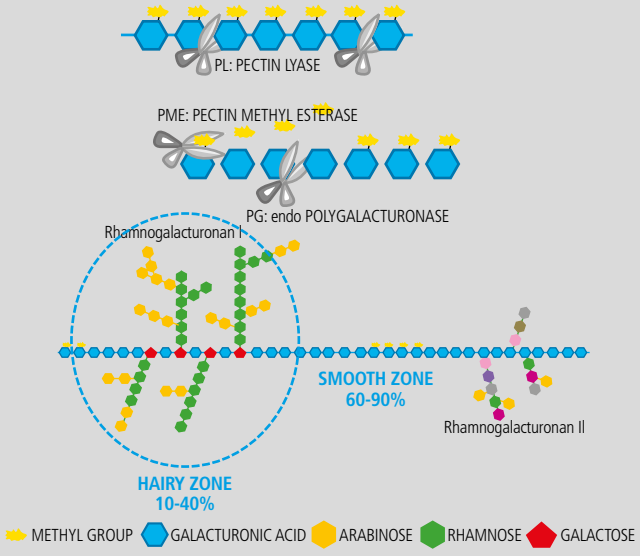


Figure 1: Representation of main pectolytic activities on pectin chains.

WHAT ARE THE DIFFERENCES BETWEEN POWDERED AND LIQUID FORMS OF ENZYMES?

Powdered enzymes are easy to store, have a long shelf life with limited risk of contamination and require no preservatives. Liquid enzymes are convenient to use and dose. They require cold storage and have a shorter shelf life due to possible microbiological contamination after opening.

HOW LONG WILL POWDERED/GRANULAR ENZYMES REMAIN ACTIVE AFTER REHYDRATION?

Rehydrated powdered/granular enzymes should not be kept in liquid form for more than a few hours at room temperature.

HOW DOES TEMPERATURE AFFECT ENZYMATIC ACTIVITIES?

Most enzymes are denatured at temperatures above 60°C (140°F) and inactivated at temperatures below 5°C (40°F). Optimum temperature for enological enzymes is around 40°C (104°F).

DOES SO_2 AFFECT ENZYME ACTIVITY?

Even with an addition of 2000 ppm of SO_2, the enzymatic activity of **Enartis Zym RS**, for example, is not affected (Figure 2). Using SO_2 and enzymes is fine but timing is important. Add enzymes after SO_2 is adequately dispersed or vice versa. Do not add SO_2 and enzymes at the same time.

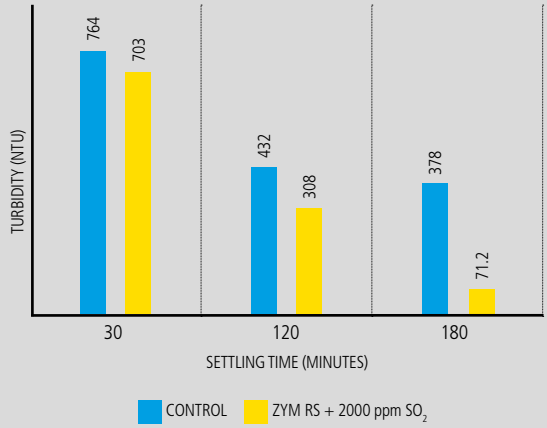


Figure 2: Impact of SO_2 addition on Enartis Zym RS effect

HOW DO TANNIN OR BENTONITE ADDITIONS INTERFERE WITH ENZYME ACTIVITY?

As shown, the addition of bentonite or tannin does not have a significant effect on the clarification capacity of **Enartis Zym RS** (Figure 3). We recommend waiting 30 minutes after the complete homogenization of the enzyme before adding tannin or bentonite.

HOW DO I DECIDE WHAT DOSAGE OF ENZYME TO USE?

Dosage is related to the desired effect, contact time, temperature and inhibiting factors. Cold temperatures, short contact times or alcohol presence can be compensated for by higher dosages.

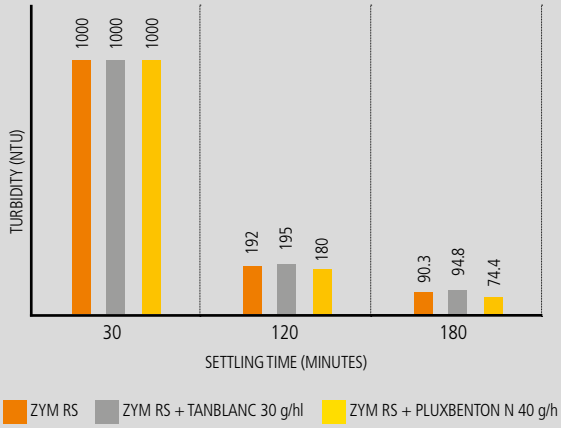


Figure 3: Impact of tannins and bentonite addition on Enartis Zym RS effect.

Tannins

Tannins are used for many purposes in winemaking. They can act as an antioxidant and/or antioxidasic, are involved in color and protein stability, can contribute to wine flavor, structure and body, and can prevent pinking and the "light-struck" defect.
The different origins and properties of enological tannins can produce substantially different results. Enartis helps winemakers understand tannins' properties and select the appropriate tannin for each winemaking application. In association with research centers, Enartis has studied exogenous tannins and their effects for many years to select and produce an extensive range of the highest quality tannins for winemaking.
Extensive experience with tannins, whether in the US or abroad, shows that use of the appropriate tannin at the precise concentration and opportune time will correct imperfections without lessening quality as can happen during clarification.

White and Rosé Wine Fermentation

ANTIOXIDANT TANNINS

ENARTIS TAN BLANC

- Gallic tannins.
- High antioxidant activity and antimicrobial activity, it strengthens the protective action of SO_2.
- Protects wine from browning, "light-struck" defects and oxidation.

Recommendations: *"Sacrificial" tannin; antioxidant; prevent browning; prevent "light-struck" defects; white and rosé wines.*
Dosage: *4-8 g/hL (0.3-0.6 lb/1,000 gal)*

1 Kg	**(Item #35-310-0001)**	**$ 60.00**
12.5 Kg	**(Item #35-310-0012)**	**$ 650.00**

ENARTIS TAN CLAR

- Micro-granulated ellagic tannins.
- Highly reactivity with proteins, it facilitates clarification, improves protein stability and reduces bentonite protein fining.

Recommendations: *Protein removal; clarification; white and rosé wines.*
Dosage: *4-10 g/hL (0.3-0.8 lb/1,000 gal)*

1 Kg	**(Item #35-315-0001)**	**$ 34.00**
12.5 Kg	**(Item #35-315-0012)**	**$ 250.00**

ENARTIS TAN AROM

- High molecular weight, hydrolyzable tannins and yeast hulls.
- Highly reactive tannin, it has a strong antioxidant effect, inhibits oxidative enzymes (laccase) and facilitates clarification.
- Yeast hulls provide a source of thiol precursors.

Tip: *To increase production of thiols, use in combination with a yeast strain that has ß-lyase activity.*
Recommendations: *Antioxidant; enhance fruity and spicy aromas; white and rosé wines.*
Dosage: *2-20 g/hL (0.17-1.7 lb/1,000 gal)*

1 Kg	**(Item #35-500-0001)**	**$ 160.00**

TANNINS FOR AROMA ENHANCEMENT

ENARTIS TAN ELEGANCE

- Condensed tannins extracted from white grape skins.
- Antioxidant, it protects from browning and preserves aromatic freshness.
- Enhances fruit and floral notes, balances mouthfeel and increases length.
- Improves aromatic stability and freshness through ageing.

Recommendations: *Antioxidant; increase length; enhance floral notes; white and rosé wines.*
Dosage: *5-15 g/hL (0.4-1.3 lb/1,000 gal)*

0.25 Kg	**(Item #35-350-0250)**	**$ 47.50**
1 Kg	**(Item #35-350-0001)**	**$ 180.00**

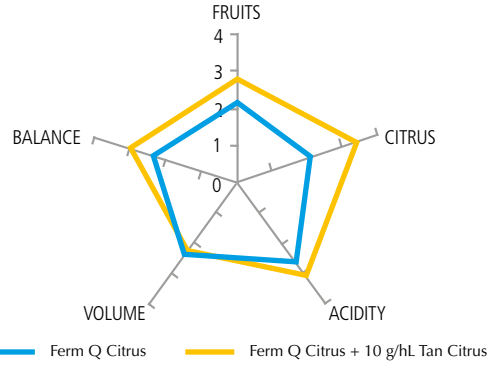
ENARTIS TAN CITRUS

- Gallic and condensed tannins extracted from exotic species of wood.
- Extraction process at cold temperature to preserve aromatic precursors from wood.
- Provides terpenes and norisoprenoids to enhance floral, citrus and fruity notes.

Tip: *To optimize aromatic effect, use Tan Citrus at 1/3 of fermentation in combination with a yeast that expresses terpenes and nor-isoprenoids.*
Recommendations: *Enhance floral and citrus notes; white and rosé wines.*
Dosage: *2-15 g/hL (0.2-1.2 lb/1,000 gal)*

1 Kg	**(Item #35-306-0001)**	**$ 180.00**

SENSORY IMPACT OF ENARTIS TAN CITRUS AT 1/3 OF FERMENTATION



The addition of Enartis Tan Citrus at 1/3 of fermentation, in combination with Enartis Ferm Q Citrus, increases Citrus notes and improves wine balance

Red and Rosé Wine Fermentation

SACRIFICIAL AND ANTIOXIDANT TANNINS

ENARTIS TAN FP

- Condensed and ellagic tannins.
- Designed to favor stabilization of red wine color.
- High antioxidant activity, it protects color and aromatic compounds from oxidation and strengthens protective action of SO_2.
- Highly reactivity with proteins, it inhibits oxidative enzymes (laccase) and facilitates clarification.

Recommendations: *"Sacrificial" tannin; antioxidant; color stability; red and rosé wines.*
Dosage: *150-400 g/ton*

1 Kg	**(Item #35-300-0001)**	**$ 30.00**
15 Kg	**(Item #35-300-0015)**	**$ 300.00**

ENARTIS TAN ROUGE

- Gallic, ellagic and condensed tannins.
- Intense antioxidant and antioxidasic activities (against laccase, polyphenol oxidase), it protects color and aromatic molecules from oxidation.
- Favors the formation of stable color compounds.
- Reinforces wine structure and improves wine balance.

Tip: *Addition recommended during crushing, cold soak or maceration.*
Recommendations: *"Sacrificial" tannin; antioxidant; color stability; red and rosé wines.*
Dosage: *100-400 g/ton*

1 Kg	**(Item #35-305-0001)**	**$ 38.00**
15 Kg	**(Item #35-305-0015)**	**$ 427.50**

ENARTIS TAN FERMCOLOR

- Alcohol extracted condensed and hydrolyzable tannins.
- High antioxidant activity, it protects anthocyanins from oxidation and contributes to color stabilization.
- Delicate blend of tannins that enhances aromatic complexity, softens structure, and improves length and ageing potential.

Tip: *Fraction the addition in two parts: at crushing and after inoculation.*
Recommendations: *"Sacrificial" tannin; antioxidant; thermovinification; flash détente; structured red wines; medium-to-long ageing.*
Dosage: *200-400 g/ton*

1 Kg	**(Item #35-304-0001)**	**$ 44.00**
10 Kg	**(Item #35-304-0010)**	**$ 375.00**

"We have been using Enartis Tan Fermcolor and Tan Rouge for several years now. We find their use, in conjunction with flash détente, significantly improves color stability. Primarily, they are used as sacrificial tannins pre and post flash. Timing is a critical part and we have found a strategy that works for us and the fruit we make wines from. I feel these tannins are an important part of the distinctive mid-palate and structure we are going for with regards to our more inland-sourced fruit, Bordeaux varietals and Zinfandels." - **Greg Freeman, Winemaker at Hahn Family Wines**

ENARTIS TAN ANTIBOTRYTIS

- Gallic, di-gallic, ellagic and condensed tannins.
- High reactivity, long lasting protection.
- Strong antioxidant, antioxidasic and antiradical properties.
- Protects from oxidation, limits oxidasic enzyme activities and strengthens the protective action of SO_2.

Recommendations: *"Sacrificial" tannin; antioxidant; Botrytis cinerea affected grapes; moldy grapes.*
Dosage: *50-200 g/ton, 3-20 g/hL (0.25-1.7 lb/1,000 gal)*

1 Kg	**(Item #35-386-0001)**	**$ 65.00**
10 Kg	**(Item #35-386-0010)**	**$ 580.00**

TANNINS FOR CO-PIGMENTATION

ENARTIS TAN XC

- Mono catechins and low molecular weight tannins extracted form exotic species wood.
- Its planar form explains its high reactivity for co-pigmentation with anthocyanins, it intensifies, brightens and stabilizes color.

Tip: *Fraction the addition in two parts: at crushing and after inoculation.*
Recommendations: *Color stability; co-pigmentation; young red and rosé wines.*
Dosage: *70-350 g/ton / Rosé: 2-15 g/hL (0.17 - 1.3 lb/1,000 gal)*

1 Kg **(Item #35-919-0001)** **$ 95.00**

ENARTIS TAN FRUITAN

- Condensed tannins mostly extracted from white grape seeds.
- Protects anthocyanins from oxidation by promoting co-pigmentation and improves color stability.
- Reduces herbaceous notes, enhances fruit characters and freshens aromas.
- Improves structure and length without imparting astringency.

Tip: *Enartis Tan Fruitan is a multifunction tannin that can be used at crushing, during fermentation, between alcoholic and malolactic fermentation and as a post-fermentation tannin.*
Recommendations: *Color stability; co-pigmentation; enhance fruity aromas; reduce herbaceous; unripe grapes; red and rosé wines.*
Dosage: *10-20 g/hL (0.8-1.7 lb/1,000 gal)*

0.5 Kg **(Item #35-345-0500)** **$ 90.00**
1 Kg **(Item #35-345-0001)** **$ 165.00**

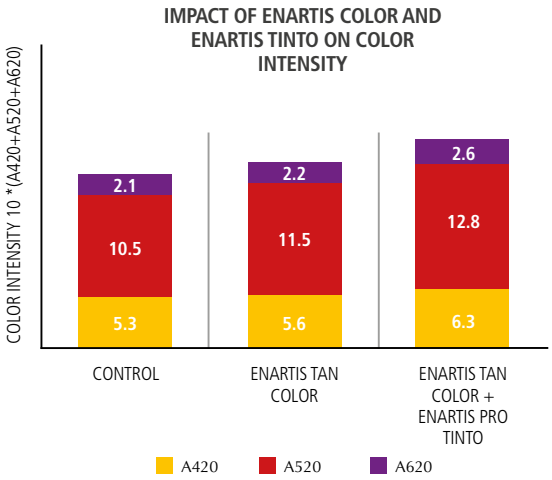
TANNINS FOR CONDENSATION

ENARTIS TAN COLOR

- Gallic and condensed tannins extracted from grape seed tannins and yeast derivatives rich in antioxidant peptides.
- Protects anthocyanins and aromatic compounds from oxidation.
- Highly reactive in condensing with anthocyanins to form stable color pigments.
- Promotes production of spicy and dark fruit aromas.

Recommendations: *Antioxidant; color stability; condensation; freshen aromas; enhance complexity.*
Dosage: *180-350 g/ton*

1 Kg **(Item #35-920-0001)** **$ 170.00**



The addition of Enartis Tan Color at inoculation and Enartis Pro Tinto at 1/3 fermentation improved color intensity and stability of the wine.
Enartis Tan Color and Enartis Pro Tinto have a synergistic effect on color intensity and stability. Trials has been done on Norton and Chambourcin. Data after MLF.

ENARTIS TAN V

- Mono catechins and low molecular weight condensed tannins extracted with water from non-fermented grape seeds.
- Highly reactive, it specifically condenses with free anthocyanins to promote long-lasting color stability.

Recommendations: *Color stability; condensation; high quality red grapes.*
Dosage: *10-30 g/hL (0.8-2.5 lb/1,000 gal)*

1 Kg **(Item #35-311-0001)** **$ 190.00**

ENARTIS TAN E

- High concentration of mono-catechins and low molecular weight condensed tannins extracted with water from non-fermented grape seeds.
- Highly reactive, it specifically condenses free anthocyanins to promote a long-lasting color.
- One of our best tannins for color stabilization, it is particularly efficient during macrooxygenation to condense with anthocyanins via acetaldehyde bridges.

Recommendations: *Color stability; condensation; macro-oxygenation; micro-oxygenation; long-ageing red wines; enhance structure; high quality red wines.*
Dosage: *5-30 g/hL (0.4-2.5 lb/1,000 gal)*

1 Kg **(Item #35-312-0001)** **$ 250.00**

ENARTIS TAN MICROFRUIT

- Condensed and hydrolyzable tannins.
- Specifically developed for micro-oxygenation, it has a synergistic effect with oxygen on color stabilization.
- Enhances aromas of fresh red fruit, masks vegetal characters, increases softness and sweetness of wine and reduces bitterness.

Tip: *Particularly suitable during micro-oxygenation, Enartis Tan Microfruit can be added any time wine comes in contact with oxygen (racking, filtration, refrigeration...).*
Recommendations: *Color stability; macro-oxygenation; micro-oxygenation; increase fruity aromas; mask vegetal characters; red and rosé wines.*
Dosage: *5-20 g/hL (0.4-1.7 lb/1,000 gal)*

1 Kg **(Item #35-303-0001)** **$ 195.00**

TANNINS FOR AROMA ENHANCEMENT

ENARTIS TAN RED FRUIT

- Condensed tannins mostly extracted from red fruit tree wood.
- Extraction process preserves the aromatic precursors (terpenes and nor-isoprenoids) present in wood.
- Provides aromatic precursors responsible for berry, red fruit, floral and spicy notes in wine.
- Improves color stability.

Tip: *To optimize the aromatic effect, use Enartis Tan Red Fruit at 1/3 of fermentation in combination with a yeast that expresses terpenes and norisoprenoids.*
Recommendations: *Increase fruity and spicy aromas; enhance varietal aromas; freshen aromas; red and rosé wines.*
Dosage: *100-200 g/ton*

1 Kg **(Item #35-385-0001)** **$ 190.00**

Finishing Tannins

For any finishing tannin, we recommend doing preliminary lab bench trials to select the appropriate combinations (if using multiple products) and dosages for each specific wine. (See page 83 for Preparing Lab Bench Trials)

OAK TANNINS

Enartis oak tannins are produced from oak wood used for barrels: same ageing in open air space, same processing and same quality. After seasoning (to remove compounds responsible for herbaceous characters) and toasting (transformation of wood components into aromatic molecules such as vanilla, toasted nuts, chocolate and roasted coffee), tannins are extracted with water to obtain smoother tannins while avoiding bitter and astringent substances. The tannin solution is then concentrated and spray-dried, in order to maintain the aromatic and sensory properties of the tannin.

ENARTIS TAN MAX NATURE

- Condensed and ellagic tannins extracted from exotic species of wood.
- Designed for mouthfeel and aromatic improvement.
- Removes reductive characters, masks herbaceous notes and increases aromatic freshness and complexity.
- Contributes to mouthfeel by increasing roundness and filling mid-palate.

Tip: *Enartis Tan Max Nature can be added during fermentation, during ageing and as late as two days before bottling.*
Recommendations: *Improve mouthfeel; remove off-aromas; treat reductive notes; mask herbaceous notes; freshen aromas; enhance aromatic complexity; white, rosé, sparkling and red wines.*
Dosage: *3-15 g/hL (0.25-1.3 lb/1,000 gal)*

1 Kg	**(Item #35-320-0001)**	**$ 68.00**
10 Kg	**(Item #35-320-0010)**	**$ 580.00**

ENARTIS TAN RICH

- Condensed and ellagic tannins extracted from oak.
- Protects from oxidation, helps stabilize color and clarification.
- Contributes to elegant oak notes, gently increases structure and volume.

Recommendations: *Improve structure; enhance aromatic complexity; color stability; white, rosé, red and sparkling wines.*
Dosage: *5-20 g/hL (0.4-1.7 lb/1,000 gal)*

1 Kg	**(Item #35-325-0001)**	**$ 75.00**

ENARTIS TAN EXTRA

- Pure oak tannin.
- Characterized by aromatic notes of vanilla, caramel, cocoa and toasted oak.
- Contributes to softness and "sweetness" in wine, balances astringency.

Recommendations: *Enhance oak aromas; improve mouthfeel; increase softness; white, rosé, sparkling and red wines.*
Dosage: *3-15 g/hL (0.25-1.2 lb/1,000 gal)*

0.25 Kg	**(Item #35-335-0250)**	**$ 155.00**
1 Kg	**(Item #35-335-0001)**	**$ 600.00**

ENARTIS TAN SUPEROAK

- Ellagic tannins extracted from oak and condensed tannins.
- Contributes to color stability.
- Enhances toasted oak aromas, balances organoleptic profile of wines aged in barrels.
- Contributes to sensations of volume and softness.

Recommendations: *Improve structure; enhance aromatic complexity; color stability; white, rosé, red and sparkling wines; wines aged in barrels.*
Dosage: *5-20 g/hL (0.4-1.7 lb/1,000 gal)*

1 Kg	**(Item #35-370-0001)**	**$ 55.00**

ENARTIS TAN ÉLEVAGE

- Ellagic tannins extracted from oak staves aged in open air.
- Good antioxidant protection and treats reductive characters.
- Imparts elegant vanilla, caramel and licorice notes.
- Increases wine structure.

Recommendations: *Antioxidant; treat reductive notes; improve mouthfeel; elegant oak and spicy notes.*
Dosage: *2-15 g/hL (0.2-1.3 lb/1,000 gal)*

1 Kg	**(Item #35-340-0001)**	**$ 230.00**

ENARTIS TAN NAPA

- Ellagic tannins extracted from toasted American oak.
- Enhances aromas of vanilla, caramel, coconut, coffee and cocoa.
- Increases wine structure and "sweetness" and balances sensation of astringency.
- Simulates American oak barrel ageing, extends barrel life and boosts oak characters in neutral barrels.

Recommendations: *Extend barrel life; American oak aromas; increase aromatic complexity; improve mouthfeel; increase structure; white and red wines.*
Dosage: *3-15 g/hL (0.25-1.3 lb/1,000 gal)*

0.25 Kg	**(Item #35-307-0250)**	**$ 275.00**
1 Kg	**(Item #35-307-0001)**	**$ 910.00**

ENARTIS TAN COEUR DE CHÊNE

- Ellagic tannins extracted from toasted French oak seasoned in open air.
- Contributes to elegant and delicate aromas of vanilla, caramel and spices.
- Balances mouthfeel, improves length, softness and oak integration.
- Simulates French oak barrel ageing, prolongs barrel life and boost oak characters in neutral barrels.

Recommendations: *Extend barrel life; elegant oak profile; increase aromatic complexity; improve mouthfeel; increase structure; white and red wines.*
Dosage: *3-10 g/hL (0.25-0.8 lb/1,000 gal)*

0.25 Kg	**(Item #35-330-0250)**	**$ 95.00**
1 Kg	**(Item #35-330-0001)**	**$ 365.00**

ENARTIS TAN VANILLA

NEW

- Ellagic tannins extracted from medium-toasted French oak aged in open air spaces for minimum two years.
- Increases vanilla, custard and coconut aromas and prevents reductive characters.
- Improves wine structure and "sweetness."
- Balances wine redox potential.

Recommendations: *Prevent reductive notes; increase vanilla and coconut aromas; increase structure.*
Dosage: *1-15 g/hL (0.08-1.3 lb/1,000 gal)*

0.5 Kg	**(Item #35-314-0500)**	**$ 247.50**

ENARTIS TAN TOFFEE

NEW

- Ellagic tannins extracted from medium/heavy-toasted French oak, aged in open air spaces for minimum two years.
- Increases custard, butterscotch and toffee aromas and prevents reductive characters.
- Improves wine structure and length and softens astringency.
- Balances wine redox potential.

Recommendations: *Prevent reductive notes; increase vanilla and toffee aromas; increase structure and softness.*
Dosage: *1-15 g/hL (0.08-1.3 lb/1,000 gal)*

0.5 Kg	**(Item #35-313-0500)**	**$ 247.50**

ENARTIS TAN DARK CHOCOLATE

- Ellagic tannins extracted from French oak with extended seasoning and medium-heavy toast.
- Enhances sensory characteristics such as chocolate and spice aromas, and corrects reductive characters.
- Increases structure, body and softness.
- Improves oak barrel integration and harmonizes wines.

Recommendations: *Extend barrel life; enhance toasted oak aromas; increase structure and softness.*
Dosage: *0.5-15 g/hL (0.04-1.3 lb/1,000 gal)*

0.5 Kg	**(Item #35-361-0500)**	**$ 475.00**

ENARTIS TAN SLI

NEW

- Ellagic tannins extracted from long-seasoned, untoasted oak with a unique process that avoids high temperatures.
- Extraordinary capability to scavenge oxygen and radicals, chelate metals, reduce wine redox potential.
- Eliminates mercaptan reductive notes.
- Protects from oxidation, strengthens protective action of SO_2 and improves wine shelf life.

Recommendations: *Antioxidant; scavenge radicals; chelate metals; stabilize wine redox potential; improve shelf life.*
Dosage: *0.5-15 g/hL (0.04-1.3 lb/1,000 gal)*

0.5 Kg	**(Item #35-308-0500)**	**$ 182.50**

GRAPE TANNINS

These tannins come mostly from white grape skins and seeds. They are condensed tannins used to balance mouthfeel, build-up structure, improve wine length and/or enhance aromas.

ENARTIS TAN SKIN

- Condensed tannins extracted from unfermented white grapes skins.
- Improves aromatic cleanliness, enhances fruitiness and brightness.
- Builds up mid palate, improves mouthfeel and complexity.
- Contributes to color stability.

Tip: *Highly recommended for varieties poor in skin tannin and grapes/vintages with low phenolic extraction ratio.*
Recommendations: *Color stability; freshen aromas; enhance fruity aromas; balance mid-palate; white, rosé and red wines.*
Dosage: *3-20 g/hL (0.25-1.7 lb/1,000 gal)*

0.25 Kg	**(Item #35-360-0250)**	**$ 112.50**
1 Kg	**(Item #35-360-0001)**	**$ 420.00**

ENARTIS TAN UVASPEED

- Condensed tannins extracted from unfermented white grape skins with a unique process that prevents oxidation and microbial degradation.
- Provides intense fruit notes, increases structure and softness.

Recommendations: *Enhance fruity aromas; freshen aromas; improve mouthfeel; increase softness; decrease astringency perception.*
Dosage: *3-20 g/hL (0.25-1.7 lb/1,000 gal)*

0.25 Kg	**(Item #35-365-0250)**	**$ 100.00**
1 Kg	**(Item #35-365-0001)**	**$ 380.00**

ENARTIS TAN UVA

- Grape seed tannin obtained from mature white grapes.
- Promotes color stability by condensation with anthocyanins.
- Enhances fruit aromas, balances astringency and improves structure, mouthfeel and complexity of wine.

Recommendations: *Enhance fruity aromas; improve structure; decrease astringency perception; color stability.*
Dosage: *3-10 g/hL (0.25-0.8 lb/1,000 gal)*

0.25 Kg	**(Item #35-355-0250)**	**$ 96.25**
1 Kg	**(Item #35-355-0001)**	**$ 365.00**

ENARTIS TAN FRESH FRUIT

- Condensed tannins extracted from lemon trees and white grape skins.
- Good antioxidant capacity.
- Freshens wine aromas, reduces overripe fruit notes, imparts softness and protects from oxidation.

Recommendations: *Freshen aromas; enhance floral and citrus aromas.*
Dosage: *0.5-10 g/hL (0.04-0.8 lb/1,000 gal)*

1 Kg	**(Item #35-362-0001)**	**$ 395.00**

ENARTIS TAN TOTAL FRUITY

- Condensed tannins extracted from wood of red fruit trees and fresh white grape skins.
- Improves aromatic freshness, fruit aroma, structure, softness and antioxidant protection.

Recommendations: *Freshen aromas; enhance red fruit aromas; structure and length.*
Dosage: *0.5-20 g/hL (0.04-1.7 lb/1,000 gal)*

1 Kg	**(Item #35-371-0001)**	**$ 390.00**

UNICO RANGE

Enartis is constantly looking for new botanical species and raw materials (wood, leaf, seed, etc.) to obtain tannins with unique sensory characteristics and beneficial to winemaking. Developed by Enartis, the Unico range is a unique line of tannins with no close matches in the market.

Why are Unico tannins different from other tannins?

The extraction, as well as the spray-drying, is made at low temperatures (approx. 20°C or 68°F) and low pressure. This unique production process, proprietary to Enartis, preserves flavors of the raw material and prevents loss of aromatic compounds and formation of off-flavors caused by high temperatures typically used in standard tannin production processes. Unico tannins have intense, distinct aromas that account for the lower addition rates compared to normal enological tannins.

UNICO #1

- Ellagic tannins extracted from toasted oak selected for the quality and richness of its aroma.
- Intense and delicate vanilla, chocolate and toasted oak aromas.
- Contributes to volume and structure of wine.

Recommendations: *Enhance medium-toasted oak aromas; improve structure; white, rosé, red and sparkling wines.*
Dosage: *0.5-5 g/hL (0.04-0.4 lb/1,000 gal)*

0.25 Kg	**(Item #35-380-0250)**	**$ 328.75**

UNICO #2

- Condensed tannins extracted from the wood of red fruit trees.
- Significantly enhances red fruit aromas such as cherry and black currant.
- Increases softness, structure and “sweetness.”

Recommendations: *Enhance red fruit aromas; freshen aromas; improve structure; rosé and red wines.*
Dosage: *0.5-5 g/hL (0.04-0.4 lb/1,000 gal)*

0.25 Kg	**(Item #35-375-0250)**	**$ 195.00**

UNICO #3

- Condensed and hydrolyzable tannins extracted from exotic species of wood.
- Freshens wine aroma, enhances citrus, botanical and floral notes.

Tip: *Particularly suitable for white wines with slight oxidation; white wines and late harvest wines.*
Recommendations: *Freshen aromas; increase citrus, floral and botanical aromas; improve structure; white, rosé and sparkling wines.*
Dosage: *0.5-5 g/hL (0.04-0.4 lb/1,000 gal)*

0.25 Kg	**(Item #35-395-0250)**	**$ 165.00**

ENARTIS PRODUCT	COLOR STABILITY	ANTIOXIDANT	AROMATIC CLEANLINESS	PROTEIN REMOVAL	STRUCTURE ENHANCEMENT	ASTRINGENCY	SOFTNESS	AROMA INTENSITY	SACRIFICIAL TANNIN	AROMATIC ENHANCEMENT	CO-PIGMENTATION	CONDENSATION	MATURATION	FINISHING	GRAPE BASED	OAK BASED	OTHER WOOD	AROMA CONTRIBUTION
TAN BLANC	★	★★★ ★★	★	★	★★	★★	★	★	•						•			*Elder*
TAN CLAR	★★★	★★★	★★★	★★ ★★	★★★	★★★	★	★	•						•			*Wood*
TAN AROM	★★	★★★ ★★	★★	★★★	★★	★★	★★	★★ ★★	•	•					•			*Pineapple, Passion fruit, Grapefruit*
TAN ELEGANCE	★★ ★★	★★ ★★	★★★	★★ ★★	★★	★★	★★ ★★	★★★		•			•	•	•			*Stonefruit, White flower*
TAN CITRUS	★★★	★★ ★★	★★	★★★	★★	★★	★★	★★★ ★★		•					•	•	•	*Citrus, White flowers, Orange blossom*
TAN FP	★★ ★★	★★★	★★★	★★ ★★	★★★	★★★	★★	★★	•						•	•		*Oak, Spices*
TAN ROUGE	★★★	★★ ★★	★★★	★★ ★★	★★★	★★★	★★	★★	•						•	•		*Oak, Spices*
TAN FERMCOLOR	★★ ★★	★★ ★★	★★★	★★ ★★	★★ ★★	★★	★★★	★★ ★★	•			•			•	•		*Oak, Cherry*
TAN ANTIBOTRYTIS	★	★★★ ★★	★★	★★	★★	★★	★	★	•						•	•		*Elder, Wood*
TAN XC	★★ ★★	★★	★★	★★ ★★	★★	★★★	★★★	★			•						•	*Oak*
TAN FRUITAN	★★ ★★	★★ ★★	★★★	★★ ★★	★★★	★★★	★★★	★★★			•		•		•			*Red fruit, Spices*
TAN COLOR	★★ ★★	★★ ★★	★★★	★★ ★★	★★	★★	★★★	★★ ★★		•	•	•			•	•		*Currant, Spices*
TAN V	★★★ ★★	★★	★★ ★★	★★★	★★★ ★★	★★ ★★	★★	★★★				•			•			*Grape, Fresh fruit*
TAN E	★★★ ★★	★★	★★ ★★	★★★	★★★ ★★	★★ ★★	★★	★★★				•			•			*Grape, Fresh fruit*
TAN MICROFRUIT	★★★ ★★	★★★	★★ ★★	★★★	★★★	★★	★★★	★★ ★★		•		•			•	•		*Red fruit, Grape, Wood*
TAN RED FRUIT	★★★	★★	★★	★★ ★★	★★★	★★	★★★	★★★ ★★	•	•			•				•	*Strawberry, Plum, Cherry*
TAN SLI	★★	★★★ ★★	★★ ★★	★★★	★★	★	★★ ★★	★★ ★★		•				•		•		*Oak, Coconut, Vanilla*
TAN MAX NATURE	★★★	★★	★★ ★★	★★	★	★	★★★ ★★	★		•			•	•		•		*Chamomille*
TAN RICH	★★★	★★	★★★	★★	★★	★★	★	★★					•	•		•		*Toasted oak, Coffee, Spices*
TAN EXTRA	★★	★	★★	★	★★	★	★★ ★★	★★★ ★★		•			•	•		•		*Vanilla, Caramel, Cocoa, Coffee*
TAN SUPEROAK	★★★	★★★	★★★	★★ ★★	★★	★	★★	★★					•	•		•		*Vanilla, Caramel, Tobacco*
TAN ÉLEVAGE	★★	★★★	★★★	★★ ★★	★★★	★★★	★★	★★★					•	•		•		*Toasted oak, Caramel*
TAN NAPA	★★	★★★	★★	★	★★★	★	★★ ★★	★★★ ★★		•			•	•		•		*Coconut, Vanilla, Cocoa*
TAN COEUR DE CHENE	★★	★★	★★	★	★★	★★	★★★	★★ ★★		•			•	•		•		*Vanilla, Caramel, Spices, Medium-toasted oak*
TAN VANILLA	★★	★★	★★	★	★★	★★	★★★	★★★ ★★		•			•	•		•		*Vanilla, Butterscotch, Coconut, Almond*
TAN TOFFEE	★★	★★	★★	★	★★	★★	★★★	★★ ★★		•			•	•		•		*Toffee, Vanilla, Caramel, Hazelnut*
TAN DARK CHOCOLATE	★★	★★★	★★	★	★★★	★	★★ ★★	★★★ ★★		•			•	•		•		*Cocoa, Toasted almond, Hazelnut*
TAN SKIN	★★ ★★	★★★	★★	★★★	★★	★★	★★	★★ ★★		•			•	•	•			*Grape, Stonefruit, Tea, Tobacco*
TAN UVASPEED	★★ ★★	★	★	★	★★	★	★★★ ★★	★★ ★★		•			•	•	•			*Grape, Honeydew, White flower*
TAN FRESH FRUIT	★	★★★	★★	★★★	★★	★	★★ ★★	★★ ★★		•				•	•			*Lemon, Citrus, Mint, Fresh fruit*
TAN TOTAL FRUITY	★★	★★	★★	★★★	★★	★	★★ ★★	★★ ★★		•				•	•			*Strawberry, Plum, Cherry, Berries*
UNICO #1	★	★★ ★★	★	★	★★ ★★	★	★★ ★★	★★ ★★★ ★★		•				•		•		*Vanilla, Caramel, Spices, Medium-toasted oak*
UNICO #2	★	★	★	★	★★ ★★	★	★★ ★★	★★ ★★★ ★★		•				•			•	*Red berries, Plums, Cherry*
UNICO #3	★	★★★	★	★	★★	★	★★ ★★	★★ ★★★ ★★		•				•			•	*Lemon, Mint, Herbal*

DIFFERENT CATEGORIES OF POLYPHENOLS:

Grape polyphenols:

- Non-flavonoids: The major non-flavonoid phenolic compounds in grapes are hydroxycinnamates. They are the preferred substrate for polyphenol oxidase and usually the first compounds involved in the oxidation of grape juice.
- Flavanoids: One of the major classes of phenolic compounds in grapes. They are localized in skins and seeds. Flavonoids include three main groups: tannins, flavonols and anthocyanins.
  - The tannin group contains complex combinations of catechins (also Flavan-3-ols) found in grape seeds and skins, correctly described as condensed tannins.
  - Anthocyanins are found mostly in grape skins and they are the main source of colored pigments in red wine.
  - Flavonols: Found in grape skin, they are known as co-factors for the color-enhancing phenomenon known as co-pigmentation.

Hydrolyzable tannins: Derived from wood, they are oligomeric forms of gallic acid and can be specified as gallotannins or ellagitannins whether they are constituted of gallic acid or ellagic acid moieties.

A LITTLE BIT ABOUT COLOR IN WINE…

The initial color of red wine is mainly due to anthocyanins, extracted from grapes during the winemaking process. In their cationic form, anthocyanins are highly reactive with any nucleophile. In the presence of SO_2 and H_2O, this reaction can lead to color loss. Stabilization of wine pigments can occur via co-pigmentation, condensation or cycloaddition.

Co-pigmentation is the enhancement of color due to formation of complexes between anthocyanins and cofactors such as flavonols, hydroxycinnamates and/or colloids via a weak electrostatic bond. The desirable feature of a co-factor is its planarity, which allows the stacking of anthocyanins, thus keeping them stable and soluble. Co-pigmentation has hyperchromic and bathochromic effects, which lead to higher intensity and darker colored wines initially. These molecules, important in young red wines, are considered 'semi-stable' pigments.

Condensation leads to more stable pigments. They can be formed via direct bonds between anthocyanins and tannins or in oxidative environment via acetaldehyde bridges.

Cycloaddition involves yeast metabolites and can lead to the most stable form of pigments. It consists of a cycloaddition between flavylium ions and compounds with polymerized double bonds.

HOW TO STABILIZE COLOR IN RED WINES?

Enartis continually develops color stabilization strategies and technology to achieve stability during maceration. Color stability has to be managed as soon as possible, starting in the vineyard. Most red grape varieties have more anthocyanins than tannins, which can lead to color stability issues.

WINEMAKING STAGE	REACTIONS	ENARTIS PRODUCTS
HARVEST	Prevent oxidation of color/phenolic compounds with antioxidant protection.	100-150 g/ton of **AST**
COLD SOAK	"Sacrificial" tannins reinforce SO_2 antioxidant effect and eliminate proteins that would react with grape polyphenols, thus protecting grape tannins.	150-200 g/ton **Enartis Tan FP**, **Tan Rouge** or **Tan Fermcolor**.
	Maceration enzymes improve grape skin tannin extraction, thus increasing grape tannin content, favoring anthocyanin/tannin reactions and stabilizing color pigments. The proteasic activity decreases protein capacity to precipitate grape tannins.	20 -30 g/ton of **Enartis Zym Color Plus**
YEAST INOCULATION	At the first stage of alcoholic fermentation, anthocyanins are extracted much faster than tannins. To encourage the stabilization of anthocyanins via co-pigmentation and condensation, increase the concentration of grape tannin and use mannoproteins.	Co-pigmentation: 200 g/ton of **Enartis Pro Uno** + 150 g/ton of **Enartis Tan XC**
		Condensation: 200 g/ton of **Enartis Tan Color**
		Condensation + Co-pigmentation: 250 - 400 g/ton of **Enartis Pro Tinto**
AFTER AF BEFORE MLF	At this stage, short macro-oxygenation encourages the formation of stable color compounds produced by condensation between free anthocyanins and tannins through acetaldehyde bridges.	10-15 g/hL **Enartis Tan Microfruit** or **Enartis Tan E**

WHAT IS A "SACRIFICIAL" TANNIN?

When grapes are crushed, proteins are released, bind with tannins and precipitate. The first tannins available are skin tannins, which are usually the most interesting for future wine structure and mouthfeel. "Sacrificial" tannins are added to crushed grapes and react with and precipitate grape proteins, thus preventing freshly extracted skin tannins from precipitating.

WHY IS CO-PIGMENTATION IMPORTANT?

It protects pigments from oxidation during the early stage of winemaking and limits color loss. It also allows for greater solubility of anthocyanins than may be expected in a given ethanol solution.

CAN I USE TANNINS ON WHITE JUICE AND WINE?

Yes. White juice can benefit from tannin additions by removing off-aromas, improving clarification, inhibiting laccase activity from *Botrytis* or rot, or to serve as an antioxidant. Tannins can also be added later to white wines to improve mid-palate structure or softness.

HOW CAN MICRO-OXYGENATION (MOX) IMPROVE COLOR STABILITY? IS TIMING IMPORTANT?

Oxygen added at the end of alcoholic fermentation promotes the production of acetaldehyde, a product of ethanol oxidation. This compound acts as a bridge in the polymerization reactions involving tannins and anthocyanins, creating more stable color compounds.

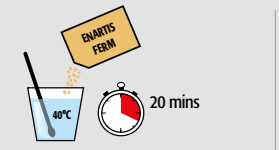
The time frame (end of alcoholic fermentation - before malolactic fermentation) is essential:

- Warm temperatures to promote faster reactions (~15˚C, 59˚F).
- Free anthocyanins and enough tannins are available for condensation.
- Ethanol can be oxidized into acetaldehyde.
- No SO_2 present to bind with acetaldehyde.
- Limited microbial activity that would consume oxygen and acetaldehyde.

Yeast

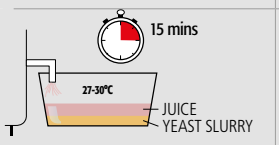
Protocol for Yeast Rehydration

Proper yeast rehydration is one of the most important steps to help ensure a strong and healthy fermentation. Careful rehydration, acclimation and inoculation are all important to help prevent sluggish or stuck fermentations.
Are you interested in the reliability of a cultured yeast, with the heritage and terroir of California? Enartis is proud to offer three unique isolates in our yeast portfolio from premium vineyards in California.



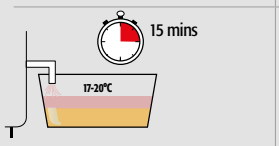
1

Rehydrate 20-40 g/hL of active dry yeast in 10 times its weight of chlorine-free water at 35-40°C (95-104°F).
Stir gently to break up any clumps. Wait 20-30 minutes.



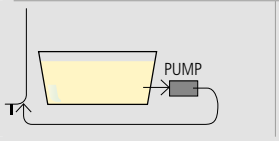
2

Slowly add some juice/must to yeast suspension to drop temperature: temperature drop should not be more than 10°C (50°F).
This helps yeast to acclimate to the cool temperature of the juice and avoid cold shock. Let stand for 15 minutes.



3

Repeat (2) until the temperature difference between the tank and yeast slurry is below 10°C (50°F).



4

Add yeast slurry to the bottom of the fermentation vessel and mix the tank.

White and Rosé Wine Fermentation

VQ 10

Fast fermenter, alcohol tolerant up to 17%, resistant to low fermentation temperatures, preserves varietal fruit characters and produces elegant and delicate wines.

Recommendations: *Varietal expression; white, rosé and sparkling wines; barrel fermentation.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-500-0500)**	**$ 44.45**
10 Kg	**(Item #45-500-0010)**	**$ 576.00**

ENARTIS FERM SB

Robust, alcohol tolerant up to 15%, wide fermentation temperature range (10-30°C, 50-86°F) and produces clean wines with varietal aromas.

Recommendations: *White and rosé wines; large volume fermenter; tank fermentation.*
Dosage: *20-40 g/hL (1.67 - 3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-155-0500)**	**$ 24.25**
10 Kg	**(Item #45-155-0010)**	**$ 285.00**

ENARTIS FERM TOP ESSENCE

High producer of esters and acetates, increases aromatic complexity and expression of neutral grapes. It produces intense tropical fruit, pineapple, passion fruit and banana notes.

Application: *Neutral grapes; ester and acetate production; young white and rosé wines.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-165-0500)**	**$ 24.75**
10 Kg	**(Item #45-165-0010)**	**$ 425.00**

ENARTIS FERM AROMA WHITE

Strain with dual ability to express thiols (ß-lyasic activity) and produce fermentation aromas. Fermentation at 15-17°C (59-63°F) favors citrus and mineral notes, while at 18-21°C (65-70°F), it produces stone fruit and tropical fruit aromas. The low amount of riboflavin produced reduces the risk of light-struck defect.

Recommendations: *Thiols production; varietal expression; ester and acetate production; unripe grapes.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-110-0500)**	**$ 39.40**
10 Kg	**(Item #45-110-0010)**	**$ 485.00**

ENARTIS FERM ES 123

NEW SYNERG-YEASTIC FORMULA

This new synergistic blend of Saccharomyces cerevisiae and *Saccharomyces bayanus* increases alcohol tolerance, fermentation speed and aroma production. It produces intense fresh aromas of green apple, pear, citrus and flowers.

Recommendations: *Neutral grapes; white and rosé wines; ester and acetate production; Chenin Blanc, Chardonnay, Marsanne, Roussanne.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-105-0500)**	**$ 39.40**
10 Kg	**(Item #45-105-0010)**	**$ 485.00**

ENARTIS FERM ES FLORAL

NEW SYNERG-YEASTIC FORMULA

This new synergistic blend of Saccharomyces cerevisiae and *Saccharomyces bayanus* increases the intensity of fresh, floral (white roses, hawthorn) and fruit (pear, apricot, white peach) aromas. It produces elegant, delicate and complex wines.

Recommendations: *White and rosé wines; ester and acetate production; Chenin Blanc, Chardonnay, Pinot Gris, Pinot Blanc, Riesling.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-160-0500)**	**$ 24.75**
10 Kg	**(Item #45-160-0010)**	**$ 425.00**

ENARTIS FERM ES 181

Strain with dual ability to express thiols (ß-lyase activity) and produce fermentation aromas. Good fermenter at low temperatures and in reductive conditions. It expresses thiol precursors (grapefruit, tropical fruit, and passion fruit) and produces intense varietal and fermentation aromas.

Recommendations: *Thiol production; varietal expression; ester and acetate production; tank fermentation; Sauvignon Blanc, Semillon, Riesling, Albariño and Verdejo.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-120-0500)**	**$ 39.40**
10 Kg	**(Item #45-120-0010)**	**$ 485.00**

ENARTIS FERM Q CITRUS

Strain with intense expression of terpene and norisoprenoid precursors. It intensifies zesty and complex notes of citrus, tropical fruit, flowers, peach, pear and pineapple.

Tip: *Increase terpenes and norisoprenoids production by using Enartis Tan Citrus during fermentation.*
Recommendations: *White and Rosé wines; intense varietal expression; ester and acetate production.*
Dosage: *20-40 g/hL (1.7-3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-302-0500)**	**$ 39.70**

Enartis Ferm Q Citrus gave my wines incredible aromatics and massive sensory expression. We frequently perceive distinct notes of pineapple, orange and guava. Enartis Ferm Q Citrus reminds me of landing in Hawaii! - **Lucas Meeker, Winemaker at The Meeker Vineyards (CA)**

ENARTIS FERM VINTAGE WHITE

Selected for barrel fermentation, this yeast increases varietal aromas and releases large amounts of polysaccharides during lees ageing.

Recommendations: *Barrel fermentation; lees ageing; bâtonnage; enhance complexity; round palate.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-115-0500)**	**$ 39.40**
10 Kg	**(Item #45-115-0010)**	**$ 485.00**

ENARTIS FERM PERLAGE

Yeast selected for the production of traditional method sparkling wines. Resistant to high °Brix, high alcohol content, low pH and low temperatures, it is a fast fermenter that produces elegant and clean wines.

Recommendations: *Base wines; sparkling wines; traditional method; white and rosé wines.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-180-0500)**	**$ 39.40**
10 Kg	**(Item #45-180-0010)**	**$ 485.00**

ENARTIS FERM TOP 15

Vigorous and robust strain, alcohol tolerant up to 17%, resistant to low temperatures and produces clean wines.

Recommendations: *White, rosé and red wines; base wines; large volume fermenter; sparkling wines; Charmat method.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-150-0500)**	**$ 24.75**
10 Kg	**(Item #45-150-0010)**	**$ 425.00**

Red and Rosé Wine Fermentation

ENARTIS FERM ES 401

Good fermenter that metabolizes a portion of malic acid (about 25 %). It produces esters and acetates that enhance fruit characters.

Recommendations: *Young red wines; rosé wines; fruit-forward wines; easy-to-drink wines.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-130-0500)**	**$ 24.75**
10 Kg	**(Item #45-130-0010)**	**$ 425.00**

VQ ASSMANSHAUSEN

The most popular yeast for Pinot Noir. With its long lag time and slow fermentation speed, it enhances spicy characters and contributes to aromatic complexity and wine structure.

Recommendations: *White and red wines; Chardonnay, Riesling, Gewürztraminer, Nebbiolo, Pinotage, Pinot Noir, Sangiovese, Syrah and Barbera.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-510-0500)**	**$ 44.45**
10 Kg	**(Item #45-510-0010)**	**$ 576.00**

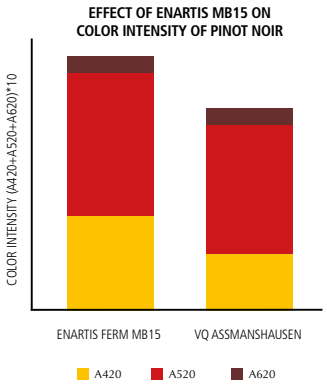
NEW

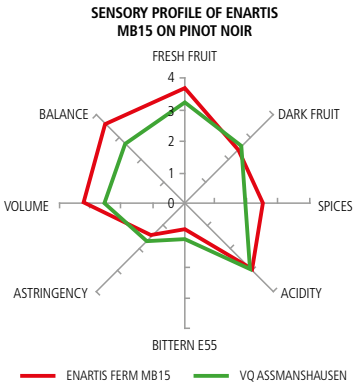
ENARTIS FERM MB15

Pinot noir isolate from Sonoma Coast, California. Its high polyphenol extraction capacity improves red wine structure, color intensity and stability. It respects varietal character and terroir, while enhancing floral, fruit and spice expression.

Recommendations: *Fruit-forward red wines; varietal expression; intense color; medium-to-long ageing; Pinot Noir, Syrah, Zinfandel, Grenache, Nebbiolo, Sangiovese, Cinsault, Pinotage, and Barbera.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-065-0500)**	**$ 42.50**
10 Kg	**(Item #45-065-0010)**	**$ 550.00**





ENARTIS FERM RED FRUIT

One of the most beloved strains of the Enartis Ferm range. It produces very intense aromas of red berries and violets with large quantities of glycerol and polysaccharides.

Tip: *Increase terpene and norisoprenoid production by using Enartis Tan Red Fruit during fermentation.*
Recommendations: *Esters and acetates production; fruity red wines; rosés wines; young-to-medium ageing; Syrah, Sangiovese, Merlot, Barbera, Carignan, Malbec, Mourvedre, Tannat.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-140-0500)**	**$ 39.40**
10 Kg	**(Item #45-140-0010)**	**$ 485.00**

ENARTIS FERM ES 488

Saccharomyces cerevisiae with intense enzymatic activities such as ß-lyase activity. It expresses varietal characters, produces intense fruit and spicy aromas and helps to mask herbaceous notes in unripe grapes.

Tip: *Increase spicy aromas by using Enartis Pro Blanco at inoculation.*
Recommendations: *Aromatic red wines; medium-to-long oak ageing; unripe grapes.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-185-0500)**	**$ 39.40**
10 Kg	**(Item #45-185-0010)**	**$ 485.00**

ENARTIS FERM ES 454

Produces varietal wines characterized by elegant, ripe fruit and spicy aromas with smooth mouthfeel.

Recommendations: *High quality grapes; varietal expression; medium-to-long ageing.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-170-0500)**	**$ 39.40**
10 Kg	**(Item #45-170-0010)**	**$ 485.00**

ENARTIS FERM Q5

High varietal aroma producer, this yeast also produces esters and acetates. Wines are characterized by intense red fruit (strawberry, raspberry, black cherry) and floral notes, soft structure and deep, stable color.

Tip: *Increase terpene and norisoprenoid production by using Enartis Tan Red Fruit at inoculation.*
Recommendations: *High-quality wines; complex red wines; long barrel ageing.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-301-0500)**	**$ 39.70**

ENARTIS FERM VINTAGE RED

Medium fermentation speed and wide fermentation temperature range (18-35°C, 64-95°F). It produces complex wines characterized by ripe red fruit, leather and spicy aromas with round, soft and structured mouthfeel.

Recommendations: *Elegant, complex red wines; long barrel ageing; balanced wines.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-125-0500)**	**$ 39.40**
10 Kg	**(Item #45-125-0010)**	**$ 485.00**

VQ 51

Bordeaux isolate for high-quality red wine production. It enhances varietal aromas, increases fruit expression and contributes to aroma complexity. It releases large amount of polysaccharides, thus improving mouthfeel and color stability.

Recommendations: *Structured and complex red wines; Merlot, Zinfandel, Cabernet Sauvignon, Cabernet Franc, Syrah, Petit Verdot.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-505-0500)**	**$ 44.45**
10 Kg	**(Item #45-505-0010)**	**$ 576.00**

ENARTIS FERM PRIMITIVO

Primitivo isolate from South of Italy, alcohol tolerant (up to 16.5%). It respects varietal and terroir aromatic profile and increases ripe berry, dark cherry, plum, spicy aromas and freshen overripe fruit characters.

Recommendations: *Hot climate areas; medium-to-long ageing; freshen overripe grapes; Primitivo, Zinfandel, Malbec, Tannat, Petite Syrah, Syrah.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-054-0500)**	**$ 39.40**
10 Kg	**(Item #45-054-0010)**	**$ 485.00**

ENARTIS FERM AMR-1

Isolated from dried grapes destined for Amarone wine production. Resistant to high °Brix, high alcohol content, low pH and ferments well at low temperatures. It produces elegant, clean wines with dark fruit, spice and varietal characters. It releases large amounts of polysaccharides, thus improving mouthfeel and color stability.

Recommendations: *Late harvest; high °Brix; low temperature fermentation; cold climate areas; rosé and red wines.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-511-0500)**	**$ 39.40**

ENARTIS FERM WS

Late harvest Zinfandel isolate from Williams-Selyem Winery (California). It is considered one of the most robust California yeast strains. It respects varietal and terroir character, increases freshness, fruit and spice expression, while contributing to complexity, enhancing structure and contributing to color stability.

Recommendations: *High °Brix; high alcohol wines; fruit-forward wines; white, rosé and red wines; restart stuck fermentations.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-053-0500)**	**$ 42.50**
10 Kg	**(Item #45-052-0010)**	**$ 550.00**

"I love the fruity and clean aromas that WS gives to the wine." **Heather Perkin, Associate Winemaker at Elk Cove Vineyards (OR)**

"I use WS on my late harvest wines; it ferments up to 18% alcohol with no problem." **- Ken Wright, Winemaker at Ken Wright Cellar (OR)**

"WS is reliable in all fermentations, even on the most difficult ones. It is a concentration of quality and efficiency in every aspect." **- Matteo Corazzolla, Cider Producer at L.M. di Maria Lucia Melchiori & C (Italy).**

NEW

ENARTIS FERM D20

Cabernet Sauvignon isolate from Daou Vineyards & Winery (California). Selected for its high temperature resistance (up to 95°F) and high alcohol tolerance (up to 17%), it produces powerful, complex, and structured wines, with long ageing potential. It expresses varietal and terroir characters as well as enhances dark fruit, floral and spicy notes.

Recommendations: *Bordeaux red varietals; high quality grapes; high °Brix; high temperature fermentations; medium to-long ageing.*
Dosage: *200 g/ton*

0.5 Kg	**(Item #45-060-0500)**	**$ 47.50**

"The Enartis Ferm D20 has improved the mouthfeel of our wines while delivering a more balanced wine that had increased phenolics." **- Daniel Daou, co-proprietor and winemaker of Daou Vineyards & Winery.**

Restart Fermentations

ENARTIS FERM EZ FERM

Blend of *Saccharomyces cerevisiae* and *Saccharomyces bayanus*, ideal to prevent sluggish and/or stuck fermentations. High alcohol tolerance (16.5%), low nitrogen requirements, adaptable to a wide range of fermentation temperatures (12-34°C, 54-93°F) and has a strong ability to dominate fermentations.

Recommendations: *Prevent sluggish and stuck fermentations; high alcohol content; late harvest.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-145-0500)**	**$ 39.40**
10 Kg	**(Item #45-145-0010)**	**$ 485.00**

ENARTIS FERM EZ FERM 44

EZ Ferm improved! This strain combines high alcohol tolerance (17.5%), strong fermentation kinetics and low nutritional requirements with a strong affinity for fructose metabolism.

Recommendations: *Restart stuck fermentation; high fructose content; hot climate grapes and drought areas.*
Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal)*

0.5 Kg	**(Item #45-175-0500)**	**$ 39.40**
10 Kg	**(Item #45-175-0010)**	**$ 485.00**

ENARTIS TEAM OF CALIFORNIA YEAST ISOLATES!

ENARTIS FERM WS: MORE THAN 25 YEARS OF EXCELLENCE.
With more than 25 years of history, Enartis Ferm WS is a cult yeast, highly appreciated around the world for many varieties and wine styles.

ENARTIS FERM D20: FAST SUCCESS FOR OBVIOUS QUALITY STRAIN.
In 2013, Daniel Daou approached Enartis to isolate a yeast resistant to high fermentation temperatures and leading to stable color and balanced tannins. The isolation started with Cabernet Sauvignon grapes coming from the top block on DAOU Mountain in Paso Robles, in the Adelaida Appellation. In 2015, after many trials and selections of isolates, Enartis Ferm D20 in active dry form was produced. One year later, its success is recognized around the world!

ENARTIS FERM MB15: A UNIQUE YEAST FOR UNIQUE WINES.
The uniqueness of this strain was evident since the beginning. During the isolation process with Bannister Wines, only one genetic profile of *Saccharomyces cerevisiae* was identified throughout the fermentation. This isolate is now branded as Enartis Ferm MB15 as a tribute to the contributions of Marty Bannister to the wine industry. In just two years, Enartis Ferm MB15 has been isolated, tested and made available around world!
Enartis Ferm MB15 produces wines characterized by elegant, delicate bouquet with intense color and balanced mouthfeel.

ENARTIS FERM WS HISTORY

1989	1989-1997	1997	2011	2014
Isolated from a late harvest Zinfandel at William Seylem winery. Objective: tolerance to high alcohol	Production of slants for build-up	Production of liquid form for direct addition or for culture build-up	Trials to produce active dry Enartis Ferm WS	Production of active dry form. Available all around the world with increased success every year.

RESTART AND/OR COMPLETE A STUCK FERMENTATION

The successful restart of a stuck fermentation depends upon three critical factors: Diagnose the causes of fermentation arrest, appropriate wine treatment and proper acclimation of the yeast.

1- DIAGNOSIS

Vinquiry Laboratories by Enartis USA offers a comprehensive **Fermentation Assessment Panel** that provides essential analytical information needed to determine the cause(s) of the problem(s) and the degree of fermentation completion.

2- TREAT THE STUCK WINE BEFORE THE RESTART - 24 HOURS PRIOR TO YEAST PREPARATION

1. Press off skins.
2. Adjust pH, Alcohol, VA.
3. Remove spoilage microbes with **Enartis Stab Micro M** (15 g/hL) or **Enartis Zym Lyso** (30 g/hL) + 15 ppm of SO_2.
4. Absorb toxins with 15 g/hL of **Celferm** or **Nutriferm Control**.
5. Rack off lees 24 hours after treatment and add **Nutriferm No stop** at 30 g/hL.

3- PREPARE AND ACCLIMATE THE YEAST

STEP 1: Prepare starter

Tip: Use a sanitized tank able to hold the entire volume of stuck wine.

- Take 2.5 % of total volume of stuck wine.
- Add the same amount of water (2.5% of total volume).
- Add 15 g/hL of **Nutriferm Energy** (calculated on the entire volume of stuck wine).
- Adjust sugar level of the initial mixture to 50 g/L (5°Brix).
- Maintain temperature at 20-23°C (68-75°F).

STEP 2: Yeast rehydration

Rehydrate 30 g/hL (calculated on the entire volume of stuck wine) of **Enartis Ferm EZ FERM 44** in 10 times its weight of chlorine-free water at 104°F and wait 20 minutes.

STEP 3: Acclimate the yeast and start fermentation

- Add rehydrated yeast to STEP1 and monitor °Brix and Temperature.
- When °Brix < 2.5 (1/2 of initial °Brix), add 20 % of stuck wine to STEP 1 tank + 25 g/hL of **Nutriferm Advance** (calculated on STEP 1 volume).
- When °Brix decreases by 1/2, add another 20 % of stuck wine.
- Repeat this process until transferring the full volume of stuck wine into the starter.

Tip: When stuck wine is added to starter, do a pump-over to homogenize and blanket tanks with inert gas to protect wine.

Why use Nutriferm No Stop?

Nutriferm No Stop acts as a protector by improving yeast membrane integrity and facilitating their acclimation to hostile wine conditions. Additionally, it eliminates medium chain fatty acids and pesticides residues which may inhibit fermentation.

Why use Nutriferm Energy?

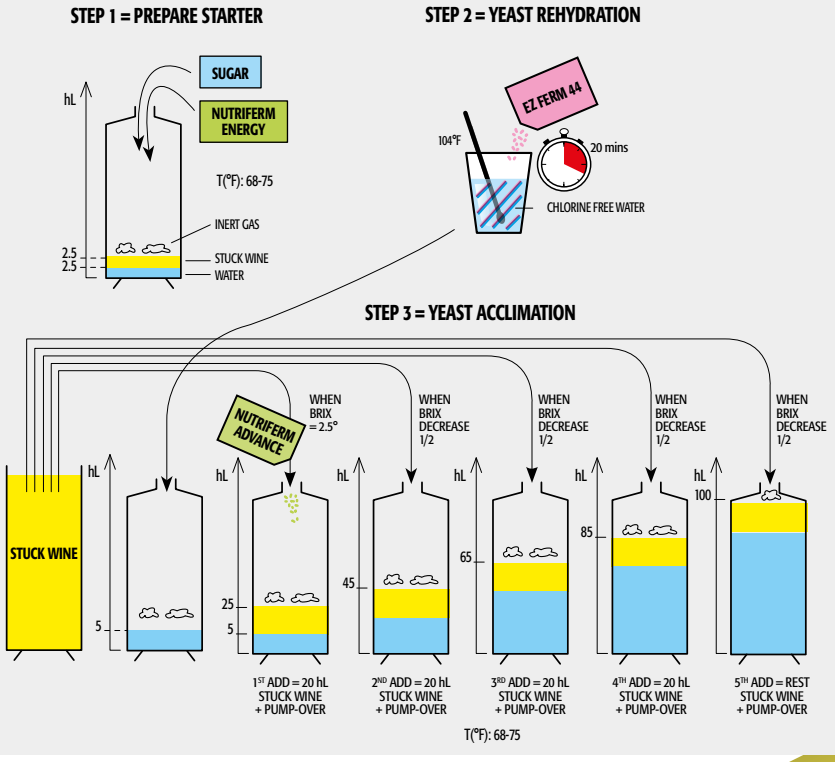
Nutrient content in stuck wine cannot support yeast growth. Using complex yeast nutrients improves yeast activity and facilitates their acclimation to hostile wine conditions. Nutriferm Energy provides essential elements for yeast development.

Why using Enartis Ferm EZ FERM 44?

It is a fructophilic yeast, vigorous fermenter with low nutrition needs. It has high implantation rate and strong resistance to alcohol and VA.

4- PRODUCT NEEDS FOR 100 HL:

WINEMAKING PRODUCT	QUANTITY (Kg)
Enartisi Stab Micro M	1.5
Celferm	1.5
Enartis Ferm EZ FERM44	3
Nutriferm Energy	1.5
Nutriferm Advance	1
Sugar or concentrate ~ 50 g/L of initial starter (500 L)	25



YEAST/VARIETAL RECOMMENDATIONS

VARIETAL	VQ 10	SB	TOP ESSENCE	AROMA WHITE	ES 123	ES FLORAL	ES 181	Q CITRUS	VINTAGE WHITE	PERLAGE	TOP 15	ES 401	VQ ASSMANSHAUSEN	MB15	RED FRUIT	ES 488	ES 454	Q5	VINTAGE RED	VQ 51	PRIMITIVO	AMR-1	WS	D20	EZ FERM	EZ FERM 44
AGLIANICO															★	★		★		★						
ALBARIÑO	★	★					★			★	★															
ARNEIS				★	★	★			★																	
BARBERA												★	★		★	★	★			★	★					
CABERNET FRANC															★		★	★	★	★				★		
CABERNET SAUVIGNON											★				★	★	★	★	★	★	★	★	★	★		★
CARIGNANE/ MONESTEL														★					★		★	★	★			
CARMENERE															★				★			★	★			
CHARBONO/DOLCETTO													★	★		★			★							
CHARDONNAY			★	★	★			★			★		★													
CHENIN BLANC		★		★	★	★	★	★	★		★															
CINSAULT														★	★	★										
DORNFELDER														★	★	★										
GEWÜRZTRAMINER	★			★	★		★	★		★	★		★													
GRENACHE														★	★		★				★	★	★			
MALBEC														★	★	★	★	★	★	★	★		★			
MARSANNE				★	★	★			★																	
MERLOT															★	★	★	★	★	★		★	★			★
MOURVEDRE														★	★	★	★			★	★	★	★			
MUSCAT		★		★	★		★	★																		
NEBBIOLO													★	★	★		★				★					
PETIT MANSENG					★		★																			
PETIT MANSENG - LATE HARVEST		★	★	★			★																			
PETITE SIRAH													★		★			★	★	★	★		★			
PETIT VERDOT													★			★			★	★	★	★	★			
PINOTAGE												★	★			★	★				★		★			
PINOT BLANC		★		★	★		★	★			★															
PINOT GRIS	★			★	★	★			★	★	★															
PINOT NOIR												★	★			★						★				
RIESLING	★			★		★	★	★	★	★	★		★													
ROUSANNE		★	★	★	★																					
SANGIOVESE													★		★	★										
SAUVIGNON BLANC	★	★		★	★		★	★		★	★															
SEMILLON				★	★	★			★		★															
SYRAH													★	★	★	★	★	★	★		★	★	★	★	★	
TANNAT													★	★		★			★		★			★		
TEMPRANILLO												★		★		★		★		★				★		
TEROLDEGO													★			★										
VIOGNIER	★	★		★	★		★	★		★	★															
ZINFANDEL													★	★		★	★			★	★		★	★	★	★

ENARTIS PRODUCT	SPECIES	OPTIMAL TEMPERATURE RANGE (°C)	LAG PHASE	FERMENTATION SPEED	ALCOHOL TOLERANCE (%v/v)	KILLER FACTOR	NITROGEN NEEDS	OXYGEN NEEDS	COMPATIBILITY WITH MLF	SENSORY IMPACT	APPLICATION								
											YOUNG WHITES	AGED WHITES	THIOL EXPRESSION	ROSÉ	YOUNG REDS	RESERVED REDS	LATE HARVEST	SPARKLING	STUCK FERMENTATION
VQ 10	*S. cerevisiae ex ph.r bayanus*	10-25	S	M	17	K	Low	Low	N	Neutral	★★	★★★		★★			★★		
SB	*S. cerevisiae ex ph.r bayanus*	10-30	S	H	15	N	Low	Low	N	Neutral	★★★			★★				★	
TOP ESSENCE	*S. cerevisiae*	15-25	S	M	15	K	M	M	Low	Esters	★★★			★★					
AROMA WHITE	*S. cerevisiae*	15-24	M	M	15	K	M	M	N	Esters	★★★	★★	★★★	★★★					
ES 123	*S. cerevisiae x S. bayanus*	15-25	S	M	14	K	H	M	Low	Esters	★★★			★★	★				
ES FLORAL	*S. cerevisiae + S. bayanus*	10-25	M	M	15	N	M	M	G	Esters	★★★	★★		★★★	★★★				
ES 181	*S. cerevisiae*	10-20	S	H	16.5	K	Low	Low	Low	Varietal	★★★	★★	★★★	★★★			★★		
Q CITRUS	*S. cerevisiae*	10-20	S	H	15	N	M	M	Low	Varietal	★★★	★★	★★	★★★			★		
VINTAGE WHITE	*S. cerevisiae*	14-24	S	M	15.5	K	H	M	G	Varietal	★★	★★★	★★	★★					
PERLAGE	*S. cerevisiae ex ph.r bayanus*	10-30	S	H	17	K	Low	Low	Low	Neutral	★★	★★★		★★★				★★★	
TOP 15	*S. cerevisiae ex ph.r bayanus*	10-28	S	H	17	K	Low	Low	N	Neutral	★★★	★★		★★	★★		★★★	★★★	
ES 401	*S. cerevisiae*	15-30	M	M	15	N	M	M	G	Esters				★★★	★★★	★			
VQ ASSMANSHAUSEN	*S. cerevisiae*	20-30	L	S	15	N	M	Low	G	Varietal	★			★	★★	★★★			
MB15	*S. cerevisiae*	18-30	M	M	16	K	M	Low	N	Varietal					★★	★★★			
RED FRUIT	*S. cerevisiae*	14-34	S	H	16	K	H	H	N	Esters				★★★	★★★	★★		★★	
ES 488	*S. cerevisiae*	15-28	S	M	16	S	H	H	G	Varietal + Esters			★★★	★	★★	★★★			
ES 454	*S. cerevisiae*	18-30	M	M	16	N	M	M	G	Varietal				★	★★	★★★			
Q5	*S. cerevisiae*	15-32	S	M	16	N	M	H	G	Varietal + Esters				★★	★★★	★★★			
VINTAGE RED	*S. cerevisiae*	18-32	S	M	16	S	Low	M	G	Varietal					★	★★★			
VQ 51	*S. cerevisiae*	20-30	S	M	16	N	M	M	G	Varietal					★★	★★★			
PRIMITIVO	*S. cerevisiae*	18-30	M	M	16.5	N	M	M	G	Varietal				★	★★	★★★			
AMR-1	*S. cerevisiae*	10-25	S	H	17	N	M	Low	N	Varietal				★★	★★	★★★	★★★		
WS	*S. cerevisiae*	16-30	S	M	18	N	Low	Low	N	Varietal						★★★		★★★	★★★
D20	*S. cerevisiae*	18-38	S	H	17	N	M	M	N	Varietal				★	★	★★★	★★		
EZ FERM	*S. cerevisiae ex ph.r bayanus*	12-34	S	H	16.5	N	Low	Low	G	Neutral							★★★		★★★
EZ FERM 44	*S. cerevisiae ex ph.r bayanus*	15-30	S	M	17.5	N	Low	Low	N	Neutral							★★★		★★★

S: Short; M: Medium; L: Long; H: High; K: Killer factor; N: Neutral; G: Good

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.

100% Organic Nitrogen

NUTRIFERM ENERGY

- Amino acids, vitamins, mineral salts and micro-nutrients.
- Shortens lag phase, prevents formation of H_2S and acetic acid, and increases production of glycerol and polysaccharides.
- Vital in initial phases of yeast multiplication.

Usage: *Dissolve in 10 times its weight of water and add after yeast inoculation.*
Dosage: *10-30 g/hL (0.8-2.5 lb/1,000 gal)*

1 Kg	**(Item #35-200-0001)**	**$ 39.50**
10 Kg	**(Item #35-200-0010)**	**$ 345.00**

NUTRIFERM AROM

- Amino acids, vitamins, mineral salts and trace elements.
- High content of selected amino acids used by yeast as precursors of aromatic compounds to increase intensity, freshness and complexity.

Tip: *To increase the aromatic impact of Nutriferm Arom, use a strong ester and acetate producer yeast.*
Usage: *Dissolve in 10 times its weight of water and add after yeast inoculation.*
Dosage: *15-30 g/hL (1.2 - 2.5 lb/1,000 gal)*

1 Kg	**(Item #35-210-0001)**	**$ 42.00**
10 Kg	**(Item #35-210-0010)**	**$ 320.00**

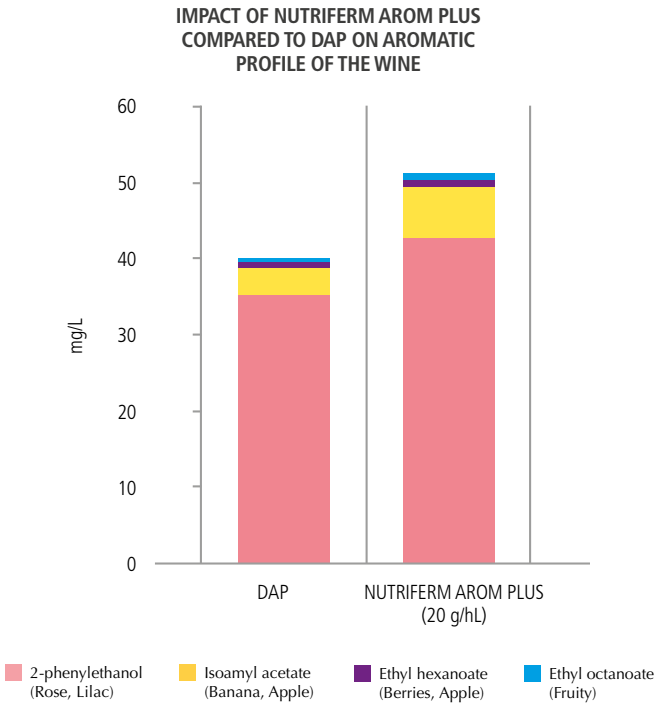
"I have been using Enartis nutrients almost exclusively for 6 years, and my copper sulfate purchases have dropped significantly, as well as my restart products." - **Lucas Meeker, Winemaker at The Meeker Vineyard (CA)**

NUTRIFERM AROM PLUS

- Amino acids, vitamins, mineral salts and micro-nutrients.
- Elevated content of selected amino acids used by yeast as precursors of aromatic compounds to strongly increase intensity, freshness and complexity.
- Provides survival factors to improve yeast viability and ensure successful fermentations.

Tip: *To increase the aromatic impact of Nutriferm Arom Plus, use a strong ester and acetate producer yeast.*
Usage: *Dissolve in 10 times its weight of water and add after yeast inoculation.*
Dosage: *15-30 g/hL (1.2 - 2.5 lb/1,000 gal)*

1 Kg	**(Item #35-211-0001)**	**$ 50.50**



Nutriferm Arom Plus increases the production and content of aromatic compounds in wine.

Nutrients Containing Di-Ammonium Phosphate (DAP)

NUTRIFERM SPECIAL

- Complex nutrient containing DAP, amino acids, thiamine and purified cell walls.
- Facilitates fermentation and prevents stuck fermentations.
- Prevents production of H_2S.

Usage: *Dissolve in 10 times its weight of water and let stand 15-20 minutes before addition to juice.*
Dosage: *30-40 g/hL (2.5-3.4 lb/1,000 gal)*

10 Kg	**(Item #35-225-0010)**	**$ 155.00**

NUTRIFERM ADVANCE

- Complex additive containing DAP yeast hulls, and cellulose.
- Prevents irregular kinetics while maintaining efficient sugar transports.
- Improves yeast alcohol tolerance, prevents H_2S formation and exerts detoxifying action.

Usage: *Suspend in 10 times its weight of warm water and add at 1/3 sugar depletion.*
Dosage: *20-40 g/hL (1.7-3.4 lb/1,000 gal)*

1 Kg	**(Item #35-215-0001)**	**$ 21.50**
10 Kg	**(Item #35-215-0010)**	**$ 155.00**

NUTRIFERM GRADUAL RELEASE

NEW

- Innovative nutrient composed of DAP, gallic tannin and untoasted oak tannins.
- Specific packaging that controls the release of its content during fermentation. Due to the particular permeability of the bag, yeast nutrients are gradually released into fermenting must. The release begins at the end of yeast growth phase (alcohol presence) and continues for up to 8 days.
- Ensures complete fermentation, prevents H_2S production, prevents stuck or sluggish fermentation and improves freshness and aromatic cleanliness.
- Facilitates nutrition management, limits cellar operation.

Tip: *To complete fermentation safely, use Nutriferm Energy, Nutriferm Arom or Nutriferm Arom Plus at inoculation and Nutriferm Gradual Release during fermentation.*
Recommendations: *Barrel fermentation; Tank fermentation; Sparkling tank fermentation (Charmat method).*
Usage: *Anchor bag to top of tank or to barrel bung before filling.*
Dosage: *20-30 g/hL (1.7-2.5 lb/1,000 gal)*

1 Kg	**(Item #35-216-0001)**	**$ 45.00**
5 Kg	**(Item #35-216-0005)**	**$ 150.00**

Fermentation Aids

CELFERM

- Pure, powdered cellulose.
- Promotes clean, healthy fermentations by removing toxins such as medium chain fatty acids (particularly C8 and C10).
- Provides solids to promote yeast growth in very clean juice, reduces H_2S formation and reduces excess copper present in wine.

Usage: *Suspend in 5 times its weight of warm water.*
Dosage: *10-20 g/hL (0.8-1.7 lb/1,000 gal)*

1 Kg	**(Item #35-220-0001)**	**$ 11.00**
20 Kg	**(Item #35-220-0020)**	**$ 200.00**

NUTRIFERM CONTROL *(Formerly Yeast Hulls)*

- Yeast cell walls.
- Absorbs autotoxic yeast metabolites and inactive yeast residues.

Usage: Dissolve in 10 times its weight of water.
Dosage: 12-25 g/hL (1-2 lb/1,000 gal)

1 lb	**(Item #30-024-0000)**	**$ 8.50**
5 lb	**(Item #30-024-0005)**	**$ 37.50**
20 Kg	**(Item #30-024-0020)**	**$ 190.00**

NUTRIFERM NO STOP

- Yeast hulls rich in sterols and unsaturated long-chain fatty acids.
- Helps maintain yeast membrane integrity, prevents and corrects fermentation anomalies.

Usage: Dissolve in 10 times its weight of water.
Dosage: *20-40 g/hL (1.67 - 3.3 lb/1,000 gal)*

1 Kg	**(Item #35-212-0001)**	**$ 25.00**

"I used Nutriferm No Stop in my wines this year and will keep doing this the following years! With an addition at 1/2 of fermentation, Nutriferm No Stop did a miracle in my wines; all the fermentations went dry; the wines are clean, fresh with complex aromas and nice full body. I'll keep that product in mind forever and always" **- Emily Haines, Winemaker at Wahluke Wine Company (WA)**

In addition to temperature and turbidity, yeast nutrition is an essential factor in managing the overall health and success of fermentations. Without proper nutrition introduced at the right stage of their growth cycle, yeast can face stress and produce undesirable characteristics. Stuck or sluggish fermentations are also hazards of poor yeast nutrition.

WHAT NITROGEN FORMS ARE NATURALLY PRESENT IN GRAPES?

Grapes provide nitrogen in the form of proteins, peptides, alpha amino acids and ammonium ions.

WHAT ARE YEAST NUTRITIONAL NEEDS?

Yeast Assimilable Nitrogen (YAN), vitamins (thiamine) and mineral salts (Mg, Zn) are essential for yeast activity. Additionally, sterols and long-chain unsaturated fatty acids are elements that protect yeast and help them to survive in stressful conditions. The quantity and quality of these compounds play an essential role in yeast metabolism, fermentation kinetics and the organoleptic profile of wine.

WHAT IS YEAST ASSIMILABLE NITROGEN (YAN)?

YAN is the sum of ammonium ions and alpha amino acids (except proline). Yeast use nitrogen for growth, protein, cell wall components, enzyme synthesis and sugar transport. Ammonium ions are fast and preferentially assimilated by yeast. Amino acids are used by yeast as a source of nitrogen and aromatic precursors to synthesize higher alcohols, esters and acetates.

HOW MUCH YAN IS NEEDED?

The range of YAN in grapes can vary depending on the vintage conditions, vineyard practices and grape variety. Generally, to build-up a sufficient yeast biomass for fermentation, a minimum YAN of 150 mg/L is required. The initial sugar content (°Brix) and initial YAN of juice are essential to determine the proper nutrition supplementation. The higher the initial sugar concentration, the more YAN is required to complete the fermentation.

YEAST NUTRITION GUIDELINES

WINEMAKING STAGE	YAN<130 mg/L	130 mg/L<YAN<200 mg/L	YAN>200 mg/L
INOCULATION	20 g/hL Nutriferm Energy Or 30 g/hL Nutriferm Arom (Plus)	15 g/hL Nutriferm Energy Or 25 g/hL Nutriferm Arom (Plus)	10 g/hL Nutriferm Energy Or 20 g/hL Nutriferm Arom (Plus)
12 HOURS AFTER INOCULATION	10-40 g/hL DAP (adjust YAN ~ 150 mg/L)	-	-
1/3 SUGAR DEPLETION	40 g/hL Nutriferm Advance	30 g/hL Nutriferm Advance	20 g/hL Nutriferm Advance
	If Brix > 25°, add 15 g/hL DAP *If Brix > 26°, add 25 g/hL DAP*	*If Brix > 25°, add 10 g/hL DAP* *If Brix > 26°, add 20 g/hL DAP*	-
	10-20 mg/L Oxygen		
1/2 SUGAR DEPLETION	15 g/hL Nutriferm No Stop		

Other factors that need to be considered:

- Temperature: An increase in temperature stimulates yeast growth and fermentation rate, thereby requiring increased levels of nitrogen.
- Turbidity: In whites and rosés, juice clarification eliminates some nutrients, sterols and fatty acids essential for yeast survival. If the turbidity after clarification is below 80 NTU, add 30 g/hL of Nutriferm No Stop.
- Fruit affected by mold requires more amino acids and vitamins than healthy fruit.
- Yeast strains: Each yeast strain has specific nutritional requirements.

WHAT IS THE YAN CONTRIBUTION OF DAP?

10 g/hL of DAP represents 20 mg/L of YAN

WHAT IS THE LEGAL LIMIT OF NUTRIENT ADDITIONS?

Maximum TTB approved limited for DAP is 96 g/hL (8 lb/1,000gal).

Yeast and Grape Polysaccharides

For those who cannot make use of the polysaccharides naturally contained in lees and grapes, Enartis offers Enartis Pro (fermentation) and Surlì (maturation) yeast and grape natural polysaccharide preparations.

The polysaccharides contained in Enartis Pro and Surlì contribute directly to wine quality by:

- **Improving aroma complexity.**
- **Balancing and reducing natural astringency.**
- **Improving mouthfeel and smoothness of wine.**
- **Improving color, tartrate and protein stability.**

Fermentation

The Enartis Pro range supplies mannoproteins and natural antioxidants to increase the stabilizing action of polysaccharides released from yeast during fermentation. This results in wines with a longer shelf life, greater stability and better sensory qualities. The Enartis Pro range is developed for addition at yeast inoculation or 1/3 of alcoholic fermentation.

ENARTIS PRO R

- Yeast derivatives that release large quantities of mannoproteins improving the sensation of volume.
- Softens astringency and improves color stability.

Recommendations: *Improve mouthfeel; enhance volume and structure.*
Dosage: *30-40 g/hL (2.5-3.3 lb/1,000 gal) in red wine*

1 Kg	**(Item #35-450-0001)**	**$ 37.00**
10 Kg	**(Item #35-450-0010)**	**$ 320.00**

ENARTIS PRO ROUND

- Yeast derivatives rich in readily-soluble mannoproteins and condensed and ellagic tannins.
- Enhances fruit aromas, softens astringency and balances mouthfeel.
- Improves color stability by promoting co-pigmentation.

Recommendations: *Rosé and young red wines; color stability; enhance fruity aromas; increase volume and structure.*
Dosage: *150-500 g/ton*

1 Kg	**(Item #35-405-0001)**	**$ 37.00**

ENARTIS PRO AROM

- Yeast derivatives rich in sulfur-containing peptides that release large quantities of mannoproteins.
- Ensures antioxidant protection.
- Produces fresher and more intense aromatic profiles.

Recommendations: *Antioxidant; aroma protection; improve mouthfeel; fresh and young whites.*
Dosage: *20-50 g/hL (1.7-4.2 lb/1,000 gal)*

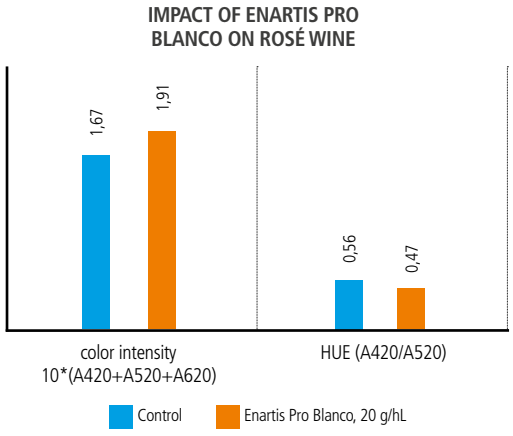
1 Kg	**(Item #35-400-0001)**	**$ 65.00**

ENARTIS PRO BLANCO

- Yeast derivatives rich in sulfur-containing peptides obtained by thermal treatment. It releases large quantities of readily-soluble mannoproteins.
- Elevates antioxidant protection.
- Enhances production of tropical and spicy aromas. Produces fresher, more intense and lasting aromas.
- Softens astringency and balances bitterness.
- Improves color, protein and tartrate stability.

Recommendations: *Antioxidant; aroma protection; improve mouthfeel; white, rosé and red wines; oak fermentation; young red wines.*
Dosage: *10-30 g/hL (0.8-2.5 lb/1,000 gal)*

1 Kg	**(Item #35-410-0001)**	**$ 105.00**



Enartis Pro Blanco added at inoculation improves color intensity and protects wine from browning (lower Hue).

"I have been using Enartis Pro Blanco for almost 10 years in fermentations to improve aromas and freshness and to increase roundness. I love the convenience of being able to apply one product on both whites and reds. It works great!" **- Michael Fay, Winemaker at Sextant (CA)**

ENARTIS PRO UNO

- Yeast derivatives rich in readily-soluble mannoproteins.
- Improves aroma persistence and color stability, increasing wine shelf life.
- Balances mouthfeel and increases roundness and volume sensation.
- Protects color and aromas against oxidation.

Recommendations: *Antioxidant; aroma protection; improve mouthfeel; red, white and rosé wines.*
Dosage: *20-30 g/hL (1.7-2.5 lb/1,000 gal)*

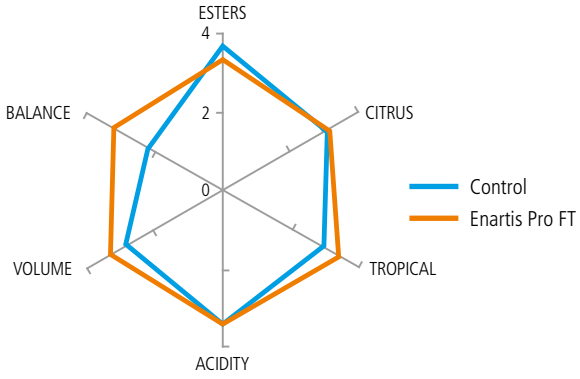
1 Kg **(Item #35-921-0001)** **$ 150.00**

ENARTIS PRO FT

- PVI/PVP and yeast derivatives rich sulfur-containing amino acids and oligopeptides, that release a large amount of readily-soluble mannoproteins.
- Removes heavy metals and limits the damaging effects of copper and iron responsible for oxidation of fermentation aromas.
- Increases expression of thiols, protects against oxidation and helps preserve fresh aromas.
- Allows production of two different wines from the same juice by modulating the aromatic profile.
- Improves resistance to oxidation.

Tip: *Enartis Pro FT can also be used to produce two different wines from the same juice by modulating the aromatic profile.*
Recommendations: *Antioxidant; enhance fruity aromas; enhance varietal aromas; improve resistance to oxidation; aroma stability; white and rosé wines; thiolic varieties.*
Dosage: *50-80 g/hL (4.2-6.7 lb/1,000 gal)*

1 Kg **(Item #35-416-0001)** **$ 135.00**



Results of trials on Sauvignon Blanc using Enartis Pro FT at inoculation. Photograph and sensory evaluation done two months after alcoholic fermentation. Enartis Pro FT added at inoculation protects against oxidation of color and aromas.

ENARTIS PRO XP

- PVI/PVP and yeast derivatives that release a large amount of readily-soluble mannoproteins.
- Removes heavy metals and limits the damaging effects of copper and iron responsible for oxidation of fermentation aromas.
- Increases fruit and fresh aromas, protects against oxidation and improves aroma freshness and shelf life.
- Improves resistance to oxidation.

Recommendations: *Antioxidant; enhance fruity aromas; improve resistance to oxidation; aroma stability in white and rosé wines.*
Dosage: *50-80 g/hL (4.2-6.7 lb/1,000 gal)*

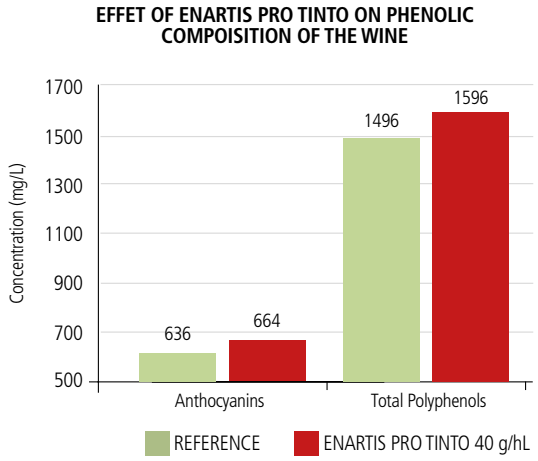
1 Kg **(Item #35-417-0001)** **$ 130.00**

ENARTIS PRO TINTO

- Yeast derivatives polysaccharides rich in readily-soluble mannoproteins and grape seed tannins and ellagic tannins.
- Specifically designed to favor anthocyanin/tannin condensation during fermentation, it increases color intensity and stability.
- Promotes bright and clean aromas, builds-up mid-palate, softens astringency and balances mouthfeel.
- The best choice for color stabilization and sensory optimization of wine.

Recommendations: *Color stability; enhance fruity aromas; improve complexity; flash-détente; red and rosé wines.*
Dosage: *150-400 g/ton*

1 Kg **(Item #35-415-0001)** **$ 150.00**



The Addition of Enartis Pro Tinto at 1/3 fermentation increased the concentration of Anthocyanins and total polyphenols in the finished wine.

Maturation

During the maturation phase, yeast and plant-based polysaccharides can be used as a substitute for natural yeast hulls or to amplify their effect. Enartis has generated a range of polysaccharide based products that improve wine sensory properties and stability.

SURLÌ ONE

- Yeast cell walls enzymatically activated.
- Contributes to protein, tartrate and polyphenol stabilization.
- Improves aromatic complexity and longevity.
- Enhances natural sensation of volume and roundness, builds-up mid-palate and improves wine length.
- Mimics lees ageing, with the security of microbial stability.

Recommendations: *Enhance roundness; aroma complexity; sur lies ageing; white, rosé and red wines.*
Dosage: *20-50 g/hL (1.7-4.2 lb/1,000 gal)*

2.5 Kg **(Item #35-425-0002)** **$ 170.00**

"Surli One was a game changer for my 2015 Merlot. It improved the mouthfeel, filled up the mid-palate, and increased the overall perception of roundness and length of the wine." **- Bénédicte Rhyne, Winemaker at Kuhlman Cellars (TX)**

SURLÌ ROUND

- Yeast cell walls, condensed tannins and ellagic tannins.
- Improves wine oak ageing capacity.
- Enhances wine structure, balance and aromatic complexity.
- Improves color intensity and stability.

Recommendations: *Increase structure and softness; aroma complexity; sur lies ageing; rosé and red wines.*
Dosage: *20-40 g/hL (1.7-3.3 lb/1,000 gal)*

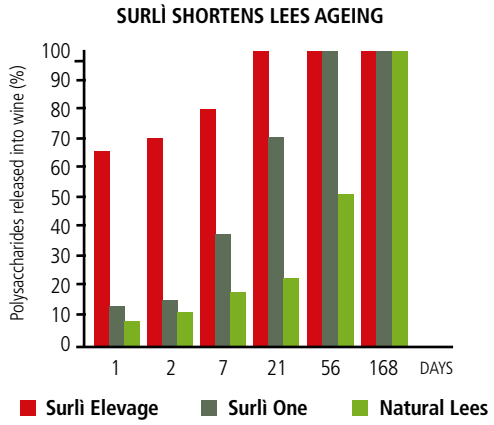
2.5 Kg **(Item #35-430-0002)** **$ 87.50**

SURLÌ ELEVAGE

- Yeast cell wall polysaccharides with high content of readily-soluble mannoproteins.
- Immediate effect and can be successfully added with only 24-48 hours of contact time.
- Improves aromatic cleanliness while preserving original fruit characteristics.
- Improves wine balance, roundness, volume sensation and length. Balances and softens astringency.

Recommendations: *Enhance roundness; aroma complexity; sur lies ageing; white, rosé and red wines; pre-bottling.*
Dosage: *5-30 g/hL (0.4-2.5 lb/1,000 gal)*

0.25 Kg **(Item #35-435-0250)** **$ 45.00**
1 Kg **(Item #35-435-0001)** **$ 160.00**



Surli Elevage and Surli One shorten lees ageing and quickly increase the content of mannoproteins in wine.

Before Bottling

How to choose the proper Surlì? In order to determine the proper Surlì to use and the appropriate dosage, we highly recommend to set up bench trials. *(See page 83 for Preparing Lab Bench Trials.)*

SURLÌ VELVET

- Completely soluble yeast cell wall polysaccharides.
- Enhances aromatic complexity and intensity, increases volume and roundness and reduces the sensation of astringency.
- Improves colloidal structure and stability of wine.

Tip: *Filterable, Surli Velvet can be added immediately prior to bottling.*
Recommendations: *Improve colloidal stability; aroma complexity; white, rosé and red wines; pre-bottling.*
Dosage: *0.50-5 g/hL (0.04-0.4 lb/1,000 gal)*

0.5 Kg **(Item #35-455-0500)** **$ 320.00**

SURLÌ VELVET PLUS

- Completely soluble yeast polysaccharides rich in sulfur-containing peptides.
- Antioxidant properties to extend shelf life of wine.
- Enhances aromatic complexity and intensity, increases volume and roundness and reduces the sensation of astringency.
- Improves colloidal structure and stability of wine.

Tip: *Filterable, Surlì Velvet Plus can be added immediately prior to bottling.*
Recommendations: *Antioxidant; extend wine shelf life; improve colloidal stability; aroma complexity; white, rosé and red wines; pre-bottling.*
Dosage: *1-10 g/hL (0.08-0.8 lb/1,000 gal)*

0.5 Kg **(Item #35-460-0500)** **$ 327.50**

SURLÌ VITIS PLUS

- Grape skin tannins and Gum Arabic.
- Enhances fresh and fruit aromas.
- Balances mouthfeel, increases length, roundness and builds up mid-palate.

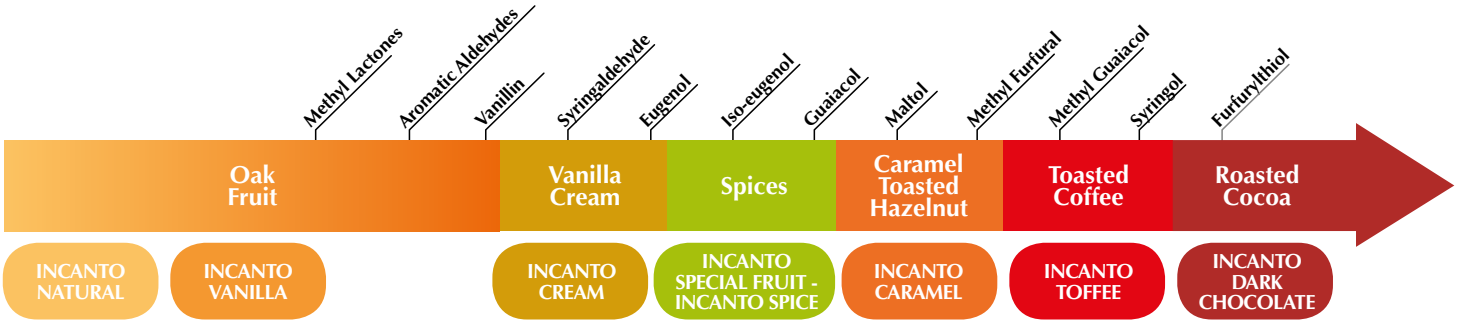
Tip: *Surli Vitis Plus can often replace fining by balancing mouthfeel and softening astringency*
Recommendations: *Improve sensory characteristics; aroma complexity; freshen aromas; balance mouthfeel; pre-bottling.*
Dosage: *2-15 g/hL (0.2-1.2 lb/1,000 gal)*

0.25 Kg **(Item #35-465-0250)** **$ 82.50**
1 Kg **(Item #35-465-0001)** **$ 295.00**

ENARTIS PRODUCT	COMPOSITION	ANTIOXIDANT	MOUTHFEEL IMPROVEMENT	SOFTENING ASTRINGENCY	AROMA PROTECTION	AROMATIC CLEANLINESS	AROMA ENHANCEMENT	COLOR STABILITY	TIMING OF ADDITION
PRO R	*Yeast derivatives*	★	★★★	★★	★	★	★		*Inoculation*
PRO ROUND	*Yeast derivatives Condensed tannins Ellagic tannins*	★★	★★★	★★	★	★	★	★★	*Inoculation*
PRO AROM	*Yeast derivatives*	★★★	★★★	★★★	★★	★★	★★		*Inoculation*
PRO BLANCO	*Yeast derivatives*	★★★	★★★	★★★	★★★	★★	★★★	★	*Inoculation*
PRO UNO	*Yeast derivatives*	★	★★★	★★★	★★	★★	★	★	*Inoculation*
PRO FT	*Yeast derivatives PVI/PVP*	★★★★	★★★	★★★	★★★	★★	★★★	★	*1 day after inoculation*
PRO XP	*Yeast derivatives PVI/PVP*	★★★★	★★★	★★★	★★	★★	★	★	*1 day after inoculation*
PRO TINTO	*Yeast derivatives*	★★	★★★★	★★★★	★★	★★	★	★★★★	*Inoculation*
SURLÌ ONE	*Yeast derivatives Enzimatically pre-activated*		★★★★	★★★★	★★	★	★	★	*Maturation*
SURLÌ ROUND	*Yeast derivatives Condensed tannins Ellagic tannins*		★★★★	★★★	★★★	★	★	★★★	*Maturation*
SURLÌ ÉLEVAGE	*Yeast hulls High content of mannoproteins*		★★★★	★★★★	★★	★★	★	★	*Maturation Pre-bottling*
SURLÌ VELVET	*Yeast mannoproteins*		★★★★	★★★★	★★	★★	★	★	*Pre-bottling*
SURLÌ VELVET PLUS	*Yeast mannoproteins*		★★★★	★★★★	★★★	★★	★★	★	*Pre-bottling*
SURLÌ VITIS PLUS	*Grape skin tannins Polysaccharides*		★★★	★★★	★	★★	★★★	★★	*Pre-bottling*

Incanto Chips and Barrel Boost

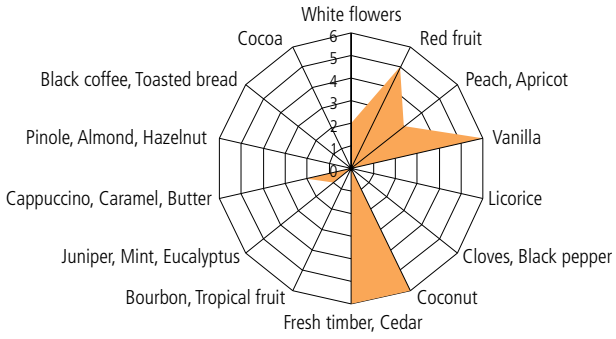
Incanto Chips and Barrel Boost Ministaves are produced from select French or American oak aged 18-36 months and toasted using a unique and original process to ensure high quality products. The convection toasting used employs a progressive heating scheme which results in a deep and homogenous toast. The result is consistent quality across all lots. The specially-selected oak in combination with the unique toasting process creates an innovative product that heightens fruit and smooth characteristics; qualities particularly appreciated by today's consumers.



INCANTO NATURAL

- Untoasted French Oak
- Enhances fruit and freshness while preserving varietal characters.
- Increases wine structure, volume, and smoothness while improving balance and finesse

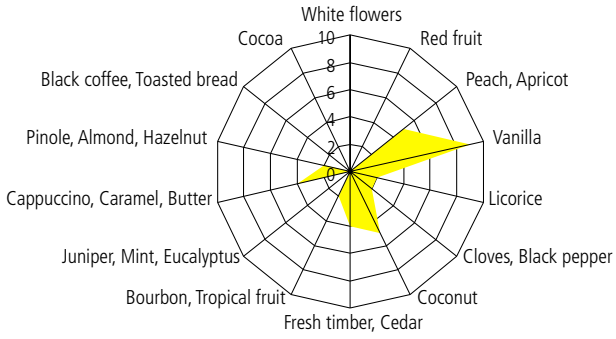
10 Kg Chips **(Item #35-922-0010)** **$ 80.00**
(not available in Barrel Boost)



INCANTO CREAM

- Medium-Toasted French Oak
- Vanilla, coconut, butter, cappuccino, and licorice.
- Increases smoothness, volume, and sweetness without imparting excessive tannins.

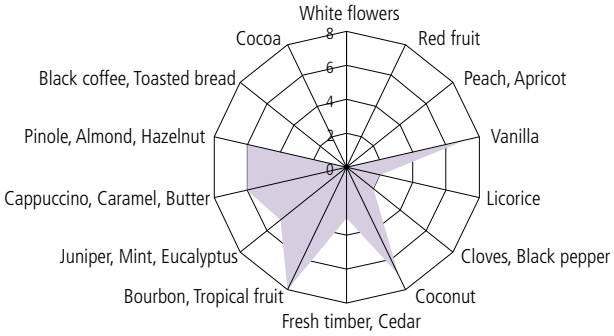
Barrel Boost **(Item #35-930-0000)** **$ 98.00**
10 Kg Chips **(Item #35-920-0010)** **$ 135.00**



INCANTO VANILLA

- Medium-Toasted American Oak
- Vanilla, coconut, cinnamon, Bourbon, honey, tropical fruit, hazelnut, toasted almond, butter.
- Increases smoothness, volume, and freshness without imparting excessive tannins.

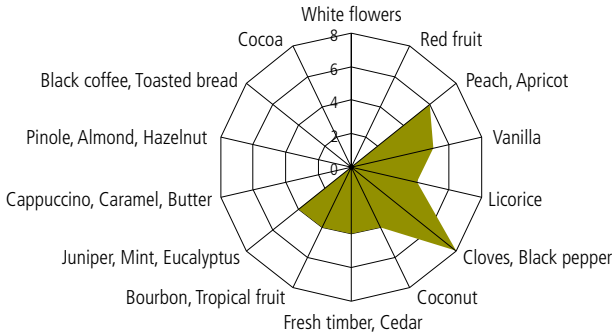
Barrel Boost	**(Item #35-930-0005)**	**$ 98.00**
10 Kg Chips	**(Item #35-925-0010)**	**$ 135.00**



INCANTO SPECIAL FRUIT

- Medium-Toasted French Oak
- Light spice, toast, chocolate, caramel, and vanilla notes that enhance fruitiness and complexity.
- Increases smoothness, volume, and structure without imparting excessive tannins.

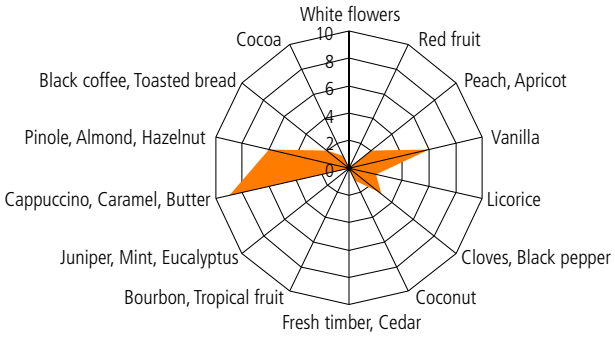
Barrel Boost	**(Item #35-930-0003)**	**$ 98.00**
10 Kg Chips	**(Item #35-923-0010)**	**$ 135.00**



INCANTO CARAMEL

- Medium-Toasted French Oak
- Caramel, cappuccino, toasted sugar, butter, almond, toasted hazelnut, vanilla, and light spice.
- Increases smoothness and sweetness.

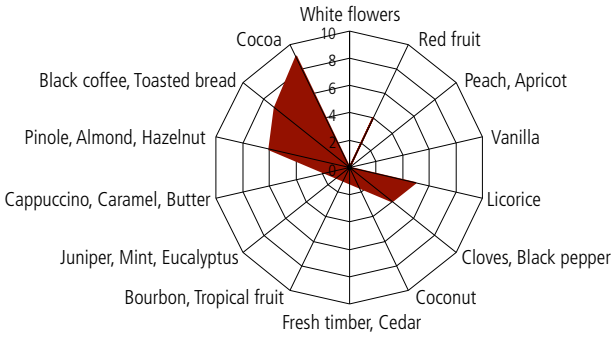
Barrel Boost	**(Item #35-930-0001)**	**$ 98.00**
10 Kg Chips	**(Item #35-919-0010)**	**$ 135.00**



INCANTO DARK CHOCOLATE

- Medium to Heavy-Toasted French Oak
- Dark chocolate, cocoa, black coffee, toasted almond, toasted hazelnut, licorice, and pepper.
- Increases volume, structure, and tannins.

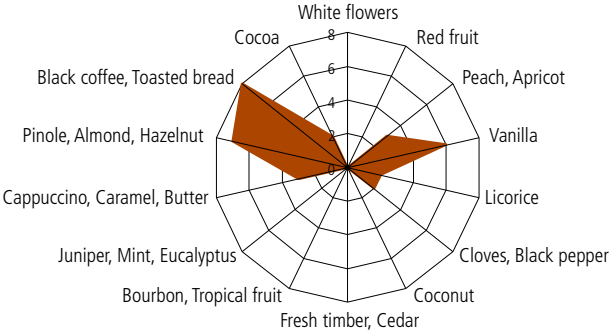
Barrel Boost	**(Item #35-930-0002)**	**$ 98.00**
10 Kg Chips	**(Item #35-921-0010)**	**$ 135.00**



INCANTO TOFFEE

- Medium to Heavy-Toasted French Oak
- Cafe macchiato, toasted bread, toasted almond, hazelnut, vanilla, and apricot.
- Very smooth, sweet, and complex.

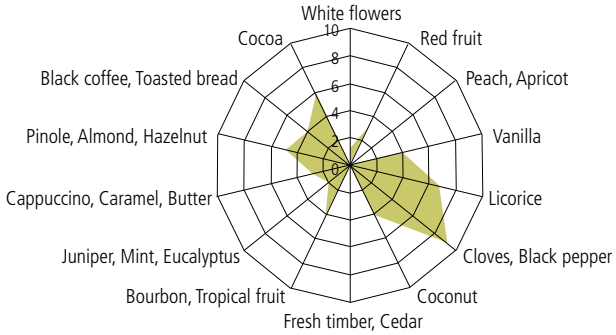
Barrel Boost **(Item #35-930-0004)** **$ 98.00**
10 Kg Chips **(Item #35-924-0010)** **$ 135.00**



INCANTO SPICE

- French and American oak treated with different toasting process.
- Very complex and intense spice aroma.
- Increases smoothness and structure.

10 Kg Chips **(Item #35-926-0010)** **$ 210.00**
(not available in Barrel Boost)



INCANTO CHIPS

Packaging: 10 Kg bags

Dosage: *1-4 g/L in white vinification*
1-6 g/L in red vinification

Contact time: Minimum of 4 weeks during ageing. During fermentation, contact time is equal to the length of fermentation.

Trials: Enartis USA offers trial kits for our oak chips. Please inquire for more information.
(See page 55 for Oak Chip Trials set up).

BARREL BOOST MINISTAVES

Packaging: 24 Ministaves

Dosage: *One chain per barrel corresponds to the addition of 25% new toasted oak*

Contact time: Minimum of 4 months, 6 months optimal.

Incanto N.C. Range

Incanto N.C. products are soluble formulations containing only the active molecules used in oak powder applications during fermentation:
- **Ellagic tannins to protect against oxidation, improve color stability and enhance structure.**
- **Wood polysaccharides to increase volume and soften tannins.**
- **Aromatic substances derived from wood and toasting. They bring aromatic complexity to the final wine.**

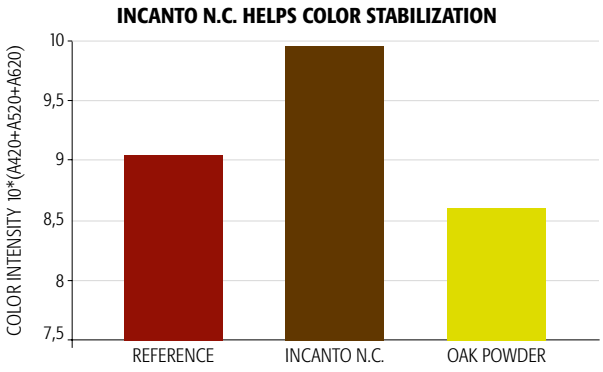
Incanto N.C. products used during fermentation provide the efficacy of oak powder while offering the following advantages:
- **Precise dosages.**
- **Consistent quality.**
- **No burnt or green wood notes.**
- **No solids that could damage mechanical parts of harvest machinery or make cleaning difficult.**
- **Ease-of-use for winery staff.**
- **Zero loss of color by solids adsorption.**

INCANTO N.C.

- Soluble oak extract from toasted oak and yeast polysaccharides.
- Mimics the effect of medium-toasted oak powder or chips.
- Enhances oak aromas and aromatic complexity, increases structure and balance.
- Improves color stability.

Recommendations: *Medium-toasted oak; color stability; increase aromatic complexity; increase volume and structure.*
Dosage: *5-50 g/hL (0.4-4.2 lb/1,000 gal)*

1 Kg	**(Item #35-916-0001)**	**$ 77.50**
10 Kg	**(Item #35-916-0010)**	**$ 675.00**



Incanto NC during fermentation improves color intensity and stability.

INCANTO N.C. WHITE

- Soluble oak extract, acacia tannins and yeast polysaccharides.
- Mimics the effect of untoasted oak powder or chips.
- Protects juice from oxidation and prevents the appearance of reductive odors. Additionally, it provides light floral and vanilla notes, increases fresh fruit aromas, and enhances softness and volume.

Recommendations: *Untoasted oak; antioxidant; increase aromatic complexity; increase volume and structure.*
Dosage: *5-50 g/hL (0.4-4.2 lb/1,000 gal)*

1 Kg	**(Item #35-918-0001)**	**$ 87.50**
10 Kg	**(Item #35-918-0010)**	**$ 775.00**

"I was pleased with the aromas and mouthfeel Incanto NC White added to my barrel aged white wines. We were able to bottle sooner and still have the effects of an extended sur lie barrel ageing program."- **Julie Holme, Winemaker at Ponte Family Winery (CA)**

INCANTO N.C. RED

- Soluble oak extract from toasted oak and yeast polysaccharides.
- Mimics the effect of medium-plus toasted oak powder or chips.
- Decreases green aromas of unripe grapes, prevents reduction and increases structure, volume and sweetness.
- Increases color stability.

Recommendations: *Medium-plus toasted oak; mask herbaceous characters; increase aromatic complexity; increase volume and structure.*
Dosage: *20-50 g/hL (1.7-4.2 lb/1,000 gal)*

1 Kg	**(Item #35-917-0001)**	**$ 87.50**
10 Kg	**(Item #35-917-0010)**	**$ 775.00**

WHAT DOES OAK BARREL AGEING DO TO WINE?
There are two main reactions happening during oak ageing: the extraction of oak compounds and oxygen diffusion. During oak ageing, wine aromatic complexity increases, color stability is enhanced, astringency is reduced, and structure becomes softer.

WHY THERE IS SO MUCH VARIATION IN OAK AROMAS?
There are many causes of variation and many of them interact to form a wide array of potential aroma profiles.
- Source of the oak: oak species, geographic origin, growing conditions and age can strongly affect wood structure and composition.
- Staves position on a trunk has been shown to influence its aroma composition.
- Stave seasoning and drying: Kiln drying or air drying, time, humidity…
- Cooperage processes add a considerable layer of variability.

WHAT IS THE EFFECT OF TOASTING?
Toasting oak during barrel processing modifies the structure and chemical properties of wood. Increasing temperature and length of toasting will:
- Reduce oak lactone content that contributes to "fresh oak" and coconut aromas.
- Increase "vanilla", "caramel-like" and "roasted coffee" aromas associated with vanillin, furfural, 4-methylfurfural and maltol. At heavy toast levels these compounds decrease and are replaced by "spicy" (eugenol, isoeugenol, 4-methylguaiacol) and "smoky" characters (4-methylguaiacol, guaiacol, 2-methylphenol).

WHY USE BARREL ALTERNATIVES?
- Cost is the most common reason of using barrel alternatives. Using barrel alternatives reduces 'oak' investment (at least 10 times lower), cellar work, storage space and microbiological risks.
- Timing can be reduced. Contact time: 6-8 months for the **Enartis Incanto Barrel Boost** and 4 weeks for **Enartis Incanto Chips**.
- Consistent and qualitative product for enological expectations and requirements.

HOW TO FIND THE RIGHT OAK ALTERNATIVE ?
Define the targeted wine profile, the time available for ageing and the budget. Enartis offers trial kits containing small bags of oak chips to soak in wine for 3 weeks to run bench trials and find the right product or blend.

WHAT ABOUT STORAGE AND REUSE OF OAK ALTERNATIVES?
Oak alternatives should be treated with care and stored in a clean, dry warehouse and in original packaging. Reuse is not recommended: the extraction and result will be different and risk microbial contamination.

Oak Chip Trials

A WIDE RANGE OF OAK ALTERNATIVES

The extraction of oak compounds (oak aromas, polyphenols, polysaccharides,…) as well as the sensory impact on wine depend on many variables including the physiochemical characteristics of wine (pH, alcohol, titratable acidity, volatile acidity and SO_2), wine buffer capacity, storage temperature, contact time, etc.
When deciding which oak chips to use, we always recommend setting up trials. This way, winemakers can base their oak derivatives decision on accurate data and tasting.

Trial Set-Up:
- Use a 1.5 L wine bag.
- Weigh the selected oak chips (Enartis sample bags contain the amount for a 6.5 g/L addition in 1.5 L).
- Add chips to bag.
- Write the date, wine lot, oak chips name and dosage on the label. Also prepare a control sample, without oak ships.
- Fill bag with wine. Be cautious of the oxygen input during filling and head space. We suggest an addition of 5 ppm SO_2 at filling to protect wine against oxidation.
- Taste after three weeks of soaking.

Malolactic Fermentation

ML Bacteria

ENARTIS ML ONE

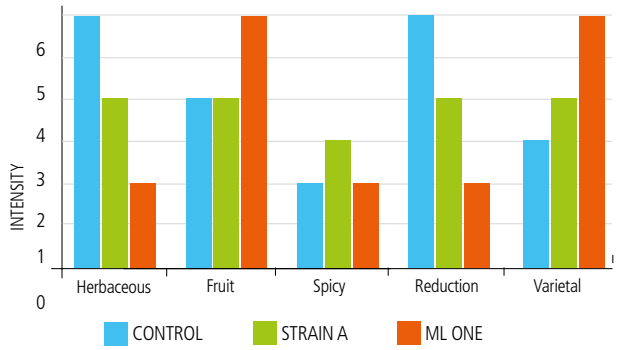
- Freeze-dried form for direct addition after rehydration.
- Ensures complete malolactic fermentation.
- Produces clean and fruity aromas and reduces herbaceous notes.
- Low production of biogenic amines.

Recommendations: *White, rosé and red wines; medium-speed MLF; clean and fruity wines.*

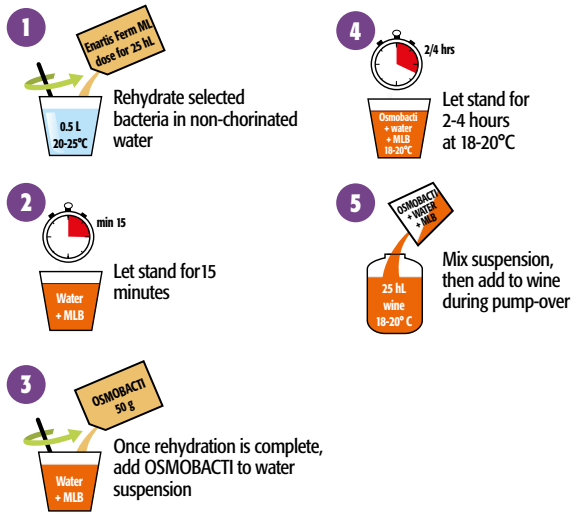
Package designed for:

2.5 hL (66 gal)	**(Item #35-500-0000)**	**$ 15.00**
25 hL (660 gal)	**(Item #35-500-0025)**	**$ 72.00**
250 hL (6,600 gal)	**(Item #35-500-0250)**	**$ 580.00**

SENSORY IMPACT OF ENARTIS ML ONE:
Cabernet Sauvignon



PROTOCOL FOR ML BACTERIA PREPARATION AND INOCULATION



ENARTIS ML SILVER

- Freeze-dried form for direct addition after rehydration.
- Isolated from Sonoma County, California.
- Fast and complete malolactic fermentation even under difficult conditions such as high alcohol and polyphenol content.
- Respects aromatic characteristics of wine and does not produce biogenic amines.

Recommendations: *ML in difficult conditions; high alcohol; low pH; white, rosé, red and sparkling wines; fruity wines.*

Package designed for:

2.5 hL (66 gal)	**(Item #35-505-0000)**	**$ 22.00**
25 hL (660 gal)	**(Item #35-505-0025)**	**$ 120.00**
250 hL (6,600 gal)	**(Item #35-505-0250)**	**$ 705.00**
1,000 hL (26,400 gal)	**(Item #35-505-1000)**	**$ 2,600.00**

ENARTIS ML MCW

- Freeze-dried form.
- Extremely resistant to difficult conditions (low pH, high alcohol).
- Develops creamy and buttery notes.

Recommendations: *ML in difficult conditions; high alcohol; low pH; white, rosé, red and sparkling wines; creamy, buttery aromas.*

Build-up form: (dosage: 1g /hL)

10 g	**(Item #30-031-0010)**	**$ 60.00**
40 g	**(Item #30-031-0040)**	**$ 100.00**
120 g	**(Item #30-031-0120)**	**$ 220.00**
500 g	**(Item #30-031-0500)**	**$ 650.00**

Direct addition - package designed for:

2.5 hL (66 gal)	**(Item #30-031-0003)**	**$ 28.00**
25 hL (660 gal)	**(Item #30-031-0025)**	**$ 125.00**
250 hL (6,600 gal)	**(Item #30-031-0250)**	**$ 720.00**

ML Nutrients and Activators

NUTRIFERM OSMOBACTI

- Activator and regulator of osmotic pressure specific for ML bacteria.
- Improves survival rate of ML bacteria during rehydration and resistance in difficult wine conditions.
- Activates ML bacteria, thus allowing a faster start and completion of malolactic fermentation.

Recommendations: *Nutrient during rehydration; ML in difficult conditions; increase MLF speed.*
Dosage: *50 g for each 25 hL dose of bacteria*

100 g **(Item #35-511-0100)** **$ 6.00**

NUTRIFERM ML

- Nutrient specific for ML bacteria: amino acids, vitamins, polysaccharides, cellulose, and co-factors.
- Stimulates bacterial growth, ensures domination of inoculated strain over natural flora, improves cell division and reduces the length of malolactic fermentation.

Recommendations: *ML in difficult conditions; prevent stuck/sluggish MLF; increase MLF speed.*
Dosage: *20-30 g/hL (1.7-2.5 lb/1,000 gal)*

50 g **(Item #35-510-0050)** **$ 12.50**
1 Kg **(Item #35-510-0001)** **$ 30.00**

ENARTIS STRAINS	ML MCW	ML SILVER	ML ONE
SPECIES	*Oenococcus oeni*		
pH TOLERANCE	3.1	3.1	3.2
TOTAL SO_2 RESISTANCE (mg/L)	40	45	40
FREE SO_2 RESISTANCE (mg/L)	<10	<10	<10
ALCOHOL TOLERANCE (%v/v)	>15	>15	14
CONVERSION SPEED	Moderate/High	High	Moderate

Malolactic fermentation (MLF) is the conversion of malic acid into lactic acid by *Oenococcus oeni* that impacts wine quality and stability. The success of MLF depends on wine conditions, the choice of *Oenococcus oeni* strain and the preparation of the inoculum.

WHAT ARE THE PRINCIPAL FACTORS INFLUENCING THE DEVELOPMENT OF LACTIC ACID BACTERIA (LAB)?

pH, temperature, alcohol and SO_2 (Free and Total) have a negative synergistic effect, making the completion of MLF difficult when combined. Additionally, vineyards sprays, initial malic acid content, yeast strain used for alcoholic fermentation and wine polyphenol content can be stress factors. Problems can arise when pH is low (<3.4), alcohol is high (>14.5%), wine temperature is low (<65°F) or high (>80°F), total SO_2 is high (>30 mg/L) and/or free SO_2 is high (>10 mg/L).

HOW TO CHOOSE WHICH ML BACTERIA STRAIN TO USE

Each strain of bacteria performs best within specific environmental parameters. It is very important to know wine characteristics prior to inoculating with *Oenococcus oeni*. The **Quick ML Activity Test**, offered by Vinquiry Laboratories by Enartis USA, rates wines based on fermentation conditions and recommends the appropriate bacteria strain and, if needed, suggested adjustments in order ensure a successful ML fermentation, even in challenging conditions.

DOES THE YEAST STRAIN USED FOR ALCOHOLIC FERMENTATION AFFECT MLF?

Yes. Some yeast strains can inhibit Lactic Acid Bacteria (LAB) development. Additionally, yeast strains differ in nutrient demand, SO_2 production and rate of autolysis which has an effect on the bacteria. *(See page 43 for yeast strain compatibility with malolactic bacteria).*

WHAT ARE THE RISKS OF A SPONTANEOUS MLF?

Uncontrolled, spontaneous MLF can result in masked aromas and production of off-characters such as yogurt, rancid, sweat, burnt matches or even rotten fruit. Another undesirable consequence of spontaneous growth is the production of biogenic amines (associated with off-aromas and regulated by some countries). Inoculating with selected *Oenococcus oeni* ensures a rapid onset of MLF and better control over the production of aromas and wine mouthfeel.

WHAT NUTRIENTS DO ML BACTERIA NEED?

As with any microorganisms, *Oenococcus oeni* need specific nutrients and growth factors to develop healthy cells and conduct and complete the malolactic conversion. Bacteria require the presence of several amino acids, peptides, vitamins and minerals. **Nutriferm ML** is a nutrient designed to meet *Oenococcus oeni* needs.

WHAT ABOUT OXYGEN AND LAB?

Molecular oxygen stimulates the growth of some LAB, behaving as a growth factor just as in the case of yeast. However, if too much oxygen is applied, acetic acid may be produced.

HOW TO MONITOR MLF?

The most common way to monitor MLF is by tracking malic acid degradation. MLF is considered complete when Malic Acid is below 30 mg/100 mL.

WHAT ABOUT THE PRODUCTION OF DIACETYL?

Produced by LAB, this compound has a nice, characteristic buttery note at low concentrations and can become buttered popcorn and rancid taint at high concentration (> 4 mg/L).
Diacetyl is formed from pyruvate, which comes from acid and sugar catabolism. The entire winemaking process impacts the production of diacetyl: a slower MLF speed (with low inoculation rate and/or low temperature) and slightly oxidative environment will increase diacetyl production, while yeast lees contact will break down diacetyl in an irreversible way, thus reducing its content in wine.

CAN I SAVE SOME OF THE BACTERIA TO USE LATER?

No. Once the packet of bacteria is open, it must be used immediately. Exposure to oxygen and excess moisture can be detrimental to the survival of the bacteria.

PROTOCOL FOR MALOLACTIC FERMENTATION IN DIFFICULT CONDITIONS

For a successful malolactic fermentation in difficult wines (low pH, high alcohol content), we suggest preparing a starter culture:
Example for 100 hL wine:

1. Rehydrate 4 packages of 25 hL dose of **Enartis ML Silver** as indicated in the technical data sheet.
2. After 15 mins of rehydration, dissolve 200 g of **Nutriferm OsmoBacti** directly in same water suspension and wait 2-4 hours. Keep at 64-68°F.
3. In the meantime, prepare:
   - 50 L Water
   - 50 L Wine
   - 1 Kg Nutriferm ML
4. Adjust the mixture pH > 3.3, if necessary.
5. Inoculate the mixture with bacteria inoculum previously prepared.
6. At 1/2 of malic acid depletion, add 200 L of wine and 1 Kg of Nutriferm ML and inoculate the remaining 97.5 hL of wine. 7. Keep wine at 17-20°C (64-68°F) until end of fermentation.

PROTOCOL TO RESTART A MLF:

After obtaining critical analytical information (**Malolactic Assessment Panel**), proceed as follows:

1. Prepare the stuck-MLF wine by removing potential inhibitory toxins and inhibitory organisms.
- Adjust pH, Alcohol, VA
- Remove spoilage microbes with **Enartis Stab Micro M** (10-20 g/hL)
- Absorb toxins (medium chain fatty acids and pesticides residues) with 15 g/hL of **Celferm**
2. Rack off lees 24 hours after treatment.
3. Adjust the temperature of wine to 18-22°C (65-72°F).
4. Prepare fresh ML bacteria with **Nutriferm Osmobacti** and add to the stuck wine.
5. Add **Nutriferm ML** at 20 g/hL to the stuck wine.

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 system offers wineries the opportunity to precisely diffuse measured amounts of oxygen, creating solutions for various winemaking objectives. The innovative software and flow sensing technology automatically adjusts to changes in temperature and pressure according to the selected oxygen dosage amount, creating definitive results. Winery can select between either preset or user specific programs for unique application based on individual wine profile. This device has the capabilities of improving yeast health throughout fermentation, minimizing reductive and off aromas, solidifying color, aiding in mouthfeel and tannin evolution during maturation, mimicking barrel aging with complimentary use of oak alternatives and opening up a wine prior to bottling. Upon request, customized systems can be manufactured.

Recommendation: *Micro-oxygenation; macro-oxygenation; juice oxygenation; yeast starter preparation; during alcoholic fermentation; mimic racking or delestage.*

Enartis MicroOx 1 **(Item #50-300-1000)**
Enartis MicroOx 2 **(Item #50-300-2000)**
Enartis MicroOx 5 **(Item #50-300-5000)**
Enartis MicroOx 10 **(Item #50-300-1010)**
Enartis MicroOx 20 **(Item #50-300-1020)**
Custom size units avaible upon request.

Please inquire for pricing.

ENARTIS MICROOX PERLAGE

Enartis MicroOx version specifically developed to dose oxygen during secondary fermentation in pressure vessels for the production of sparkling wines. Enartis MicroOx Perlage 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 alcohol tolerance; and at completion of "prise de mousse" to prevent and resolve reduction problems. Enartis MicroOx Perlage is available in the standard version with 1, 2, 5 or 10 dosing points. Upon request, customized systems can be manufactured.

Recommendation: *Micro-oxygenation; macro-oxygenation; pressured tank; "prise de mousse" ; yeast starter preparation.*

Please inquire for pricing.

Micro-oxygenation is a technique that involves the addition of controlled amounts of oxygen to wine. The speed and rate of oxygen additions are very important. Rapid exposure to high doses of oxygen can quickly saturate wine, resulting in the accumulation of oxygen leading to oxidation, browning and loss of aromas. The objective of MOX is to allow small doses of oxygen to slowly be consumed through redox reactions, thus avoiding oxygen accumulation.

USE OF MOX IN WINEMAKING

CONTROLLED JUICE/ MUST OXYGENATION	
Objective	Improve resistance to oxidation and pinking. Enzymatic oxidation reactions (browning, loss of polyphenols) are forced and controlled to remove precursors of oxidation and stabilize wine.
Average rate	5-30 mg/L
Timing	After pressing. Treatment usually done in 2-6 hours.
Recommendations	No SO_2, healthy grapes, no spoilage microbes present, juice temperature at 10-13°C (50-55°F). Fining after treatment with **Claril SP.**
PREPARATION OF STARTER CULTURES	
Objective	Aerobic yeast metabolism to increase biomass production. Increase the production of unsaturated fatty acids and sterols to improve yeast cell membrane fluidity and resistance.
Average rate	3 mg/L every 3-4 hours. Total amount ~ 12 mg/L
Timing	After yeast rehydration step.
Monitoring	Yeast cell count and viability.
Recommendations	Effect reinforced with addition of **Nutriferm Energy.**
DURING ALCOHOLIC FERMENTATION	
Objective	Increase production of unsaturated long-chain fatty acids and sterols to improve yeast cell membrane fluidity and resistance. Decrease production of sulfur compounds.
Average rate	10-15 mg/L
Timing	At 1/3 of fermentation. Treatment usually done in 1-3 hours.
Recommendations	Effect reinforced with addition of **Nutriferm Advance**. If reductive characters occur, add 7-10 g/hL of **Enartis Tan Max Nature**.
BETWEEN ALCOHOLIC FERMENTATION AND MALOLACTIC FERMENTATION (MLF)	
Objective	Stabilize color compounds, improve wine structure and minimize herbaceous and reductive characters. Production of acetaldehyde (product of ethanol oxidation), to act as a bridge in polymerization reactions and create more stable color compounds.
Average rate	1-4 mg/L/day for 4-7 days
Timing	After alcoholic fermentation and pressing, prior to malolactic fermentation. Application during 4 to 7 days.
Recommendations	Remove any spoilage microbes with **Enartis Stab Micro M** fining followed by racking. Temperature range: 15-20°C (59-68°F) Use with **Enartis Tan Microfruit,** 10-20 g/hL or **Enartis Tan E,** 10-20 g/hL to have a tannin/anthocyanin ratio of 4:1.
Monitoring	Daily sensory analysis to detect acetaldehyde (green apple aroma). Analysis: **Micro-ox Panel** (free SO_2, acetic acid, Wine Phenolic Fingerprint and color absorbance 420/520), dissolved oxygen and acetaldehyde. Assess pH and malic acid before ML.
POST MALOLACTIC FERMENTATION - MATURATION	
Objective	Improve, develop and harmonize mouthfeel and aromas. Mimic barrel ageing.
Average rate	0.5 - 3 mg/L/month
Timing	After MLF. Over a few months.
Recommendations	Depending on objectives, use tannins, polysaccharides or oak alternatives. - To mimic barrel ageing, use Incanto oak chips or oak tannins with **Surli One** - To reduce green characters, use **Enartis Tan Max Nature** - To increase fruitiness, use **Enartis Tan Microfruit**
Monitoring	Weekly tasting. Analysis: **Micro-ox Panel, Microscopic Scan.**

Norton wine. Control and treated with Micro-Ox (2 mg/L/day for 5 days between alcoholic and malotactic fermentation). Four months after ageing.

PARAMETERS TO MONITOR DURING MICRO-OXYGENATION

Micro-oxygenation is used to speed up the development of stable color in red wine, as well as improve mouthfeel and aroma profile. During this process, it is important to evaluate whether these goals are being accomplished and also avoid over-processing. Monitor these critical parameters on a bi-weekly basis:

Temperature impacts oxygen solubility and the speed of reactions. A temperature between 15-20˚C (59-68˚F) allows for the best integration of oxygen in wine.

Dissolved Oxygen (DO): Oxygen should be added in a manner so it does not cause an increase in dissolved oxygen. Measuring DO helps to adjust the dosage rate. DO should stay below 0.5 mg/L.

Volatile Acidity (VA): An increase in VA is an indicator of microbial spoilage and/or too high rate of oxygen dosing.

Free SO_2: A typical decrease is 1 mg/L of Free SO_2 for 3-4 mg/L of oxygen. A rapid decrease in Free SO_2 indicates too high rate of oxygen dosing and/or microbial spoilage.

Polyphenol Content serves as an indicator of the potential for a wine to be treated with oxygen, as well as a guide for a starting dosage rate. Additionally it also provides information on required addition of tannins.

Acetaldehyde: An increase of acetaldehyde indicates too high rate or too long application of oxygen. When acetaldehyde is higher than the sensory threshold of 40–100 ppm, dosing should be stopped.

Tasting is crucial to fine tune the optimal oxygen dosage that should be adjusted based on the evolution of sensory characteristics.

Vinquiry Laboratories by Enartis USA offers a targeted **Micro-ox Panel** that provides all the essential analysis to determine the progress of micro-oxygenation and the degree of completion.

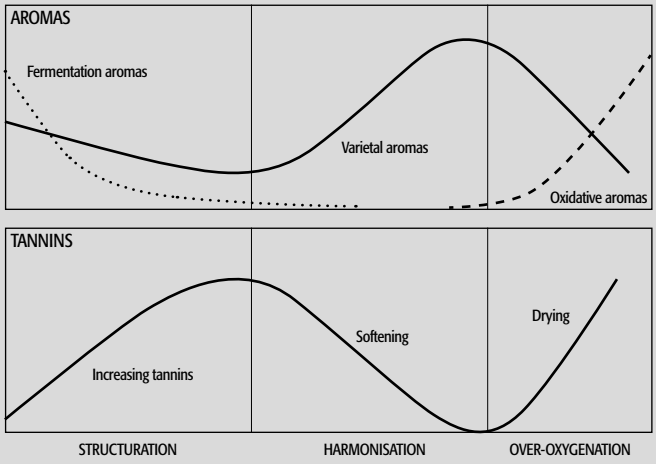
GENERAL SENSORY EVOLUTION OF MICRO-OXYGENATION

During micro-oxygenation treatment, wines go through three stages that can be distinguished by changes in aroma and tannin appearance:

1-Structuring: Tannins become more reactive and aggressive. Acidity stands out. Fresh, fruity and fermentation aromas decrease.

2-Harmonization: Tannins become less reactive and softer as the tannins condense to medium/high molecular weight. Color becomes darker and more stable, fruit flavor and complexity increases and acidity perception decreases; the palate is fuller and rounder. Oxygen dosage will be slowly decreased. Tasting is the best way of deciding the time to stop treatment.

3-Over-oxygenation: Mid-palate becomes thinner and tannins are dryer, resulting from excessive polymerization and increasing development of aldehyde and oxidation of aromas and flavors.



Classic evolution of aromas and tannins in wine during micro-oxygenation

Stabilizing Agents

Because of their purity and microbial stability, all of our stabilizers can be added with confidence at any stage during preparation for bottling.

Gum Arabic

Gum Arabic, extracted from Acacia Verek or Acacia Seyal is widely used in food, beverages and pharmaceuticals to assist in the formation and stabilization of emulsions and in the encapsulation of flavors. The major applications for Gum Arabic in winemaking are to stabilize wine against tartrate precipitation, stabilize young red wines against color pigment precipitation and to improve palate softness. Not all Gum Arabic products have an impact on tartrate stability (even within our own range).

In keeping with its philosophy of meeting different winemaking needs with appropriate products, Enartis has developed a complete range of Gum Arabic preparations. By careful selection of raw materials and production processes, Enartis has developed several products that meet all winemaking needs.

CITROGUM®

- Solution of Gum Arabic extracted from *Acacia Seyal* with low calcium content and high hydrolysis.
- Prevents precipitation of colloids, pigments and tartrates.
- Improves wine balance and organoleptic features.
- Enhances aroma, reduces bitterness and astringency and increases softness and body.
- The most filterable gum on the market! No filter membrane clogging effect!

Recommendations: *Tartrate stability; reduce astringency perception; soften mouthfeel.*
Dosage: *0.5-2 mL/L (1.9-7.6 L/1,000 gal)*

1 L	**(Item #35-725-0001)**	**$ 11.00**
25 Kg	**(Item #35-725-0025)**	**$ 187.50**
200 Kg	**(Item #35-725-0200)**	**$ 1,000.00**
1,000 Kg	**(Item #35-725-1000)**	**$ 4,500.00**

CITROGUM®: TARTRATE STABILIZATION MECHANISM
Prevention of crystal growth by competing with K and tartrates ions.

MODEL SOLUTION WITH 13% ALCOHOL

MODEL SOLUTION WITH 13% ALCOHOL + 2 mL/L CITROGUM

The addition of Citrogum® prevents crystal growth by competing with potassium and tartrate ions for attachment sites on the surfaces of microcrystals.

CITROGUM® DRY

- Granulated form of Citrogum®. The properties of Citrogum® Dry (low calcium content, solution clarity, sensory and stabilizing characteristics, filterability) are similar to those of liquid Citrogum®.
- Impurity-free Gum Arabic that dissolves quickly both in water and wine without forming lumps.

Recommendations: *Tartrate stability; reduce astringency perception; soften mouthfeel.*
Dosage: *10-100 g/hL (0.8-8.3 lb/1,000 gal)*

1 Kg	**(Item #35-730-0001)**	**$ 40.00**
15 Kg	**(Item #35-730-0015)**	**$ 465.00**

AROMAGUM

- Gum Arabic solution.
- Stabilizes wine aromas, intensifies fruit aroma perception and maintains freshness over time after bottling.
- When used at recommended dosages, it has a limited blocking effect on filtration membranes and can be added to wine before microfiltration.

Recommendations: *Aromas stability; reduce astringency perception.*
Dosage: *0.5-1 mL/L (1.9-3.8 L/1,000 gal)*

1 L	**(Item #35-720-0001)**	**$ 13.00**
25 Kg	**(Item #35-720-0025)**	**$ 243.50**

MAXIGUM

- Gum Arabic solution obtained from *Acacia Verek*. High molecular weight, highly branched structure.
- Extremely effective in preventing precipitation of color substances in wine ready for bottling.
- Improves the sensory characteristics of wine, increases mouthfeel and reduces astringency sensation.

Recommendations: *Color stability; volume and roundness; reduce astringency perception.*
Dosage: *0.2-1 mL/L (0.76-3.8 L/1,000 gal)*

1 L	**(Item #35-735-0001)**	**$ 15.50**
25 Kg	**(Item #35-735-0025)**	**$ 225.00**

Carboxymethyl Cellulose

What is Carboxymethyl cellulose (CMC)?
CMC is a cellulose derivative, synthetized by the reaction of cellulose with chloroacetic acid in basic solution. It is a food additive used as an emulsion agent in many food preparations including ice cream, yogurt, sauces, fruit juices, etc. The production process strongly impacts the properties of CMC molecules, characterized by their polymerization and substitution degrees (number of carboxymethyl groups per glucose unit). These parameters affect viscosity and solubility; important parameters for winemaking application.

How CMC works?
Numerous studies have shown that CMC interferes with potassium bitartrate crystal nucleation and growth, hence inhibiting their precipitation. CMC, negatively charged at wine pH, competes with bitartrate ions by attracting K^+ ions, thus inhibiting the formation of crystals and tartrate precipitation.

CMC and proteins: what are the interactions?
CMC has the ability to crosslink with proteins in wine to form a haze. Consequently, wines must be protein and colloid stable before any CMC additions. Note: Lysozyme is a protein and will generate a haze if present with CMC. CMC should not be added to wines that have been treated with lysozyme.

Why use CMC?
CMC has certain practical advantages: cost and energy savings, more environmentally friendly than physical treatments and a long-lasting effect.

What about CMC in red wines?
CMC can react with color compounds and result in color precipitation. To use CMC in red wines, it is important to stabilize color compounds by using Maxigum in combination with CMC.

Cellogum L stabilizes against tartrate precipitation and Maxigum stabilizes color matter.

CELLOGUM L

- Solution of Carboxymethyl cellulose (CMC).
- Stabilizes against tartrate precipitation over long-term and inhibits the formation, growth and precipitation of potassium bitartrate crystals.

Tip: *If used to stabilize red wine, needs to be combined with Maxigum to stabilize color.*
Recommendations: *Tartrate stability; white, rosés and sparkling wines.*
Dosage: *100-200 mL/hL (3.8-7.4 L/1,000 gal)*

1 L	**(Item #35-795-0001)**	**$ 8.00**
25 Kg	**(Item #35-795-0025)**	**$ 156.25**
200 Kg	**(Item #35-795-0200)**	**$ 1,150.00**

"Tartaric stability has always been a challenge in winemaking and sometimes is a source of tough decisions right before bottling. Last year, we started encouraging and assisting our customers to use in-line dosing following the final filter; Cellogum L for white wine and Maxigum+Cellogum L for red wine. The dosage is established before bottling through bench trials and verification of the wine stability. The result of this practice is particularly important since it implied considerable savings in terms of economy and time. With adequate doses of Cellogum L and Maxigum, it is possible to considerably reduce the time of the tartaric stabilization process carried by refrigeration in the case of wines with high instability and, in the case of products with intermediate instability, even plausible to replace the cold stabilization with the simple addition of these products.
Thanks to Enartis, we are happy to provide this convenient tool to winemakers to help them achieve perfect stability in the bottle without the concern of blockage of membranes."
Matteo Meglioli, Enologist at Viniserve (Canada)

"We use Cellogum L on our whites and rosé whenever possible. It is the best alternative to chilling for tartrate stabilization and it doesn't impact the mouthfeel of the wine. Enartis offers the CMC Panel to test if Cellogum L can be used and how much Cellogum L is required to be tartrate and colloid stable. They make it easy and convenient - that's one of the reasons we will continue to use it for years to come."- **Kevin Sass, Winemaker at Halter Ranch (CA).**

CELLOGUM LV 20

- Solution of Carboxymethyl cellulose (CMC) with low viscosity and high substitution degree.
- Stabilizes against tartrate precipitation over long-term. Inhibits the formation, growth and precipitation of potassium bitartrate crystals.
- Because of its low viscosity, it has a low impact on wine filterability.

Tip: *If used to stabilize red wine, needs to be combined with Maxigum to stabilize color.*
Recommendations: *Tartrate stability; white, rosé and sparkling wines.*
Dosage: *25-50 mL/hL (0.95-1.9 L/1,000 gal)*

1 L	**(Item #35-794-0001)**	**$ 31.00**
25 Kg	**(Item #35-794-0025)**	**$ 675.00**

Mannoproteins

ENARTIS STAB CLK+

- Completely-soluble polysaccharides extracted from yeast cell walls.
- Stabilizes against tartrate precipitation.
- Increases mouthfeel, roundness and volume sensation.

Recommendations: *Tartrate stability; increase volume and roundness; red and rosé wines.*
Dosage: *5-20 g/hL (0.4-1.7 lb/1,000 gal)*

0.5 Kg	**(Item #35-360-0002)**	**$ 237.50**

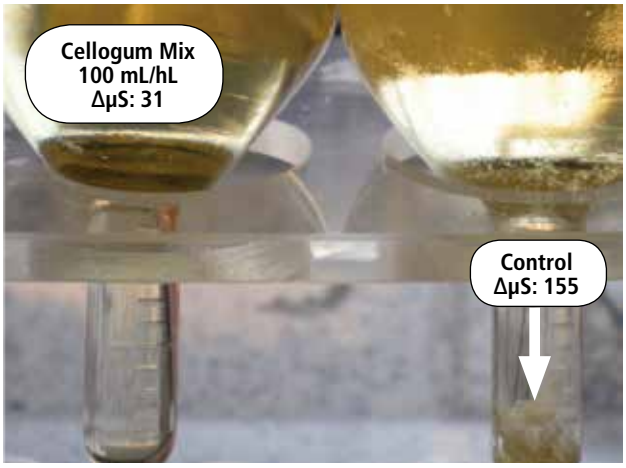
Blends

CELLOGUM MIX

- Solution of Carboxymethyl cellulose (CMC) and *Acacia Seyal* Gum Arabic, both selected for their high filterability.
- Synergistic effect to stabilize against tartrate precipitation. Inhibits the formation, growth and precipitation of potassium bitartrate crystals.

Recommendations: *Tartrate stability; white, rosé and sparkling wines; increase volume and roundness.*
Dosage: *30-100 mL/hL (1.1-3.8 L/1,000 gal)*

1 L	**(Item #35-797-0001)**	**$ 17.00**
25 Kg	**(Item #35-797-0025)**	**$ 337.50**



Cellogum Mix stabilizes against tartrate precipitation.

NEW

ENARTIS STAB MEGA

- Solution of low viscosity Carboxymethyl cellulose (CMC), high molecular weight Gum Arabic from *Acacia Verek* and mannoproteins.
- Complete and highly efficient stabilizer against tartrate and color precipitation.
- Improves mouthfeel, contributes to roundness and "sweetness."

Recommendations: *Tartrate stability; color stability; increase volume and roundness.*
Dosage: *150 mL/hL (5.7 L/1,000 gal)*

1 L	**(Item #35-798-0001)**	**$ 50.00**
25 Kg	**(Item #35-798-0025)**	**$ 1,000.00**

KNOW MORE

WHY LOOK AT ALTERNATIVE METHODS TO STABILIZE WINE?

Traditional tartrate stabilization methods such as cooling, contact seeding and electrodialysis prevent precipitation by separating unstable ions or salts from wine. These methods are expensive, require copious amounts of water and energy, impact organoleptic qualities of wine and might require more time than anticipated. Enartis offers superior alternatives to traditional methods of tartrate stabilization. The use of colloidal stabilizers helps speed-up wine preparation, respects wine sensory properties, removes the need for refrigeration and reduces production costs and wine losses.

HOW DO THESE COLLOIDAL STABILIZERS WORK?

These colloidal stabilizers work by inhibiting the nucleation and growth of tartrate crystals, thus preventing their precipitation. Nothing is removed from the wine; the crystallization process is simply disrupted for efficient long-term cold stability.

WHICH PRODUCTS CAN BE USED TO COLD STABILIZE WINE?

Citrogum® is effective and recommended for wines that show a 3-7% conductivity change after mini-contact testing. It has a positive impact on the palate, enhancing mouthfeel and flavor intensity when used at rates above 80 mL/hL.

Cellogum L or **Cellogum LV 20** is effective in preventing tartrate precipitation (can be used to treat wines with up to 20% conductivity change after mini-contact testing) and has no organoleptic impact.

Enartis Stab CLK+ has variable effectiveness from wine to wine and needs to be evaluated prior to its use.

Cellogum Mix benefits from the synergetic effect of Gum Arabic and CMC for stabilizing wine. It can stabilize wines with up to 20% conductivity change after mini-contact testing and enhance roundness and volume sensations.

Enartis Stab Mega combines the action of all three stabilizers: CMC, Arabic gum and mannoproteins. The synergistic action of these molecules allows Stab Mega to achieve both cold and color stability of moderate-to-highly unstable red wines.

HOW DO I DETERMINATE THE DOSAGE RATE?

There is no formula to recommend a product or dose to stabilize a wine. Colloidal stabilizers need to be tested to determine the dosage required and assure the efficacy of treatment. Another reason is due to possible interactions between CMC and residual proteins in wine, leading to the formation of undesirable hazes. Therefore, we recommend ensuring that your wine is heat and colloidal stable in advance. Vinquiry laboratories by Enartis USA offer testings to determinate the effectiveness and the appropriate dosage of CMC on a specific wine to reach stability. *(See page 15 for CMC Panels).*

CAN I ADD A COLLOIDAL STABILIZER TO WINE BEFORE CROSSFLOW FILTRATION?

If used prior to crossflow filtration, these colloids can damage the membranes of your equipment. Furthermore, we recommend doing the addition when wines are ready to be bottled with a turbidity of <1 NTU.

WHAT IS THE MAXIMUM DOSAGE APPROVED BY THE TTB FOR CMC AND GUM ARABIC ADDITION?

TTB limits are 16 lb/1,000 gal (1.92 g/L) of pure Gum Arabic and 0.8% of wine volume for CMC.

WHAT ARE THE REQUIREMENTS FOR ADDING STABILIZING COLLOIDS TO A WINE?

Prior to the addition of any of these agents (Gum Arabic, CMC and mannoproteins), wines should be:

- Heat stable
- Have a turbidity <1 NTU
- Have a Filterability Index (FI) <10, (filterable)
- Colloid stable (for CMC use)

HOW STABLE ARE THESE PRODUCTS ONCE ADDED TO WINE?

Citrogum®, Cellogum L, Cellogum LV20 and Cellogum Mix are not hydrolyzable in wine, therefore they are excellent choices for long-term stability.

HOW MUCH SO_2 CAN THE ADDITION OF A LIQUID FORM STABILIZER IMPART TO WINE?

An addition of 100 mL/hL can increase the SO_2 of wine by 2 ppm.

Microbial Stabilization

If left uncontrolled, spoilage microbes are the most common cause of wine defects worldwide. The best way to prevent and control the development of spoilage microorganisms is to be proactive: perfect hygiene, early detection and effective treatment. Chitosan, a polysaccharide produced by de-acetylation of chitin, interacts with a wide spectrum of microorganisms. The interaction is mediated by electrostatic forces between the protonated NH^{3+} groups of the chitosan and the negative charges of the microorganism's cell membrane surface. Chitosan promotes changes in the membrane wall permeability and leads to cell death.

ENARTIS STAB MICRO

- Preparation of pre-activated chitosan from *Aspergillus niger*.
- Removes spoilage organisms through fining.
- Interacts with a wide spectrum of wine microorganisms (lactic acid bacteria, acetic acid bacteria and yeast), reduces their activity and growth, and precipitates them.
- Helps reduce sulfide defects and improves wine clarification and filterability.
- Allergen-free, vegan alternative to lysozyme.

Recommendations: *Control spoilage microorganisms; reduce reductive notes; allergen-free; vegan; white, rosé and red wines.*
Dosage: *3-20 g/hL (0.25-1.7 lb/1,000 gal)*

0.5 Kg **(Item #35-761-0500)** **$ 300.00**

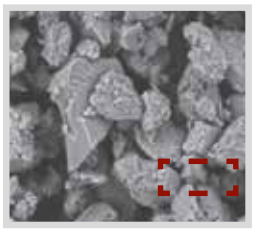
ENARTIS STAB MICRO M

NEW

- Preparation of pre-activated chitosan from *Aspergillus niger* and purified yeast hulls.
- Specifically designed for treatment of juice or other turbid media.
- Interacts with a wide spectrum of wine microorganisms (lactic acid bacteria, acetic acid bacteria and yeast), reduces their activity and growth, and precipitates them.
- Reduces sulfide defects, VA and off-flavors production
- Improves wine clarification and filterability.
- Allergen-free, vegan alternative to lysozyme.

Tip: *Use Stab Micro M as a preventive treatment with must to improve Saccharomyces dominance, limit stuck fermentations and produce clean aromas.*
Recommendations: *Control spoilage microorganisms; reduce reductive notes; allergen-free; vegan; white, rosé and red juices and wines.*
Dosage: *10-20 g/hL (0.8-1.7 lb/1,000 gal)*

1 Kg **(Item #35-762-0001)** **$ 275.00**



STANDARD CHITOSAN

ENARTIS ACTIVATED CHITOSAN (ENARTIS STAB MICRO AND ENARTIS STAB MICRO M)

Other Stabilizing Agents

CITROSTAB rH

- Citric acid, ascorbic acid, potassium metabisulfite and gallic tannins.
- Pre-bottling coadjunct with a balanced formulation for the stabilization of wine redox potential. Each component reacts synergistically in a calibrated way to block any oxidation that could occur during and post bottling.
- Protects bottled wine from oxidation alteration: pinking, white haze and atypical ageing.

Recommendations: *Stabilize wine redox potential; prevent oxidation; prevent pinking.*
Dosage: *50 g/hL (4.2 lb/1,000 gal)*

1 Kg **(Item #35-760-0001)** **$ 25.00**

ENARTIS STAB SLI

NEW

- Yeast derivatives, PVPP and untoasted tannins.
- Prevents degradation and oxidation of wine aroma during storage.
- Provides solids with high capacity for consuming dissolved oxygen and lowers wine redox potential.
- Extends wine shelf life.

Tip: *Highly recommended to protect wines that have been clarified, filtered and eventually stabilized and, that by consequence, are very sensitive to oxidation.*
Recommendations: *Antioxidant; stabilize wine redox potential; prevent oxidation; prevent pinking.*
Dosage: *50 g/hL (4.2 lb/1,000 gal)*

1 Kg **(Item #35-763-0001)** **$ 40.00**
10 Kg **(Item #35-763-0010)** **$ 300.00**

...About Enartis Stab Micro and Enartis Stab Micro M

KNOW MORE

Chitosan-based products, **Enartis Stab Micro M** and **Enartis Stab Micro** are selective, allergen-free fining agents that eliminate populations of a large number of unwanted microorganisms, such as Brettanomyces, lactic acid bacteria and acetic acid bacteria.

A LITTLE BIT MORE ABOUT CHITOSAN…

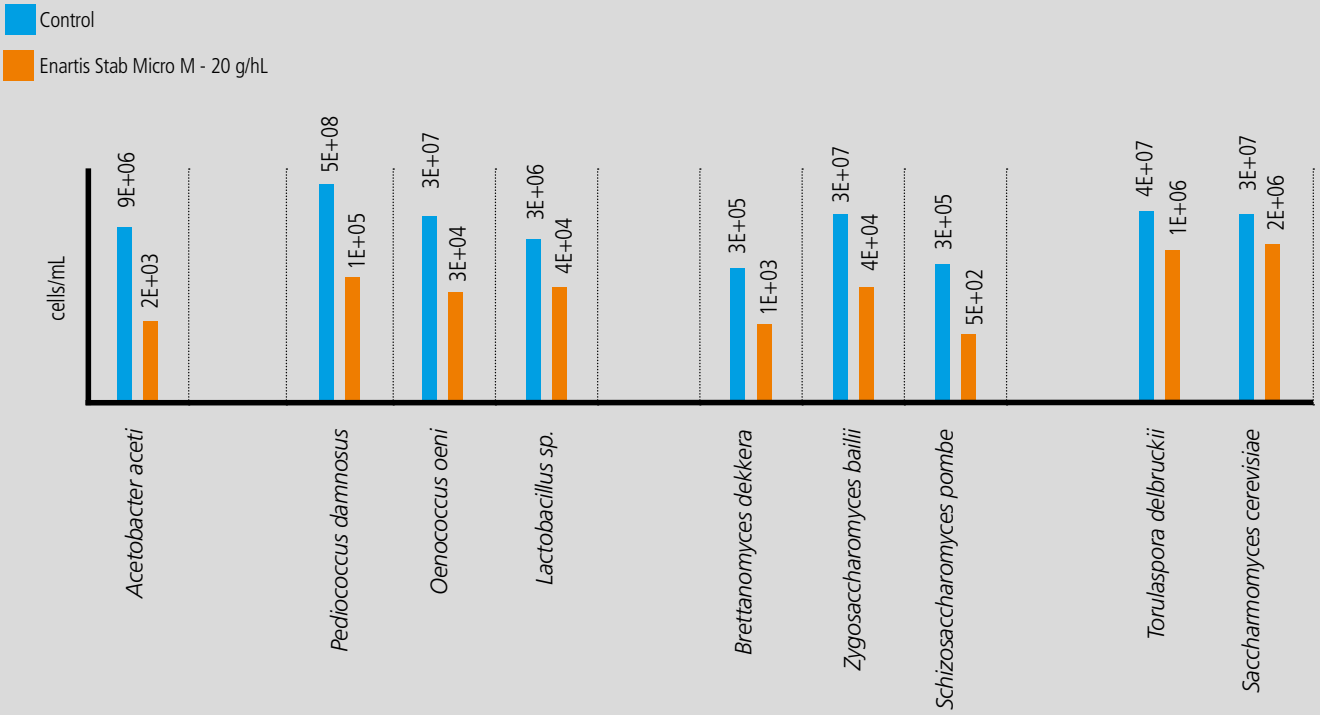
Produced from the partial de-acetylation of Chitin (extracted from *Aspergillus niger*), chitosan is a cationic polysaccharide that interacts with a **wide spectrum** of microorganisms, alters their membrane wall permeability, inhibits cell growth and leads to cell death. The antimicrobial activity of chitosan is attributed to its positive charges (NH^{3+} groups) that interfere with the negatively-charged residues of macromolecules on the microorganism's cell membrane surface.

Enartis' production process is focused on improving the efficiency of chitosan by increasing the molecule charges, solubility and surface contact.

ENARTIS PRODUCTS:

- **Enartis Stab Micro M** (activated chitosan and purified yeast hulls) is specifically developed to control spoilage microbe populations in turbid environments, such as juice, fermenting must and pressings. It is used to manage bacterial populations on 'compromised' fruit, limit non-*Saccharomyces* yeast development during cold soak and to delay or stop malolactic fermentation after alcoholic fermentation as an alternative to lysozyme.
- **Enartis Stab Micro** (activated chitosan) is highly effective in controlling spoilage microorganism development in ageing wines after malolactic fermentation. Use Enartis Stab Micro a **curative** to remove high levels of contamination with a 20 g/hL treatment a **preventative** to remove potential contamination with a 2-4 g/hL treatment at any racking after MLF.

The effect of these products on *Saccharomyces cerevisiae* is insignificant and does not affect alcoholic fermentation. A high dosage treatment might elongate the lag phase of Saccharomyces cerevisiae and delay the start of fermentation by a day.



APPLICATIONS FOR ENARTIS STAB MICRO AND ENARTIS STAB MICRO M:

- Prevent **volatile acidity** production during cold soak
- **Vegan** and **allergen-free** alternative to lysozyme
- Control, delay or avoid **malolactic fermentation**
- **Alternative to SO_2** for antimicrobial control
- Prevent spoilage microbe development throughout the winemaking process

Fining Agents

ALLERGEN-FREE FINING AGENTS

New labeling restrictions for wines sold or produced in Europe and Canada have made it mandatory to declare the use of co-adjuncts derived from eggs, milk and fish (Canada) on the label. Enartis has developed an allergen-free line of fining agents, suitable for vegetarian and vegan wines, as alternatives to egg albumin, casein, potassium caseinate, isinglass and fish gelatin.

Enzymes

Enzymes can be used to help with clarification and filterability, improve organoleptic properties of wine and treat polysaccharide instabilities. Alcohol can reduce the efficacy of these enzymes. Hence, in wine, it is necessary to compensate for alcohol's inhibiting effect by increasing enzyme dosage and contact time.

ENARTIS ZYM ÉLEVAGE

- Micro-granulated pectolytic enzyme with significant ß-glucanase activity.
- Accelerates yeast cell lysis and increases mannoprotein content released in wines matured on lees, thus improving roundness and volume.
- Improves filterability, especially for wines made with *Botrytis* infected grapes.

Recommendations: *Lees ageing; increase roundness; Botrytis cinerea infected grapes; improve filterability.*
Usage: *Dissolve in 10 times its weight of room temperature water. Add to wine while mixing gently.*
Dosage: *2-5 g/hL (0.17-0.4 lb/1,000 gal)*

0.25 Kg **(Item #35-150-0250)** **$ 82.50**

ENARTIS ZYM CARACTÈRE

- Micro-granulated pectolytic enzyme with hemicellulasic and ß-glucosidasic activities.
- Reduces juice viscosity, maximizes juice yield and improves filterability.
- Expresses aromas of wines made from grapes with glycosylated precursors (terpenes and norisoprenoids).

Recommendations: *Enhance varietal aromas; enhance complexity; improve filterability; aromatic varieties.*
Usage: *Dissolve in 10 times its weight of room temperature water. Add to wine while mixing gently.*
Dosage: *3-4 g/hL (0.25-0.3 lb/1,000 gal)*

0.25 Kg **(Item #35-125-0250)** **$ 62.50**

Plant Protein

Plant proteins, free of genetically modified organisms and allergens, are suitable for vegetarian and vegan beverage production. Often used to correct oxidation, browning and bitterness, plant proteins have excellent clarifying and stabilizing properties.

PLANTIS AF-P

- Pure, allergen-free and gluten-free potato protein.
- One of the most reactive proteins!
- Removes catechins and small molecular weight polyphenols responsible for oxidation and astringency.
- Alternative to gelatin, casein and potassium caseinate.

Recommendations: *Allergen-free; vegan; treat oxidation; remove browning; reduce astringency.*
Usage: *Dissolve in 10 times its weight of cold water. Stir constantly during addition.*
Dosage: *5-30 g/hL (0.4-2.5 lb/1,000 gal)*

1 Kg **(Item #35-761-0001)** **$ 95.00**
10 Kg **(Item #35-761-0010)** **$ 900.00**

PLANTIS AF

- Pure, allergen-free and gluten-free pea protein.
- Removes catechins and short chain-length polyphenols responsible for oxidation and bitterness.
- Reduces astringency and some off-flavors present in wine.
- Alternative to gelatin, casein and potassium caseinate.

Recommendations: *Allergen-free; vegan; treat oxidation; remove browning; reduce astringency bitterness.*
Dosage: *10-30 g/hL (0.8-2.5 lb/1,000 gal)*

20 Kg **(Item #35-760-0002)** **$ 450.00**

Gelatin

Gelatins are obtained from the partial hydrolysis of collagen contained in animal bones and skin. Gelatin is often used to improve clarification and reduce phenolic compounds responsible for dryness, bitterness and astringency. Gelatin effects and applications can vary depending on the type of hydrolysis (isoelectric point), degree of hydrolysis (molecular weight) and charge density. Gelatin is positively charged at wine pH and binds via hydrogen bonds to polyphenols. Enartis has developed a wide range of high quality gelatins to provide solutions for many conditions and situations.

TANNIN REMOVAL
Low MW
High degree of hydrolysis
Low density of charge

	MW (Kda)	density of charge
HYDROCLAR 45	<9	300-400
HYDROCLAR 30	12	450-650
HYDROCLAR 20	20	550-700
FINEGEL	20	500-600
CLARGEL	30	650-750
PULVICLAR S	150	800-1000
GOLDEN INSTANT	250	1100-1200

High MW
Low degree of hydrolysis
High density of charge
CLARIFICATION

Characteristics of Enartis range of gelatins

GOLDENCLAR INSTANT

- Granulated food-grade gelatin. High molecular weight, very low hydrolysis and very high charge density.
- Improves clarity and filterability.
- Reduces astringency and softens mouthfeel without affecting structure.
- Allergen-free alternative to egg albumin.

Recommendations: *Allergen-free; clarification; reduce bitterness; reduce astringency; soften mouthfeel; aged red wines.*
Usage: *Dissolve in 20 times its weight of room temperature water. Stir constantly during addition.*
Dosage: *2-12 g/hL (0.17-1 lb/1,000 gal)*

1 Kg **(Item #35-626-0001)** **$ 40.00**

PULVICLAR S

- Granulated food-grade gelatin. High molecular weight, low hydrolysis and high charge density.
- Highly effective for clarification by flotation.

Tip: *It works well in conjunction with Sil Floc or Pluxbenton N.*
Recommendations: *Flotation; clarification; juice.*
Usage: *Dissolve in 20 times its weight of warm water (40°C, 104°F). Stir constantly during addition.*
Dosage: *4-15 g/hL (0.3-1.3 lb/1,000 gal)*

1 Kg **(Item #35-630-0001)** **$ 28.00**
20 Kg **(Item #35-630-0020)** **$ 360.00**

CLARGEL

- Liquid food grade gelatin. Medium-high molecular weight.
- Very effective for clarification.
- Improves balance and eliminates excessive astringency without affecting wine structure.

Recommendations: *Clarification; reduce astringency; young red wines.*
Usage: *Add directly to juice/wine via Venturi tube or dosing pump. Stir constantly during addition.*
Dosage: *20-150 mL/hL (0.75-5.7 L/1,000 gal)*

1 L **(Item #35-635-0001)** **$ 10.00**
25 Kg **(Item #35-635-0025)** **$ 187.50**

HYDROCLAR 20

- 20% liquid solution of food grade gelatin. Low hydrolysis, medium-high molecular weight.
- Good for clarification.
- Removes excessive astringency.

Recommendations: *Flotation; clarification; reduce astringency.*
Usage: *Add directly to juice/ wine via Venturi tube or dosing pump. Stir constantly during addition.*
Dosage: *10-60 mL/hL (0.4-2.3 L/1,000 gal)*

1 L **(Item #35-695-0001)** **$ 10.50**
25 Kg **(Item #35-695-0025)** **$ 212.50**

HYDROCLAR 30

- 30% liquid solution of food grade gelatin. Medium hydrolyzed gelatin.
- Good for clarification.
- Reduces dryness and astringency at the middle-end of the palate.

Recommendations: *Flotation; clarification; reduce astringency; reduce dryness.*
Usage: *Add directly to juice/ wine via Venturi tube or dosing pump. Stir constantly during addition.*
Dosage: *10-60 mL/hL (0.4-2.3 L/1,000 gal)*

1 L **(Item #35-610-0001)** **$ 12.50**
25 Kg **(Item #35-610-0025)** **$ 262.50**

HYDROCLAR 45

- 45% liquid solution of food grade gelatin. Extremely hydrolyzed gelatin and low charge density.
- Powerful effect on removing undesirable polyphenols.

Recommendations: *Reduce excessive astringency; reduce dryness; press wines.*
Usage: *Add directly to juice using Venturi tube or dosing pump. Stir constantly during addition.*
Dosage: *7-40 mL/hL (0.26-1.5 L/1,000 gal)*

1 L **(Item #35-615-0001)** **$ 16.00**
25 Kg **(Item #35-615-0025)** **$ 325.00**

Fish Gelatin

FINEGEL

- 20% liquid solution of high quality fish gelatin.
- Good for clarification of wine.
- Reduces oxidative and vegetal characteristics, eliminates harsh tannins and improves finesse.

Tip: *Finegel will solidify at temperatures less than 10°C (50°F).*
Recommendations: *Treat oxidation; reduce dryness.*
Usage: *Add directly to wine via Venturi tube or dosing pump. Stir constantly during addition.*
Dosage: *20-100 mL/hL (0.75-3.8 L/1,000 gal)*

1 L	**(Item #35-640-0001)**	**$ 25.00**
20 L	**(Item #35-640-0000)**	**$ 400.00**

Isinglass

Isinglass is a form of collagen obtained from the dried swim bladders of fish. Used to improve brilliance and clarity of wine, it also reduces monomers and smaller polyphenolic compounds responsible for wine bitterness. Isinglass is usually used as a final touch before bottling or even as a riddling aid for sparkling wines.

FINECOLL

- Granular isinglass.
- Good for clarification and improving brilliance.
- Reduces bitterness, oxidative and herbaceous characteristics without affecting wine structure.

Tip: *Isinglass is more efficient at low temperatures (<15°C, 59°F). Use in combination with Sil Floc or Pluxcompact to help settling and compacting lees.*
Recommendations: *Reduce bitterness; clarification; brilliance.*
Usage: *Dissolve in 100 times its weight of room temperature water. Allow to swell for 1-2 hours. Stir constantly during addition.*
Dosage: *1-4 g/hL (0.08-0.3 lb/1,000 gal)*

0.25 Kg	**(Item #35-650-0250)**	**$ 62.50**
1 Kg	**(Item #35-650-0001)**	**$ 205.00**

Potassium Caseinate

Potassium caseinate is the major protein in milk. With its positive charge, it adsorbs negatively-charged particles as it settles. It is usually used to reduce browning, bitterness and oak flavors (good "sponge" effect). Potassium caseinate has a strong affinity with condensed tannin, primarily responsible for astringency.

PROTOCLAR®

- Pure potassium caseinate containing over 90% protein.
- Prevents and treats oxidation, browning and pinking.
- Reduces bitterness.
- Removes off-flavors.

Recommendations: *Treat oxidation; remove browning; reduce astringency; reduce off-flavors.*
Usage: *Dissolve in 20 times its weight of cold water. Stir constantly during addition.*
Dosage: *20-100 g/hL (1.7-8.3 lb/1,000 gal)*

1 Kg	**(Item #35-645-0001)**	**$ 61.00**

PVPP

Polyvinylpolypyrrolidone (PVPP) specifically binds with low molecular weight polyphenols such as monomers and dimers responsible for oxidation, browning, pinking and bitterness.

STABYL PVPP

- Pure polyvinylpolypyrrolidone.
- Highly effective in removing oxidized and oxidizable polyphenols, browning compounds and off-flavors.
- Prevents and treats oxidation, prevents pinking and reduces bitterness.

Recommendations: *Treat and prevent oxidation; reduce browning; remove bitterness; press wines.*
Usage: *Suspend in 10 times its weight of warm water (40°C, 104°F). Allow to swell for 1 hour. Stir constantly during addition.*
Dosage: *5-50 g/hL (0.4-4.2 lb/1,000 gal)*

1 Kg	**(Item #35-655-0001)**	**$ 75.00**
20 Kg	**(Item #35-655-0020)**	**$ 1,170.00**

PVI/PVP

PVI/PVP is an adsorbent co-polymer (polyvinylimidazole and polyvinylpyrrolidone) capable of removing heavy metals in wine such as copper (Cu), iron (Fe) and aluminum (Al). Also, PVI/PVP has the ability to bind with phenolic compounds, the substrates of oxidative reactions. Wines treated with PVI/PVP are fresher, more aromatic, more balanced, have a lower oxidation potential and improved shelf life.

STABYL MET

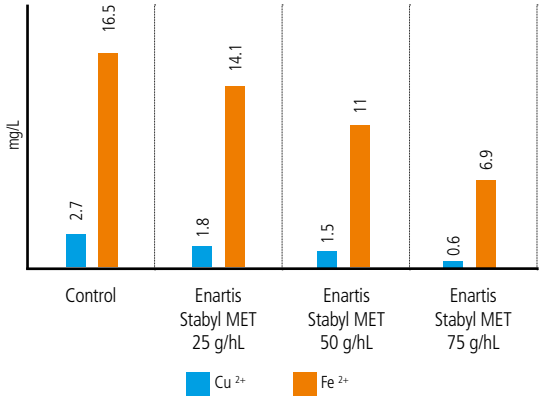
NEW

- Co-polymer of PVI/PVP (polyvinylimidazole/polyvinylpyrrolidone) and silica.
- Absorbs heavy metals (high affinity with Cu) and removes hydroxycinnamic acids and low molecular weight catechins.
- Prevents oxidation, browning and destruction of varietal thiols.
- Prevents pinking and formation of copper haze.

Tip: *To increase effectiveness, keep STABYL MET in suspension in wine for at least 1-2 hours.*
Recommendations: *Prevent oxidation; reduce browning; remove bitterness.*
Usage: *Suspend in 20 times its weight of room temperature water. Allow to swell for 1 hour. Stir constantly during addition.*
Dosage: *20-50 g/hL (1.7-4.2 lb/1,000 gal)*

2.5 Kg	**(Item #35-657-0002)**	**$ 537.50**
10 Kg	**(Item #35-657-0010)**	**$ 1,850.00**

EFFECT OF ENARTIS STABYL MET ON METAL COMPOSITION OF WINE



Stabyl MET reduces the content of Cu^{2+} and Fe^{2+} in wine. The effectiveness of the treatment is directly related to the dosage of Stabyl MET.

Blends

Enartis has developed blends of fining agents which combine specific characteristics to create unique products that provide solutions for many situations.

CLARIL AF

- Bentonite, PVPP, plant protein and silica.
- Prevents and treats oxidation, prevents pinking and reduces bitterness.
- Improves protein stability and clarification.
- Alternative to casein and potassium caseinate.

Recommendations: *Prevent oxidation; reduce browning; remove bitterness; protein stability.*
Usage: *Dissolve in 10 times its weight of cold water. Allow to swell for 3-6 hours. Stir constantly during addition.*
Dosage: *50-150 g/hL (4.2-12.6 lb/1,000 gal)*

1 Kg	**(Item #35-666-0001)**	**$ 45.00**
10 Kg	**(Item #35-666-0010)**	**$ 350.00**

COMBISTAB AF

- PVPP, plant protein and silica.
- Prevents and treats oxidation, prevents pinking.
- Reduces bitterness.
- Alternative to casein and potassium caseinate.

Recommendations: *Prevent oxidation; reduce browning; remove bitterness.*
Usage: *Dissolve in 10 times its weight of cold water. Allow to swell 1 hour. Stir constantly during addition.*
Dosage: *10-50 g/hL (0.8-4.2 lb/1,000 gal)*

1 Kg	**(Item #35-667-0001)**	**$ 47.50**
10 Kg	**(Item #35-667-0010)**	**$ 375.00**

PROTOMIX AF

- Bentonite, PVPP, plant protein and cellulose.
- Prevents and treats oxidation, prevents pinking and reduces bitterness.
- Improves protein stability and clarification.
- Detoxifies juice/must to facilitate alcoholic fermentation.

Recommendations: *Prevent oxidation; reduce browning; remove bitterness.*
Usage: *Dissolve in 10 times its weight of cold water. Allow to swell 3-6 hours. Stir constantly during addition.*
Dosage: *50-100 g/hL (4.2-8.3 lb/1,000 gal)*

10 Kg	**(Item #35-668-0010)**	**$ 255.00**

NEOCLAR AF

- Bentonite, gelatin and activated carbon.
- Ensures fast clarification with minimal volume of lees.
- Improves organoleptic cleanliness of wine, reduces herbaceous characters and contributes to protein stability.

Recommendations: *Improve cleanliness; reduce herbaceous notes; remove off-flavors.*
Usage: *Dissolve in 10 times its weight of cold water. Allow to swell 3-6 hours. Stir constantly during addition.*
Dosage: *40-150 g/hL (3.3-12.6 lb/1,000 gal)*

1 Kg	**(Item #35-670-0001)**	**$ 30.00**

CLARIL SP

- Bentonite, PVPP, potassium caseinate and silica.
- Prevents and treats oxidation, browning and pinking.
- Improves aromatic cleanliness and reduces bitterness.

Recommendations: *Improve cleanliness; treat oxidation; reduce browning; reduce bitterness.*
Usage: *Dissolve in 10 times its weight of cold water. Allow to swell for 3-6 hours. Stir constantly during addition.*
Dosage: *30-150 g/hL (2.5-12.6 lb/1,000 gal)*

1 Kg	**(Item #35-665-0001)**	**$ 31.00**
10 Kg	**(Item #35-665-0010)**	**$ 270.00**

CLARIL HM

NEW

- Co-polymer of PVI/PVP (polyvinylimidazole/polyvinyl pyrrolidone) and pre-activated chitosan.
- Adsorbs heavy metals (Cu, Fe, Al) and removes hydroxycinnamic acids and low molecular weight catechins.
- Prevents oxidation, browning, pinking and destruction of varietal thiols.
- Prevents formation of copper haze.

Tip: *To increase effectiveness, keep CLARIL HM in suspension in wine for at least 1-2 hours.*
Recommendations: *Prevent oxidation; reduce browning; preserve aromas; prevent copper haze.*
Usage: *Suspend in 20 times its weight of room temperature water. Allow to swell for 1 hour. Stir constantly during addition.*
Dosage: *20-50 g/hL (1.7-4.2 lb/1,000 gal)*

2.5 Kg	**(Item #35-661-0001)**	**$ 412.50**
10 Kg	**(Item #35-661-0010)**	**$ 1,550.00**

CLARIL QY

NEW

- Purified yeast hulls, pre-activated chitosan.
- Reduces astringency and bitterness.
- Eliminates unstable color compounds.
- Reduces reductive and vegetal characters.

Recommendations: *Allergen-free; vegan; reduce astringency; reduce bitterness; reduce reductive notes; reduce browning.*
Usage: *Suspend in 10 times its weight of room temperature water. Stir constantly during addition and maintain in suspension for at least 30 minutes.*
Dosage: *5-15 g/hL (0.4-1.3 lb/1,000 gal)*

1 Kg	**(Item #35-662-0001)**	**$ 35.00**
10 Kg	**(Item #35-662-0010)**	**$ 275.00**

Bentonite

Many types of bentonites are available for winemakers including sodium bentonite, calcium bentonite and activated bentonite. Based on its composition, bentonites can have different properties and act differently regarding its ability to remove proteins, the volume of lees produced and its aromatic impact.

What type of bentonite should I use?
There are three type of bentonite commercially available: Sodium bentonite (the most reactive with proteins), Calcium bentonite (used to compact lees) and Calcium bentonite sodium activated (good reactivity with proteins and good lees compaction). It is important to test and treat wines with the same bentonite.

Should I rehydrate my bentonite in water or in wine?
Water. Independent of its type, bentonite should be rehydrated with clean, chlorine-free water. Slowly dilute 1 part bentonite in 20 parts of cold water. Let rest 3-6 hours.

Can blending two protein-stable wines compromise the stability of the blend?
Yes. Even small changes in alcohol content, pH and colloid composition can significantly modify protein solubility leading to protein instability. A new test of the final blend must be conducted and additional fining may be needed.

Can I use bentonite in red wines?
Yes. Low rates of bentonite help eliminate unstable color, proteins and clarify wines.

BENTOLIT SUPER

- Powdered calcium bentonite sodium activated.
- Excellent clarification with good protein removal.

Usage: *Dilute in 20 times its weight of cold water. Allow to swell 3-6 hours. Stir constantly during addition.*
Dosage: *20-120 g/hL (1.7-10 lb/1,000 gal)*

1 Kg	**(Item #35-675-0001)**	**$ 3.20**
25 Kg	**(Item #35-675-0025)**	**$ 48.75**

PLUXCOMPACT

- Granulated calcium bentonite sodium activated.
- Generates limited amount of compact lees.

Usage: *Dilute in 10 times its weight of cold water. Allow to swell 3-6 hours. Stir constantly during addition.*
Dosage: *20-120 g/hL (1.7-10 lb/1,000 gal)*

1 Kg	**(Item #35-680-0001)**	**$ 3.20**
20 Kg	**(Item #35-680-0020)**	**$ 62.00**

PLUXBENTON N

- Granular sodium bentonite.
- Excellent protein removal and good clarification properties.
- Reduces riboflavin, the molecule responsible for “light-struck” defect in white wines.

Usage: *Dilute in 20 times its weight of cold water. Allow to swell 3-6 hours. Stir constantly during addition.*
Dosage: *20-120 g/hL (1.7-10 lb/1,000 gal)*

1 Kg	**(Item #35-685-0001)**	**$ 3.60**
20 Kg	**(Item #35-685-0020)**	**$ 50.00**

PURE BENTO

- Powdered calcium bentonite sodium activated. Selected from the purest natural bentonites to meet the strictest requirements for food contact and stability.
- Very large adsorption surface, high protein removal capacity.
- Removal of unstable color and pinking matter.

Usage: *Dilute in 20 times its weight of room temperature water. Allow to swell 1 hour. Stir constantly during addition.*
Dosage: *5-30 g/hL (0.4-2.5 lb/1,000 gal)*

5 Kg	**(Item #35-681-0005)**	**$ 250.00**

Silica Sol

SIL FLOC

- Pure silicon dioxide in aqueous solution.
- Acts as a counter-fining agent with protein fining agents.
- Solution pH: 9.0 - 9.5.

Usage: *Add directly to juice/wine via Venturi tube or dosing pump. Add before gelatin or after other clarifying agents. Stir constantly during addition.*
Dosage: *25-100 mL/hL (0.95-3.8 L/1,000 gal)*

1 L	**(Item #35-690-0001)**	**$ 9.00**
25 Kg	**(Item #35-690-0025)**	**$ 150.00**

Sil Floc improves clarification and lees compaction

Carbon

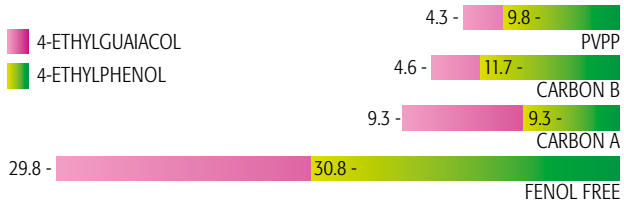
FENOL FREE

- Activated carbon
- Deodorizing, high affinity with volatile phenols related to *Brettanomyces* and volatile compounds related to smoke taint.
- Does not affect color.

Usage: *Disperse in small amount of water or directly in wine. Keep in suspension for 15-20 minutes.*
Dosage: *20-40 g/hL (1.7-3.3 lb/1,000 gal)*

1 Kg	**(Item #35-705-0001)**	**$ 35.00**
25 Kg	**(Item #35-705-0010)**	**$ 250.00**

FENOL FREE: VOLATILE PHENOLS REMOVAL



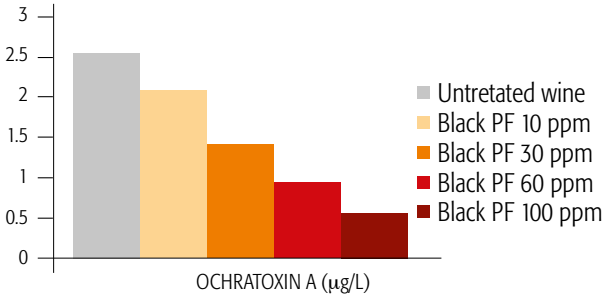
BLACK PF

- Enological activated carbon in damp form (reduces the spread of carbon dust)
- High decolorizing capacity.
- Removes ochratoxin A (OTA).

Usage: *Disperse in small amount of water or directly in wine. Keep in suspension for 15-20 minutes.*
Dosage: *20-100 g/hL (1.7-8.3 lb/1,000 gal)*

1 Kg	**(Item #35-710-0001)**	**$ 22.00**
15 Kg	**(Item #35-710-0015)**	**$ 180.00**

BLACK PF EFFICIENCY IN REMOVING OCHRATOXIN A



ENOBLACK SUPER

- Vegetal activated carbon.
- High decolorizing capacity.
- Removes ochratoxin A (OTA).

Usage: *Disperse in small amount of water or directly in wine. Keep in suspension for 15-20 minutes.*
Dosage: *20-100 g/hL (1.7-8.3 lb/1,000 gal)*

1 Kg	**(Item #35-700-0001)**	**$ 25.00**
10 Kg	**(Item #35-700-0010)**	**$ 150.00**

ENARTIS PRODUCT	COMPOSITION	CLARIFICATION	COMPACT LEES	PROMOTE PROTEIN STABILITY	REMOVE UNSTABLE COLOR	REMOVE BITTERNESS	REDUCE ASTRINGENCY	TREAT/PREVENT OXIDATION	REMOVE METALS	REMOVE VOLATILE PHENOLS	REMOVE OFF FLAVORS	DECOLORIZING	TREAT MOLDY JUICE/WINE	REMOVE OCHRATOXIN A	LIBERATE BOUND AROMAS
BENTOLIT SUPER	*Bentonite*	★		★★★											
PLUXBENTON N	*Bentonite*	★		★★★	★										
PLUXCOMPACT	*Bentonite*	★★	★★★	★★											
PURE BENTO	*Bentonite*	★		★★★★											
NEOCLAR AF	*Bentonite, Gelatin, Carbon*	★	★			★★	★★			★	★★★		★★		
PROTOMIX AF	*Bentonite, PVPP, Plant Protein, Cellulose*	★★★		★		★★★		★★★							
CLARIL AF	*Bentonite, PVPP, Plant Protein, Silica*	★★		★		★★★	★	★★★							
CLARIL SP	*Bentonite, PVPP, Potassium Caseinate*	★★		★		★★★		★★★			★★				
BLACK PF	*Carbon*										★★	★★★	★	★★★	
ENOBLACK SUPER	*Carbon*										★★	★★★	★	★★	
FENOL FREE	*Carbon*									★★★					
ZYM CARACTERE	*Enzyme*	★★													★★
ZYM ELEVAGE	*Enzyme*	★★											★★		★
FINEGEL	*Fish Gelatin*	★★					★★★								
CLARGEL	*Gelatin*	★★★					★★						★		
GOLDENCLAR INSTANT	*Gelatin*	★★★★			★★	★	★★						★		
HYDROCLAR 20	*Gelatin*	★★★				★	★★								
HYDROCLAR 30	*Gelatin*	★★				★	★★★						★		
HYDROCLAR 45	*Gelatin*					★	★★★★						★		
PULVICLAR S	*Gelatin*	★★★★			★		★★								
FINECOLL	*Isinglass*	★★★	★★★			★★★									
PLANTIS AF	*Plant Protein*					★★	★★	★★	★★★		★				
PLANTIS AF-P	*Plant Protein*					★★	★★	★★			★				
PROTOCLAR	*Potassium Caseinate*	★				★★★		★★★			★★★				
STABYL PVI-PVP	*PVI/PVP*								★★★★						
CLARIL HM	*PVI/PVP, Chitosan*					★★		★★★★	★★★ ★★						
STABYL PVPP	*PVPP*					★★★		★★★							
COMBISTAB AF	*PVPP, Plant Protein, Silica*					★★★	★	★★★							
SIL FLOC	*Silica*		★★★												
CLARIL QY	*Yeast Derivatives, Chitosan*	★★						★★★	★		★★				

WHY FINING?
Fining agents can be used for many purposes in winemaking including clarification, filterability improvement, stabilization against future haze and sediment formation, organoleptic profile and wine color improvement, and removal of undesirable elements from wine.

HOW DOES FINING WORK?
Each fining agent has specific properties and reacts with various wine molecules depending on its origin, density of charge, molecular weight and chemical properties. Fining is based on two main principles:
- Flocculation: molecular interactions based on charge, chemical bonds, absorption or adsorption of compounds and formation of flocculates.
- Sedimentation: since the flocculates formed are not soluble and heavier than wine/juice, they settle.

WHAT ARE THE MAIN FACTORS THAT INFLUENCE FINING EFFECTIVENESS?
Product preparation and addition, temperature, pH, metal content of the wine and previous fining treatments are factors that can influence the effectiveness of fining.

HOW TO CHOOSE THE RIGHT FINING AGENT
Set up a bench trial with different fining agents and dosages. (See page 83 for Preparing Lab Bench Trials)

ENARTIS PRODUCT	WATER TEMPERATURE	PRODUCT/WATER RATIO	REHYDRATION TIME
BENTOLIT SUPER	12-16°C (55-62°F)	1:20	3-6 hr
CLARIL AF	12-16°C (55-62°F)	1:10	3-6 hr
CLARIL HM	Room Temperature	1:20	1 hr
CLARIL QY	Room Temperature	1:10	-
CLARIL SP	12-16°C (55-62°F)	1:10	3-6 hr
COMBISTAB AF	12-16°C (55-62°F)	1:10	3-6 hr
FINECOLL	Room Temperature	1:100	1-2 hr
GOLDENCLAR INSTANT	Room Temperature	1:20	-
NEOCLAR AF	12-16°C (55-62°F)	1:10	3-6 hr
PLANTIS AF	12-16°C (55-62°F)	1:10	-
PLANTIS AF-P	12-16°C (55-62°F)	1:10	-
PLUXBENTON N	12-16°C (55-62°F)	1:20	3-6 hr
PLUXCOMPACT	12-16°C (55-62°F)	1:10	3-6 hr
PROTOCLAR	12-16°C (55-62°F)	1:20	-
PROTOMIX AF	12-16°C (55-62°F)	1:10	3-6 hr
PULVICLAR S	40°C (104°F)	1:20	-
PURE BENTO	12-16°C (55-62°F)	1:20	1 hr
STABYL PVI/PVP	Room Temperature	1:20	1 hr
STABYL PVPP	40°C (104°F)	1:10	1 hr

HOW SHOULD I PREPARE FINING AGENTS?
Liquid fining products are ready to use, while products in powder form must be dissolved in water prior to addition to wine. In all cases, the fining agent should be added to water, not vice versa. If solutions are prepared to be used over two days, add 2 g/L of SO_2 to the solution to inhibit microbial growth.

SUGGESTIONS FOR FINING PROCEDURE:
- Prepare fining agent as recommended on the technical data sheet (TDS).
- Slowly incorporate fining agents to at least ½ of the total volume of wine, using a Venturi tube or dosing pump.
- Always add flocculation aids before the fining agent and allow 1-2 hours between additions. If there is a potential for overfining (residual protein remaining in wine),add bentonite (10 g/hL) after treatment.
- Fining agents should not remain in wine more than 15 days when using gelatin, casein and egg albumin, and 3-4 weeks when using isinglass.
- Protein-based fining agents work best at temperatures lower than 15°C (59°F).
- Bentonite works best at temperatures higher than 10°C (50°F).

WHY DO WE NEED FLOCCULATION AIDS?
Some protein-based fining agents (particularly gelatin and isinglass) require the addition of negatively-charged colloids such as tannin, silica sol and bentonite to ensure complete flocculation and precipitation.

ARE ALL GELATIN PRODUCTS THE SAME?
No. The gelatins we offer are refined, purified then separated into specific fractions by capillary electrophoresis. Gelatins can be used to change wine structure or to enhance aroma and flavor.

WHAT ARE THE BEST OPTIONS TO REMOVE SMOKE TAINT?
A fining trial is recommended to remove smoke taint off-flavors in juice and wine. We recommend **Protoclar** (potassium caseinate), **Claril SP** (Bentonite, PVPP, potassium caseinate and silica) and/or **Fenol Free** (activated carbon with high affinity with volatile phenols).

HOW TO TREAT REDUCTIVE CHARACTERS?
- Aeration can volatilize some low boiling point sulfur compounds such as H_2S and mercaptans, however, exposure to oxygen can transform these mercaptans to high sensory-threshold compounds such as disulfides.
- Copper sulfate reacts with H_2S and certain mercaptans but doesn't have an effect on disulfides or heavy sulfur compounds.
- Carbon is effective at removing diethyl sulfide, which cannot be removed with any form of copper. It is not a selective treatment and can decrease wine aromatic potential.
- Tannin addition, especially ellagic tannin from untoasted oak, has the ability to bind with mercaptans and remove them.

A BIT MORE ABOUT PVI/PVP...
PVI/PVP is an adsorbent co-polymer (polyvinylimidazole and polyvinylpyrrolidone) capable of removing heavy metals in wine such as copper (Cu), iron (Fe) and aluminum (Al) and binding with phenolic compounds, the substrates of oxidative reactions. Wines treated with PVI/PVP are fresher, more aromatic, more balanced, have a lower oxidation potential and improved shelf life. Enartis offers **Stabyl MET**, **Claril HM**, **Enartis Pro XP** and **Enartis Pro FT**, PVI/PVP-based products, designed for specific applications and winemaking stages.

Perlage Range of Premium Products for Sparkling Wine Production

To optimize each stage of sparkling wine production and provide winemakers quality tools, Enartis has developed the Perlage range. These products are designed to fill the specific needs of sparkling wine production, whether made by traditional or modern methods. Vinquiry Laboratories by Enartis USA offers services to help winemakers adapt the production process and improve sparkling wine quality. (See page 16 for analytical panels specific to sparkling wines.)

Yeast

Key words for alcoholic fermentation in sparkling winemaking are "complete" and "clean." Base wine must have good fermentation capacity, which means no residual toxicity, no high VA production, no high total SO_2 and decent alcohol level.

Specific resistant yeast should be used for the "prise de mousse." At this stage, the choice of yeast will define the wine's personality.

Our sparkling-specific yeasts have the criteria required to produce high-quality sparkling wine.

ENARTIS FERM PERLAGE D.O.C.G

Used for primary fermentation of base wines and *prise de mousse* in pressure tanks, it assures a regular and complete fermentation. It produces very clean wines characterized by delicate white fruit aromas, low volatile acidity and an elegant palate.

Recommendations: *Base wine; prise de mousse; pressure tank; Charmat method; clean aromas; elegant; complete and regular fermentation.*

Dosage: *20-40 g/hL (1.7-3.3 lb/1,000 gal) for base wine*
10-20 g/hL (0.8-1.7 lb/1000 gal) for second fermentation

0.5 Kg (Item #45-182-0500) $ 39.00

ENARTIS FERM PERLAGE FRUITY

In addition to ensuring a complete and clean fermentation, this yeast strain is used to produce 'modern' style base white with intense aromas of fresh fruit. It releases a large amount of mannoproteins during *sur lies* ageing that improve mouthfeel and color stability.

Recommendations: *White, rosé and red sparkling base wines; aromatic sparkling wines; prise de mousse; pressure tank; Charmat method.*

Dosage: *20-40 g/hL (1.7 -3.3 lb/1,000 gal) for base wine*

0.5 Kg (Item #45-181-0500) $ 39.00

ENARTIS FERM PERLAGE

Yeast selected for the production of traditional method sparkling wines. Resistant to extreme conditions such as pressure, high °Brix, high alcohol content, low pH and low temperatures, it produces elegant, delicate and clean wines. It respects varietal and terroir characteristics.

Recommendations: *High quality base wines; prise de mousse; traditional method; Charmat method; white and rosé wines.*

Dosage: *20-40 g/hL (1.7-3.3 lb/1,000 gal) for base wine*
10-20 g/hL (0.8-1.7 lb/1000 gal) for second fermentation

0.5 Kg (Item #45-180-0500) $ 39.40
10 Kg (Item #45-180-0010) $ 485.00

Fermentation Polysaccharides

ENARTIS PRO PERLAGE

- Yeast derivatives rich in sulfur-containing peptides that release large amount of readily-soluble mannoproteins.
- Ensures antioxidant protection and protects aromas and color.
- Improves colloidal, protein and tartrate stability and foaming properties
- Increases shelf life of base wines and protects wine during storage before second fermentation.
- Produces fresh, round and balanced sparkling base wines.

Recommendations: *Antioxidant; aroma protection; improve mouthfeel; improve foaming properties; protect base wine during storage.*

Dosage: *20-50 g/hL (1.7-4.2 lb/1,000 gal)*

1 Kg (Item #35-418-0001) $ 80.00

Yeast Nutrition

NUTRIFERM PDC

- Amino acids, vitamins (thiamine), mineral salts, oligo-elements and survival factors.
- Specific nutrient for *pied de cuve* preparation, it provides essential elements for yeast to survive and ferment in difficult conditions.
- Stimulates yeast growth and shortens lag phase.
- Prevents formation of H_2S and acetic acid.

Usage: *Dissolve in 10 times its weight of water and add during preparation of pied de cuve.*
Dosage: *1-5 g/hL (0.08-0.4 lb/1,000 gal) of base wine*

1 Kg **(Item #35-204-0001)** **$ 40.00**

NUTRIFERM PDC AROM

- Amino acids, vitamins, mineral salts and micro-nutrients.
- Specific nutrient for *pied de cuve* preparation, it provides essential elements for yeast to survive and ferment in difficult conditions.
- High content of selected amino acids used by yeast as precursors of aromatic compounds to increase intensity, freshness and complexity.
- Stimulates yeast growth and shortens lag phase.
- Prevents formation of H_2S and acetic acid and increases production of glycerol and polysaccharides.

Tip: *Recommended for the production of aromatic and fruity sparkling wines in combination with Enartis Ferm Perlage Fruity.*
Usage: *Dissolve in 10 times its weight of water and add during preparation of pied de cuve.*
Dosage: *5-10 g/hL (0.4-0.8 lb/1,000 gal) of base wine*

1 Kg **(Item #35-207-0001)** **$ 45.00**

NUTRIFERM GRADUAL RELEASE

- Innovative nutrient composed of DAP, gallic tannin and untoasted oak tannins.
- Specific packaging that controls the release of its content during fermentation. Due to the particular permeability of the bag, yeast nutrients are gradually released into fermenting must. The release begins at the end of yeast growth phase (alcohol presence) and continues for up to 8 days.
- Ensures complete fermentation, prevents H_2S production, prevents stuck or sluggish fermentation and improves freshness and aromatic cleanliness.
- Facilitates nutrition management, limits cellar operation.

Recommendations: *Barrel fermentation; tank fermentation; Charmat method.*
Usage: *Anchor bag to top of tank or to barrel bung before filling.*
Dosage: *20-30 g/hL (1.7-2.5 lb/1,000 gal)*

1 Kg **(Item #35-216-0001)** **$ 45.00**
5 Kg **(Item #35-216-0005)** **$ 150.00**

NUTRIFERM TIRAGE

- Complex nutrient containing DAP and yeast hulls with high content of sterols and phospholipids.
- Specific yeast nutrient for second fermentation.
- Supplies yeast with essential nitrogen elements and survival factors needed for second fermentation.
- Ensures a complete and regular fermentation in both traditional and *Charmat* methods.

Usage: *Dissolve in 10 times its weight of water and add to wine before tirage or second fermentation.*
Dosage: *5-20 g/hL (0.4-1.7 lb/1,000gal) of base wine*

1 Kg **(Item #35-208-0001)** **$ 40.00**

NUTRIFERM REVELAROM

- Complex nutrient containing DAP, purified cell walls and copper salts.
- Specific yeast nutrient for second fermentation.
- Supplies yeast with essential nitrogen elements and survival factors needed for second fermentation, even in difficult conditions.
- Prevents production of light sulfur compounds and off-flavors.

Tip: *10 g/hL of Nutriferm Revelarom gives 0.5 ppm of copper.*
Usage: *Dissolve in 10 times its weight of water and add to wine before tirage or second fermentation.*
Dosage: *5-15 g/hL (0.4-1.3 lb/1,000 gal) of base wine*

1 Kg **(Item #35-206-0001)** **$ 25.00**

Fining Agents for Juice and Base Wine

It is important to consider the quality variations from press juices to choose and adapt the winemaking process. Removal of undesired elements present in juice (solids, polyphenols, color, proteins, lipids…) before starting fermentation is fundamental.

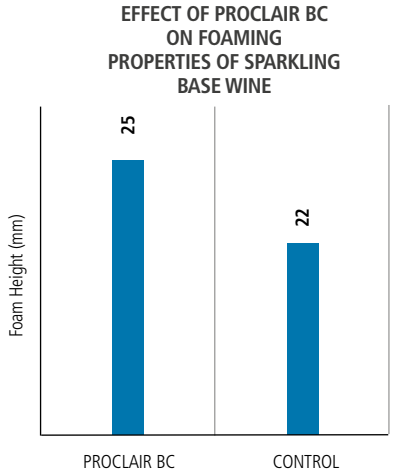
Enartis developed fining agents specific for sparkling wine production that remove unwanted elements while respecting foaming properties.

PROCLAIR BC

- Bentonite, PVPP and cellulose.
- Eliminates oxidases and polyphenols responsible for oxidation.
- Improves protein stability while respecting foaming capacity.
- Increases freshness and shelf life of base wines.

Recommendations: *Juice clarification; protein stability; freshen base wine.*
Dosage: *30-150 g/hL (2.5-12.6 lb/1,000 gal)*

10 Kg **(Item #35-671-0010)** **$ 650.00**



Fining with Proclair BC improves foaming properties of sparkling base wines and increases foam height. The foam height, criterium of quality in sparkling wine, is measured with Mosalux.

ENOBLACK PERLAGE

- Vegetal activated carbon in pellet form (reduces spread of carbon dust).
- High decolorizing capacity.
- Removes ochratoxin A (OTA).

Recommendations: *Decolorizing; juice; base wine; treat oxidation.*
Usage: *Disperse in small amount of water or directly in wine. Keep in suspension for 15-20 minutes.*
Dosage: *5-100 g/hL (0.4-8.3 lb/1,000 gal)*

15 Kg **(Item #35-705-0015)** **$ 375.00**

CLAIRPERLAGE UNO

- Selected bentonites and plant proteins.
- Highly effective in removing unstable proteins while preserving mannoprotein content and wine foaming properties.
- Improves clarity and eliminates components that have negative effect on foam.

Recommendations: *Base wine; clarification; protein stability; respect foaming properties; small lees volume; lees compaction; wine structure preservation; allergen-free.*
Usage: *Dissolve in 20 times its weight of warm water. Allow to swell 3-6 hours. Stir constantly during addition.*
Dosage: *20-100 g/hL (1.7-8.3 lb/1,000 gal)*

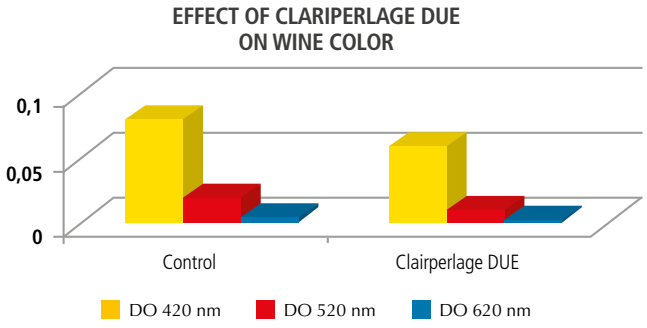
10 Kg **(Item #35-673-0010)** **$ 80.00**

CLAIRPERLAGE DUE

- PVPP, plant protein and silica.
- Prevents and treats oxidation notes in juice and sparkling base wines.
- Eliminates polyphenols responsible for oxidation, bitterness and brown color.
- Eliminates compounds binding with SO_2, allowing a greater free and total SO_2 ratio.

Tip: *Designed to be easy-to-use, it can be added on base wines or during fermentation.*
Recommendations: *Prevent oxidation; treat oxidation; freshen base wine.*
Usage: *Sprinkle directly over must or wine surface during pump-over. Stir constantly during addition.*
Dosage: *15-40 g/hL (1.3-3.3 lb/1,000 gal)*

1 Kg **(Item #35-672-0001)** **$ 45.00**
10 Kg **(Item #35-672-0010)** **$ 500.00**



ClairPerlage DUE reduces the yellow component of color by protecting against oxidation.

Bottle Clarification – Riddling Agents

CLAIRBOUTEILLE P

- Powdered riddling agent containing blend of selected bentonites.
- Improves clarity of sparkling wines produced with traditional method and compacts lees.
- Forms a layer on glass, preventing yeast adhesion to bottle walls during ageing.
- Reduces processing time for automatic and manual riddling.

Tip: *If also using other riddling processing aids, add them before using Clairbouteille P.*
Recommendations: *Riddling agent; automatic and manual riddling; clarification; compact lees.*
Usage: *Dissolve in 30 times its weight of cold water. Allow to swell for 24-48 hours. Dilute again in 3 times its weight of cold water. Add homogeneously to pied de cuve. Stir constantly during addition and keep in suspension for 30 minutes.*
Dosage: *3-5 g/hL (0.25-0.4 lb/1,000 gal)*

0.25 Kg **(Item #30-208-0250)** **$ 31.25**

ENARTIS TAN CLAIRBOUTEILLE

- Gallic and ellagic tannins used as riddling agent.
- Improves clarification, compacts lees.

Tip: *When used in combination with Clairbouteille P, Enartis Tan Clairbouteille helps with clarification in bottle and formation of compact lees.*
Recommendations: *Riddling agent; clarification.*
Dosage: *1-4 g/hL (0.08-0.3 lb/1,000 gal)*

1 Kg **(Item #35-316-0001)** **$ 55.00**

Wine Sensory Improvement

Enartis developed a range a products designed for the production of sparkling wines to "fine-tune," give identity, customize and improve the wine to meet the needs of each market: softness, mouthfeel, elegance and finesse, foam quality, fresh fruit aromas or aromatic complexity. These products can be added during tirage or with the liqueur d' expedition, at disgorgement.
Before using any finihsing products, we recommend seting up a bench trial (See page 83 for Preparing Lab Bench Trials.)

SURLI MOUSSE

- Yeast derivatives rich in readily-soluble mannoproteins.
- Improves foaming capacity, bubble persistence and quality of sparkling wines.
- Enhances natural sensation of volume and roundness, builds mid-palate and improves aromatic complexity.

Recommendations: *Improve foaming properties; increase roundness; enhance aroma complexity; sur lies ageing; Charmat method; traditional method; white, rosé and red wines.*
Dosage: *10-15 g/hL (0.8-1.3 lb/1,000 gal)*

1 Kg **(Item #35-421-0001)** **$ 45.00**

SURLI TAN PERLAGE

- Yeast derivatives rich in readily-soluble mannoproteins and gallic tannins.
- Made for "thin" wines to improve their structure and length.
- Improves bubble persistence while limiting the production reductive notes during second fermentation.

Recommendations: *Enhance structure; increase volume and roundness; improve wine ageing potential; prevent reductive notes.*
Dosage: *5-20 g/hL (0.4-1.7 lb/1,000 gal)*

1 Kg **(Item #35-422-0001)** **$ 85.00**

ENARTIS TAN TRG

- Condensed tannins from grapes and ellagic tannins extracted from medium-toasted oak.
- Reinforces wine structure, builds up mid-palate and increases wine ageing potential.
- Protects aroma from rapid evolution and prevents production of sulfur compounds during second fermentation.

Tip: *When added at tirage, Enartis Tan TRG brings aromatic freshness and improves wine balance.*
Recommendations: *Prevent reductive notes; enhance structure; improve wine ageing potential.*
Dosage: *0.5-8 g/L (0.04-0.6 lb/1,000 gal)*

1 Kg **(Item #35-322-0001)** **$ 290.00**

ENARTIS TAN FINESSE

- Condensed tannins extracted from exotic species of wood.
- Improves sparkling wine harmony and aromatic quality.
- Reduces herbaceous notes in base wines.

Tip: *Enartis Tan Finesse can be added to base wine or during prise de mousse.*
Recommendations: *Reduce herbaceous notes; improve wine harmony; increase aromatic complexity.*
Dosage: *3-10 g/hL (0.25-0.8 lb/1,000 gal)*

1 Kg **(Item #35-317-0001)** **$ 35.00**

ENARTIS TAN FRAGRANCE

- Condensed tannins extracted from red fruit tree wood.
- Extraction process preserves the aromatic precursors (terpenes and norisoprenoids) present in wood.
- Antioxidant, it protects wine aromas from oxidation and ageing.
- Develops berry, red fruit and floral aromas and improves wine complexity.

Recommendations: *Antioxidant; enhance fruity aromas; white, rosé and red sparkling wines.*
Dosage: *1-8 g/hL (0.08-0.6 lb/1,000 gal)*

1 Kg **(Item #35-318-0001)** **$ 250.00**

ENARTIS TAN STYLE

- Tannins extracted from untoasted oak.
- Aromatically neutral and very soft, it balances and enhances wine roundness and structure.
- Prevents production of sulfur compounds during second fermentation in both traditional or *Charmat* method.

Tip: *Enartis Tan Style can be used during second fermentation or as a finishing tannin at disgorging.*
Recommendations: *Prevent reductive notes; prevent mercaptan production; reduce off-flavors; balance structure; second fermentation; roundness.*
Dosage: *1-10 g/hL (0.08-0.8 lb/1,000 gal)*

1 Kg **(Item #35-321-0001)** **$ 80.00**

ENARTIS TAN LAST TOUCH

- Tannins from oak and grape skins.
- Delicate tannin that freshens and widens aromatic bouquet and wine complexity.
- Balances wines after ageing on lees, increases persistence and opens wines for early consumption.

Tip: *Enartis Tan Last Touch can be added in the liqueur d'expédition.*
Recommendations: *Sparkling wine; increase aromatic complexity; improve wine balance; freshen aromas.*
Dosage: *0.5-5 g/hL (0.04-0.4 lb/1,000 gal)*

1 Kg **(Item #35-319-0001)** **$ 595.00**

Sparkling Wine Supplies

HYDROMETER, DENSITY

MUSTIMETRE

0.98 to 1.130, combined with thermometer (Item #20-138-0001) $ 135.00

APHROMETER

Cork	(Item #50-027-0002)	$ 800.00
Crown Capsule	(Item #50-010-0015)	$ 550.00

PERLAGE RANGE: WHICH PRODUCT FOR WHICH SPARKLING WINE STYLE?

	FRESH, FRUIT FORWARD, MODERN	AGED, CLASSIC, COMPLEX
ENARTIS FERM PERLAGE D.O.C.G	★	
ENARTIS FERM PERLAGE FRUITY	★	
ENARTIS FERM PERLAGE		★
ENARTIS PRO PERLAGE	★	
NUTRIFERM PDC		★
NUTRIFERM PDC AROM	★	
NUTRIFERM TIRAGE		★
NUTRIFERM REVELAROM	★	
PROCLAIR BC	★★	★
CLAIRPERLAGE UNO	★	★
CLAIRPERLAGE DUE	★	
ENARTIS TAN FINESSE	★	
ENARTIS TAN FRAGRANCE	★	
ENARTIS TAN STYLE	★	★
ENARTIS TAN LAST TOUCH		★

PERLAGE RANGE: WHICH PRODUCT FOR WHICH PRODUCTION METHOD?

	TRADITIONAL METHOD	*CHARMAT* METHOD
ENARTIS FERM PERLAGE D.O.C.G	★	★★★
ENARTIS FERM PERLAGE FRUITY	★	★★★
ENARTIS FERM PERLAGE	★★★	★★★
NUTRIFERM PDC	★★★	★★★
NUTRIFERM PDC AROM	★	★★★
NUTRIFERM TIRAGE	★★★	★★★
NUTRIFERM REVELAROM	★	★★★
CLAIRPERLAGE UNO	★★★	★★★
CLAIRPERLAGE DUE	★★★	★★★
CLAIRBOUTEILLE P	★★★	
ENARTIS TAN CLAIRBOUTEILLE	★★★	
SURLÌ MOUSSE	★	★★★
SURLÌ TAN PERLAGE	★★	★★★
ENARTIS TAN TRG	★★★	★
ENARTIS TAN FINESSE	★	★★★
ENARTIS TAN FRAGRANCE	★★	★★★
ENARTIS TAN STYLE	★	★★★
ENARTIS TAN LAST TOUCH	★★★	★★

MALOLACTIC FERMENTATION AND SPARKLING WINES…

When malolactic fermentation is not desired, it is important to prevent it! In addition to good cellar hygiene and regular microbes check, wine should be at low temperature with a molecular SO_2 >0.5 ppm to limit the development of bacteria. The use of Enartis Stab Micro (M), a pre-activated chitosan to reduce and manage the spoilage microbe populations. *(See pages 66-67 for more information on **Enartis Stab Micro** and **Enartis Stab Micro M**).* Lysozyme is not recommended in sparkling wine, due to the impact on protein stability and foam capacities.

HOW TO COLD STABILIZE BASE WINE FOR SPARKLING?

By removing some potassium and tartaric acids from the base wine, cold stabilization affects pH and total acidity of the wine. We highly recommended to stabilize base wines before second fermentation with cold alternatives such as **Enartis Cellogum L**, **Enartis Cellogum LV20** or **Citrogum**.

Vinquiry laboratories offer the CMC panel for sparkling that can test if cold alternatives works and at which dosage. (See page 15 for CMC Panels).

KNOW MORE

PREPARING LAB BENCH TRIALS

Bench trials are essential to determine proper dosing and the efficiency of a treatment (addition of fining agents, addition of tannins or polysaccharides). To set-up bench trials, follow these steps:

- Prepare 1% (1g in 100 mL), 2% (2g in 100 mL) or 5% (5g in 100 mL) treatment solutions of the product to be tested:
  - For fining agents: prepare solution in water as recommended in the Technical Data Sheet.
  - For tannins: prepare solution in neutral alcohol-water solution (~ 13%).
  - For polysaccharides: prepare solution in water as recommended in the TDS.
  - For liquid products: use solution as it is or dilute if necessary.
- Label each sample bottle. Keep one untreated sample as a control.
- Fill samples with wine up to 80% of final volume, leaving space for the addition.
- Add the treatment solution. Refer to Table 1 for volume of a 1% solution to add into wine. Refer to Table 2 for liquid products.
- Mix immediately after addition, top each bottle with wine and mix again.
- For fining agents:
  - Store in refrigerator for settling (usually 1-2 days). Let come to room temperature before evaluating.
  - For tannins, polysaccharides and gum Arabic: wines can be tasted immediately after addition.

WINE SAMPLE VOLUME / ADDITION RATE	30 mL	50 mL	100 mL	125 mL	375 mL	750 mL
5 g/hL	0.15	0.25	0.50	0.62	1.87	3.75
7 g/hL	0.21	0.35	0.70	0.87	2.62	5.25
10 g/hL	0.30	0.50	1.00	1.25	3.75	7.50
15 g/hL	0.45	0.75	1.50	1.87	5.62	11.25
20 g/hL	0.60	1.00	2.00	2.50	7.50	15.00
25 g/hL	0.75	1.25	2.50	3.12	9.37	18.75

Table 1: Volume (mL) of 1% solution needed to treat wine sample at the desired addition rate.

WINE SAMPLE VOLUME / ADDITION RATE	30 mL	50 mL	100 mL	125 mL	375 mL	750 mL
50 mL/hL	0.015	0.025	0.050	0.063	0.188	0.375
75 mL/hL	0.023	0.038	0.075	0.094	0.281	0.563
100 mL/hL	0.003	0.005	0.010	0.013	0.038	0.075
125 mL/hL	0.004	0.006	0.013	0.016	0.047	0.094
150 mL/hL	0.005	0.008	0.015	0.019	0.056	0.113

Table 2: Volume (mL) of liquid product needed to treat wine sample at the desired addition rate.

Winemaking Chemicals

ANTIFOAM FOOD GRADE

250 mL	(Item #30-026-0237)	$ 24.00
500 mL	(Item #30-026-0437)	$ 33.00
1 L	(Item #30-026-0946)	$ 49.00

ASCORBIC ACID POWDER FG

1 lb	(Item #30-014-0001)	$ 7.00
25 Kg	(Item #30-014-0050)	$ 300.00

CITRIC ACID

FOOD GRADE

1 lb	(Item #30-036-1050)	$ 6.00
50 lb	(Item #30-036-0050)	$ 110.00

COPPER SULFATE CRYSTALS

FOOD GRADE ($CuSO_4 \bullet 5H_2O$)

50 g	(Item #10-057-0050)	$ 18.00
100 g	(Item #10-057-0100)	$ 26.00
500 g	(Item #10-057-1500)	$ 45.00

MALIC ACID POWDER

FOOD GRADE

1 lb	(Item #30-037-0001)	$ 11.00
50 lb	(Item #30-037-0050)	$ 135.00

DIAMMONIUM PHOSPHATE (DAP)

1 lb	(Item #30-015-0000)	$ 3.00
5 lb	(Item #30-015-0005)	$ 15.00
50 lb	(Item #30-015-0050)	

Please inquire for pricing.

POTASSIUM BITARTRATE POWDER

FOOD GRADE

per lb	(Item #30-130-0001)
25 Kg	(Item #30-130-0050)

Please inquire for pricing.

POTASSIUM CARBONATE

1 lb	(Item #30-020-0000)	$ 4.00
5 lb	(Item #30-020-0005)	$ 20.00
25 Kg	(Item #30-020-0025)	$ 165.00

TARTARIC ACID

FOOD GRADE

per lb	(Item #30-038-0001)
5 lb	(Item #30-038-0005)
25 Kg	(Item #30-038-0025)

Please inquire for pricing.

WINY-POTASSIUM METABISULFITE

1 Kg	(Item #35-820-0001)	$ 4.50
25 Kg	(Item #35-820-0025)	$ 72.50

The following is a selection of our Chemicals and Reagents.
Please visit www.enartis.com for additional offerings and MSDS information.

NOTES ON SHIPPING CHEMICALS

Most items in our catalog are in stock and will be shipped within 24 hours. Delivery time for special orders will vary; we'll let you know the approximate delivery date. UPS or Federal Express delivery can be arranged. Materials considered hazardous to ship are marked with this symbol in the catalog. Hazardous materials are subject to a shipping surcharge and may have other limitations on their shipment. Call our main office for details (707) 838-6312.

ACID NEUTRALIZER

Kolorsafe 1 L	(Item #10-277-0946)	$ 30.00

HAZ SPECIAL SHIPPING

ACID STANDARDS SUITABLE FOR CHROMATOGRAPHY

Concentration: 200 mg/100 mL

CITRIC ACID

60 mL	(Item #10-245-0060)	$ 9.00

LACTIC ACID

60 mL	(Item #10-251-0060)	$ 9.00

MALIC ACID

60 mL	(Item #10-254-0060)	$ 9.00

SUCCINIC ACID

60 mL	(Item #10-256-0060)	$ 9.00

TARTARIC ACID

60 mL	(Item #10-258-0060)	$ 9.00

ALCOHOL, ISOPROPYL 70%

4 L	(Item #10-009-4000)	$ 72.00

HAZ SPECIAL SHIPPING

ALCOHOL, REAGENT ANHYDROUS 95%

250 mL	(Item #10-010-0237)	$ 18.00
500 mL	(Item #10-010-0473)	$ 27.00
1 L	(Item #10-010-0946)	$ 36.00

HAZ SPECIAL SHIPPING

4 L	(Item #10-010-4000)	$ 115.00

HAZ CAN'T BE SHIPPED

ANTIFOAM B

LABORATORY USE

60 mL dropper bottle	(Item #10-013-0060)	$ 30.00
500 mL	(Item #10-013-0473)	$ 150.00

ASCORBIC ACID POWDER

10 g	(Item #10-014-0010)	$ 6.00
100 g	(Item #10-014-0100)	$ 18.00
250 g	(Item #10-014-0250)	$ 35.00
500 g	(Item #10-014-0500)	$ 50.00

BUFFERS

pH 3.0

500 mL	(Item #10-028-0473)	$ 47.50

pH 4.0

250 mL	(Item #10-029-0237)	$ 10.50
500 mL	(Item #10-029-0473)	$ 14.50
1 L	(Item #10-029-0946)	$ 22.50

pH 7.0

250 mL	(Item #10-031-0237)	$ 10.50
500 mL	(Item #10-031-0473)	$ 14.50
1 L	(Item #10-031-0946)	$ 22.50

pH 10.0

500 mL	(Item #10-033-0473)	$ 47.50

CALCIUM CHLORIDE DESICCANT

50 g	(Item #10-037-0050)	$ 30.00
200 g	(Item #10-037-0200)	$ 60.00

CHROMATOGRAPHY SOLVENT

500 mL	(Item #10-043-0473)	$ 60.00

CONDUCTIVITY STANDARD 1413 µS

60 mL	(Item #10-045-0060)	$ 48.00

COPPER SULFATE

CRYSTALS ($CUSO_4 \cdot 5H_2O$)

500 g Food Grade	(Item #10-057-1500)	$ 45.00

1% SOLUTION

250 mL	(Item #10-054-0237)	$ 10.00
500 mL	(Item #10-054-0473)	$ 14.00
1 L	(Item #10-054-0946)	$ 18.00

10% SOLUTION

250 mL	(Item #10-055-0237)	$ 12.50
500 mL	(Item #10-055-0473)	$ 17.00
1 L	(Item #10-055-0946)	$ 23.00

DECOLORIZING CARBON FOR LABORATORY USE

100 g	(Item #10-042-0100)	$ 35.00
500 g	(Item #10-042-0500)	$ 160.00

ELECTRODE SOLUTIONS & MEMBRANES

AMMONIA ELECTRODE SUPPLIES

Filling solution, Orion 951202,
60 mL (Item #10-062-0060) $ 75.00

ISA (Ionic Strength Adjuster) Orion 951211,
475 mL (Item #10-061-0475) $ 98.00

Membranes, Orion 951204,
pack of 20 (Item #10-279-0000) $ 125.00

Standard, 0.1 M, NH_4Cl (Ammonium), Orion 951006,
475 mL (Item #10-066-0475) $ 80.00

Standard, 100 ppm N, Orion 951207,
475 mL (Item #10-067-0475) $ 80.00

Standard, 1000 ppm N, Orion 951007,
475 mL (Item #10-064-0475) $ 80.00

Soaking solution (Ammonium Chloride),
500 mL (Item #10-065-0473) $ 15.00

pH ELECTRODE SOLUTIONS

pH Cleaning Kit, Orion 900023
(Item #10-082-0000) $ 75.00

pH Electrode solution, Beckman BKA60217,
100 mL (Item #10-073-0100) $ 40.00

pH FILLING SOLUTIONS

1M KCl sat'd AgCl, BK598943,
100 mL (Item #10-076-0100) $ 30.00

4M KCl sat'd AgCl, BK566467,
100 mL (Item #10-080-0100) $ 30.00

sat'd KCL BK566468,
100 mL (Item #10-075-0100) $ 50.00

3M KCl Ross Orion 810007,
60 mL (Item #10-083-0050) $ 30.00

4M KCl sat'd AgCl, Orion 900011,
60 mL (Item #10-079-0060) $ 30.00

pH Filling and storage solution,
Beckman BKA51713(Item #10-077-0100) $ 50.00

POTASSIUM ELECTRODE SUPPLIES

Filling solution, Orion 900065,
60 mL (Item #10-067-0060) $ 30.00

FERMENTEST – REDUCING SUGARS ANALYSIS NEW

Fermentest Tablets Kit
(Item #10-044-0010) $ 115.00

Fermentest Tablets
(Item #10-044-0020) $ 60.00

pH ELECTRODE STORAGE SOLUTIONS

BECKMAN (BK 566576)
100 mL (Item #10-081-0100) $ 50.00

ORION (OR 910001)

100 mL	(Item #10-271-0100)	$ 27.00
475 mL	(Item #10-271-0475)	$ 47.50

HYDROCHLORIC ACID

0.01 N

250 mL	(Item #10-116-0237)	$ 11.50
500 mL	(Item #10-116-0473)	$ 20.50
1 L	(Item #10-116-0946)	$ 42.00

0.1 N

250 mL	(Item #10-118-0237)	$ 11.50
500 mL	(Item #10-118-0473)	$ 20.50
1 L	(Item #10-118-0946)	$ 42.00

1 N

500 mL	(Item #10-120-0473)	$ 19.50
1 L	(Item #10-120-0946)	$ 26.50

37%

500 mL	(Item #10-121-0500)	$ 50.00

2.5 L	(Item #10-121-2500)	$ 145.00

HYDROGEN PEROXIDE

3%

250 mL	(Item #10-122-0237)	$ 11.50
500 mL	(Item #10-122-0473)	$ 15.50
1 L	(Item #10-122-0946)	$ 21.50

15%

250 mL	(Item #10-123-0237)	$ 30.00
500 mL	(Item #10-123-0473)	$ 50.00
1 L	(Item #10-123-0946)	$ 80.00

30%

250 mL	(Item #10-124-0237)	$ 45.00
500 mL	(Item #10-124-0473)	$ 82.00

IODIDE/IODATE SOLUTION

500 mL	(Item #10-130-0473)	$ 26.00
1 L	(Item #10-130-0946)	$ 36.00

IODINE

0.02 N

250 mL	(Item #10-127-0237)	$ 11.50
500 mL	(Item #10-127-0473)	$ 15.00
1 L	(Item #10-127-0946)	$ 21.00

0.1 N

250 mL	(Item #10-128-0237)	$ 14.00
500 mL	(Item #10-128-0473)	$ 21.00
1 L	(Item #10-128-0946)	$ 29.00

LAB CLEANER

Micro, 1 L	(Item #10-153-0946)	$ 35.00

METHYLENE BLUE

1% SOLUTION FOR REDUCING SUGARS

60 mL dropper bottle	(Item #10-195-0060)	$ 11.00

YEAST VIABILITY STAIN

60 mL dropper bottle	(Item #10-194-0060)	$ 16.00

PHENOLPHTHALEIN, 1%

60 mL dropper bottle	(Item #10-204-0060)	$ 12.00
250 mL	(Item #10-204-0237)	$ 16.50

PHOSPHORIC ACID

25%

250 mL	(Item #10-205-0237)	$ 12.00
500 mL	(Item #10-205-0473)	$ 18.00
1 L	(Item #10-205-0946)	$ 33.00

85%

2.5 L	(Item #10-206-2500)	$ 190.00

POTASSIUM BITARTRATE POWDER

REAGENT GRADE

100 g	(Item #10-207-010	$ 28.00
500 g	(Item #10-207-0500)	$ 95.00

POTASSIUM IODIDE

CRYSTALS

500 g	(Item #10-212-0500)	$ 150.00

20% SOLUTION

500 mL	(Item #10-211-0473)	$ 53.00
1 L	(Item #10-211-0946)	$ 87.00

REFRACTOMETER STANDARD

15° BRIX

60 mL dropper bottle	(Item #10-217-0060)	$ 7.50
250 mL	(Item #10-217-0237)	$ 10.50
1 L	(Item #10-217-0946)	$ 18.50

20° BRIX

60 mL dropper bottle	(Item #10-218-0060)	$ 7.50
250 mL	(Item #10-218-0237)	$ 10.50
1 L	(Item #10-218-0946)	$ 18.50

25° BRIX

60 mL dropper bottle	(Item #10-219-0060)	$ 7.50
250 mL	(Item #10-219-0237)	$ 10.50
1 L	(Item #10-219-0946)	$ 18.50

SO_2 INDICATOR

FOR SO_2 AERATION-OXIDATION TEST

60 mL dropper bottle	(Item #10-222-0060)	$ 10.00
250 mL	(Item #10-222-0237)	$ 20.00
500 mL	(Item #10-222-0473)	$ 35.00

SPECIAL SHIPPING

SODIUM CARBONATE 20%

500 mL	(Item #10-225-0473)	$ 25.00

SODIUM HYDROXIDE

0.01 N

500 mL	(Item #10-228-0473)	$ 11.00
1 L	(Item #10-228-0946)	$ 21.50

0.1 N

500 mL	(Item #10-231-0473)	$ 11.00
1 L	(Item #10-231-0946)	$ 21.50

1 N

500 mL	(Item #10-232-0473)	$ 20.00
1 L	(Item #10-232-0946)	$ 25.00

SPECIAL SHIPPING

10%

500 mL	(Item #10-227-0473)	$ 21.00
1 L	(Item #10-227-0946)	$ 27.50

SPECIAL SHIPPING

0.067 N

1 L	(Item #10-236-0946)	$ 21.50

10 M

500 mL	(Item #10-230-0473)	$ 35.00

SPECIAL SHIPPING

PELLETS

500 g	(Item #10-237-0500)	$ 70.00

SPECIAL SHIPPING

SODIUM THIOSULFATE

0.02 N

500 mL	(Item #10-239-0473)	$ 14.50
1 L	(Item #10-239-0946)	$ 21.50

0.1 N

500 mL	(Item #10-240-0473)	$ 25.00
1 L	(Item #10-240-0946)	$ 35.00

STANDARDS

The following standards can be made to any concentration (example: 14% Ethanol Standard). Please specify the desired concentration when ordering.

ACETIC ACID STANDARD

100 mL	(Item #10-243-0100)	$ 55 .00

ETHANOL (ALCOHOL) STANDARD

250 mL (14% only)	(Item #10-095-0237)	$ 52.00
500 mL (14% only)	(Item #10-095-0473)	$ 62.00
1 L	(Item #10-095-0946)	$ 72.00

FRUCTOSE STANDARD

100 mL	(Item #10-248-0100)	$ 52.00

GLUCOSE STANDARD

100 mL	(Item #10-250-0100)	$ 52.00

LACTIC ACID STANDARD

100 mL	(Item #10-252-0100)	$ 55.00

MALIC ACID STANDARD

100 mL	(Item #10-253-0100)	$ 55.00

SORBIC ACID STANDARD

100 mL	(Item #10-247-0100)	$ 55.00

TARTARIC ACID STANDARD

100 mL	(Item #10-259-0100)	$ 55.00

TURBIDITY STANDARD

100 mL, 1 NTU	(Item #10-273-1100)	$ 100.00
100 mL, 20 NTU	(Item #10-273-2100)	$ 100.00

STARCH INDICATOR, 1%

500 mL	(Item #10-261-0473)	$ 18.00
1 L	(Item #10-261-0946)	$ 24.00

SULFURIC ACID

1+3

500 mL	(Item #10-264-0473)	$ 16.00
1 L	(Item #10-264-0946)	$ 21.50

96%

2.5 L	(Item #10-267-2500)	$ 125.00

Labware and Supplies

At Enartis USA, new products and supplies are added regularly to our inventory. For items not in stock, we are pleased to accommodate special orders. We also offer consultation on planning and set-up of your own laboratory.

The following is a selection of our Labware and Supplies. Please visit www.enartis.com for additional offerings and technical information.

ALCOHOL BURNER

Glass, 4 oz	(Item #20-001-0000)	$ 18.00
Replacement Wicks, each	(Item #20-002-0000)	$ 2.00

AROMA RECOGNITION TRAINING KITS BY AROMA ACADEMY

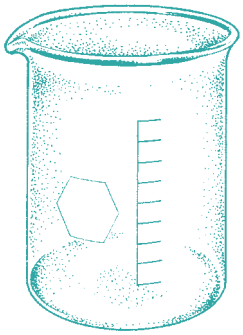
Enartis USA offers Aroma Recognition Training Kits by Aroma Academy - Your Route to Expertise in Aroma Recognition, Aroma Vocabulary and Mastering the Sense of Smell. Each kit contains 24 aroma samples, explanatory guidebook and "Nosing" and Tasting Record Sheet.

Bourbon Gift Box	(Item #10-303-0014)	$ 200.00
Gin Gift Box	(Item #10-303-0011)	$ 200.00
Rum Gift Box	(Item #10-303-0015)	$ 200.00
Whiskey Gift Box	(Item #10-303-0010)	$ 200.00
Whiskey Wooden Box	(Item #10-303-0013)	$ 250.00
Wine Gift Box	(Item #10-303-0009)	$ 200.00
Wine Wooden Box	(Item #10-303-0012)	$ 250.00
Refill Aroma Strips	(Item #10-303-0016)	$ 15.00

BALANCES AND DIGITAL SCALES

Ohaus, electronic, portable top-loading (0.1 g to 400 g)	(Item #50-017-0002)	$ 305.00
Ohaus, electronic, portable top-loading (0.01 g to 200 g)	(Item #50-017-0001)	$ 510.00
Ohaus, electronic, portable top loading (0.01 g to 400 g)	(Item #50-017-0008)	$ 695.00
Ohaus Dial-O-Gram 1610 (0.01 g to 610 g)	(Item #50-017-0000)	$ 395.00
Scout Pro (0.1 g to 4,000 g)	(Item #50-017-0009)	$ 765.00
Scout Ohaus (1.0 g to 6,000 g)	(Item #50-017-0011)	$ 410.00

BEAKERS



Glass Beaker

GLASS		
50 mL	(Item #20-012-0050)	$ 4.50
100 mL	(Item #20-012-0100)	$ 4.50
150 mL	(Item #20-012-0150)	$ 4.50
250 mL	(Item #20-012-0250)	$ 4.50
400 mL	(Item #20-012-0400)	$ 7.00
600 mL	(Item #20-012-0600)	$ 8.00
1000 mL	(Item #20-012-1000)	$ 15.00
2000 mL	(Item #20-012-2000)	$ 37.00
POLYPROPYLENE		
50 mL	(Item #20-013-0050)	$ 4.25
100 mL	(Item #20-013-0100)	$ 4.75
150 mL	(Item #20-013-0150)	$ 7.50
250 mL	(Item #20-013-0250)	$ 7.50
400 mL	(Item #20-013-0400)	$ 15.00
600 mL	(Item #20-013-0600)	$ 18.00
1000 mL	(Item #20-013-1000)	$ 18.00
2000 mL	(Item #20-013-2000)	$ 45.00
POLYPROPYLENE, WITH HANDLE		
1000 mL	(Item #20-014-1000)	$ 8.50
2000 mL	(Item #20-014-2000)	$ 13.00
3000 mL	(Item #20-014-3000)	$ 17.00
5000 mL	(Item #20-014-5000)	$ 45.00
TRI-POUR DISPOSABLE		
100 mL	(Item #20-011-0100)	$ 1.50
400 mL	(Item #20-011-0400)	$ 1.75
800 mL	(Item #20-011-0800)	$ 1.75
1000 mL	(Item #20-011-1000)	$ 3.50

BIOWINE BIOSENSOR FOR MALIC ACID

The BioLan BioWine 700 uses the variation in electric current due to redox reactions to quickly determine malic acid levels in under 60 seconds. Extremely simple to use and portable, this tool is for use in the lab or cellar.

BioWine 700	(Item #50-000-0001)	$ 7,000.00
Biotest Malic Acid (10 tests)	(Item #10-093-0001)	$ 70.00
Biotest Histamine (10 tests)	(Item #10-093-0002)	$ 175.00

BOILING CHIPS

8 oz. bottle (pre-packaged)	(Item #10-059-0001)	$ 44.00

BOOKS & SOFTWARE

Chemical Analysis of Grapes and Wine: Techniques and Concepts
by Iland, Bruer, Edwards, Weeks, Wilkes (Item #20-022-0000) $ 195.00

Cooperage for Winemakers
by Schahinger, Rankine (Item #20-018-0001) $ 50.00

Laboratory Safety Pocket Guide (formerly Right to Know, Pocket Guide for Laboratory Employees)
by Paul Mercier (Item #20-020-0000) $ 12.00

Micro Vinification
by Dharmadhikari, Wilker (Item #20-029-0000) $ 65.00

Microbiological Analysis of Grapes and Wine: Techniques and Concepts
by Iland, Grbin, Grinbergs, Schmidtke, Soden (Item #20-022-0003) $ 195.00

Monitoring the Winemaking Process from Grapes to Wine: Techniques and Concepts
by Iland, Bruer, Ewart, Markides, Sitters (Item #20-022-0002) $ 195.00

Principles and Practices of Winemaking
by Boulton, Singleton, Bisson, Kunkee (Item #20-019-0000) $ 240.00

Sunlight into Wine
by Dr. Richard Smart (Item #20-021-0000) $ 85.00

Understanding Wine Technology: The Science of Wine Explained
by David Bird (Item #20-026-1000) $ 70.00

Wine Microbiology
by Fugelsang, Edwards (Item #20-017-0000) $ 110.00

Winegrape Berry Sensory Assessment in Australia
by Winter, Whiting, Rousse (Item #20-015-0000) $ 40.00

The Wine Maker's Answer Book
by Alison Crowe (Item #20-016-0001) $ 25.00

MEXTAR® 2.0 EN PREDICTIVE TARTRATE STABILITY SOFTWARE

Mextar® 2.0 EN is a software tool that will help answer recurring questions such as:

- Is a wine at risk for tartaric precipitations (potassium bitartrate and/or calcium tartrate)?
- What will be the impact on total acidity and pH after tartrate stabilization? And after malolactic fermentation?
- How much acid should be added to achieve a targeted pH or total acidity?
- What will the change in buffer capacity be?

Mextar® 2.0.en is a Decision Support System (DSS) that provides the basis for important winemaking choices. As it utilizes actual measured wine parameters, it is not merely a computer science application. Thus you will feel confident in making correct decisions for various treatment operations in the winery. Mextar® 2.0.en uses typical analytical data: density, alcohol content, pH, total acidity, tartaric acid, K^+ and Ca^{++} (relative to calcium tartrate precipitation) to give practical indications in innovative ways for tartaric stability, control of chemical-physical state of wines and of buffer capacity. Moreover, acidification/deacidification operations can be simulated as well as chemical changes resulting from malolactic fermentation. Mextar® 2.0.en was developed by enologists, for specific winemaking applications. Potential users are winemakers, assistant winemakers, enologists, enological consultants and laboratories, wine cellar technicians and bottling facilities.

Mextar® 2.0 EN (Item #20-029-0020) $ 1,500.00

BOTTLES

DROPPER BOTTLE

glass, 60 mL	(Item #20-031-0000)	$ 8.00
polyethylene, 60 mL	(Item #20-030-0000)	$ 3.00

WASH BOTTLE, NALGENE

500 mL narrow mouth	(Item #20-033-0500)	$ 12.00
500 mL wide mouth	(Item #20-033-1500)	$ 12.00
750 mL narrow mouth	(Item #20-033-0750)	$ 15.00
1000 mL wide mouth	(Item #20-033-1000)	$ 15.00

WASH BOTTLE, NALGENE, RED

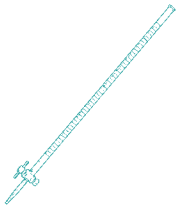
250 mL	(Item #20-034-0250)	$ 11.00
500 mL	(Item #20-034-0500)	$ 14.00

BRUSHES

Buret	(Item #20-035-0001)	$ 7.00
Cylinder and bottle	(Item #20-035-0002)	$ 9.00
Flask	(Item #20-035-0003)	$ 20.00
Pipet	(Item #20-035-0004)	$ 6.50
Test tube	(Item #20-035-0005)	$ 3.00

BURETS, GLASS

Straightbore Buret



Glass, straightbore, with Teflon stopcock

10 mL	(Item #20-041-0010)	$ 40.00
25 mL	(Item #20-041-0025)	$ 40.00
50 mL	(Item #20-041-0050)	$ 45.00

Premium Glass, straightbore, with Teflon stopcock

10 mL	(Item #20-040-0010)	$ 150.00
25 mL	(Item #20-040-0025)	$ 150.00

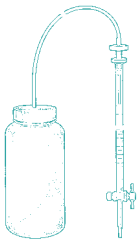
BURET ACCESSORIES

See also Clamps & Supports.

Calcium chloride desiccant	50 g	(Item #10-037-0050)	$ 30.00
	200 g	(Item #10-037-0200)	$ 60.00
Stopcock grease, 5.3 oz		(Item #10-281-0000)	$ 40.00

BURET KIT, AUTOMATIC SELF-ZEROING

Buret Kit
(Buret sold
separately)



Fits 25 or 50 mL straightbore buret.

Buret Kit (Item #20-040-0000) $ 35.00

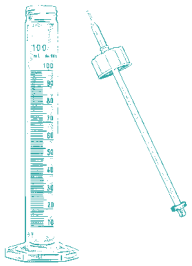
Kit Includes: Nalgene bottle with tubulation and buret adapter

BURETS, DIGITAL

Titrette, 10 mL with titration and recirculation valve	(Item #20-039-0010)	$ 1,065.00
Titrette, 25 mL with titration and recirculation valve	(Item #20-039-0025)	$ 1,065.00
Titrette, 50 mL with titration and recirculation valve	(Item #20-039-0050)	$ 1,065.00

CO_2 TESTING SUPPLIES AND EQUIPMENT

Carbodoseur



Dujardin-Salleron Carbodoseur	(Item #50-001-0000)	$ 260.00
Replacement parts:		
Carbodoseur 100 mL cylinder	(Item #50-002-0100)	$ 110.00
Carbodoseur glass tube insert	Item #50-003-0000)	$ 50.00
Carbodoseur thermometer	(Item #50-004-0000)	$ 50.00
Carbodoseur cap	(Item #50-003-0001)	$ 50.00
Alla France Carbodoseur	(Item #50-001-0001)	$ 260.00
Replacement Cylinder	(Item #50-001-0100)	$ 95.00

CASH STILL

Cash Still Complete Assembly with Support System	(Item #50-009-0000)	$ 925.00
Kit includes: Cash Still Cash Still R&D 80	(Item #50-015-0000)	
Clamp Holder, regular, 2 ea	(Item #20-049-0004)	
Clamp Medium, 3-fingered, 2 ea	(Item #20-049-0006)	
Flow Indicator	(Item #20-106-0000)	
Quick-Disconnect Connector, 2 ea	(Item #20-274-0000)	
Support Ring 5" with holder	(Item #20-214-0003)	
Support Stand, black, stamped steel	(Item #20-213-0000)	
T Connector 5/16" ID	(Item #20-276-0000)	
Tubing, Amber Latex, ¼", 10 ft	(Item #20-270-0000)	
Tubing, Clear Tygon, ¼", 10 ft	(Item #20-271-0000)	
Tubing Clamp, Nalgene, 2 ea	(Item #20-272-0000)	

CASH STILL - PARTS & ACCESSORIES

Cash Still R&D 80	(Item #50-015-0000)	$ 710.00
Clamp Holder, regular (Two included in assembly), each	(Item #20-049-0004)	$ 24.00
Clamp Medium, 3-fingered 2¼" (Two included in assembly), each	(Item #20-049-0006)	$ 50.00
Flow Indicator	(Item #20-106-0000)	$ 40.00
Quick-Disconnect Connector (Two included in assembly), each	(Item #20-274-0000)	$ 6.00
Support Ring 5" with holder	(Item #20-214-0003)	$ 25.00
Support Stand, black, stamped steel	(Item #20-213-0000)	$ 35.00
T Connector 5/16" ID	(Item #20-276-0000)	$ 4.00
Tubing, ¼" amber latex (Ten feet included in assembly), per foot	(Item #20-270-0000)	$ 4.00
Tubing, ¼" tygon (Ten feet included in assembly), per foot	(Item #20-271-0000)	$ 2.50
Tubing Clamp, nalgene (Two included in assembly), each	(Item #20-272-0000)	$ 2.50
R&D, Cord with switch	(Item #50-006-0000)	$ 95.00
R&D 80, glass body only	(Item #50-013-0000)	$ 540.00
R&D, Condenser	(Item #50-005-0000)	$ 125.00
R&D, Heating Coil	(Item #50-007-0000)	$ 35.00

CENTRIFUGE

Centrifuge by Invisible Sentinel for 6 x 50 mL Tubes	(Item #50-208-0000)	$ 3,795.00

CHROMATOGRAPHY SUPPLIES

Chromatography Kit		(Item #20-045-0001)	$ 165.00
Kit includes: Chromatography Solvent, 500 mL		(Item #10-043-0473)	
Lactic Acid Standard, 60 mL		(Item #10-251-0060)	
Malic Acid Standard, 60 mL		(Item #10-254-0060)	
Tartaric Acid Standard, 60 mL		(Item #10-258-0060)	
Chromatography Clip, 2 ea		(Item #20-043-0000)	
Chromatography Paper, 8″x8″, 100 pk		(Item #20-046-0002)	
Capillary tubes, 100 pk		(Item #20-047-0000)	
Chromatography Jar, 1 gal		(Item #60-007-0001)	
Capillary tubes, per 100		(Item #20-047-0000)	$ 12.00
Chromatography clips, each		(Item #20-043-0000)	$ 6.00
Chromatography jar, 1 gallon, plastic with lid		(Item #60-007-0001)	$ 15.00
Paper, Whatman No. 1	8″ x 8″, pack of 100	(Item #20-046-0002)	$ 100.00
	18″ x 24″, each	(Item #20-046-0004)	$ 4.00

CLAMPS & SUPPORTS

Buret clamp, double holder		(Item #20-049-0001)	$ 60.00
Buret clamp, single polyethylene		(Item #20-049-0002)	$ 25.00
Buret clamp, single V-jaw		(Item #20-049-0003)	$ 25.00
Clamp, 3-fingered extension	medium (2¼″)	(Item #20-049-0006)	$ 50.00
	large (3¼″)	(Item #20-049-0005)	$ 50.00
Clamp clip joint, green		(Item #20-052-0000)	$ 11.00
Clamp Holder, regular		(Item #20-049-0004)	$ 24.00
Support, black stamped steel		(Item #20-213-0000)	$ 35.00
Support, white porcelain, with double buret holder		(Item #20-216-0000)	$ 240.00
Support ring with clamp holder, 5″		(Item #20-214-0003)	$ 25.00

Alla France Chromatography Kit

ALLA FRANCE CHROMATOGRAPHY KIT NEW

Glass dome, revealer bottle, 25 paper strips 15x10 cm, petri plate 120mm, petri bo80mm, 25 plastic transfer pipettes, 3 paperclips (Item #20-045-0002) $ 120.00

CONDUCTIVITY TESTING

For meters and probes: See pH, ISE, DO and Conductivity Meters section.

A full setup for Conductivity testing equipment can be quoted upon request.

CHECK STAB

Check Stab instruments are the newest generation of instruments for conductivity-based tartaric stability testing in wine. These automatic analyzers are integrated with ®**Check.NET** software for data collection and management, making tartrate stability testing simple and precise.

Three versions are available which vary on the degree of automation and availability of existing cold baths in the winery lab.

Check Stab α2014 iCheck®: Wireless system performs all the analyses of classic instruments, but with the advantage of use in any thermal bath. **iCheck®** can be supplied complete with **iDis**, a wireless battery operated automatic KHT dispensing system. **iCheck®** is interfaced with Check Stab Instruments software **Check.NET** and can run with other Check Stab instruments.

Check Stab α2016 Magic® +: Operates semi-automatically requiring only manual addition of KHT at the beginning of analysis. New measuring assembly "Easy Flex" allows for easy handling and cleaning. **Check Stab α2016 Magic® +** comes to the market with state-of-the-art data measurement, storage and ease-of-use technology, all at a very competitive price.

Check Stab α2012 LIFE

Check Stab α2016 Life®: Completely automatic analyzer capable of satisfying all types of wineries, large or small. Laboratories can connect up to 16 instruments, all controlled by Check Stab Instruments software ®**Check.NET**, with the data stored on a single data base. The instrument has an automatic KHT dispensing system.

Important note about pricing of the Check Stab products: Due to exchange rate fluctuation, Check Stab product prices need to be confirmed prior to order confirmation.

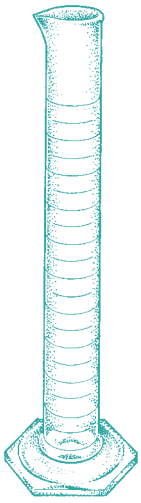
Check Stab Conductivity Probe		(Item #50-301-2008)	$ 650.00
Potassium Bitartrate for Check Stab			
	1 Kg	(Item #10-309-0001)	Inquire for pricing
	100 g	(Item #10-309-0100)	Inquire for pricing
Beaker, 150 mL tall-form, without spout		(Item #20-016-0150)	$ 50.00

		CHECK STAB α2014 iCHECK®	CHECK STAB α2014 iCHECK® WITH DISPENSER	CHECK STAB α2016 MAGIC® +	CHECK STAB α2016 LIFE®
AUTOMATIC DISPENSER		NO	YES	NO	YES
COLD BATH		NO	NO	YES	YES
INTEGRATION WITH SOFTWARE CHECK .NET		YES	YES	YES	YES
TEST PERFORMED	Mini-Contact	YES	YES	YES	YES
	Mini-Contact with Forecast	YES	YES	NO	YES
	Saturation Temperature	NO	NO	YES	YES
	Calcium Saturation Temperature	YES	YES	NO	YES
PART NUMBER		50-300-2010	50-300-2009	50-300-2011	50-300-2008
PRICE		Please inquire for pricing			

CUVETTES & RACK

Cuvettes, methacrylate 10 mm, pack of I00	(Item #20-061-0002)	$ 50.00
Cuvettes, methacrylate 10 mm, case of 500	(Item #20-061-0000)	$ 170.00
Rack, polypropylene	(Item #20-061-0004)	$ 30.00
UV quartz cuvettes, 1 mm path length, pk/2	(Item #20-061-0001)	$ 450.00

CYLINDERS



Graduated Cylinder

GRADUATED, GLASS		
10 mL	(Item #20-062-0010)	$ 9.00
25 mL	(Item #20-062-0025)	$ 12.00
50 mL	(Item #20-062-0050)	$ 13.50
100 mL	(Item #20-062-0100)	$ 15.00
250 mL	(Item #20-062-0250)	$ 20.00
500 mL	(Item #20-062-0500)	$ 40.00
1000 mL	(Item #20-062-1000)	$ 65.00
GRADUATED, NALGENE		
25 mL	(Item #20-063-0025)	$ 30.00
50 mL	(Item #20-063-0050)	$ 40.00
100 mL	(Item #20-063-0100)	$ 40.00
250 mL	(Item #20-063-0250)	$ 45.00
500 mL	(Item #20-063-0500)	$ 55.00
1000 mL	(Item #20-063-1000)	$ 70.00
2000 mL	(Item #20-063-2000)	$ 120.00
HYDROMETER, GLASS		
38 x 340 mm (250 mL)	(Item #20-064-0250)	$ 85.00
38 x 381 mm (300 mL)	(Item #20-064-0300)	$ 95.00
HYDROMETER, PLASTIC		
500 mL Nalgene PMP	(Item #20-065-0500)	$ 40.00
500 mL PP with overflow cup	(Item #20-066-0000)	$ 105.00

DISPENSERS

Seripettor Pro, Glass 10 mL	(Item #20-170-0010)	$ 395.00
Wide-Mouth, Amber Bottle, 500 mL	(Item #60-009-0473)	$ 40.00
Tilt-a-pet, 5 mL	(Item #20-069-0005)	$ 145.00
Tilt-a-pet, 10 mL	(Item #20-069-0010)	$ 150.00
Variable volume, Nalgene 25 mL	(Item #20-070-0025)	$ 50.00

DRAIN STAND, LABWARE

12 pins for tubes, 14 loops	(Item #20-192-0000)	$ 125.00

EBULLIOMETERS

EBULLIOMETER, ALCOHOL

DUJARDIN-SALLERON, MODEL 360

Ebulliometer, Complete	(Item #50-028-0000)	$ 1,050.00
Alcohol Burner	(Item #50-028-0001)	$ 110.00
Boiling Chamber	(Item #50-028-0002)	$ 330.00
Calculating Dial	(Item #50-028-0003)	$ 64.00
Condenser	(Item #50-028-0004)	$ 180.00
Sample Measure	(Item #50-028-0005)	$ 24.00
Stopcock	(Item #50-028-0006)	$ 100.00
Stopper	(Item #50-033-0000)	$ 10.00
Thermometer	(Item #50-028-0007)	$ 90.00
Wicks	(Item #50-028-0009)	$ 20.00

EBULLIOMETERS, ELECTRIC

DUJARDIN-SALLERON

Laboratoires Dujardin-Salleron

Apparatus for the measurement of alcohol in wine by ebulliometry:

- Direct and accurate determination of alcohol content in less than 6 minutes
- Digital display and electronic measurement of boiling temperature
- Automatic compensation for atmospheric pressure
- Regulated warming
- Continuous Cooling System
- Accuracy for dry wines: 0.1% Vol
- Complementary methods available (wine with residual sugar, must, cider and beer)
- High-accuracy
- Practical and ergonomic

LDS Electric Ebulliometer, electronic probe and digital screen	(Item #50-600-0005)	$ 2,800.00
Ebulliolog USB Key	(Item #50-600-0008)	$ 130.00

EBULLIOTRONIC

- Same features as the Ebulliometer but with onscreen display of alcohol content of wine
- Special version designed for low alcohol products like vinegar and Kombucha

LDS Electric Ebulliotronic	(Item #50-600-0007)	$ 4,400.00
LDS Electric Ebulliotronic for Kombucha and vinegar	(Item #50-600-0015)	$ 4,400.00

ALLA FRANCE

Economy Electric Ebulliometer	(Item #50-028-0012)	$ 1,050.00
Precision Electric Ebulliometer	(Item #50-028-0010)	$ 1,950.00

Alla France Ebulliometers

ENZYMATIC KITS BY VINTESSENTIAL LABORATORIES

KITS FOR MANUAL SPECTROPHOTOMETERS

Acetic Acid, 100 tests	(Item #10-091-0009)	$ 505.00
Acetic Acid, 30 tests	(Item #10-091-0007)	$ 185.00
Amino Acid Nitrogen, 30 tests	(Item #10-091-0006)	$ 82.00
Ammonia, 30 tests	(Item #10-091-0005)	$ 82.00
Citric Acid, 30 tests	(Item #10-091-0011)	$ 135.00
D-Glucose/D-Fructose, 100 tests	(Item #10-091-0004)	$ 280.00
D-Glucose/D-Fructose, 30 tests	(Item #10-091-0003)	$ 105.00
Gluconic Acid, 30 tests	(Item #10-091-0008)	$190.00
L-Malic Acid, 100 tests	(Item #10-091-0002)	$ 265.00
L-Malic Acid, 30 tests	(Item #10-091-0001)	$ 105.00
L-Lactic Acid, 30 tests	(Item #10-091-0012)	$ 135.00
Sucrose, 30 tests	(Item #10-091-0013)	$ 140.00

VINTESSENTIAL LABORATORIES

KITS FOR DISCRETE ANALYZERS

Acetic Acid, 500 tests	(Item #10-091-0014)	$ 250.00
Ammonia, 500 tests	(Item #10-091-0018)	$ 125.00
Combined Standards Kit for DA	(Item #10-091-0019)	$ 95.00
D-Glucose/D-Fructose, 500 tests	(Item #10-091-0015)	$ 125.00
L-Malic Acid, 500 tests	(Item #10-091-0016)	$ 125.00
Primary Amino Nitrogen, 500 tests	(Item #10-091-0017)	$ 125.00

ANALYZERS BY VINTESSENTIAL

Vintessential Chemwell 2910	(Item #50-209-0001)	Please inquire for pricing
Vintessential Chemwell T	(Item #50-209-0002)	Please inquire for pricing

VINTESSENTIAL STARTER KIT

The following kit provides all the supplies needed to start using Vintessential Enzymatic Analysis kits.

Visible Spectrophotometer (Vintessential V120 or V140)	(Item #50-113-0120 or #50-113-0140)	
Transferpette® S, 10µL<100µL	(Item #20-071-0008)	
Transferpette® S, 100µL<1000µL	(Item #20-071-0009)	
Cuvettes (100 pack)	(Item #20-061-0002)	
Cuvette rack	(Item #20-061-0004)	
Roll of Parafilm	(Item #20-152-0000)	
Tips for 2-200µL (5 boxes 96 tips) 480 tips	(Item #20-167-0003)	
Tips for 50-1000µL (5 boxes 100 tips) 500 tips	(Item #20-167-0004)	
with V120 Spectrophotometer	(Item #50-113-0121)	$ 2,600.00
with V140 Spectrophotometer	(Item #50-113-0141)	$ 2,900.00

FILTERS FOR LAB FILTRATION

GLASS PREFILTER, AP 15

25 mm, pack of 100	(Item #20-077-0001)	$ 75.00
47 mm, pack of 100	(Item #20-077-0002)	$ 115.00

GLASS PREFILTER, AP 25

25 mm, pack of 100	(Item #20-078-0001)	$ 80.00
47 mm, each	(Item #20-078-0002)	$ 1.30
47 mm, pack of 100	(Item #20-078-0003)	$ 115.00

MEMBRANE FILTER, 0.45 µ

25 mm, pack of 25	(Item #20-073-0001)	$ 40.00
25 mm, pack of 100	(Item #20-073-0002)	$ 160.00
47 mm, sterile, each	(Item #20-074-0001)	$ 1.00
47 mm, sterile, pack of 150	(Item #20-074-0003)	$ 125.00

MEMBRANE FILTER, 0.65 µ

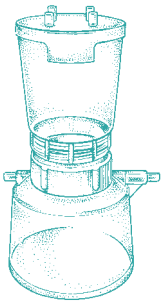
47 mm, pack of 25	(Item #20-075-0001)	$ 65.00
47 mm, pack of 100	(Item #20-075-0002)	$ 230.00

MEMBRANE FILTER, 1.2 µ

47 mm, pack of 100	(Item #20-076-0001)	$ 255.00

FILTERS - LAB EQUIPMENT

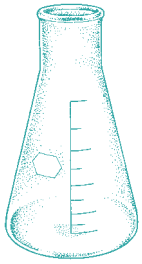
Sterifil Aseptic System



Airejector aspirator pumps, Nalgene		(Item #50-112-0013)	$ 30.00
Filtering flask, 1000 mL glass, with tubulation		(Item #20-104-1000)	$ 32.00
Sterifil aseptic system (as shown), 47 mm		(Item #20-095-0000)	$ 185.00
Syringe filter holder,	25 mm	(Item #20-218-0025)	$ 28.00
	47 mm	(Item #20-218-0047)	$ 90.00
Vacushield membrane		(Item #20-146-0000)	$ 28.00
Vacuum pressure pump, Gast, oilless		(Item #50-107-0000)	$ 925.00
Vacuumbrand Pump, ME1, 120V		(Item #50-106-0000)	$ 895.00

FLASKS

Erlenmeyer Flask



CALIBRATION/MEASURING FLASK

750 mL at 20°C	(Item #20-102-0750)	$ 485.00
750 mL at 15.6°C	(Item #20-102-1560)	$ 485.00

Note: 375 mL and 1.5 L flasks, calibrated to 15.6°C and 20°C are also available.

ERLENMEYER

125 mL	(Item #20-097-0125)	$ 4.50
250 mL	(Item #20-097-0250)	$ 5.50
250 mL, wide mouth	(Item #20-097-1250)	$ 8.00
500 mL	(Item #20-097-0500)	$ 8.00
500 mL, wide mouth	(Item #20-097-1500)	$ 10.00
1000 mL	(Item #20-097-1000)	$ 14.00
2000 mL	(Item #20-097-2000)	$ 25.00

Volumetric, Class A Flask

FILTER FLASKS, GLASS

250 mL	(Item #20-104-0250)	$ 20.00
500 mL	(Item #20-104-0500)	$ 23.00
1000 mL	(Item #20-104-1000)	$ 32.00

VOLUMETRIC, CLASS A

10 mL	(Item #20-105-0010)	$ 10.00
50 mL	(Item #20-105-0050)	$ 12.50
100 mL	(Item #20-105-0100)	$ 12.50
200 mL	(Item #20-105-0200)	$ 18.00
250 mL	(Item #20-105-0250)	$ 17.00
500 mL	(Item #20-105-0500)	$ 21.00
1000 mL	(Item #20-105-1000)	$ 30.00
2000 mL	(Item #20-105-2000)	$ 90.00

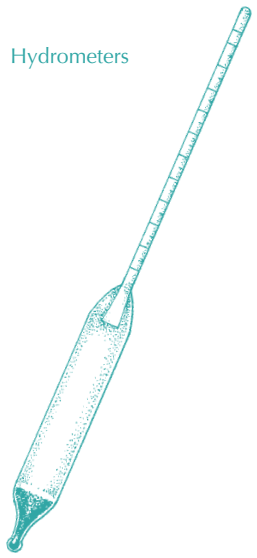
FLOWMETERS

Calibrated range, water flow 0.4 to 40 mL/min, air flow 20 to 2100 mL/min	(Item #20-107-0000)	$ 180.00
Flow indicator for visualizing cooling water flow	(Item #20-106-0000)	$ 40.00

FUNNELS

12″ plastic with screen	(Item #20-109-0000)	$ 16.00
65 mm glass short stem filter	(Item #20-111-0065)	$ 19.00
65 mm Nalgene short stem filter	(Item #20-112-0065)	$ 7.50
80 mm glass powder	(Item #20-113-0080)	$ 18.00
80 mm plastic powder	(Item #20-114-0080)	$ 8.00
100 mm Nalgene liquid transfer	(Item #20-115-0100)	$ 60.00
Glass thistle funnel for 10 or 25 mL buret	(Item #20-117-0000)	$ 12.00

HYDROMETERS


Hydrometers

BRIX, COMBINED WITH THERMOMETER (Celsius Scale)

-5° to +5°	(Item #20-130-0000)	$ 40.00
0° to 35°	(Item #20-126-0000)	$ 40.00
0° to 10°	(Item #20-139-0004)	$ 45.00
10° to 20°	(Item #20-139-0006)	$ 45.00
20° to 30°	(Item #20-139-0007)	$ 45.00
30° to 40°	(Item #20-139-0008)	$ 45.00

BRIX, COMBINED WITH THERMOMETER (Fahrenheit Scale)

-5° to +5°	(Item #20-138-0005)	$ 40.00
0° to 35°	(Item #20-138-0009)	$ 40.00
0° to 10°	(Item #20-138-0004)	$ 45.00
10° to 20°	(Item #20-138-0006)	$ 45.00
20° to 30°	(Item #20-138-0007)	$ 40.00
30° to 40°	(Item #20-138-0008)	$ 45.00

BRIX

-5° to +5°	(Item #20-129-0000)	$ 20.00
0° to 35°	(Item #20-124-0000)	$ 20.00
0° to 11°	(Item #20-123-0000)	$ 20.00
9° to 21°	(Item #20-133-0000)	$ 20.00
19° to 31°	(Item #20-127-0000)	$ 20.00

DENSITY

Mustimetre, 0.98 to 1.130, combined with thermometer	(Item #20-138-0001)	$ 135.00

PROOF

Hydrometer 20-40 Proof	(Item# 20-134-0002)	$ 60.00
Hydrometer 40-60 Proof	(Item# 20-132-0007)	$ 60.00
Hydrometer 60-80 Proof	(Item# 20-132-0001)	$ 60.00
Hydrometer 75-95 Proof	(Item# 20-132-0000)	$ 60.00
Hydrometer 90-110 Proof	(Item# 20-132-0002)	$ 60.00
Hydrometer 105-125 Proof	(Item# 20-132-0008)	$ 60.00
Hydrometer 125-145 Proof	(Item# 20-132-0009)	$ 60.00
Hydrometer 145-165 Proof	(Item# 20-132-0010)	$ 60.00
Hydrometer 165-185 Proof	(Item# 20-132-0011)	$ 60.00
Hydrometer185-206 Proof	(Item# 20-132-0012)	$ 60.00

SPECIFIC GRAVITY

1.000 to 1.070	(Item #20-136-0000)	$ 50.00
0.940 to 1.01	(Item #20-135-0000)	$ 50.00

RACK

Hydrometer Storage Rack, 7″	(Item #20-121-0000)	$ 125.00

KIMWIPES

4.5″ x 8.5″, box of 280	(Item #20-141-0000)	$ 7.00

LABEL TAPE AND DISPENSER

Dispenser	(Item# 20-295-1000)	$ 70.00
Label Tape, 1″ x 500″ roll	(Item# 20-295-0000)	$ 13.00

MICROBIOLOGY MEDIA

AGAR

Yeast/mold + actidione		
100 mL	(Item #10-172-0100)	$ 25.00
250 mL	(Item #10-172-0250)	$ 35.00
500 mL	(Item #10-172-0500)	$ 50.00
Yeast/mold with calcium carbonate		
50 mL	(Item #10-173-0050)	$ 20.00

WL Nutrient		
100 mL	(Item #10-170-0100)	$ 25.00
250 mL	(Item #10-170-0250)	$ 35.00
500 mL	(Item #10-170-0500)	$ 50.00
Apple Rogosa + actidione		
100 mL	(Item #10-168-0100)	$ 30.00
250 mL	(Item #10-168-0250)	$ 38.00
500 mL	(Item #10-168-0500)	$ 60.00
DRY MEDIA		
WL Nutrient, 100 g	(Item #10-182-0100)	$ 40.00
YM Agar, 100 g	(Item #10-188-0100)	$ 60.00
MICROBIOLOGICAL CULTURE PLATES		
Apple Rogosa + actidione, for culture of wine bacteria		
50 mm	(Item #10-047-0050)	$ 2.50
100 mm	(Item #10-047-0100)	$ 3.00
WL Nutrient, for recovery of yeast and bacteria in bottled wines		
50 mm	(Item #10-049-0050)	$ 2.20
100 mm	(Item #10-049-0100)	$ 2.75
Yeast/mold + actidione, for culture of Brettanomyces		
50 mm	(Item #10-050-0050)	$ 2.20
100 mm	(Item #10-050-0100)	$ 2.80
Yeast/mold with calcium carbonate, for confirming Brettanomyces		
50 mm	(Item #10-051-0050)	$ 2.75

MICROBIOLOGY SUPPLIES

COUNTING CHAMBER		
Levy, Double Neubauer Ruling	(Item #50-039-0002)	$ 310.00
COVER SLIPS		
Box, 1 ounce	(Item #20-191-0000)	$ 24.00
FORCEPS		
Filter Forceps	(Item #20-108-0000)	$ 22.00
HOCKEY STICKS		
Glass	(Item #20-120-0000)	$ 5.00
HYGIENE MONITORING		
Hygiena SystemSURE Plus ATP Luminometer	(Item #50-205-0000)	$ 1,500.00
Hygiena EnSURE™ ATP Luminometer	(Item #50-205-0002)	$ 1,750.00
UltraSnap™ ATP Surface Test (100 tests)	(Item #50-205-0001)	$ 300.00
SuperSnap™ High Sensitivity ATP Surface Test (100 tests)	(Item #50-205-0004)	$ 345.00
AquaSnap™ Total Water ATP Test (100 tests)	(Item #50-205-0005)	$ 325.00
AquaSnap™ Free	(Item #50-205-0006)	$ 325.00
IMMERSION OIL		
Resolve, 15 mL	(Item #10-280-0000)	$ 18.00
INOCULATING PRODUCTS		
Loops, each	(Item #20-140-0002)	$ 3.50
Loops, pack of 12	(Item #20-140-0001)	$ 45.00
Loop Holder	(Item #20-140-0003)	$ 65.00
LENS PAPER		
Pack of 50	(Item #20-142-0000)	$ 5.50
MICROFUNNEL DISPOSABLE FILTER		
Pack of 20	(Item #20-078-0004)	$ 185.00

MICROSCOPE CAMERA ADAPTER

Microscope users can now add a high resolution camera with this adapter to lock the camera lens in position through the eyepiece on your microscope. Orion–Steady Pix Universal Camera Adapter (Item #50-116-2000) $ 70.00

PETRI DISHES, STERILE

50 x 9 mm, Pack of 25	(Item #20-153-0002)	$ 16.00
100 x 15 mm, Pack of 20	(Item #20-154-0002)	$ 14.00

PIPETS, STERILE

1 mL Individually wrapped	(Item #20-164-0001)	$ 0.75
10 mL Individually wrapped	(Item #20-164-0010)	$ 1.00
25 mL Individually wrapped	(Item #20-164-0025)	$ 2.00

SLIDES

25 x 75 mm, box of 72	(Item #20-190-0000)	$ 20.00

TONGS

9 1/2″ Crucible	(Item #20-178-0000)	$ 17.00

MICROSCOPE PACKAGE

Nikon Transmitted Light Microscope with halogen illuminator for bright field and phase contrast applications. Includes CFIE Plan Achromat 40x/0.65 and CFI Achromat 100x/1.25 oil Ph2 objectives to meet routine winery microbiology needs. Local set-up and 2 hours training for wine microorganism identification and microscope usage are included.

(Item #50-116-1000) Please inquire for pricing

MICROSCOPE STARTER KIT NEW (Item #50-116-4000) $ 3,500.00

Kit includes: Professional Microscope, 1000x Phase Contrast Magnification (Item # 50-116-4001)

Lens Paper, 50/pack	(Item # 20-142-0000)
Slides, 25x75mm, ½ gross	(Item # 20-190-0000)
Cover Slips, 1 oz box	(Item # 20-191-0000)
Inoculating Loops, 12 pack	(Item # 20-140-0001)
Counting Chamber	(Item # 50-039-0002)
Immersion Oil, 15 mL	(Item # 10-280-0000)
Methylene Blue Stain, 1%, 60 mL	(Item # 10-194-0060)
Two Hour Training with Microbiologist	

MICROSCOPE, NIKON

Standard Compound Binocular Microscope featuring a Siedentopf type binocular head with 30° inclination and 360° rotation, widefield eyepieces WF 10X/18mm, a reversed quintuple nosepiece, achromatic objectives PL 4X, 10X, 40X S, and 100X S-Oil, coaXial coarse and fine focusing adjustment, built-in low position coaXial mechanical stage, focusable 1.25 N.A Abbe condenser, iris diaphragm with filter holder, and built-in LED illumination with intensity control.

(Item #50-116-3000) Please inquire for pricing

VINOBRETT BY VERIFLOW

Semi-quantitative PCR kit that allows for same day detection and semi-quantification of *Brettanomyces* bruxellensis.

Advantages of use:

SAME DAY RESULTS: Under 4 hours for results. VinoBrett provides same-day, actionable information.

EASE OF USE: Quick and easy sample preparation. Cumbersome DNA extraction is not required.

CONVENIENCE: Small equipment footprint allows for easy deployment.

RELIABILITY: Keep "Veriflow" provides the fermentation industry with the same AOAC approved technology used in the food safety market.

COST EFFECTIVE: Capital-efficient molecular platform with no service contracts.

One time investment:

ITEM #	DESCRIPTION	SIZE	SELLING PRICE
50-112-0000	Invisible Sentinel Thermocycler	Each	$ 3,750.00
20-092-0003	Veriflow® PCR loading tray	Each	$ 75.00
10-092-0001	VinoBrett by Veriflow	24 tests	$ 840.00
10-092-0002	Vino PAL by Veriflow Kit	24 tests	$ 840.00
20-092-0004	Invisible Sentinel Reader	Each	$ 5,200.00
50-208-0000	Centrifuge for 6 x 50 mL tubes	Each	$ 3,795.00
20-167-0005	Transferpette 2-20 µL	Each	$ 300.00
20-167-0009	Transferpette 100-1000 µL	Each	$ 325.00
20-167-0003	Tips for 2-200 µL	480 tips (5 boxes of 96)	$ 30.00
20-167-0004	Tips for 50-1000 µL	500 tips (5 boxes of 100)	$ 45.00

OXYGEN TESTING

Orion 083010MD oxygen probe, 3 meter cable (for Star series) (Item #50-069-0010) $ 815.00
Use electrolyte solution 080514 and replacement membranes 080515 or probe maintenance kit 080513

Orion OR083025MD oxygen probe, 10 meter cable (for Star series) (Item #50-071-0010) $ 850.00
Use electrolyte solution 080514 and replacement membranes 080515 or probe maintenance kit 080513

Orion 080513, probe maintenance kit (Item #50-073-0005) $ 195.00

Orion 080514, electrolyte solution (Item #50-073-0006) $ 26.00

Orion 080515, membrane cap (Item #50-073-0007) $ 60.00

Orion 080113, probe service kit (for 081010MD) (Item #50-073-0008) $ 130.00

Orion Star A223 Portable RDO Dissolved Oxygen Meter Kit: Includes 087010md RDO optical DO probe with 3m cable, STARA-CS field case, STARA-AR meter armor, batteries, literature, PC cable, calibration test certificate
(Item #50-105-1006) $ 1,610.00

Orion Star A123 Portable Polarographic Dissolved Oxygen Meter Kit: Includes 083010md DO probe (3m cable) & calibration sleeve, 080513 DO probe maintenance kit, STARA-CS field case, STARA-AR meter armor, batteries, literature & Calibration Test Certificate
(Item #50-069-0009) $ 1,515.00

PARAFILM

4" x 125' roll (Item #20-152-0000) $ 65.00

pH, ISE, DO AND CONDUCTIVITY METERS AND pH/ISE ELECTRODES AND ACCESSORIES

Orion Star A111 pH Meter Kit: Thermo Scientific Orion Star A111 Benchtop Meter Kit with 8157BNUMD Ross Ultra epoxy body pH/ATC electrode, 810199 Ross pH buffer and solution kit, electrode stand, universal power adapter, literature CD, printed quick start guide, meter test certificate

(Item #50-105-0028) $ 1,010.00

Orion Star A211 pH Meter Kit: Thermo Scientific Orion Star A211 Benchtop Meter Kit with 8302BNUMD Ross Ultra glass pH/ATC electrode 810199 ROSS pH buffer and solution kit, electrode stand, universal power adapter, literature CD, printed quick start guide, computer interface cable and meter test certificate

(Item #50-105-1003) $ 1,210.00

ORION ELECTRODES

Model	Description	Price	Item Number	Body	Fill Solution	Precision	Warranty
			For Star Series (A111 and A211)				
9107BNMD	ORION TRIODE LOW MAINT GEL	$ 275.00	50-095-0000	Epoxy	~	0.02	6 months
8107BNUMD	ROSS ULTRA TRIODE LOW MAINT GEL	$ 505.00	50-095-0001	Epoxy	~	0.01	18 months
8157BNUMD	ROSS ULTRA TRIODE REFILLABLE EPOXY	$ 585.00	50-087-0008	Epoxy	ROSS	0.01	2 years
8302BNUMD	ROSS ULTRA TRIODE REFILLABLE GLASS	$ 605.00	50-095-0002	Glass	ROSS	0.01	2 years
			For A-Series (Older Models)				
8102BN	ROSS GLASS pH ELECTRODE (NOT ATC)	$ 445.00	50-087-0001	Glass	ROSS	0.01	1 year
9157BN	ORION TRIODE pH/ ATC ELECTRODE	$ 375.00	50-098-0000	Epoxy	Ag/AgCl	0.02	1 year
			Just pH (not ATC)				
8172BNWP	ORION ROSS SURE-FLOW GLASS	$ 535.00	50-087-0004	Glass	ROSS	0.01	1 year

VWR PH ELECTRODES NEW

89231-580	Refillable w/ saturated KCl, single junction	$ 280.00	50-088-0001	Glass	Saturated KCl	Dependent on Meter	1 year
89231-586	Refillable w/ saturated KCl, single junction*	$ 350.00	50-088-0002	Glass	Saturated KCl	Dependent on Meter	1 year
89231-592	Refillable w/ 3M KCl, double junction	$ 320.00	50-088-0003	Glass	KCl 3M	Dependent on Meter	1 year

**Recommended for juice*

PIPETS

GLASS SEROLOGICAL

5 mL, disposable	(Item #20-163-0000)	$ 1.00
1 mL	(Item #20-163-0001)	$ 4.50
5 mL	(Item #20-163-0005)	$ 5.00
5 mL (wide tip)	(Item #20-163-1005)	$ 20.00
10 mL	(Item #20-163-0010)	$ 5.00
10 mL (wide tip)	(Item #20-163-1010)	$ 20.00
25 mL	(Item #20-163-0025)	$ 12.00
25 mL (wide tip)	(Item #20-163-1025)	$ 35.00
50 mL	(Item #20-163-0050)	$ 80.00

Glass Serological Pipet

GLASS VOLUMETRIC, CLASS A

1 mL	(Item #20-165-0001)	$ 4.00
2 mL	(Item #20-165-0002)	$ 4.00
3 mL	(Item #20-165-0003)	$ 4.50
5 mL	(Item #20-165-0005)	$ 4.50
10 mL	(Item #20-165-0010)	$ 8.00
20 mL	(Item #20-165-0020)	$ 8.00
25 mL	(Item #20-165-0025)	$ 9.00
50 mL	(Item #20-165-0050)	$ 14.00
100 mL	(Item #20-165-0100)	$ 20.00

Glass Volumetric Pipet

EPPENDORF - ADJUSTABLE VOLUME PIPETTOR

10 to 100 µL (uses 200 µL tips)	(Item #20-072-0002)	$ 600.00
100 to 1000 µL (uses 1000 µL tips)	(Item #20-072-0001)	$ 600.00
200 µL tips, pack of 1000	(Item #20-071-0001)	$ 95.00
1000 µL tips, pack of 1000	(Item #20-071-0002)	$ 95.00

EPPENDORF - REPEATER PLUS PIPETTOR

Repeater Plus Pipettor with starter pack, 1µL-10mL	(Item #20-167-1000)	$ 835.00

TRANSFERPETTE® ADJUSTABLE VOLUME PIPETTOR

Transferpette® S, 2µL-20µL	(Item #20-167-0005)	$ 300.00
Transferpette® S, 10µL-100µL	(Item #20-071-0008)	$ 330.00
Transferpette® S, 100µL-1000µL	(Item #20-071-0009)	$ 330.00
Tips for 2-200µL (5 boxes 96 tips) 480 tips	(Item #20-167-0003)	$ 30.00
Tips for 50-1000µL (5 boxes 100 tips) 500 tips	(Item #20-167-0004)	$ 45.00

PIPET PARAPHERNALIA

Dropper pipet, 3" with bulb	(Item #20-156-0000)	$ 2.50
Pasteur pipet, 5 ¾", each	(Item #20-161-0001)	$ 0.20
Pipet filler bulb (blue)	(Item #20-157-0000)	$ 45.00
Pipet safety bulb (red)	(Item #20-160-0000)	$ 16.00
Pipettor pump (10 mL)	(Item #20-158-0000)	$ 32.00
Polypropylene pipet rack	(Item #20-159-0000)	$ 45.00
Transfer pipet, plastic, each	(Item #20-162-0001)	$ 0.20
Transfer pipet, plastic, case of 500	(Item #20-162-0002)	$ 80.00

REFRACTOMETERS*

HANDHELD MODELS

Atago Master Alpha, 0°-32°Brix, ATC and IP65, water resistant	(Item #50-111-0011)	$ 295.00
Alla France Analog, 0°-32°Brix, ATC	(Item #50-111-0019)	$ 80.00

DIGITAL HANDHELD MODELS

Atago digital handheld model PAL-1, 0.0°– 53.0° Brix	(Item #50-111-0007)	$ 360.00
Atago PEN-PRO 0.0°- 85.0° Brix	(Item #50-111-0015)	$ 550.00
Alla France Digital, 0.0°-85.0°Brix, ATC	(Item #50-111-0018)	$ 295.00

REFRACTOMETER ACCESSORIES

Case for Atago digital handheld model PAL-1 Refractometer	(Item #50-111-0012)	$ 40.00

**All refractometers are temperature compensated.*

SAFETY SUPPLIES

Acid Neutralizer, Kolorsafe, 1L	(Item #10-277-0946)	$ 30.00
Gloves, disposable vinyl		
Small, pack of 100	(Item #20-174-0000)	$ 30.00
Medium, pack of 100	(Item #20-174-0001)	$ 20.00
Large pack of 100	(Item #20-174-0002)	$ 20.00
Extra Large, pack of 90	(Item #20-174-0003)	$ 30.00
Labmat bench liner, 50 ft	(Item #20-177-0000)	$ 85.00
Safety glasses, clear Uvex Ultraspec 2000	(Item #20-173-0000)	$ 6.00
Safety goggles, clear Uvex Splashguard	(Item #20-175-0000)	$ 20.00
Tongs, 9½"	(Item #20-178-0000)	$ 17.00

SENSORY STANDARDS

TCA (1 ppb), Geosmin, MIB, H2S, Brett, VA, and Oxidation standards available. $ 50 per standard (40 mL)

ENARTIS USA WINE DEFECTS KITS

Kits include common wine aroma defects related to cork taint, oxidation, *Brettanomyces*, malolactic fermentation problems, sulfur compounds, volatile acidity and methoxypyrazines. Each kit contains 10 defects, which can each spike 50 mL of wine. Ideal for training staff, identifying wine defects, educating wine consumers and enhancing wine education.

(Item #10-309-0000) $ 100.00

SCOOPS

Lab scoop, stainless steel	(Item #20-183-0003)	$ 7.00
Lab spatula/spoon	(Item #20-183-0002)	$ 10.00
Scoop, large polypropylene	(Item #20-183-0001)	$ 10.00

SO_2 AERATION-OXIDATION APPARATUS

FREE SO_2 COMPLETE SETUP

No. 2 with Nalgene aspirator, flowmeter, clamps/support stand	(Item #50-112-0001)	$ 535.00
Setup includes:		
1 Support, black stamped steel	(Item #20-213-0000)	$ 35.00
2 & 3 impinger set	(Item #50-112-0014)	$ 90.00
4 100 mL side port flask	(Item #50-112-0007)	$ 60.00
5 Support ring for flask	(Item #50-112-0008)	$ 6.00
6 Bubbler/stopper	(Item #50-112-0010)	$ 6.00
7 Stopper/glass tubing adapter	(Item #50-112-0011)	$ 6.00
8 Airejector aspirator, Nalgene	(Item #50-112-0013)	$ 30.00
9 Quick disconnect	(Item #20-274-0000)	$ 6.00
10 Amber latex tubing, per ft (10′ per kit)	(Item #20-270-0000)	$ 4.00
11 Tygon tubing, per ft (10′ per kit)	(Item #20-271-0000)	$ 2.50
12 Flowmeter (water flow 0.4 to 40 mL/minute, air flow 20 to 2000 mL/minute calibrated range)	(Item #20-107-0000)	$ 180.00
13 Clamps, each (two included to secure flow meter to support rod)	(Item #20-049-0009)	$ 1.75
14 Green joint clamp	(Item #20-052-0000)	$ 11.00
15 Clamp, medium 3-fingered, (2¼″), each (two included in complete kit)	(Item #20-049-0006)	$ 50.00
16 Clamp, holder regular each (two included in complete kit)	(Item #20-049-0004)	$ 24.00
No. 3 with Accuflow (pump/timer/flowmeter),clamps/support stand	(Item #50-112-5000)	$ 835.00
Setup includes:		
AccuFlow 5000	(Item #50-107-1000)	$ 525.00
Impinger Plastic Base	(Item #50-112-0004)	$ 12.00
1 Support, black stamped steel	(Item #20-213-0000)	$ 35.00
2 & 3 impinger set	(Item #50-112-0014)	$ 85.00
4 100 mL side port flask	(Item #50-112-0007)	$ 55.00
5 Support ring for flask	(Item #50-112-0008)	$ 6.00
6 Bubbler/stopper	(Item #50-112-0010)	$ 3.00
7 Stopper/glass tubing adapter	(Item #50-112-0011)	$ 4.00
8 Airejector aspirator, Nalgene	(Item #50-112-0013)	$ 25.00
9 Quick disconnect	(Item #20-274-0000)	$ 6.00
10 Amber latex tubing, per ft (10′ per kit)	(Item #20-270-0000)	$ 4.00
11 Tygon tubing, per ft (10′ per kit)	(Item #20-271-0000)	$ 2.50
12 Flowmeter (water flow 0.4 to 40 mL/minute, air flow 20 to 2000 mL/minute calibrated range)	(Item #20-107-0000)	$ 18.00
13 Clamps, each (two included to secure flow meter to support rod)	(Item #20-049-0009)	$ 1.75
14 Green joint clamp	(Item #20-052-0000)	$ 11.00
15 Clamp, medium 3-fingered, (2¼″), each (two included in complete kit)	(Item #20-049-0006)	$ 50.00
16 Clamp, holder regular each (two included in complete kit)	(Item #20-049-0004)	$ 24.00

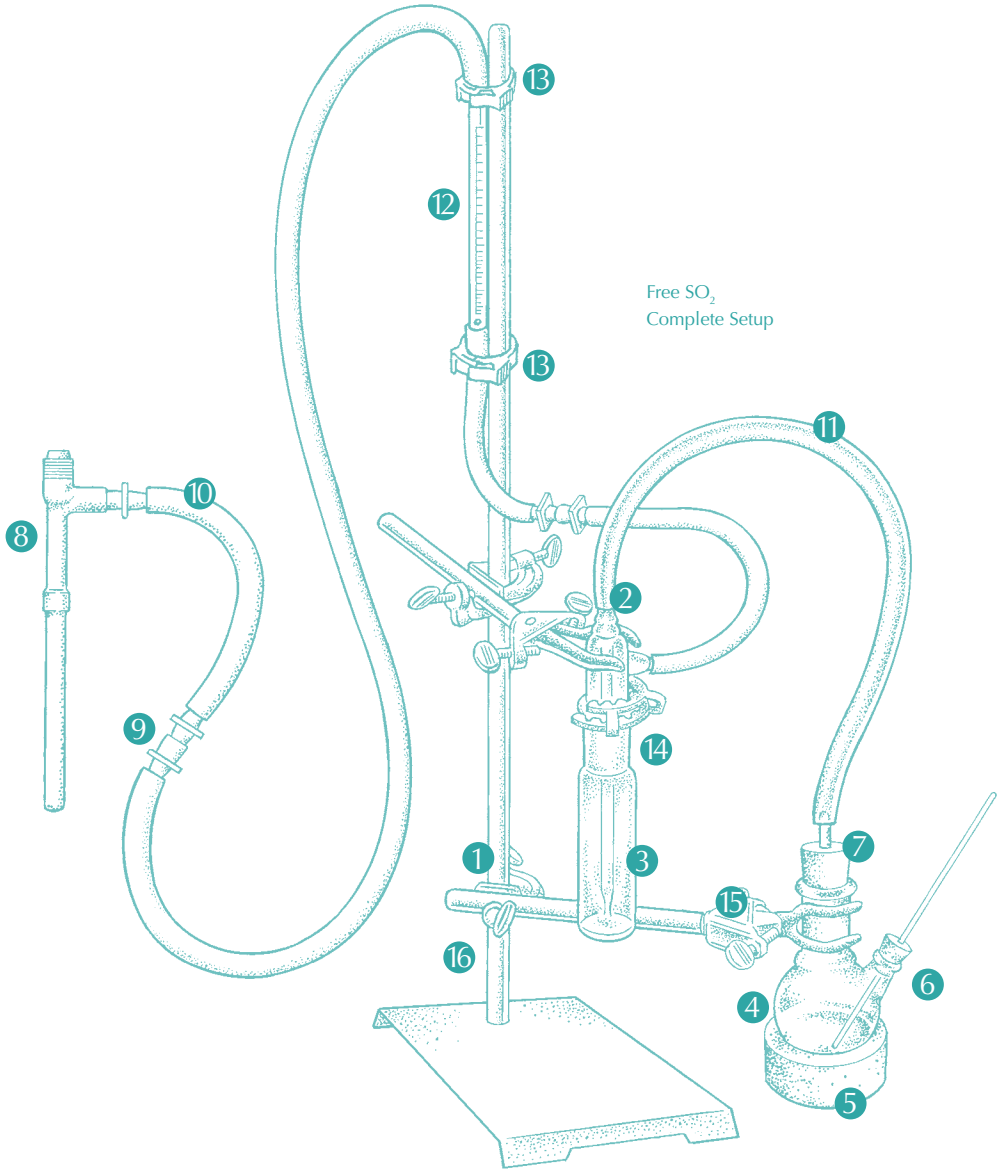
TOTAL SO_2 REQUIRES NO. 2 OR 3 ABOVE, PLUS THE FOLLOWING ITEMS

(A support system is needed for the condenser and heat source.)

Graham condenser, 300 mm (24/40 joints)	(Item #50-112-0003)	$ 195.00
Heating mantle, series M	(Item #50-112-0028)	$ 365.00
Heating mantle extension support	(Item #50-112-0024)	$ 120.00
Heating mantle controller (optional)	(Item #50-112-0023)	$ 235.00
Heating mantle with controller, Electrothermal	(Item #50-112-0040)	$ 645.00

ADDITIONAL & REPLACEMENT PARTS

Accuflow (pump/timer/flowmeter)	(Item #50-107-1000)	$ 525.00
Impinger top	(Item #50-112-0005)	$ 55.00
Impinger bottom	(Item #50-112-0006)	$ 55.00
Plastic impinger base	(Item #50-112-0004)	$ 12.00



SO_2 TESTING, DUJARDIN-SALLERON

SULFILYSER

Apparatus for determination of free and total SO_2:

- Potentiometric determination for simple and rapid analysis
- Ergonomic design and aesthetics
- Manual control of titration by electro-valve
- Integrated magnetic stirrer
- End of titration determined by electrode
- Adapted to red wine, including very dark red wine, must, juice, vinegar, and alcohol
- Simple to use
- Excellent repeatability
- Good value

LDS Sulfilyser, semi-automatic determination of SO_2 (Item #50-600-0001) $ 2,800.00

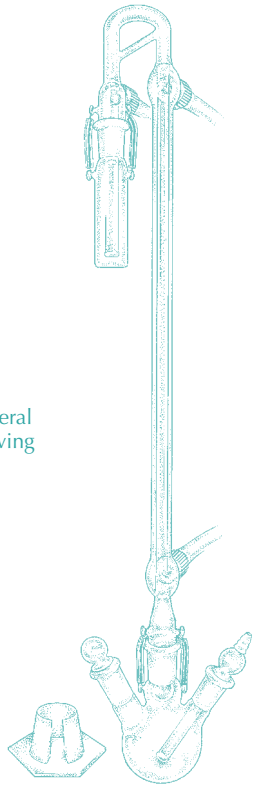
IODOLYSER

Apparatus for the determination of free and total SO_2:

- Automatic titration by potentiometry
- Direct reading on the display of results in mg/L free and total SO_2
- Program analysis for free and total SO_2
- Excellent repeatability
- Magnetic stirrer
- Integrated precision syringe pump
- Automatic version
- Quick and simple analysis

LDS Iodolyser, automatic determination of SO_2 (Item #50-600-0003) $ 4,400.00

SO_2 TESTING BY RIPPER METHOD



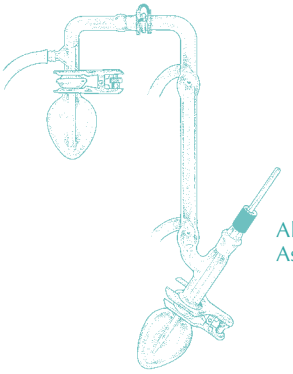
All Glass Assembly from General Glassblowing

FROM GENERAL GLASSBLOWING

Complete Apparatus Assembly	(Item #50-112-0015)	$ 595.00
100 mL 3-neck round bottom flask, with hooks, 19/38 fittings	(Item #50-112-0018)	$ 160.00
Condenser and impinger body, one piece	(Item #50-112-0017)	$ 225.00
Fritted bubbler tube	(Item #50-112-0016)	$ 95.00
Glass stopper, 19/38	(Item #50-112-0021)	$ 30.00
Impinger bottom with hooks	(Item #50-112-0019)	$ 100.00
SS springs, 1¾″, set of 2	(Item #50-112-0020)	$ 12.00

FROM R & D GLASS

Complete Apparatus Assembly	(Item #50-112-0025)	$ 385.00
Pear-shaped flask	(Item #50-112-0027)	$ 50.00
Replacement bent tube with bubbler	(Item #50-112-0026)	$ 95.00



All Glass Assembly from R & D Glass

SPECTROPHOTOMETERS

Genesys 10S UV-VIS (with or w/out printer)	(Item #50-113-0004 or 50-113-0006)	Please inquire for pricing.
Vintessential V-120	(Item #50-113-0120)	$ 1,850.00
Vintessential V-140	(Item #50-113-0140)	$ 2,200.00

Please see page 86 for spectrophotometer kits for enzymatic analysis.

STIRRERS & STIRRING BARS

THERMOLYNE MAGNETIC STIRRERS

Stirrer, 4″ x 4″	(Item #50-114-0001)	$ 330.00
Cimarec, 4″ x 4″ hot plate-stirrer	(Item #50-114-0002)	$ 625.00
Cimarec, 7″ x 7″ hot plate-stirrer	(Item #50-114-0003)	$ 625.00
Corning 420 D, 5″ x 7″ hot plate-stirrer	(Item #50-063-0000)	$ 695.00

Call for additional models and pricing.

MAGNETIC STIRRING BARS

½″	(Item #20-194-0001)	$ 12.00
1″	(Item #20-194-0002)	$ 12.00
1¼″ x ⅝ ″, egg-shaped	(Item #20-194-0006)	$ 16.00
1½″	(Item #20-194-0003)	$ 12.00
2″	(Item #20-194-0004)	$ 12.00
3″	(Item #20-194-0005)	$ 40.00
Magnetic stirring bar retriever	(Item #20-194-0007)	$ 25.00

STOPPERS

ONE-HOLE

#1	(Item #20-197-0001)	$ 2.00
#2	(Item #20-198-0001)	$ 1.25
#5	(Item #20-198-0003)	$ 3.50
#6	(Item #20-198-0005)	$ 3.50
#6½	(Item #20-198-0006)	$ 3.50
#11	(Item #20-197-0002)	$ 11.00

SOLID

#0	(Item #20-212-0000)	$ 1.50
#7	(Item #20-211-0001)	$ 4.50
#8	(Item #20-211-0002)	$ 6.50
#11	(Item #20-211-0004)	$ 6.50

TWIST-IT

#3	(Item #20-212-0001)	$ 3.00
#4	(Item #20-212-0002)	$ 3.00
#5	(Item #20-212-0003)	$ 3.00
#6	(Item #20-212-0004)	$ 3.00
#7	(Item #20-212-0005)	$ 3.00
#8	(Item #20-212-0006)	$ 3.00
#9	(Item #20-212-0007)	$ 3.00
#10	(Item #20-212-0008)	$ 3.00

STOPPERS THAT FIT

FLASK TYPE	SIZE	NECK SIZE	STOPPER #
ERLENMEYER FLASK	125 mL	NM	5
ERLENMEYER FLASK	250 mL	NM	6
ERLENMEYER FLASK	500 mL	WM	10
ERLENMEYER FLASK	1000 mL	NM	9
ERLENMEYER FLASK	1000 mL	WM	11
ERLENMEYER FLASK	2000 mL	WM	13
FILTER FLASK	250 mL	NM	6
FILTER FLASK	500 mL	NM	7
FILTER FLASK	1000 mL	NM	8
A/O SIDE PORT GEN. GLASS			
TOP PORT	100 mL		5
SIDE PORT	100 mL		1

SYRINGES AND SYRINGE FILTERS

LUER SLIP POLYPROPYLENE

20 mL	(Item #20-219-0020)	$ 2.00
60 mL	(Item #20-219-0060)	$ 2.00

SYRINGE FILTER HOLDER

25 mm	(Item #20-218-0025)	$ 28.00
47 mm	(Item #20-218-0047)	$ 90.00

TA & pH TESTING EQUIPMENT, DUJARDIN-SALLERON

TITRALYSER

Automatic determination of pH, total acidity and volatile acids

- Automatic Titration with pH electrode
- Direct reading for results in pH, g/L tartaric acid/acetic acid
- Program analysis for pH, total acidity and volatile acids in the extract
- Additional programs and manual titration
- Free Certification
- Magnetic stirrer
- Integrated precision syringe pump
- Automatic version
- Quick and simple analysis

LDS Titralyser	(Item #50-600-0013)	$ 4,600.00
LDS Combination pH electrode for Titralyser	(Item #50-600-0014)	$ 340.00

TEST TUBES

CENTRIFUGE TUBES, 50 mL

bag of 25, sterile	(Item #20-225-0000)	$ 28.00
each, non-sterile	(Item #20-224-0000)	$ 1.00

GLASS SCREW TOP, WITH CAP

20 x 150 mm	(Item #20-226-0000)	$ 1.50
25 x 200 mm	(Item #20-227-0000)	$ 6.50

STERILE SCREW CAP, POLYSTYRENE, 16x125 mm

bag of 25	(Item #20-220-0000)	$ 35.00

TEST TUBE RACKS

EPOXY COATED, WIRE

#1, holds 40 tubes, 18–20 mm	(Item #20-223-0005)	$ 50.00
#3, holds 40 tubes, 22–25 mm	(Item #20-223-0006)	$ 50.00
#4, holds 24 tubes, 30 mm	(Item #20-223-0004)	$ 50.00
#6, holds 20 tubes, 18–20 mm	(Item #20-223-0003)	$ 35.00

NALGENE, UNWIRE

#7, holds 20 tubes, 20 mm	(Item #20-223-0009)	$ 30.00

THERMOMETERS

Digital, -55° to 148° C, -69° to 299° F	(Item #20-228-0000)	$ 45.00
Digital, long stem	(Item #20-228-0001)	$ 70.00
Infrared Thermometer	(Item# 20-232-0002)	$ 125.00
Floating Thermometer	(Item# 20-232-0003)	$ 20.00
Double scale, Eversafe, -20° to 110° C, 0° to 230° F	(Item #20-229-0001)	$ 5.00
Single scale, Eversafe, -20 to 110° C	(Item #20-231-0001)	$ 6.00
Single scale, -20° to 110° C, non-toxic for food and beverage processing	(Item #20-232-0000)	$ 15.00
Single scale, -40° to 120° F, non-toxic for food and beverage processing	(Item #20-232-0001)	$ 30.00
Single scale, Eversafe, 0° to 230° F	(Item #20-233-0001)	$ 6.00
Thermometer case, metal	(Item #20-230-0000)	$ 17.50

Thermometer Case

TUBING

Amber latex, ¼" ID, per ft	(Item #20-270-0000)	$ 4.00
PVC (Tygon), ¼" ID, per ft	(Item #20-271-0000)	$ 2.50

TUBING CONNECTORS

Pinch clamp	(Item #20-273-0000)	$ 14.00
Quick disconnect, 3/8″ to ¼″ ID	(Item #20-274-0000)	$ 6.00
T connector, ¼″ ID	(Item #20-275-0000)	$ 8.00
T connector, 5/16″ ID	(Item #20-276-0000)	$ 4.00
Tubing clamp, Nalgene	(Item #20-272-0000)	$ 2.50
Y connector, 5/16″ ID	(Item #20-278-0000)	$ 12.00

WATCH GLASSES

75 mm, pack of 12	(Item #20-284-0002)	$ 60.00
90 mm, pack of 12	(Item #20-285-0002)	$ 70.00

WEIGH BOATS

Small, pack of 12	(Item #20-286-0003)	$ 3.00
Medium, pack of 12	(Item #20-286-0002)	$ 3.50
Large, pack of 12	(Item #20-286-0001)	$ 6.00

WINE THIEVES

THIEF VOLUMES

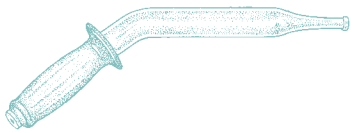
For ¾″ diameter thieves, the first six inches delivers about ½ ounce of wine; each additional inch of length delivers ¼ ounce.

For 1¼″diameter thieves, the first six inches delivers about 1¼ ounce of wine; each additional inch of length delivers ⅜ ounce.

GLASS

Bent with “D” Ring Handle

16″ length, ¾″ diameter	(Item #20-236-0001)	$ 65.00
16″ length, 1 ¼″ diameter	(Item #20-236-0005)	$ 65.00
18″ length, ¾″ diameter	(Item #20-237-0001)	$ 65.00
18″ length, 1¼″ diameter	(Item #20-237-0005)	$ 65.00
20″ length, ¾″ diameter	(Item #20-239-0001)	$ 70.00
20″ length, 1¼″ diameter	(Item #20-239-0005)	$ 75.00



Bent with Plastic Grip

16″ length, ¾″ diameter	(Item #20-236-0002)	$ 65.00
16″ length, 1¼″ diameter	(Item #20-236-0006)	$ 65.00
18″ length, ¾″ diameter	(Item #20-237-0002)	$ 65.00
18″ length, 1¼″ diameter	(Item #20-237-0006)	$ 65.00
20″ length, ¾″ diameter	(Item #20-239-0002)	$ 75.00
20″ length, 1¼″ diameter	(Item #20-239-0006)	$ 75.00

Straight with “D” Ring Handle

16″ length, ¾″ diameter	(Item #20-236-0003)	$ 65.00
16″ length, 1¼″ diameter	(Item #20-236-0007)	$ 65.00
18″ length, ¾″ diameter	(Item #20-237-0003)	$ 65.00
18″ length, 1¼″ diameter	(Item #20-237-0007)	$ 65.00
20″ length, ¾″ diameter	(Item #20-239-0003)	$ 75.00
20″ length, 1¼″ diameter	(Item #20-239-0007)	$ 75.00
24″ length, 1¼″ diameter	(Item #20-240-0001)	$ 75.00

Straight with Plastic Grip

16″ length, ¾″ diameter	(Item #20-236-0004)	$ 65.00
16″ length, 1¼″ diameter	(Item #20-236-0008)	$ 65.00
18″ length, ¾″ diameter	(Item #20-237-0004)	$ 65.00
18″ length, 1¼″ diameter	(Item #20-237-0008)	$ 65.00
20″ length, ¾″ diameter	(Item #20-239-0004)	$ 75.00
20″ length, 1¼″ diameter	(Item #20-239-0008)	$ 75.00

PLASTIC

19.5″ length, 1¼″ diameter, one piece, straight	(Item #20-238-0001)	$ 6.50
19″ segmented, 1¼″ diameter	(Item #20-238-0000)	$ 8.00

WINE THIEVES BY BOSWELL

10″ length, bent	(Item #20-241-0000)	$ 55.00
14″ length, bent	(Item #20-241-0001)	$ 55.00
10″ length, bent with stopper	(Item #20-242-0000)	$ 55.00
14″ length, bent with stopper	(Item #20-242-0001)	$ 55.00

STORAGE AND STABILITY GUIDELINES FOR REAGENTS COMMONLY USED IN WINE ANALYSIS

REAGENT	WARNING	SHELF LIFE	RECOMMENDED STORAGE AFTER OPENING
Acetic standard, custom concentrations	Wear eye protection, avoid vapor	2 months	Refrigerate
Alcohol, Isopropyl, 70%	Poison, flammable	1 year	Flammable liquid storage, closed container
Ethyl Alcohol, 200-Proof, Anhydrous	Poison, flammable	1 year	Flammable liquid storage, closed container
Antifoam B	Wear eye protection	2 years	General storage
Brix Standards	Not hazardous	1 month	Refrigerate
Buffers	Wear eye protection	4-12 months	General storage
Copper Sulfate, 1%	Wear eye/skin protection, poison	Indefinite	General storage
Copper Sulfate, 10%	Wear eye/skin protection, poison	Indefinite	General storage
Chromatography Solvent	Wear eye/skin protection, flammable, will stain, irritant, avoid breathing fumes	Indefinite	Tightly closed in cool, dry, dark place
Ethanol Standard, 0.5% v/v to 50% v/v	Wear eye protection, avoid vapor, keep from flame	Once opened, head space will affect accuracy	Refrigerate
Fehlings A (Copper Sulfate)	Wear eye/skin protection	3-6 months	General storage in dark
Fehlings B (Alkaline Potassium-Sodium Tartrate)	Wear eye/skin protection	3-6 months	General storage in dark
Glucose Standard, custom concentration	Not hazardous	2 months	Refrigerate
Gold Coast #1 (Copper Sulfate)	Wear eye/skin protection, poison	Indefinite	General storage in dark
Gold Coast #2 (Alkaline Potassium-Sodium Tartrate)	Wear eye/skin protection, corrosive, irritant	3-6 months	General storage in dark
Gold Coast #3 (Potassium Iodide)	Wear eye/skin protection, irritant, will stain	3-6 months	General storage in dark
Gold Coast #5 (Starch)	Wear eye/skin protection, corrosive, irritant	6 months (or until mold forms)	General storage in dark
Gold Coast #6 (Sodium Thiosulfate)	Wear eye/skin protection, irritant	3-6 months	Tightly closed in dark
Hydrochloric Acid, 0.01N	Wear eye/skin protection	6-12 months	General storage
Hydrochloric Acid, 0.1N	Wear eye/skin protection, corrosive, irritant	6-12 months	General storage
Hydrogen Peroxide, 3%	Wear eye/skin protection, corrosive, irritant	1 year	General storage

REAGENT	WARNING	SHELF LIFE	RECOMMENDED STORAGE AFTER OPENING
Hydrogen Peroxide, 15%	Wear eye/skin protection, irritant	3 months	Refrigerate
Hydrogen Peroxide, 30%	Wear eye/skin protection, hazardous, strong oxidizer	3 months	Refrigerate
Iodide/Iodate N/64, 0.0156N	Wear eye/skin protection, hazardous, strong oxidizer	3 months	Refrigerate
Iodine, 0.1N	Wear eye protection, avoid vapor	2 years	General storage
Iodine, 0.02N	Wear eye/skin protection, avoid vapor, standardize frequently	3-6 months	Refrigerate or cool, dark place
Malic Standard, custom concentrations	Wear eye protection	2 months	Refrigerate
Phenolphthalein Indicator, 1%	Wear skin/eye protection, flammable, irritant	Indefinite	General storage
Phosphoric Acid, 25%	Wear eye protection	Indefinite	Acid storage with secondary containment
Potassium Iodide, 20%	Wear eye/skin protection, contains iodine	Indefinite	General storage
SO_2 Indicator	Wear eye/skin protection, flammable, will stain	Indefinite	General storage
Sodium Hydroxide, 0.01N to 0.5 N	Wear eye/skin protection, corrosive, standardize frequently	1-3 months	General storage, tightly closed
Sodium Hydroxide, 1N	Wear eye/skin protection, corrosive	2 years	General storage
Sodium Hydroxide, 10%	Wear skin/eye protection, corrosive, irritant	2 years	General storage
Sodium Thiosulfate, 0.02N	Wear eye/skin protection, corrosive	3-6 months	Refrigerate
Sodium Thiosulfate, 0.1N	Wear eye/skin protection	1 year	General storage away from acids
Sorbic Acid Standard, custom concentrations	Wear eye/skin protection	2 months	Refrigerate
Starch Indicator, 0.5%	Wear eye/skin protection	6 months	Refrigerate
Sulfuric Acid, 1+3	Wear eye/skin protection, strong acid	Indefinite	Acid storage with secondary containment
Sulfuric Acid, 1+10	Wear eye/skin protection, strong acid	2 years	General storage

Equipment and reagents required to set-up popular analyses.

COLD STABILITY TESTING BY CONDUCTIVITY

Option 1: Checkstab (see page 95)
Option 2:
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

WINE MICROBIOLOGY

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

FOR SEMI-QUANTITATIVE PCR

See information on VinoBrett and VinoPal for semi-quantitative PCR of *Brettanomyces* and *Lactobacillus* and *Pediococcus* (page 103).

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

I% 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

FOR AUTOMATED MEASUREMENT

See information on Titralyzer by Dujardin-Salleron (page 111).

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

FOR AUTOMATED TITRATION (AFTER EXTRACTION)

See information on Titralyzer by Dujardin-Salleron (page 111).

AERATION-OXIDATION SO_2 ANALYSIS

Aeration-Oxidation Assembly
20 mL Class A volumetric Pipet for Sample
SO_2 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 AND TOTAL SO_2

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

FOR SEMI-AUTOMATED AND AUTOMATED METHODS

See information on Sulfilyzer and Iodolyzer by Dujardin-Salleron (page 108).

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

ENZYMATIC ANALYSIS

MALIC ACID, GLUCOSE + FRUCTOSE, AMMONIA,
ACETIC ACID, GLUCONIC ACID, YAN, AMINO ACID NITOGEN,
L-LACTIC ACID, CITRIC ACID, SUCROSE
Spectrophotometer with UV Capability
Cuvettes & Cuvette Rack
10-100 uL Adjustable Pipettor with Tips
100-1000 uL Adjustable Pipettor with Tips
Volumetric Glassware for Dilutions
Appropriate Test Kits and Standards by Vintessential

PAGE	PRODUCT	PRICE ($)
ANALYTICAL SERVICES		
17	BEER ANALYSIS	
15	BLENDING PANEL	Whites: $ 170.00 / Reds: $ 250.00/ Descriptive Sensory Analysis $ 500.00
13	BOTRYTIS PANEL	$ 100.00
15	BRETT ASSESSMENT PANEL	$ 120.00
16	CITROGUM PANEL	$ 70.00
15	CMC PANEL	White/Rosé Wines: $ 125.00/ Sparkling Wines: $ 100.00 / Red Wines: $ 155.00
16	CORE CHEMISTRY PANEL FOR SPARKLING BASE WINE	$ 200.00
13	CORE JUICE PANEL	$ 85.00
14	CORE WINE CHEMISTRY PANEL	$ 98.00
17	DISTILLED BEVERAGE ANALYSES	
16	EXPORT PANEL	EU VI-1 Long Form and Japan: $ 198.00/ Brazil: $ 263.00 / Mexico, Taiwan, Finland, Philippines: Call for Pricing / Reissues: $ 25.00/each
13	FERMENTATION ASSESSMENT PANEL	$ 120.00
12	GRAPE QUALITY MONITORING PANEL	White Grapes $ 75.00 / Red Grapes $ 225.00
12	GRAPE PHENOLIC FINGERPRINT PANEL	$ 150.00
13	JUICE PANEL	$ 130.00
16	LIQUEUR CONCENTRATION	$ 65.00
13	MALOLACTIC FERMENTATION ASSESSMENT PANEL	$ 135.00
14	MICRO-OX PANEL	$ 110.00
13	MOLD AND BACTERIA PANEL	$ 150.00
15	MONTHLY CHECK PANEL	$ 70.00
14	OAK AROMA COMPOUNDS PANEL	Wines and Distilled Beverages $ 165.00 / Wood $ 180.00
15	PCR PANEL	$ 110.00 ($ 60.00 for PCR for Bacteria only or PCR for Yeast only)
13	pH AND ACID MANAGEMENT PANEL FOR JUICE	$ 95.00
13	POST FERMENTATION PANEL	$ 50.00
15	PREDICTIVE ACID AND TARTRATE STABILITY PANEL	$ 100.00
14	QC PANEL	$ 65.00 (add Microscopic Scan for $15.00)
14	RED WINE CHEMISTRY PANEL	$ 170.00
16	RIDDLING AGENTS SWELLING TEST	$ 120.00
16	UNFILTERED BOTTLING PANEL	Whites/Rosés Wines $ 99.00 / Reds Wines $ 149.00
12	VINEYARD VARIABILITY	White Grapes $ 300.00 / Red Grapes $ 450.00
15	WINE IMPROVEMENT PANEL	$ 275.00 (Additional analyses may be required at extra cost)
14	WINE PHENOLIC FINGERPRINT PANEL	$ 80.00
13	YEAST NUTRITION PANEL	$ 45.00
SENSORY & CONSULTING SERVICES		
19	CORK AROMA EVALUATION - STILL WINE	$ 350.00
19	CORK AROMA EVALUATION - SPARKLING WINE	$ 450.00 Additional panelists can be provided by Enartis USA at $ 35.00/person
19	LABORATORY SET-UP	$ 150.00/hour
19	MINI CONSULT	$ 50.00 for a 15-20 minute session
19	SEMINARS AND TRAINING	
19	STANDARD SENSORY EVALUATION	$ 50.00
19	TCA THRESHOLD TESTING	$ 100.00/person
19	WINE IMPROVEMENT REVIEW	$ 150.00/hour

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
SULFITING AGENTS					
21	35-825-0001	AST	1 Kg	$ 37.50	
20	35-800-0000	EFFERBARRIQUE	Box of 40 packets	$ 18.00	
20	35-810-0000	EFFERGRAN	125 g	$ 3.25	
20	35-815-0000	EFFERGRAN	250 g	$ 5.25	
20	35-810-0001	EFFERGRAN	1 Kg	$ 16.00	
20	35-805-0000	EFFERGRAN DOSE 5	Box of 25 packets	$ 17.00	
21	35-820-0001	WINY	1 Kg	$ 4.50	
21	35-820-0025	WINY	25 Kg	$ 72.50	
ENZYMES					
23	35-130-0250	ENARTIS ZYM AROM MP	0.25 Kg	$ 52.50	
23	35-130-0001	ENARTIS ZYM AROM MP	1 Kg	$ 190.00	
23	35-125-0250	ENARTIS ZYM CARACTÈRE	0.25 Kg	$ 62.50	
24	35-135-0500	ENARTIS ZYM COLOR	0.5 Kg	$ 82.50	
24	35-141-0250	ENARTIS ZYM COLOR PLUS	0.25 Kg	$ 48.75	
24	35-141-0001	ENARTIS ZYM COLOR PLUS	1 Kg	$ 185.00	
25	35-150-0250	ENARTIS ZYM ÉLEVAGE	0.25 Kg	$ 82.50	
25	35-155-0250	ENARTIS ZYM LYSO	0.25 Kg	$ 72.50	
25	35-155-0001	ENARTIS ZYM LYSO	1 Kg	$ 285.00	
23	35-110-0001	ENARTIS ZYM QUICK	1 Kg	$ 99.00	
23	35-110-0020	ENARTIS ZYM QUICK	20 Kg	$1,900.00	
23	35-160-0001	ENARTIS ZYM RS	1 Kg	$ 153.00	
23	35-160-0100	ENARTIS ZYM RS(P)	0.1 Kg	$ 16.50	
24	35-145-0001	ENARTIS ZYM T-RED	1 Kg	$ 75.00	
TANNINS					
28	35-386-0001	ENARTIS TAN ANTIBOTRYTIS	1 Kg	$ 65.00	
28	35-386-0010	ENARTIS TAN ANTIBOTRYTIS	10 Kg	$ 580.00	
27	35-500-0001	ENARTIS TAN AROM	1 Kg	$ 160.00	
27	35-310-0001	ENARTIS TAN BLANC	1 Kg	$ 60.00	
27	35-310-0012	ENARTIS TAN BLANC	12.5 Kg	$ 650.00	
27	35-306-0001	ENARTIS TAN CITRUS	1 Kg	$ 180.00	
27	35-315-0001	ENARTIS TAN CLAR	1 Kg	$ 34.00	
27	35-315-0012	ENARTIS TAN CLAR	12.5 Kg	$ 250.00	
32	35-330-0250	ENARTIS TAN COEUR DE CHÊNE	0.25 Kg	$ 95.00	
32	35-330-0001	ENARTIS TAN COEUR DE CHÊNE	1 Kg	$ 365.00	
29	35-920-0001	ENARTIS TAN COLOR	1 Kg	$ 170.00	
32	35-361-0500	ENARTIS TAN DARK CHOCOLATE	0.5 Kg	$ 475.00	
30	35-312-0001	ENARTIS TAN E	1 Kg	$ 250.00	
27	35-350-0250	ENARTIS TAN ELEGANCE	0.25 Kg	$ 47.50	
27	35-350-0001	ENARTIS TAN ELEGANCE	1 Kg	$ 180.00	
31	35-340-0001	ENARTIS TAN ÉLEVAGE	1 Kg	$ 230.00	
31	35-335-0250	ENARTIS TAN EXTRA	0.25 Kg	$ 155.00	
31	35-335-0001	ENARTIS TAN EXTRA	1 Kg	$ 600.00	

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
TANNINS					
28	35-304-0001	ENARTIS TAN FERMCOLOR	1 Kg	$ 44.00	
28	35-304-0010	ENARTIS TAN FERMCOLOR	10 Kg	$ 375.00	
28	35-300-0001	ENARTIS TAN FP	1 Kg	$ 30.00	
28	35-300-0015	ENARTIS TAN FP	15 Kg	$ 300.00	
33	35-362-0001	ENARTIS TAN FRESH FRUIT	1 Kg	$ 395.00	
29	35-345-0500	ENARTIS TAN FRUITAN	0.5 Kg	$ 90.00	
29	35-345-0001	ENARTIS TAN FRUITAN	1 Kg	$ 165.00	
31	35-320-0001	ENARTIS TAN MAX NATURE	1 Kg	$ 68.00	
31	35-320-0010	ENARTIS TAN MAX NATURE	10 Kg	$ 580.00	
30	35-303-0001	ENARTIS TAN MICROFRUIT	1 Kg	$ 195.00	
31	35-307-0250	ENARTIS TAN NAPA	0.25 Kg	$ 275.00	
31	35-307-0001	ENARTIS TAN NAPA	1 Kg	$ 910.00	
30	35-385-0001	ENARTIS TAN RED FRUIT	1 Kg	$ 190.00	
31	35-325-0001	ENARTIS TAN RICH	1 Kg	$ 75.00	
28	35-305-0001	ENARTIS TAN ROUGE	1 Kg	$ 38.00	
28	35-305-0015	ENARTIS TAN ROUGE	15 Kg	$ 427.50	
32	35-308-0500	ENARTIS TAN SLI	0.5 Kg	$ 182.50	
31	35-370-0001	ENARTIS TAN SUPEROAK	1 Kg	$ 55.00	
32	35-360-0250	ENARTIS TAN SKIN	0.25 Kg	$ 112.50	
32	35-360-0001	ENARTIS TAN SKIN	1 Kg	$ 420.00	
32	35-313-0500	ENARTIS TAN TOFFEE	0.5 Kg	$ 247.50	
33	35-371-0001	ENARTIS TAN TOTAL FRUITY	1 Kg	$ 390.00	
33	35-355-0250	ENARTIS TAN UVA	0.25 Kg	$ 96.25	
33	35-355-0001	ENARTIS TAN UVA	1 Kg	$ 365.00	
33	35-365-0250	ENARTIS TAN UVASPEED	0.25 Kg	$ 100.00	
33	35-365-0001	ENARTIS TAN UVASPEED	1 Kg	$ 380.00	
29	35-311-0001	ENARTIS TAN V	1 Kg	$ 190.00	
32	35-314-0500	ENARTIS TAN VANILLA	0.5 Kg	$ 247.50	
29	35-919-0001	ENARTIS TAN XC	1 Kg	$ 95.00	
33	35-380-0250	UNICO #1	0.25 Kg	$ 328.75	
33	35-375-0250	UNICO #2	0.25 Kg	$ 195.00	
33	35-395-0250	UNICO #3	0.25 Kg	$ 165.00	
YEAST					
39	45-511-0500	ENARTIS FERM AMR-1	0.5 Kg	$ 39.40	
36	45-110-0500	EANRTIS FERM AROMA WHITE	0.5 Kg	$ 39.40	
36	45-110-0010	ENARTIS FERM AROMA WHITE	10 Kg	$ 485.00	
37	45-105-0500	ENARTIS FERM ES 123	0.5 Kg	$ 39.40	
37	45-105-0010	ENARTIS FERM ES 123	10 Kg	$ 485.00	
37	45-120-0500	ENARTIS FERM ES 181	0.5 Kg	$ 39.40	
37	45-120-0010	ENARTIS FERM ES 181	10 Kg	$ 485.00	
38	45-130-0500	ENARTIS FERM ES 401	0.5 Kg	$ 24.75	
38	45-130-0010	ENARTIS FERM ES 401	10 Kg	$ 425.00	
38	45-170-0500	ENARTIS FERM ES 454	0.5 Kg	$ 39.40	

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
YEAST					
38	45-170-0010	ENARTIS FERM ES 454	10 Kg	$ 485.00	
38	45-185-0500	ENARTIS FERM ES 488	0.5 Kg	$ 39.40	
38	45-185-0010	ENARTIS FERM ES 488	10 Kg	$ 485.00	
39	45-060-0500	ENARTIS FERM D20	0.5 Kg	$ 47.50	
37	45-160-0500	ENARTIS FERM ES FLORAL	0.5 Kg	$ 24.75	
37	45-160-0010	ENARTIS FERM ES FLORAL	10 Kg	$ 425.00	
40	45-145-0500	ENARTIS FERM EZ FERM	0.5 Kg	$ 39.40	
40	45-145-0010	ENARTIS FERM EZ FERM	10 Kg	$ 485.00	
40	45-175-0500	ENARTIS FERM EZ FERM 44	0.5 Kg	$ 39.40	
40	45-175-0010	ENARTIS FERM EZ FERM 44	10 Kg	$ 485.00	
38	45-065-0500	ENARTIS FERM MB15	0.5 Kg	$ 42.50	
38	45-065-0010	ENARTIS FERM MB15	10 Kg	$ 550.00	
37	45-180-0500	ENARTIS FERM PERLAGE	0.5 Kg	$ 39.40	
37	45-180-0010	ENARTIS FERM PERLAGE	10 Kg	$ 485.00	
39	45-054-0500	ENARTIS FERM PRIMITIVO	0.5 Kg	$ 39.40	
39	45-054-0010	ENARTIS FERM PRIMITIVO	10 Kg	$ 485.00	
38	45-301-0500	ENARTIS FERM Q5	0.5 Kg	$ 39.70	
37	45-302-0500	ENARTIS FERM Q CITRUS	0.5 Kg	$ 39.70	
38	45-140-0500	ENARTIS FERM RED FRUIT	0.5 Kg	$ 39.40	
38	45-140-0010	ENARTIS FERM RED FRUIT	10 Kg	$ 485.00	
36	45-155-0500	ENARTIS FERM SB	0.5 Kg	$ 24.25	
36	45-155-0010	ENARTIS FERM SB	10 Kg	$ 285.00	
37	45-150-0500	ENARTIS FERM TOP 15	0.5 Kg	$ 24.75	
37	45-150-0010	ENARTIS FERM TOP 15	10 Kg	$ 425.00	
36	45-165-0500	ENARTIS FERM TOP ESSENCE	0.5 Kg	$ 24.75	
36	45-165-0010	ENARTIS FERM TOP ESSENCE	10 Kg	$ 425.00	
39	45-125-0500	ENARTIS FERM VINTAGE RED	0.5 Kg	$ 39.40	
39	45-125-0010	ENARTIS FERM VINTAGE RED	10 Kg	$ 485.00	
37	45-115-0500	ENARTIS FERM VINTAGE WHITE	0.5 Kg	$ 39.40	
37	45-115-0010	ENARTIS FERM VINTAGE WHITE	10 Kg	$ 485.00	
39	45-053-0500	ENARTIS FERM WS	0.5 Kg	$ 42.50	
39	45-052-0010	ENARTIS FERM WS	10 Kg	$ 550.00	
36	45-500-0500	VQ 10	0.5 Kg	$ 44.45	
36	45-500-0010	VQ 10	10 Kg	$ 576.00	
39	45-505-0500	VQ 51	0.5 Kg	$ 44.45	
39	45-505-0010	VQ 51	10 Kg	$ 576.00	
38	45-510-0500	VQ ASSMANSHAUSEN	0.5 Kg	$ 44.45	
38	45-510-0010	VQ ASSMANSHAUSEN	10 Kg	$ 576.00	
YEAST NUTRIENTS					
45	35-220-0001	CELFERM	1 Kg	$ 11.00	
45	35-220-0020	CELFERM	20 Kg	$ 200.00	
45	35-215-0001	NUTRIFERM ADVANCE	1 Kg	$ 21.50	
45	35-215-0010	NUTRIFERM ADVANCE	10 Kg	$ 155.00	

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
YEAST NUTRIENTS					
44	35-210-0001	NUTRIFERM AROM	1 Kg	$ 42.00	
44	35-210-0010	NUTRIFERM AROM	10 Kg	$ 320.00	
44	35-211-0001	NUTRIFERM AROM PLUS	1 Kg	$ 50.50	
44	35-200-0001	NUTRIFERM ENERGY	1 Kg	$ 39.50	
44	35-200-0010	NUTRIFERM ENERGY	10 Kg	$ 345.00	
45	35-216-0001	NUTRIFERM GRADUAL RELEASE	1 Kg	$ 45.00	
45	35-216-0005	NUTRIFERM GRADUAL RELEASE	5 Kg	$ 150.00	
45	35-212-0001	NUTRIFERM NO STOP	1 Kg	$ 25.00	
45	35-225-0010	NUTRIFERM SPECIAL	10 Kg	$ 155.00	
45	30-024-0000	NUTRIFERM CONTROL	1 lb	$ 8.50	
45	30-024-0005	NUTRIFERM CONTROL	5 lb	$ 37.50	
45	30-024-0020	NUTRIFERM CONTROL	20 Kg	$ 190.00	
YEAST & GRAPE POLYSACCHARIDES					
47	35-400-0001	ENARTIS PRO AROM	1 Kg	$ 65.00	
47	35-410-0001	ENARTIS PRO BLANCO	1 Kg	$ 105.00	
48	35-416-0001	ENARTIS PRO FT	1 Kg	$ 135.00	
47	35-450-0001	ENARTIS PRO R	1 Kg	$ 37.00	
47	35-450-0010	ENARTIS PRO R	10 Kg	$ 320.00	
47	35-405-0001	ENARTIS PRO ROUND	1 kg	$ 37.00	
48	35-415-0001	ENARTIS PRO TINTO	1 Kg	$ 150.00	
48	35-921-0001	ENARTIS PRO UNO	1 Kg	$ 165.00	
48	35-417-0001	ENARTIS PRO XP	1 Kg	$ 130.00	
49	35-435-0250	SURLÌ ELEVAGE	0.25 Kg	$ 45.00	
49	35-435-0001	SURLÌ ELEVAGE	1 Kg	$160.00	
49	35-425-0002	SURLÌ ONE	2.5 Kg	$ 170.00	
49	35-430-0002	SURLÌ ROUND	2.5 Kg	$ 87.50	
50	35-455-0500	SURLÌ VELVET	0.5 Kg	$ 320.00	
50	35-460-0500	SURLÌ VELVET PLUS	0.5 Kg	$ 327.50	
50	35-465-0250	SURLÌ VITIS PLUS	0.25 Kg	$ 82.50	
50	35-465-0001	SURLÌ VITIS PLUS	1 Kg	$ 295.00	
OAK ALTERNATIVES					
52	35-930-0001	INCANTO CARAMEL	Barrel Boost	$ 98.00	
52	35-919-0010	INCANTO CARAMEL	10 Kg Chips	$ 135.00	
51	35-930-0000	INCANTO CREAM	Barrel Boost	$ 98.00	
51	35-920-0010	INCANTO CREAM	10 Kg Chips	$ 135.00	
52	35-930-0002	INCANTO DARK CHOCOLATE	Barrel Boost	$ 98.00	
52	35-921-0010	INCANTO DARK CHOCOLATE	10 Kg Chips	$ 135.00	
51	35-922-0010	INCANTO NATURAL	10 Kg Chips	$ 80.00	
54	35-916-0001	INCANTO N.C.	1 Kg	$ 77.50	
54	35-916-0010	INCANTO N.C.	10 Kg	$ 675.00	
54	35-917-0001	INCANTO N.C. RED	1 Kg	$ 87.50	
54	35-917-0010	INCANTO N.C. RED	10 Kg	$ 775.00	

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
OAK ALTERNATIVES					
54	35-918-0001	INCANTO N.C. WHITE	1 Kg	$ 87.50	
54	35-918-0010	INCANTO N.C. WHITE	10 Kg	$ 775.00	
52	35-930-0003	INCANTO SPECIAL FRUIT	Barrel Boost	$ 98.00	
52	35-923-0010	INCANTO SPECIAL FRUIT	10 Kg Chips	$ 135.00	
53	35-926-0010	INCANTO SPICE	10 Kg Chips	$ 210.00	
53	35-930-0004	INCANTO TOFFEE	Barrel Boost	$ 98.00	
53	35-924-0010	INCANTO TOFFEE	10 Kg Chips	$ 135.00	
52	35-930-0005	INCANTO VANILLA	Barrel Boost	$ 98.00	
52	35-925-0010	INCANTO VANILLA	10 Kg Chips	$ 135.00	
MALOLACTIC FERMENTATION					
56	30-031-0010	ENARTIS ML MCW	10 g	$ 60.00	
56	30-031-0040	ENARTIS ML MCW	40 g	$ 100.00	
56	30-031-0120	ENARTIS ML MCW	120 g	$ 220.00	
56	30-031-0500	ENARTIS ML MCW	500 g	$ 650.00	
56	30-031-0003	ENARTIS ML MCW	Dose for 2.5 hL	$ 28.00	
56	30-031-0025	ENARTIS ML MCW	Dose for 25 hL	$ 125.00	
56	30-031-0250	ENARTIS ML MCW	Dose for 250 hL	$ 720.00	
56	35-500-0000	ENARTIS ML ONE	2.5 hL	$ 15.00	
56	35-500-0025	ENARTIS ML ONE	25 hL	$ 72.00	
56	35-500-0250	ENARTIS ML ONE	250 hL	$ 580.00	
56	35-505-0000	ENARTIS ML SILVER	2.5 hL	$ 22.00	
56	35-505-0025	ENARTIS ML SILVER	25 hL	$ 120.00	
56	35-505-0250	ENARTIS ML SILVER	250 hL	$ 705.00	
56	35-505-1000	ENARTIS ML SILVER	1,000 hL	$ 2,600.00	
57	35-510-0050	NUTRIFERM ML	50 g	$ 12.50	
57	35-510-0001	NUTRIFERM ML	1 Kg	$ 30.00	
57	35-511-0100	NUTRIFERM OSMOBACTI	100 g	$ 6.00	
MICRO-OXYGENATION					
59	50-300-1000	ENARTIS MICROOX 1		Please inquire for pricing	
59	50-300-2000	ENARTIS MICROOX 2		Please inquire for pricing	
59	50-300-5000	ENARTIS MICROOX 5		Please inquire for pricing	
59	50-300-1010	ENARTIS MICROOX 10		Please inquire for pricing	
59	50-300-1020	ENARTIS MICROOX 20		Please inquire for pricing	
59		ENARTIS MICROOX PERLAGE		Please inquire for pricing	
STABILIZING AGENTS					
62	35-720-0001	AROMAGUM	1 L	$ 13.00	
62	35-720-0025	AROMAGUM	25 Kg	$ 243.50	
63	35-795-0001	CELLOGUM L	1 L	$ 8.00	
63	35-795-0025	CELLOGUM L	25 Kg	$ 156.25	
63	35-795-0200	CELLOGUM L	200 Kg	$ 1,150.00	
64	35-794-0001	CELLOGUM LV 20	1 L	$ 31.00	
64	35-794-0025	CELLOGUM LV 20	25 Kg	$ 675.00	

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
STABILIZING AGENTS					
64	35-797-0001	CELLOGUM MIX	1 L	$ 17.00	
64	35-797-0025	CELLOGUM MIX	25 Kg	$ 337.50	
62	35-725-0001	CITROGUM®	1 L	$ 11.00	
62	35-725-0025	CITROGUM®	25 Kg	$ 187.50	
62	35-725-0200	CITROGUM®	200 Kg	$ 1,000.00	
62	35-725-1000	CITROGUM®	1,000 Kg	$ 4,500.00	
62	35-730-0001	CITROGUM® DRY	1 Kg	$ 40.00	
62	35-730-0015	CITROGUM® DRY	15 Kg	$ 465.00	
66	35-760-0001	CITROSTAB rH	1 Kg	$ 25.00	
64	35-360-0002	ENARTIS STAB CLK+	0.5 Kg	$ 237.50	
64	35-798-0001	ENARTIS STAB MEGA	1 L	$ 50.00	
64	35-798-0025	ENARTIS STAB MEGA	25 Kg	$ 1,000.00	
66	35-761-0500	ENARTIS STAB MICRO	0.5 Kg	$ 300.00	
66	35-762-0001	ENARTIS STAB MICRO M	1 Kg	$ 275.00	
66	35-763-0001	ENARTIS STAB SLI	1 Kg	$ 40.00	
66	35-763-0010	ENARTIS STAB SLI	10 Kg	$ 300.00	
62	35-735-0001	MAXIGUM	1 L	$ 15.50	
62	35-735-0025	MAXIGUM	25 Kg	$ 225.00	
FINING AGENTS					
73	35-675-0001	BENTOLIT SUPER	1 Kg	$ 3.20	
73	35-675-0025	BENTOLIT SUPER	25 Kg	$ 48.75	
74	35-710-0001	BLACK PF	1 Kg	$ 22.00	
74	35-710-0015	BLACK PF	15 Kg	$ 180.00	
69	35-635-0001	CLARGEL	1 L	$ 10.00	
69	35-635-0025	CLARGEL	25 Kg	$ 187.50	
71	35-666-0001	CLARIL AF	1 Kg	$ 45.00	
71	35-666-0010	CLARIL AF	10 Kg	$ 350.00	
72	35-661-0001	CLARIL HM	2.5 Kg	$ 412.50	
72	35-661-0010	CLARIL HM	10 Kg	$ 1,550.00	
72	35-662-0001	CLARIL QY	1 Kg	$ 35.00	
72	35-662-0010	CLARIL QY	10 Kg	$ 275.00	
72	35-665-0001	CLARIL SP	1 Kg	$ 31.00	
72	35-665-0010	CLARIL SP	10 Kg	$ 270.00	
71	35-667-0001	COMBISTAB AF	1 Kg	$ 47.50	
71	35-667-0010	COMBISTAB AF	10 Kg	$ 375.00	
68	35-125-0250	ENARTIS ZYM CARACTÈRE	0.25 Kg	$ 62.50	
68	35-150-0250	ENARTIS ZYM ÉLEVAGE	0.25 Kg	$ 82.50	
74	35-700-0001	ENOBLACK SUPER	1 Kg	$ 25.00	
74	35-700-0010	ENOBLACK SUPER	10 Kg	$ 150.00	
74	35-705-0001	FENOL FREE	1 Kg	$ 35.00	
74	35-705-0010	FENOL FREE	25 Kg	$ 250.00	
70	35-650-0250	FINECOLL	0.25 Kg	$ 62.50	

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
FINING AGENTS					
70	35-650-0001	FINECOLL	1 Kg	$ 205.00	
70	35-640-0001	FINEGEL	1 L	$ 25.00	
70	35-640-0000	FINEGEL	20 L	$ 400.00	
69	35-626-0001	GOLDENCLAR INSTANT	1 Kg	$ 40.00	
69	35-695-0001	HYDROCLAR 20	1 L	$ 10.50	
69	35-695-0025	HYDROCLAR 20	25 Kg	$ 212.50	
69	35-610-0001	HYDROCLAR 30	1 L	$ 12.50	
69	35-610-0025	HYDROCLAR 30	25 Kg	$ 262.50	
69	35-615-0001	HYDROCLAR 45	1 L	$ 16.00	
69	35-615-0025	HYDROCLAR 45	25 Kg	$ 325.00	
72	35-670-0001	NEOCLAR AF	1 Kg	$ 30.00	
68	35-760-0002	PLANTIS AF	20 Kg	$ 450.00	
68	35-761-0001	PLANTIS AF-P	1 Kg	$ 95.00	
68	35-761-0010	PLANTIS AF-P	10 Kg	$ 900.00	
73	35-685-0001	PLUXBENTON N	1 Kg	$ 3.60	
73	35-685-0020	PLUXBENTON N	20 Kg	$ 50.00	
73	35-680-0001	PLUXCOMPACT	1 Kg	$ 3.20	
73	35-680-0020	PLUXCOMPACT	20 Kg	$ 62.00	
70	35-645-0001	PROTOCLAR®	1 Kg	$ 61.00	
71	35-668-0010	PROTOMIX AF	10 Kg	$ 255.00	
69	35-630-0001	PULVICLAR S	1 Kg	$ 28.00	
69	35-630-0020	PULVICLAR S	20 Kg	$ 360.00	
73	35-681-0005	PURE BENTO	5 Kg	$ 250.00	
73	35-690-0001	SIL FLOC	1 L	$ 9.00	
73	35-690-0025	SIL FLOC	25 Kg	$ 150.00	
71	35-657-0002	STABYL MET	2.5 Kg	$ 537.50	
71	35-657-0010	STABYL MET	10 Kg	$ 1,850.00	
70	35-655-0001	STABYL PVPP	1 Kg	$ 75.00	
70	35-655-0020	STABYL PVPP	20 Kg	$ 1,170.00	
SPARKLING WINE PRODUCTS					
79	35-673-0010	CLAIRPERLAGE UNO	10 Kg	$ 80.00	
79	35-672-0001	CLAIRPERLAGE DUE	1 Kg	$ 45.00	
79	35-672-0010	CLAIRPERLAGE DUE	10 Kg	$ 500.00	
80	30-208-0250	CLAIRBOUTEILLE P	0.25 Kg	$ 31.25	
77	45-182-0500	ENARTIS FERM PERLAGE D.O.C.G.	0.5 Kg	$ 39.00	
77	45-181-0500	ENARTIS FERM PERLAGE FRUITY	0.5 Kg	$ 39.00	
77	45-180-0500	ENARTIS FERM PERLAGE	0.5 Kg	$ 39.40	
77	45-180-0010	ENARTIS FERM PERLAGE	10 Kg	$ 485.00	
77	35-418-0001	ENARTIS PRO PERLAGE	1 Kg	$ 80.00	
80	35-316-0001	ENARTIS TAN CLAIRBOUTEILLE	1 Kg	$ 55.00	
81	35-317-0001	ENARTIS TAN FINESSE	1 Kg	$ 35.00	
81	35-318-0001	ENARTIS TAN FRAGRANCE	1 Kg	$ 250.00	

PAGE	ITEM #	PRODUCT	SIZE	PRICE ($)	QUANTITY
SPARKLING WINE PRODUCTS					
81	35-319-0001	ENARTIS TAN LAST TOUCH	1 Kg	$ 595.00	
81	35-321-0001	ENARTIS TAN STYLE	1 Kg	$ 80.00	
79	35-705-0015	ENOBLACK PERLAGE	15 Kg	$ 375.00	
81	20-138-0001	HYDROMETER, DENSITY	0.98 to 1.130	$ 135.00	
81	50-027-0002	HYDROMETER, DENSITY	Cork	$ 800.00	
81	50-010-0015	HYDROMETER, DENSITY	Crown Capsule	$ 550.00	
78	35-216-0001	NUTRIFERM GRADUAL RELEASE	1 Kg	$ 45.00	
78	35-216-0005	NUTRIFERM GRADUAL RELEASE	5 Kg	$ 150.00	
78	35-204-0001	NUTRIFERM PDC	1 Kg	$ 40.00	
78	35-207-0001	NUTRIFERM PDC AROM	1 Kg	$ 45.00	
78	35-208-0001	NUTRIFERM TIRAGE	1 Kg	$ 40.00	
78	35-206-0001	NUTRIFERM REVELAROM	1 Kg	$ 25.00	
79	35-671-0010	PROCLAIR BC	10 Kg	$ 650.00	
80	35-421-0001	SURLÍ MOUSSE	1 Kg	$ 45.00	
80	35-422-0001	SURLÍ TAN PERLAGE	1 Kg	$ 85.00	
80	35-322-0001	SURLÍ TAN TRG	1 Kg	$ 290.00	
WINEMAKING CHEMICALS					
84	30-026-0237	ANTIFOAM FOOD GRADE	250 mL	$ 24.00	
84	30-026-0437	ANTIFOAM FOOD GRADE	500 mL	$ 33.00	
84	30-026-0946	ANTIFOAM FOOD GRADE	1 L	$ 49.00	
84	30-014-0001	ASCORBIC ACID POWDER FG	1 lb	$ 7.00	
84	30-014-0050	ASCORBIC ACID POWDER FG	25 Kg	$ 300.00	
84	30-036-1050	CITRIC ACID	1 lb	$ 6.00	
84	30-036-0050	CITRIC ACID	50 lb	$ 110.00	
84	10-057-0050	COPPER SULFATE CRYSTALS	50 g	$ 18.00	
84	10-057-0100	COPPER SULFATE CRYSTALS	100 g	$ 26.00	
84	10-057-1500	COPPER SULFATE CRYSTALS	500 g	$ 45.00	
84	30-015-0000	DIAMMONIUM PHOSPHATE (DAP)	1 lb	$ 3.00	
84	30-015-0005	DIAMMONIUM PHOSPHATE (DAP)	5 lb	$ 15.00	
84	30-015-0050	DIAMMONIUM PHOSPHATE (DAP)	50 lb	Please inquire for pricing	
84	30-037-0001	MALIC ACID POWDER	1 lb	$ 11.00	
84	30-037-0050	MALIC ACID POWDER	50 lb	$ 135.00	
84	30-130-0001	POTASSIUM BITARTRATE POWDER	per lb	Please inquire for pricing	
84	30-130-0050	POTASSIUM BITARTRATE POWDER	25 Kg	Please inquire for pricing	
84	30-020-0000	POTASSIUM CARBONATE	1 lb	$ 4.00	
84	30-020-0005	POTASSIUM CARBONATE	5 lb	$ 20.00	
84	30-020-0025	POTASSIUM CARBONATE	25 Kg	$ 165.00	
84	30-038-0001	TARTARIC ACID	per lb	Please inquire for pricing	
84	30-038-0005	TARTARIC ACID	5 lb	Please inquire for pricing	
84	30-038-0000	TARTARIC ACID	25 Kg	Please inquire for pricing	
84	35-820-0001	WINY-POTASSIUM METABISULFITE	1 Kg	$ 4.50	
84	35-820-0025	WINY-POTASSIUM METABISULFITE	25 Kg	$ 72.50	

PAGE	PRODUCT
CHEMICALS & REAGENTS	
85	ACID NEUTRALIZER
85	ACID STANDARDS SUITABLE FOR CHROMATOGRAPHY
85	ALCOHOL, ISOPROPYL 70%
85	ALCOHOL, REAGENT ANHYDROUS 95%
85	ANTIFOAM B
85	ASCORBIC POWDER
85	BUFFERS
86	CALCIUM CHLORIDE DESICCANT
86	CHROMATOGRAPHY SOLVENT
86	CONDUCTIVITY STANDARD 1413 µS
86	COPPER SULFATE
86	DECOLORIZING CARBON FOR LABORATORY USE
86	ELECTRODE SOLUTIONS & MEMBRANES
86	FERMENTEST - REDUCING SUGARS ANALYSIS
87	HYDROCHLORIC ACID
87	HYDROGEN PEROXIDE
87	IODIDE/IODATE SOLUTION
87	IODINE
87	LAB CLEANER
87	METHYLENE BLUE
86	pH ELECTORDE STORAGE SOLUTIONS
87	PHENOLPHTHALEIN, 1 %
87	PHOSPHORIC ACID
88	POTASSIUM BITARTRATE POWDER
88	POTASSIUM IODIDE
88	REFRACTOMETER STANDARD
88	SO_2 INDICATOR
88	SODIUM CARBONATE 20%
88	SODIUM HYDROXIDE
88	SODIUM THIOSULFATE
89	STANDARDS
89	STARCH INDICATOR, 1%
89	SULFURIC ACID

PAGE	PRODUCT
LABWARE & SUPPLIES	
98	ANALYZERS BY VINTESSENTIAL
90	ALCOHOL BURNER
95	ALLA FRANCE CHROMATOGRAPHY KIT
90	AROMA RECOGNITION TRAINING KITS BY AROMA ACADEMY
90	BALANCES AND DIGITAL SCALES
91	BEAKERS
91	BIOWINE BIOSENSOR FOR MALIC ACID
91	BOILING CHIPS
92	BOOKS & SOFTWARE
93	BOTTLES
93	BRUSHES
93	BURET ACCESSORIES
93	BURETS, DIGITAL
93	BURETS, GLASS
93	BURET KIT, AUTOMATIC SELF-ZEROING
94	CASH STILL
94	CASH STILL - PARTS & ACCESSORIES
94	CENTRIFUGE
95	CHECK STAB
95	CHROMATOGRAPHY SUPPLIES
95	CLAMPS & SUPPORTS
94	CO_2 TESTING SUPPLIES AND EQUIPMENT
95	CONDUCTIVITY TESTING
96	CUVETTES & RACK
96	CYLINDERS
97	DISPENSERS
97	DRAIN STAND, LABWARE
97	EBULLIOMETERS
106	ENARTIS USA WINE DEFECTS KITS
99	ENZYMATIC KITS BY VINTESSENTIAL LABORATORIES
99	FILTERS FOR LAB FILTRATION
99	FILTERS - LAB EQUIPMENT
99	FLASKS
99	FLOWMETERS
99	FUNNELS
100	HYDROMETERS
100	KIMWIPES
100	LABEL TAPE AND DISPENSER
100	MICROBIOLOGY MEDIA
101	MICROBIOLOGY SUPPLIES
103	OXYGEN TESTING

PAGE	PRODUCT
LABWARE & SUPPLIES	
104	PARAFILM
104	pH, ISE, DO, AND CONDUCTIVITY METERS AND pH ISE ELECTRODES AND ACCESSORIES
105	PIPETS
105	PIPET PARAPHERNALIA
106	REFRACTOMETERS
106	SAFETY SUPPLIES
106	SENSORY STANDARDS
106	SCOOPS
107	SO_2 AERATION-OXIDATION APPARATUS
109	SO_2 TESTING BY RIPPER METHOD
108	SO_2 TESTING, DUJARDIN-SALLERON
109	SPECTROPHOTOMETERS
109	STIRRES & STIRRING BARS
110	STOPPERS
110	SYRINGES AND SYRINGE FILTERS
111	TA & pH TESTING EQUIPMENT, DUJARDIN-SALLERON
111	TEST TUBES
111	TEST TUBE RACKS
111	THERMOMETERS
111	TUBING
112	TUBING CONNECTORS
98	VINTESSENTIAL STARTER KIT
112	WATCH GLASSES
112	WEIGH BOATS
112	WINE THIEVES

NOTES

HOURS

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

PRICING

Enartis USA 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 15 days of receipt and are subject to a 20% 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 will result in a charge up to the full dollar amount of the order.

TEMPERATURE AND BACTERIA VIABILITY

Don't worry! If ice packs melted during shipment or the container arrived warm, a few days out of the freezer at temperatures below 25°C (77°F) will not spoil the product or affect bacteria viability.
However, we always advise our customers to select the most expeditious shipping means possible and to store bacteria in the freezer at -18°C (0°F) upon arrival.

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

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
Suite C
St. Helena, CA 94574
Tel: 707 967 0290 - Fax: 707 967 0295

PASO ROBLES BRANCH

1850 Ramada Drive
Suite 3
Paso Robles, CA 93446
Tel: 805 591 3321 - Fax: 805 591 3322

enartis USA

WWW.ENARTIS.COM