

TANNINS

Many wines benefit from the addition of tannins, provided that the treatment is carried out at the most appropriate time. Since the different origins and properties of tannin can produce substantially different results, care must be taken to select the best tannin for each winemaking application. In conjunction with the foremost research centers, Enartis has studied exogenous tannins and their effects for many years. These studies have enabled Enartis to select and produce a comprehensive range of the highest quality tannins for winemaking.



enartis

Inspiring innovation.

WHITE & ROSÉ VINIFICATION

EnartisTan AROM

- Ellagic tannin, inactivated yeast and gallic tannin.
- Highly reactive tannin with grape proteins, strong antioxidant effect, inhibits oxidative enzymes (laccase) and facilitates clarification.
- Effective for thiol preservation and reduction of herbaceous aromas in unripe grapes.

Application: antioxidant protection; enhances fruity and thiols aromas; improves protein and aromas stabilization

Dosage: 2-20 g/hL (0.17-1.7 lb/1,000 gal)

1 kg (Item #35-500-0001)

EnartisTan CIT

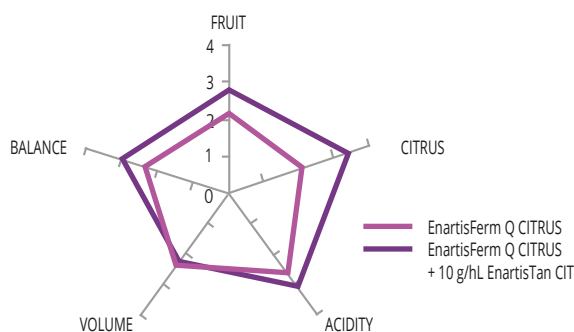
- Blend of gallic tannins and condensed tannins extracted from exotic wood species.
- Production process at cold temperature to preserve aromatic precursors from wood.
- Enhances floral, citrus and fresh fruity notes.
- Enhance varietal expression by combining it with yeasts with high β -glucosidase activity.

Application: enhancement of floral and fruit aroma; improve protein stability; increase antioxidant protection

Dosage: 2-15 g/hL (0.17-1.3 lb/1,000 gal)

1 kg (Item #35-306-0001)

SENSORY IMPACT OF EnartisTan CIT ADDED AT 1/3 OF FERMENTATION



RED VINIFICATION

EnartisTan FERMCOLOR

- Blend of condensed tannins extracted from exotic wood species and ellagic tannins from chestnut trees and tara.
- High antioxidant activity, protects color and aromatic compounds from oxidation and contributes to color stabilization.
- Enhances aromatic complexity, softens structure, and improves length and ageing potential.

Application: antioxidant protection; color stabilization; reds intended for ageing

Dosage: 200-400 g/ton

1 kg (Item #35-304-0001)
10 kg (Item #35-304-0010)



We have been using EnartisTan FERMCOLOR and ROUGE as sacrificial tannins pre and post flash détente. We saw an impressive impact on color stability, mid-palate and wine structure, especially on our Bordeaux varietals and Zinfandels. **Megan McCollough, Winemaker at Hahn Family Wines - California, USA**



EnartisTan RF

- Blend of condensed tannins extracted from exotic wood species.
- Production process at cold temperature to preserve aromatic precursors from wood.
- Provides aromatic precursors responsible for berry, red fruit and floral notes in wine.
- Improves color stability.
- Enhances varietal expression by combining it with yeasts with high β -glucosidase activity.

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

Dosage: 20-150 g/ton in rosé wine; 20-300 g/ton in red wine

1 kg (Item #35-385-0001)

EnartisTan ROUGE

- Micro-granulated blend of condensed tannin extracted from exotic wood species, chestnut tannin and tara tannin.
- Intense antioxidant and antioxidasic activities, inhibits laccase, PPO and protects color and aromatic compounds from oxidation.
- Favors the formation of stable color compounds.
- Reinforces wine structure and improves wine balance.

Application: "sacrificial" tannin; antioxidant protection; color stabilization

Dosage: 100-400 g/ton

1 kg (Item #35-305-0001)
15 kg (Item #35-305-0015)

EnartisTan V

- Condensed tannin extracted from unfermented white grape seeds.
- Highly reactive, it specifically condenses with free anthocyanins to protect them from oxidation and promote long-lasting color stability.
- Promotes the elimination of grape proteins and improves the protein stability of white and rosé wines.
- Reduce the action of oxidase enzymes (tyrosinase and laccase) and the chemical oxidation of wine.
- Enhance fruity notes.

Application: long-term color stability; thermovinification; phenolic unripe grapes

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

1 kg (Item #35-311-0001)

EnartisTan XC

- Low molecular weight monocatechins and condensed tannins extracted from exotic wood species and untoasted oak.
- Due to its high reactivity, it promotes co-pigmentation and increases color stability in young red and rosé wines.

Application: color stabilization through co-pigmentation; young to medium aged red wines; rosé

Dosage: 100-400 g/ton on red grapes; 5-15 g/hL (0.4-1.3 lb/1,000 gal) in rosé juice

1 kg (Item #35-919-0001)

TECHNICAL TANNINS

EnartisTan ANTIBOTRYTIS

- Mixture of gallic tannins and ellagic chestnut tannin.
- Intense antioxidant, antiradical and antioxidasic properties.
- Protects color and aromatics compounds from oxidation, limits oxidasic enzyme activities and strengthens the protective action of SO₂.

Application: moldy grapes; antioxidant protection of aroma and color compounds

Dosage: 3-20 g/hL (0.25-1.7 lb/1,000 gal)

1 kg (Item #35-386-0001)
10 kg (Item #35-386-0010)

PRODUCT	DOSAGE	REDUCTION OF OXIDASIC ENZYME ACTIVITY
SO ₂	50 ppm	25%
	75 ppm	62%
ANTIBOTRYTIS	20 g/hL	60%

EnartisTan BLANC

- Micro-granulated gallic tannin.
- High antioxidant activity and antimicrobial activity, it strengthens the protective action of SO₂.
- Protects wine from browning, "light-struck" defects and oxidation.

Application: fining; antioxidant protection; prevention of light-struck

Dosage: 4-10 g/hL (0.33-0.8 lb/1,000 gal)

1 kg (Item #35-310-0001)
12.5 kg (Item #35-310-0012)

EnartisTan E

- Micro-granulated condensed tannin mainly monocatechins obtained by purification from an unfermented white grape seed extract.
- Highly reactive, specifically condenses free anthocyanins to promote a long-lasting color.
- One of our best tannins for color stabilization, particularly efficient during macro-oxygenation to condense anthocyanins via acetaldehyde bridges.
- Increases wine structure, aromatic complexity and prevents premature oxidation.

Application: color stabilization by condensation; micro-oxygenation; enhance body and structure

Dosage: 50-200 g/ton during maceration; 3-15 g/hL (0.25-1.3 lb/1,000 gal) during micro-oxygenation

1 kg (Item #35-312-0001)
5 kg (Item #35-312-0005)

HIDEKI



- Micro-granulated tannin made of molecular fractions obtained through the selection and purification of gallic, ellagic and condensed tannins that are the most effective in terms of antioxidant and antimicrobial activity.
- To be used during wine preparation for bottling as a natural and allergen-free replacement for SO₂ to protect wine from oxidation and to prevent spoilage by unwanted microorganisms.
- The combination of different tannins, in terms of composition and structure that are microbiostatic in nature against various pathogens, makes HIDEKI a suitable tool over a wide range of pH values.

Application: natural and allergen free alternative to SO₂ antioxidant protection of wine; prevention of the growth of unwanted microorganisms

Dosage: 1-3 g/hL (0.08-0.25 lb/1,000 gal) as an antioxidant; 5-10 g/hL (0.4-0.8 lb/1,000 gal) as microbiostatic

1 kg (Item #35-931-0001)

EnartisTan MAX NATURE

- Condensed tannin extracted from exotic wood species.
- Removes reductive characters, masks herbaceous notes and increases aromatic cleanliness and complexity.
- Increases roundness and builds mid palate.

Application: remove reductive and herbaceous notes; increase fruit and floral characters

Dosage: 3-15 g/hL (0.25-1.3 lb/1,000 gal)

1 kg (Item #35-320-0001)
10 kg (Item #35-320-0010)

EnartisTan SLI

- Tannin extracted from untoasted American oak at low temperature.
- Extraordinary capability to scavenge oxygen and radicals, chelate metals and reduce wine redox potential.
- Binds to mercaptans and eliminates other sulfur off-aromas.
- Protects from oxidation, strengthens action of SO₂ and improves wine shelf life.

Application: antioxidant protection; improve the shelf life of wine; treat reduction; natural and allergen free alternative to SO₂

Dosage: 0.5-2 g/hL (0.04-0.17 lb/1,000 gal) as antioxidant; 2-15 g/hL (0.17-1.3 lb/1,000 gal) to improve the sensory

0.5 kg (Item #35-308-0500)

OAK TANNINS

EnartisTan CŒUR DE CHÊNE

- Ellagic tannin extracted from toasted oak.
- Extends barrel life and boosts oak characters in neutral barrels.
- Contributes to elegant and delicate aromas of vanilla, caramel and spices.
- Balances mouthfeel and improves length, softness and oak integration.
- Control and prevention of reductive aromas.

Application: finishing; extend the life of barrels

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

1 kg (Item #35-330-0001)

EnartisTan DC

- Tannin extracted from French oak.
- Boosts heavy-toasted oak characters in neutral barrels.
- Enhances dark chocolate, roasted coffee and spice aromas, as well as structure and softness found in barrel-aged wines.
- Softens astringency and increases wine length and complexity.

Application: finishing; extend the life of barrels

Dosage: 0.5-15 g/hL (0.04-1.3 lb/1,000 gal)

0.5 kg (Item #35-361-0500)

EnartisTan ELEVAGE

- Tannin extracted from seasoned French oak.
- Binds with mercaptans and eliminates sulfur off-aromas.
- Contributes to elegant vanilla, caramel and licorice notes.

Application: increase structure; prevent and treat reductive characters

Dosage: 2-15 g/hL (0.17-1.3 lb/1,000 gal)

1 kg (Item #35-340-0001)

EnartisTan EXTRA

- Tannin extracted from pure oak.
- Contributes to elegant vanilla, caramel, cocoa and toasted oak notes.
- Rapidly improves mouthfeel balance and aromatic complexity.

Application: finishing; enhance oak notes and complexity

Dosage: 3-15 g/hL (0.25-1.3 lb/1,000 gal)

1 kg (Item #35-335-0001)

EnartisTan NAPA

- Tannin extracted from American oak.
- Extends barrel life and boosts oak aromas in neutral barrels.
- Enhances aromas of vanilla, caramel, coconut, coffee and cocoa.
- Increases wine structure and "sweetness" and balances astringency.

Application: finishing; increase aroma complexity and structure

Dosage: 3-15 g/hL (0.25-1.3 lb/1,000 gal)

1 kg (Item #35-307-0001)

EnartisTan TOF

- Tannin extracted from medium-plus toasted French oak.
- Increases antioxidant protection and improves wine ageing potential.
- Enhances the aromatic notes of oak (coffee, caramel) when used in barrel-aged wines.
- Provides structure and helps to soften astringent and bitter sensations.

Application: finishing; extend the life of barrels

Dosage: 1-15 g/hL (0.08-1.3 lb/1,000 gal)

0.5 kg (Item #35-313-0500)

EnartisTan VNL

- Tannin extracted from medium-toasted French oak.
- Increases antioxidant protection, improves wine stability and ageing potential.
- Enhances the aromatic notes of oak (vanilla, custard, coconut) when used in barrel-aged wines.
- Provides structure and helps to soften astringent and bitter sensations.

Application: finishing; extend the life of barrels

Dosage: 1-15 g/hL (0.08-1.3 lb/1,000 gal)

0.5 kg (Item #35-314-0500)

EnartisTan MEL

- Liquid preparation of ellagic tannin extracted from French oak.
- Designed to be used during wine maturation to prevent reduction and protect wine from oxidation.
- In barrel-aged wines, it helps to enhance oak profile (caramel, coconut, coffee and cocoa).
- The liquid form makes it easy-to-use.

Application: wine maturation; finishing; increase aroma complexity and structure

Dosage: 1-30 mL/hL (38-1,100 mL/1,000 gal)

1 kg (Item #35-363-0001)

GRAPE TANNINS

EnartisTan ELEGANCE

- Condensed tannins largely extracted from white grape skins.
- Increases antioxidant protection when used in white and rosé wines during fermentation and maturation.
- Improves aromatic freshness and enhances fruit aromas.
- Increases wine structure, softness and balance without imparting astringency or dryness.

Application: antioxidant protection; increase structure and fruit notes; softness and balance

Dosage: 10-15 g/hL (0.8-1.3 lb/1,000 gal) during fermentation; 3-10 g/hL (0.25-0.8 lb/1,000 gal) in wine

1 kg (Item #35-350-0001)

EnartisTan FF

- Blend of condensed tannins extracted from exotic wood species and fresh white grape skins.
- Production process at cold temperature to preserve aromatic precursors from wood.
- Good antioxidant capacity.
- Freshens wine aromas, reduces overripe fruit notes, increase wine softness and wine length.

Application: freshen wine aroma; increase antioxidant protection; white and rosé wines

Dosage: 0.5-10 g/hL (0.04-0.8 lb/1,000 gal)

1 kg (Item #35-362-0001)

EnartisTan FT

- Condensed tannin extracted from exotic wood species, grape seeds tannin and chestnut tannin.
- Protects anthocyanins from oxidation and improves color stability.
- Reduces herbaceous notes, enhances fruit characters and freshens aromas.
- Improves structure and length without imparting astringency.

Application: color stabilization in red and rosé wines; increase structure and fruit notes

Dosage: 100-200 g/ton during maceration; 3-10 g/hL (0.25-0.8 lb/1,000 gal) in wine

1 kg (Item #35-345-0001)

EnartisTan SKIN

- High molecular weight condensed tannins obtained from fresh white grape skins.
- Improves aromatic cleanliness, enhances fruitiness and brightness.
- Builds mid palate, improves mouthfeel, structure and complexity.
- Contributes to color stability.

Application: antioxidant protection; increase structure and fruit notes

Dosage: 3-20 g/hL (0.25-1.7 lb/1,000 gal)

1 kg (Item #35-360-0001)

EnartisTan TFT

- Blend of condensed tannins extracted from exotic wood species and fresh white grape skins.
- Provides intense red fruit aromas, reduces overripe fruit notes and increases softness, structure and wine length.

Application: enhances red fruit notes; increase softness; red and rosé wines

Dosage: 0.5-20 g/hL (0.04-1.7 lb/1,000 gal)

1 kg (Item #35-371-0001)



I believe in the concept of continuous improvement and thanks to Enartis vast range of finishing tannins. We always manage to improve our wines from great to excellent.
James Ochse, Winemaker at Stellenbosch Hills - South Africa

EnartisTan UVA

- High molecular weight condensed tannin extracted from white grape seeds.
- Promotes color stability by condensation with anthocyanins.
- Enhances fruit aromas, balances astringency and improves structure, mouthfeel and complexity.
- Improves protein stabilization in white and rosé wines.

Application: color stabilization by condensation; increase structure and fruit notes

Dosage: 1-10 g/hL (0.08-0.8 lb/1,000 gal)

1 kg (Item #35-355-0001)

EnartisTan UVASPEED

- Condensed tannins extracted from unfermented white grape skins.
- Provides intense fruit notes, freshens wines, increases wine structure and softness.

Application: decrease astringent and bitter sensations; increase softness and structure

Dosage: 3-20 g/hL (0.25-1.7 lb/1,000 gal)

1 kg (Item #35-365-0001)

EnartisTan UNICO RANGE

EnartisTan UNICO #1

ELEGANCE & STRUCTURE

- Ellagic oak tannin.
- Intense and delicate vanilla, chocolate and toasted oak aromas.
- Contributes to volume and structure of wine.

Application: finishing; enhance aroma complexity

Dosage: 1-15 g/hL (0.08-1.2 lb/1,000 gal)

0.25 kg (Item #35-380-0250)

EnartisTan UNICO #2

BRIGHT, RED FRUIT

- Condensed tannin extracted from exotic wood species.
- Significantly enhances red fruit aromas such as cherry, fresh berries and black currant.
- Increases softness, structure and "sweetness".

Application: finishing; enhance wine fruity aroma

Dosage: 1-15 g/hL (0.08-1.2 lb/1,000 gal)

0.25 kg (Item #35-375-0250)

EnartisTan UNICO #3

ENHANCE FRESHNESS

- Blend of hydrolyzable and condensed tannins extracted from exotic wood species.
- Freshens wine aroma, enhances citrus, botanical and floral notes.
- Excellent for treating wines with slightly oxidized and overripe aromas.

Application: increase aromatic freshness and complexity

Dosage: 1-10 g/hL (0.08-0.8 lb/1,000 gal)

0.25 kg (Item #35-395-0250)

	Color stabilization	Antioxidant effect	Increase of aromatic cleanliness	Protein removal	Structure	Astringency	Softness	Aroma
FERMENTATION TANNINS								
EnartisTan AROM	●●	●●●●●	●●	●●	●●	●●	●●	●●●●
EnartisTan CIT	●●●	●●●●	●●	●●●	●●	●●	●●	●●●●●
EnartisTan FERMCOLOR	●●●●	●●●●	●●●	●●●●	●●●●	●●	●●●	●●●●
EnartisTan RF	●●●	●●	●●	●●●●	●●●	●●	●●●	●●●●●
EnartisTan ROUGE	●●●	●●●●	●●●	●●●●	●●●	●●●	●●	●●
EnartisTan V	●●●●●	●●	●●	●●●	●●●●●	●●●●	●●	●●●
EnartisTan XC	●●●●	●●	●●	●●●●	●●	●●●	●●●	●
TECHNICAL TANNINS								
EnartisTan ANTIBOTRYTIS	●	●●●●●	●●	●●	●●	●●	●	●
EnartisTan BLANC	●	●●●●●	●	●	●●	●●	●	●
EnartisTan E	●●●●●	●●	●●	●●●	●●●●●	●●●●	●●	●●●
HIDEKI	●●	●●●●●	●●●●	●●●●	●●	●	●●●●	●
EnartisTan MAX NATURE	●●●	●●	●●●●	●●	●	●	●●●●●	●
EnartisTan SLI	●●	●●●●●	●●●●	●●●	●●	●	●●●●	●●●●
OAK TANNINS								
EnartisTan CŒUR DE CHÊNE	●●	●●	●●	●	●●	●●	●●●	●●●●
EnartisTan DC	●●	●●●	●●	●	●●●	●	●●●●	●●●●●
EnartisTan ELEVAGE	●●	●●●	●●●	●●●●	●●●	●●●	●●	●●●
EnartisTan EXTRA	●●	●	●●	●	●●	●	●●●●	●●●●●
EnartisTan MEL	●●	●●●	●●	●	●●●	●	●●●●	●●●●●
EnartisTan NAPA	●●	●●●	●●	●	●●●	●	●●●●	●●●●●
EnartisTan TOF	●●	●●●	●●●	●	●●●●	●●	●●●	●●●●
EnartisTan VNL	●●	●●●	●●●	●	●●●●	●●	●●●	●●●●
GRAPE TANNINS								
EnartisTan ELEGANCE	●●●●	●●●●	●●●	●●●●	●●	●	●●●●	●●●
EnartisTan FF	●	●●●	●●	●●●	●●	●	●●●●	●●●●
EnartisTan FT	●●●●	●●●●	●●●	●●●●	●●●	●●●	●●	●●●
EnartisTan SKIN	●●●●	●●●	●●	●●●	●●	●●	●●	●●●●
EnartisTan TFT	●●	●●	●●	●●●	●●	●	●●●●	●●●●
EnartisTan UVA	●●●●	●●●	●●	●●●●	●●●	●●●●	●●	●●●●●
EnartisTan UVASPEED	●●●●	●	●	●	●●	●	●●●●●	●●●●
UNICO TANNINS								
EnartisTan UNICO #1	●●	●●	●●	●	●●●●	●	●●●●	●●●●●●●
EnartisTan UNICO #2	●●●	●●●	●●	●●	●●●●	●	●●●●	●●●●●●●
EnartisTan UNICO #3	●	●●●●	●●●●●	●●	●●	●	●●●●	●●●●●●●

KNOW MORE ABOUT POLYPHENOLS IN WINEMAKING

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. Flavanoids 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 mostly found in grape skins and are the main source of color pigments in red wine.
 - Flavonols: found in grape skins, 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.

COLOR STABILIZATION 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, EnartisTan ROUGE or EnartisTan FERMCOLOR
	Maceration enzymes improve grape skin tannin extraction, favoring anthocyanin/tannin reactions and stabilizing color pigments. The protease activity decreases protein capacity to precipitate grape tannins.	30 g/ton of EnartisZym 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: 100 g/ton of EnartisTan XC
		Condensation: 100 g/ton of EnartisTan V
		Condensation & co-pigmentation: 200 g/ton EnartisPro TINTO or INCANTO NC range
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 g/hL EnartisTan E

WHAT DOES A SACRIFICIAL TANNIN DO?

When grapes are crushed, proteins are released, bound to tannins and precipitated. The first tannins released in wine and lost by precipitating with proteins are skin tannins, the most interesting tannins for future wine structure and mouthfeel. "Sacrificial" tannins are added to crushed grapes in order to bind with grape proteins and precipitate instead of freshly extracted skin tannins.

WHY IS CO-PIGMENTATION IMPORTANT?

Co-pigmentation protects pigments from oxidation during the early stages of winemaking and limits color loss. Furthermore, it improves anthocyanins solubilization in hydroalcoholic environment.

CAN I USE TANNINS IN WHITE MUSTS AND WINES?

In white musts, the addition of tannin prevents the formation of off-odors, improves clarification and antioxidant protection, inhibits laccase produced by *Botrytis*. Tannins can be used in white wines to improve their structure, softness and antioxidant protection.