

Enzymes in **Wine Production**

From Novozymes



Enzymes in Wine Production

Enzymes play an essential role in wine production. They help to improve color and aromas in premium wines. That's why winemakers around the world rely on our enzymes.

Better products, better business

Whether you're making deep colored reds, fresh floral whites or soft rosés, our enzymes can help. They deliver higher quality wine, easier processing, lower manufacturing costs, and increased profits.

Meeting your processing needs

Our enzymes for extraction enhance the color and aroma of your wines. In clarification, our enzymes deliver enhanced quality and faster processing. We also have enzymes that speed up maturation and give your wines a better flavor profile. In filtration, our enzymes ensure reliability, efficiency and quality.



Organic labelling

Meet consumer demands with enzymes that supports organic labelling

Today's consumers are becoming more conscious of their health, and of sustainability. As organic products are considered healthier and more sustainable, consumers are increasingly opting for organic food alternatives – and wines are no exception.

1. Make organic claims

Novozymes offers a range of enzymes that support the processing of organic wines. They help you achieve processing excellence and high yield in varying conditions while meeting consumer demands for high quality, organic products. With an organic label, you can amplify your customer group by providing more options for health-conscious consumers.

2. Produce the same high quality

With Novozymes solutions, your organic products achieve the same high quality that you are used to. Your products will look, smell, feel and taste just as great as they normally do.

Novozymes Enzymes Used in Organic Wine Production

Novozymes is an enzyme producer offering pectolytic enzymes and β – Glucanases for oenological applications.

The declared activity of all our wine enzymes is Polygalacturonase and β – Glucanase - as stated in our Product Data Sheets.

The Oenological Codex specifies that pectolytic enzymes (pectin lyase, pectin methyl esterase and polygalacturonase) and β – Glucanase for wine clarification & filtration, "favorisent la macération du raisin, pur la clarification des moûs et des vins".



The function of Polygalacturonase is the hydrolysis of the pectin chains contained in grapes, must, fermented must of finished wines. The depectinization effect leads to viscosity reduction, also beta-glucanase hydrolyzes hairy region of polysaccharides and yeast glucan to enhance flux rate which improves wine clarification & filtration, whichever of the above stages the enzyme is added to.

These enzyme products comply with EU Regulation (EC) 889/2008 implementing Regulation (EC) 834/2007 on organic production and labelling of organic products. They also comply with Regulation (EC) 203/2012 amending Regulation (EC) 889/2008 as regards detailed rules on organic wine (cf. Annex VIIIa, point 10). Use of these food enzymes also comply with the Australian National Standard for Organic and Bio-Dynamic Produce.

Enzymes for Maceration

Improve the flavor and color of your wines

Produce higher quality whites, rosés and reds

Our enzymes help you get more from your maceration process. They give all red wines more intense, stable colors. In long-maturation red wines, they maximize color and free-run juice release. They also improve flavor profile and mouthfeel. In long-maturation white wines and rosés they maximize flavor release, press capacity and free-run juice volume.

Processing benefits in mash treatment

Our maceration solutions for red wines cut maceration time and can even eliminate the cold-soak process. That allows you to produce fruity reds with just one day of cooling. In maceration of white wines and rosés, our enzymes allow you work at lower pressure. That both increases press capacity and reduces damage to grape skins.



WHAT SOLUTION IS RIGHT FOR YOU?

	PROCESS STEP	TYPICAL DOSAGE / 100KG GRAPES	DECLARED ACTIVITY	CLASSICAL STRAIN ENZYME
Microgranulates Vinozym® FCE G	Maceration	2-4g	6700 PGNU	✓
Microgranulates Vinozym® Vintage FCE	Maceration	2-5g	7600 PGNU	✓

Find the right solution for you in our global portfolio. To find out more about products available in your region, get in touch with you local Univar Solutions representative.

Enzymes for Maceration

Improve the flavor and color of your wines

Vinozym® FCE G

Vinozym® FCE G is effective in maceration of both white and rosé wines. It's the best solution for maceration of grape skins before pressing. That's because it increases the release of aroma precursors. The result is a more intense individual flavor of the specific varietal. It also enables 30% faster juice release during pressing. Vinozym® FCE G gives you more free-run juice and increases press capacity. It also reduces grape skin damage.

Description

Vinozym® FCE G is a blend of pectinases and hemicellulases with a cellulase and a protease. It reduces damage to grape skins by allowing less pressure on the press in the first pressing cycle. It also allows clarification of the first pressing fractions maceration tank. Working at lower pressure also increases press capacity. With Vinozym® FCE G you get more free-run juice. It also allows clarification of the free-run must tank and reduces lees volume.

How to use

Apply this product at the crusher or in the transportation bin before pressing or skin contact.



Vinozym® Vintage FCE

Vinozym® Vintage FCE is a unique solution for the maceration of red wines. It gives wines more body, improved mouthfeel and a better overall flavor profile. It also eases color extraction, enhances color and improves color stability by up to 20%. With Vinozym® Vintage FCE you can increase your throughput and free-run wine release. You can also reduce maceration time.

Description

Vinozym® Vintage FCE is a blend of pectinases and hemicellulases with a cellulase, a protease and RGases. This leads to unique enzyme activity that allows your wines to keep their color, even after fermentation and maturation. Vinozym® Vintage FCE also improves overall flavor profile. It does this by extracting smooth tannins from the skin and polysaccharides from the pulp. That improves soft tannin extraction by 15%, with no increase in astringency.

Vinozym Vintage FCE delivers a 5-10% increase in throughput and free-run wine release at the end of alcohol fermentation. It also cuts maceration time by 30%. This limits mechanical work such as pumping. It also cuts cold prefermentation maceration by 30-100%. It can even eliminate the cold soak process. That means you can produce fruity red wines with just one day of cooling instead of the two needed in non-enzymatic processes.

How to use

Add this product after the crusher/ destemmer when filling the maceration tank. SO₂ does not affect this product's activity.



Enzymes for Extraction

Enhance the color and aroma of your wines

Optimize extraction in winemaking

Extraction is a key part of any winemaking process. It draws valuable aroma precursors, color and phenolic compounds including tannins out of grape skins. Our enzymes make this process faster and easier by degrading cell walls. They're suitable both for the longer extractions needed for reds, and the much shorter ones needed for whites. Our enzymes will improve both your process and the overall profile of your wines.

Enhance aroma while avoiding harsh tannings

Our enzymes enhance aroma precursor liberation in all wines. In short-maturation wines, they enhance color and tannins. They also improve must yield and overall extraction. Mechanical treatments can break down grape seeds. That releases harsh tannins that make your wines astringent and unbalanced. Our enzymes are specific in their action. They don't break down the seeds. This helps avoid the risk of over-extraction.



A range of processing benefits

Our solutions for extraction help you get the most from your processing. They can reduce processing times and increase throughput with higher processing loads. They can also reduce viscosity and turbidity and increase your freerun wine release. They can even help cut your post fermentation clarification costs. All this while helping you to produce wines with more intense color and improved aroma.

WHAT SOLUTION IS RIGHT FOR YOU?

	PROCESS STEP	TYPICAL DOSAGE / 100KG GRAPES	DECLARED ACTIVITY	CLASSICAL STRAIN ENZYME
Liquid VinoCrush® Classic	Extraction	Whites: 3-4ml Reds: 3-6ml	3300 PGNU/g	✓
Microgranulates Vinozym® Process	Extraction/Maceration	3-4g	2,800 PGNU/g	✓

Find the right solution for you in our global portfolio. To find out more about products available in your region, get in touch with you local Univar Solutions representative.

Enzymes for Extraction

Enhance the color and aroma of your wines

VinoCrush® Classic

VinoCrush® Classic delivers a range of benefits in the extraction of red and white grapes.

In red grapes it increases wine yields by up to 5% and more than halves turbidity. In both red and white grapes it cuts your postfermentation clarification costs and allows higher processing loads. It also reduces the risk of herbaceous flavors.

Description

Using VinoCrush® Classic on red grapes increases wine yields by 3–5%. It also reduces wine turbidity by more than 50% after alcoholic fermentation.

VinoCrush® Classic decreases your postfermentation clarification costs. This can result in savings of at least €1/\$1.25 per hectoliter of wine.

With VinoCrush® Classic you can run your press cycles 20% faster. That means you can process a higher tonnage of grapes within the same period of time. You can also eliminate the risk of herbaceous flavors when you're using lower press pressure.

How to use

Add this product on grapes at the crusher/destemmer.

- Add it to white grapes before pressing.
- Add it to red when filling the maceration tank after the crusher/destemmer.



Vinozym® Process

Vinozym® Process is effective in extraction and maceration of red grapes and must. With

Vinozym® Process, you can produce wines with up to 10% higher color intensity and up to 50% more tannins. It will also give your wines enhanced aroma and body. Vinozym® Process reduces viscosity and turbidity. It's also purified to be free of FCE activity. That means you can avoid off-flavors and produce better quality wines.

Description

Vinozym Process reduces viscosity and turbidity by up to 90%. This even applies to thermo-treated red musts and difficult whites such as Semillon. Vinozym Process is also Free of Cinnamoyl Esterase (FCE) activity. That helps prevent off-flavors developing in your wines during and after fermentation.

How to use

For whites, apply this product at the crusher or in the transportation bin before pressing.

For reds, apply it when filling the tanks. In thermotreatment techniques, add it when the temperature is below 55 °C. These techniques include flash release, thermovinification and final warm maceration. SO₂ does not affect this product's activity.

Enzymes for Clarification

Achieve faster settling and higher yields

Make must treatment more efficient



Reducing grape must viscosity and speeding up settling are key goals of the clarification process. Our enzymes ensure efficient sediment compaction of red and white wine as well as rosé musts. By allowing high-speed sedimentation they allow earlier fermentation. That means your wines get better, more stable flavors and improved aromas.

Boost equipment effectiveness and profits

By speeding up clarification, our enzymes allow you to increase throughput during harvest. They also improve centrifugation, filtration and other mechanical treatments. High gross lees volume can lead to less clear juice. Our enzymes cut gross lees volume, so you can boost yields and profits.



WHAT SOLUTION IS RIGHT FOR YOU?

	PROCESS STEP	TYPICAL DOSAGE / 100KG GRAPES	DECLARED ACTIVITY	CLASSICAL STRAIN ENZYME
Liquid VinoClear® Classic	Clarification	2-3 ml/hl	3800 PGNU/g	
Microgranulates Novoclair® Speed	Clarification	0.5-2.0g/100kg	10,000 PGNU/g	

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Enzymes for Clarification

Achieve faster settling and higher yields

VinoClear® Classic

VinoClear® Classic for clarification boosts your bottom line with a range of benefits. These include higher yields and faster clarification of must from all grape varieties and qualities. Faster clarification increases your throughput and boosts equipment effectiveness. It also preserves aroma by allowing you to start fermentation much earlier.

Description

With VinoClear® Classic you can increase throughput during your harvest. It boosts the effectiveness of your clarification equipment by a factor of 2-5. That means you can clarify at least twice as much juice with no increase in tank equipment.

VinoClear® Classic at least halves the time it takes to get clear juice ready. That means you can start fermentation much earlier. Earlier fermentation helps preserve the entire aroma of your wines.

VinoClear® Classic also reduces losses through the lees. It reduces the volume of gross lees by 30–50% so you get more clear juice out of every hectolitre of must. Higher yields and mean higher profits for your business.

How to use

When filling the tank after pressing, add VinoClear® Classic at the bottom. Carry out homogenization during filling. The enzyme will start to act as soon as it comes in contact with the must. The faster it's added, the better the result. You can track its efficiency with the Novo Pectin test*, which monitors pectin degradation.

Get in touch with your local Univar Solutions representative for more information



Novoclair® Speed

Novoclair® Speed cuts energy consumption and handling costs in white and rosé clarification. It also boosts yields to give you higher profits. Novoclair® Speed rapidly clarifies musts with high turbidity and pectin content. Faster clarification allows you to produce richer, fruitier wines.

Description

Novoclair® Speed is a blend of pectinases, arabinases and hemicellulases. It allows high-speed sedimentation of solids. That improves mechanical treatments such as centrifugation and filtration. The end result is a 60% increase in the effectiveness of your clarification equipment. High-speed sedimentation also protects the fruity flavour of your wines.

Novoclair® Speed reduces volume of gross lees by nearly 50%. That means increased yields and higher profits for your business.

How to use

Use Novoclair® Speed before flotation or centrifugation. Add it to the clarification tank when filling it. Base your dosage on the whole volume of the tank.

Enzymes for Maturation

Get the most from your aging process

Improve the sensory attributes of your wines

Effective maturation leaves wines with the mellow taste and rich mouthfeel consumers enjoy. That's because many important reactions take place during the maturation phase. Some of these significantly affect the sensory attributes of your wines. The most perceptible changes happen in taste and aroma. Young wine becomes smoother and rounder. Its grape-like aroma become more complex and satisfying.

Faster, more effective maturation


During the aging process, yeast and grapes are treated with enzymes. As a result, they release polysaccharides and peptides. Through the maturation of lees, these substances get smaller and become soluble. This process is slow and incomplete however. That means some of the larger molecules are lost during filtration. Our enzymes for maturation cut these large natural saccharides and peptides to speed up maturation.



Improve filterability and flavor profile

Our enzymes for maturation improve the natural filterability of wine. That means you can use less mechanical force in filtration. Less mechanical force means less risk of the flavor profile of your wines being degraded. Flavor is also protected by the fact that our solutions are Free of Cinnamoyl Esterase (FCE) activity. This helps prevent the development of off-flavors.

WHAT SOLUTION IS RIGHT FOR YOU?

	PROCESS STEP	TYPICAL DOSAGE / 100KG GRAPES	DECLARED ACTIVITY	CLASSICAL STRAIN ENZYME
Microgranulates VinoTaste® Pro	Maturation	4-10g/100L	2,600 PGNU/g 76 BGXU/g	

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Enzymes for Maturation

Get the most from your aging process

VinoTaste® Pro

VinoTaste® Pro for maturation of red and white wines rapidly clarifies young wine. It cuts maturation time by nearly 20%. It also stabilizes color, enhances aroma and increases the roundness of your wines. Purified to be free of FCE activity, VinoTaste® Pro eliminates the risk of off-flavors.

Description

VinoTaste® Pro is a blend of pectinases, beta-glucanase, protease and an arabinanase. Used directly after fermentation it ensures fast clarification of young wines. It cuts large natural saccharides to speed up clarification and maturation times.

Mechanical force during filtration can degrade the overall flavor profile of wine. VinoTaste® Pro improves the natural filterability of wine by up to 200%. The result is wines with improved overall quality.

VinoTaste® Pro is also Free of Cinnamoyl Esterase (FCE) activity. That helps prevent off flavors developing in your wines.

How to use

You can use VinoTaste® Pro at the end of alcoholic fermentation or at racking-off (reds) and for maturation on lees (whites).

For red wines maturing in tanks: add VinoTaste® Pro at the running-off under the tank before the malolactic fermentation.

For red wines maturing in barrels: add VinoTaste® Pro under the cap at the end of alcoholic fermentation. For white and rosé wines maturing on fine lees in barrels: add VinoTaste® Pro at the end of alcoholic fermentation in the barrel.





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