

STABILIZATION, ACIDIFICATION, DEALCOHOLIZATION
NO ADDITIVES, 100% QUALITY

OENODIN

MEMBRANE ECO-PROCESSES



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Oenodia, Eurodia's oenology department, is aiming for one particular number: 100%. 100% client satisfaction!

This might seem like a difficult task...

But we have been doing it for more than fifteen years already, offering the wine industry exclusive tartrate stabilisation technology using membrane systems (Patent Licence INRA/ Eurodia). None of our clients has chosen to return to any other technology after trying ours. Quite the opposite, they only have positive things to say: reliability at every test, flexibility which allows the processing of any volume of liquid, from micro-cuvées to the largest production sites, significant increases in productivity and, above all, complete respect for the product both in terms of its sensory characteristics and its chemical composition.

This is definitely the selling point for Oenodia's eco-processes:

they guarantee quality treatment with no additives! How?

We do not add anything or transform anything; we simply extract just what is necessary to leave your wines at their highest quality. We have been successfully applying this procedure to tartrate stabilization for years, all over the world.

Recently, we have adapted the technique to allow the natural acidification and de-alcoholization of wines. If we offer you new applications in the future, and of course we are planning to, you can be sure that they too will respect our philosophy to the letter: we extract without taking away anything from the pleasure of tasting your wines. 100% pleasure!

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Bernard Gillery
President



PROVEN SAVOIR-FAIRE AND TECHNIQUES SPECIALLY ADAPTED FOR THE WINE INDUSTRY

Oenodia is Eurodia's oenology department, with proven savoir-faire and techniques specially adapted for the wine industry.

Eurodia is one of the world's largest specialists in membrane systems for the food industry (sugar, milk, drinks...) and in green chemistry. During the 1990s, in close collaboration with the French National Institute for Agricultural Research (l'Institut National de Recherche Agronomique (INRA)), Eurodia approached the wine industry with an exclusive, innovative and efficient means of tartrate stabilization: electrodialysis. Fifteen years later, more than 150 wine producers worldwide have chosen this technique and installed the appropriate equipment in their wineries. Several hundred additional wine producers regularly use the technology through Oenodia's partner mobile services.

TARTRATE STABILIZATION BY ELECTRODIALYSIS IS BOTH SIMPLE AND SOUND.

How does it work? Wine is naturally oversaturated in potassium and tartaric acid. Once bottled, the combination of these two elements can generate tartrate crystals which precipitate and deposit at the bottom of the bottle and could be seen as a defect to the consumer. There are three possible solutions to prevent this from occurring: cold stabilization, using inhibitor additives, and electrodialysis, which is the procedure which most respects both the product and the environment.

The principle is simple: A filter-press reactor is made up of alternating «cationic» membranes, which are permeable to «cations», or positive ions, and «anionic» membranes, which are permeable to «anions», or negative ions. Since they exist in excess levels in wine, potassium and calcium (cations) and tartrate (an anion) are the first ions to be extracted when an electric current is applied. One advantage of this procedure is that it can be adapted to suit all types of wine. In fact, the Stabilab, a predictive analysis tool, allows the operator to predict the treatment level which should be applied to each wine type in order to obtain perfect stability. No more over or under-treating wine!

ACIDIFICATION AND DE-ALCOHOLIZATION: A NATURAL WAY TO IMPROVE QUALITY

Recently, Oenodia has developed new eco-processes which use membranes to carry out acidification (also known as pH adjustment) and de-alcoholization of wines. For acidification, we've once again opted for electrodialysis. Excess potassium, which can cause increased pH levels, is extracted to promote the wine's natural acidity. For de-alcoholization, we combine

two membrane techniques (the MEMSTAR™ procedure: reverse osmosis and membrane contactors) to extract a set volume of alcohol with no exogenic influence. The wine's structure and organoleptic potential are fully preserved. The alcohol adjustment level is scrupulously controlled throughout the process in order to obtain a perfectly balanced wine. The hydroalcoholic solution containing the alcohol extracted from the wine can be recovered and treated afterwards in a distillery, minimizing the operation's environmental impact.



EFFICIENT TREATMENTS



100% reliable tartrate stability for red, white and rosé wines, adjustment of the pH from 0.1 to 0.6 (depending on the regulations in effect), a reduction in the level of alcohol which can be adjusted by up to 2%: only the membrane eco-processes developed by Oenodia can currently guarantee these results without using additives, without altering the wines, and with no product loss. Determined according to a pre-treatment analysis done with the «Stabilab» device for stabilization and by the continuous taste tests for acidification and de-alcoholization, Oenodia treatments are extremely precise. This is why using our techniques offers total control of all operations, from start to finish, when adjusting the pH or potassium tartrate and calcium extraction levels, or for alcohol extraction, to preserve, promote and even optimise the potential of your wines. Rather than fighting against nature, we work with it to gently remove the unwanted components.

The Oenodia equipment is compact and quiet. There are mobile options for easy deployment to different production sites. With adjustable capacity (from 10 to 250 hectolitres / 260 gal to 6600 gal per hour), the machines are designed to treat all types of wine, and all sizes of lots.



WHAT DO OUR CLIENTS THINK?

Jean-Paul Malinge, Technical Director, ACKERMAN-RÉMY Panier (France):
“When exporting, you have to be 100% sure of your product. For tartrate stabilization, I can't think of any procedure more reliable than electro dialysis. That's the reason why, since July 2010, we've been using it for almost all of our wines, both still and sparkling.»

Joan Maria Riera, Technical Director, GANDESA COOPERATIVE (Spain):
“The process of tartrate stabilization via electro dialysis is defined by four words: effective, efficient, honest and immediate.”

Jean-Louis Escudier, Research Engineer, INRA (France): *« 100% reliable, ecological, avoids oxidation and preserves the wine's unique character: today, electro dialysis is the only technique which guarantees all wine producers quality treatments.»*

Heinz Werner Blümling, Technical Director, LANGGUTH ERBEN:
«LANGGUTH ERBEN is stabilizing their wines by ED to be sure about the stability which is tremendously important when exporting to the Asian and US market.»

RESPECT FOR THE PRODUCT

Oenodia's eco-processes have no effect on the wine other than those for which they are designed! This is why, of all the practices currently used for tartrate stabilization, electro dialysis is certainly the most neutral for the wine treated. It doesn't modify the wine's composition by adding chemical elements. It preserves the wine's taste, respecting the best winemaking practices defined in most oenological standards (no temperature variations, no intermediate storage, no oxidation, controlled elimination of tartaric acid). Techniques which adjust pH and alcohol levels using membranes also respect the natural characteristics of the wines being processed. Perfectly targeted to only modify a single oenological parameter, carried out without the use of additives and in closed circuits to avoid oxidation, these treatments modify the sensory properties of the wine for the better, never for the worse!

OENODIA'S
COMMITMENTS

2

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WHAT DO OUR CLIENTS THINK?

Xavier Vignon, OENOLOGICAL CONSULTANT (France) : *“With electro dialysis, much less manipulation of the wines takes place, it's almost infinitesimal, all that takes place is the removal of a designated problem element. This technology preserves to the maximum the product's vivacity, acidity and natural characteristics, above all avoiding the addition of corrective agents. In my opinion, this is what makes this technique the only choice.”*

JOSÉ MARIA DA FONSECA'S Oenology team (Portugal) : *“The use of ED has brought a drastic reduction in our response time from 3 weeks to two days! In addition we obtain guaranteed results not possible with traditional methods. Respect for the organoleptic characteristics is another factor in favor of the ED.”*

SUPPORTING WINE PRODUCERS



Using Oenodia's eco-processes means that you can make the most of Eurodia's know-how, one of the world's largest specialists in the treatment of food products using membrane systems, a company which is well known for its innovative approach and efficient technology. But not only that... Oenodia also works in close collaboration with winemaking professionals: wine producers, consultant oenologists, researchers... The company has also been working in valued partnership with the INRA for many years.

Oenodia has also a team of specialized oenologists and technicians who are available to meet your needs, dedicated exclusively to the wine industry. It guarantees its clients technical support, offering fully personalised advice. It has also responsible for the technical support and maintenance of its equipment. It is clear that Oenodia has more than a business relationship with its clients: it is a true partnership, a measure of optimum quality.



WHAT DO OUR CLIENTS THINK?

Tom Tiburzi, Sparkling Winemaker, DOMAINE CHANDON (California): *“Using STARS electro dialysis for cold stabilization of sparkling base wines offers Domaine Chandon several advantages over the conventional method of deep chilling the wine to force tartrate precipitation. First, important in moving towards Green technologies, is the conservation of resources offered by greatly reducing energy needs, both electricity for operating the chilling equipment and natural gas needed in heat exchanging the sparkling base wine back up to temperature for second fermentation in the bottle. Also conserved is the significant amount of wine that would otherwise be lost in the tartaric acid slurry resulting from the conventional method. Additionally, no longer an issue is the lost wine and tartaric acid that had been going down the drain, loading the winery’s waste treatment facilities. Of course, when precipitating acid from the wine, the wine can go out of structural balance, necessitating the addition of tartaric acid before starting conventional cold stabilization, with STARS our need for supplemental tartaric acid has dropped significantly. Throughout the process there is labor cost savings from no longer needing man-hours to stage tanks for batch process cold stability, filtering out tartrates, cleaning the tartrate crusted tanks and heat exchanging to warm the super chilled wine. Finally, a most important, but hard to quantify in terms of cost benefit, is improvement towards production logistics: With conventional cold stabilization process it can be challenging to predict exactly when a wine can be ready for bottling, however, with electro dialysis, production planning can be precise.”*

LASTING TOOLS FOR DEVELOPMENT

Oenodia's eco-processes are a perfect combination of economical performance and respect for the environment. The energy consumption of a tartrate stabilization unit is low: 0.2 kilowatt-hours per hectolitre (7.7 Wh/gal). This is 8 to 10 times less than that of cold treatment (Cold Stabilization). Compared to the latter, electro dialysis also has running costs which are 30% to 40% lower. Treatments using membranes have large financial and commercial advantages; in addition they reduce and or eliminate product loss. The results are absolutely guaranteed, in particular for tartrate stabilization, which makes this process highly secure for export wines. Finally, the possibility of adjusting pH or alcohol levels allows wine producers to adapt to climate changes, maintain the quality of their wines and meet their customer needs.

However, the main advantage of Oenodia's eco-processes remains the total absence of chemical additives in all treatments. One additional step towards "natural" wines!

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WHAT DO OUR CLIENTS THINK?

Nicolas Quillé, General Manager, PACIFIC

RIM (USA) : *«At Pacific Rim we focus on environmentally friendly practices. We find the Electro dialysis very appropriate for the production of our Rieslings made from Organic Grapes making it possible for us to cold stabilize organically.»*

Jurie Germishuys, Wine Store Manager, BOLAND KELER (AFS) :

«As winner of the International Winemaker of the Year award at the IWSC in 2001 our company is very serious about wine quality. In our on-going quest to improve our wine quality, we found that ED has given us an advantage not only in quality, but also in our strive to be more environmentally responsible.»

Olivier Sumeire, CHÂTEAU ELIE SUMEIRE (France) :

«Since we have been using electro dialysis for our tartrate stabilisation, we no longer lose any volume during treatment. At year end, this saving is valuable, especially since we bottle everything that we produce.»

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