

# ELECTROWINE

## RedOx potential monitoring and oxygen dosing



### — Description of the technique

There are two versions or models of this machine. ELECTROWINE and ELECTROWINE DosiOx.

While the first allows the measurement of electrochemical potential, or redox potential; the second one, in addition to this function, incorporates the possibility of the dosification of oxygen by means of the techniques of micro and macro oxygenation.

This manual has been developed for the description of the ELECTROWINE DosiOx unit and is applicable to the ELECTROWINE equipment if all references related to oxygen dosification are omitted.

Below are described the techniques which the operation of this machine is based on.

System for the macro and micro dosification of oxygen in must and wine.

Oxygen has various uses during the winemaking process.

Firstly, it is necessary for the correct development of the microorganisms that lead to alcoholic fermentation. Numerous experiences have shown that during alcoholic fermentation it is necessary to supply 3 to 10 ml of oxygen per litre of must. The moment of application is when the density decreases by about 20 points and the application time is usually 12 to 24 hours. Another classic use of oxygen is to avoid reduction problems. In this case, the microoxygenation technique substitutes typical decanting.

The amount of oxygen to be introduced is between 1 and 3 ml/l within 1 to 24 hours. Its use can also be helpful for barrels.

The innovation of the micro-oxygenation technique derives from its use to ensure colour stabilisation. The first phase, from the end of the alcoholic fermentation to the start of the malolactic fermentation, involves the addition of a quantity of about 10 ml/l. This amount will be used by the substrate for a polymerisation reaction and thus stabilise the polyphenolic matter present.

Moreover, oxygen is important in the refinement of wines. In this phase, which varies from 1 to 6 months, the amount of oxygen that is recommended varies from 1 to 4 ml/l/month, depending on the type of wine and the storage temperature. Larger quantities can be introduced in wines with more structure and slightly higher temperatures.

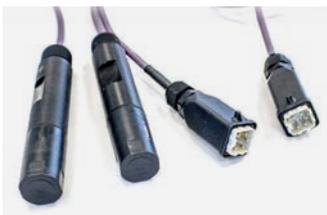
It should therefore be noted that the micro-oxygenation process can be carried out in two phases: an initial structuring phase and a subsequent phase of product harmonisation.

In some cases, the use of exogenous tannins is necessary to complement the wines. AGROVIN offers its clients the TANICOL family. To use these products, please we ask that you get in touch with your agent or consult the relevant technical information.

## Redox Control System

- The measurement of redox potential in oenology makes it possible to predict whether the wine is at risk of oxidation (high potentials) or reduction (low potentials). Depending on this value, there can be a more intelligent management of the oxygen supply to the environment during winemaking.
- In wine, multiple reactions occur successively, spontaneously and simultaneously, with the most varied compounds are involved. Wine has multiple redox pairs. That makes it impossible to achieve a balance. Therefore, its free potential value will always be measured.
- The evolution of this free potential value throughout the winemaking process will indicate at which points in the process a contribution of oxygen is necessary, because the potential has fallen to very low values; or, when the contribution of oxygen is excessive because the potential is too high.
- By knowing the range of values within which this parameter must be maintained, during winemaking and by controlling the supply of oxygen to keep it between the limits, winemaking will be safer and more suitable for the product in question.

## Included components



**Redox Potential Probes**  
Probes that measure the electrochemical potential.



**Linking cables / USB**  
These are provided for free and can be used to connect the machine to other devices like personal computers, etc.

## Optional components



**Diffusor in stainless steel**  
Specific diffusor for ELECTROWINE DosiOx. Made of stainless steel AISI 316L. The pore size is 3 microns.

It is composed of a blind stopper of 3/8", a thread reduced from 3/8" to 1/4", a quick release tube fitting 4- 1/4" and a silicone gasket.



**Ceramic diffusor**  
Specific diffusor for ELECTROWINE DosiOx. Made of porous ceramic of 2 microns and mounted on a structure of stainless steel AISI 316.

Silicone sealing gaskets. Supplied with the appropriate quick release.



**Retractable Lance**  
An accessory that makes it very easy to get the diffusor into the tank as it done is through the clearance valve (which must be in ball form).

Made of stainless steel 316 and incorporates the corresponding fitting for coupling to the tank. For larger sections of NW65 it is also possible to manufacture it for butterfly valves.