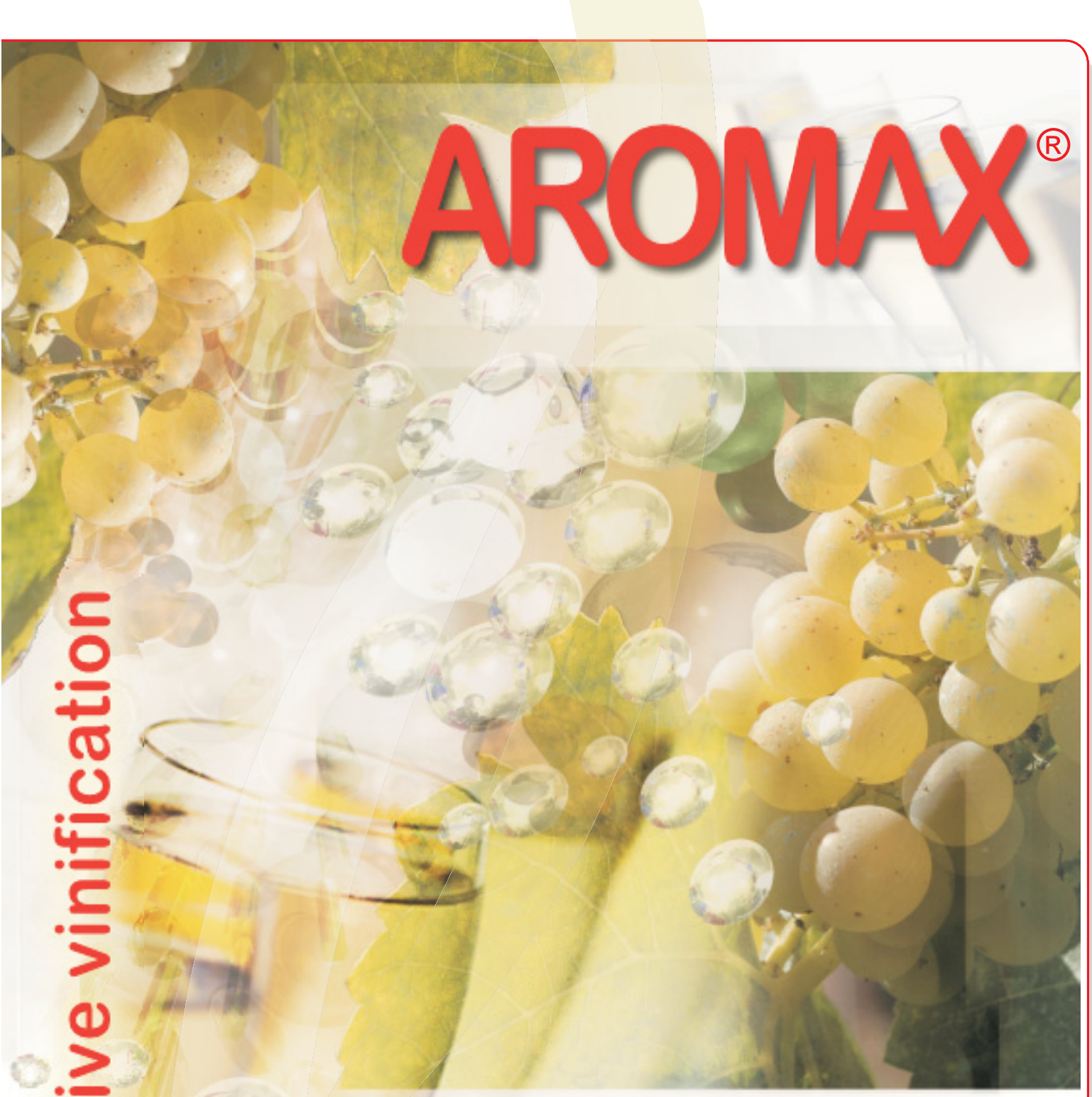
# AROMAX®



For reductive vinification

AEB group

# AROMAX®

## for reductive vinification

The technology for producing a reductive environment as early as during the pre-fermentation stages, consists in minimizing, as much as possible, the effect of oxygen on the must. A series of reactions takes place immediately after the must is obtained: those involving enzymatic-oxidation reactions are especially feared. Dissolved oxygen indiscriminately attacks numerous chemically fragile molecules, particularly those which characterize the varietal aromas and the bouquet precursors.
Tests conducted on 35 different musts, have shown that at a temperature of 25°C oxygen is consumed at a speed in excess of 3 mg/L per minute. Bearing in mind that the oxygen content in newly crushed must is approximately 8 mg/L, it is obvious that complete oxidation can be reached in just 4-5 minutes. Since doses of 8 g/hL of sulphur dioxide require up to 6 minutes to fix the oxygen in must, such treatment is obviously inadequate to fully protect the aromatic components.
Even countries where all the pre-fermentation operations are carried out in the presence of gaseous $CO_2$ or with dry ice, have come to realize that this method, besides being extremely costly, offers only a partial solution to the problem.
This is why AEB has developed a $SO_2$-ascorbic acid formulation which inactivates the oxygen by combining immediately with it.

## Aromax® for the control of indigenous and oxidative yeasts

The ***Aromax***® range inhibits indigenous yeasts, promoting static must settling. Yeasts that can cause oxidation (*Candida, Pichia, Brettanomyces*) are also found in the must: they normally require a high redox potential in order to develop.
The withdrawal of oxygen caused by ***Aromax***® and ***Aromax***® ***Super*** prevents the development of these microorganisms, which are also characterized by their capacity to generate undesired compounds in the crushed grapes or must, such as ethyl acetate, and furthermore deplete the substrate of easily assimilable nitrogenous compounds.

## Aromax®

Preserves and protects the aroma of white grapes and the colour of red wines, preventing oxidation from the very early processing stages.

| Composition: | | |
|---|---|---|
| | E224 Potassium Pyrosulphite | 50% |
| | E300 L-ascorbic acid | 50% |

Doses of utilization: 20 g/hL or per 100 kg, increasing the $SO_2$ by 54 mg/L.
Modalities of application: apply on grapes upon arrival or during crushing or directly into fresh must.

## Aromax® sol. 33%

This is the liquid form of ***Aromax***®, particularly indicated for application with dosing pumps.

| Composition: | | |
|---|---|---|
| | E224 Potassium Pyrosulphite | 20% |
| | E300 L-ascorbic acid | 13% |
| | Deionized and deareated water | 67% |

Doses of utilization: 10 mL/hL or per 100 kg, increasing the $SO_2$ by 10,6 mg/L.
Modalities of application: apply on grapes upon arrival or during crushing or directly into fresh must.

Through improved knowledge of the gallic and ellagic tannins anti-oxidant activity, combined with the active principles of ***Aromax***®, we have created

## Aromax® Super

It controls not only the direct action of oxygen, but also the peroxides which are formed as a result of oxidizing enzymes, tyrosinase and laccase. Its gallic tannin content protects the anthocyanins of red wines and the aromas of white wines from oxidation, without impacting on the colour of the latter ones. ***Aromax***® ***Super*** reduces the use of $SO_2$, simultaneously increasing its free portion.

| Composition: | | |
|---|---|---|
| | E224 Potassium Pyrosulphite | 50% |
| | E300 L-ascorbic acid | 35% |
| | Gallic and ellagic tannins | 15% |

Doses of utilization: 20 g/hL or per 100 kg, increasing the $SO_2$ by 54 mg/L.
Modalities of application: apply on grapes upon arrival or during crushing or directly into fresh must.

## Aromax Super® sol. 33%

This is the liquid form of ***Aromax***® ***Super***, particularly indicated when dosing by means of dosing pumps.

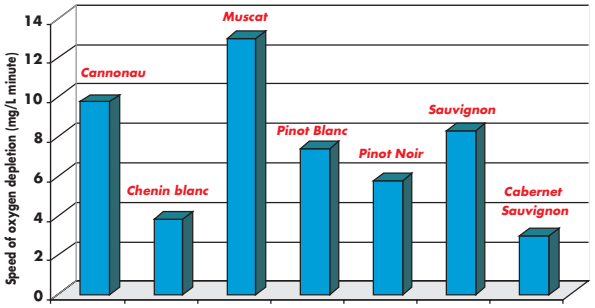
| Composition: | | |
|---|---|---|
| | E224 Potassium Pyrosulphite | 20% |
| | E300 L-ascorbic acid | 10% |
| | Gallic and ellagic tannins | 3% |
| | Deionized and deaerated water | 67% |

Doses of utilization: 10 mL/hL or per 100 kg, increasing the $SO_2$ by 10,6 mg/L.
Modalities of application: apply on grapes upon arrival or during crushing or directly into fresh must.

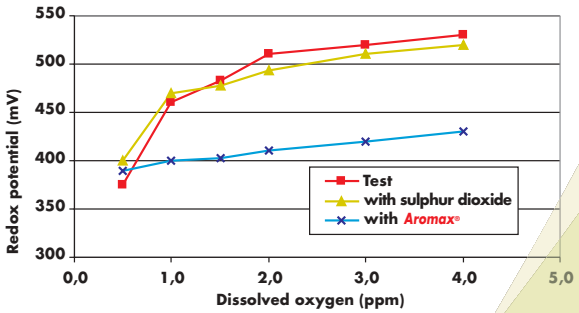
## Reduction of $O_2$ in must after different additions.

| | |
|---|---|
| $O_2$ | If the molecular oxygen dissolved in the must is allowed to react, it oxidizes the aromas and the anthocyanins, degrading them. White wines obtained without being shielded from oxidation have an inferior aromatic intensity, red wines are soon depleted of their anthocyanins content. |
| $SO_2$ | At normal doses, the $SO_2$ does not directly block the oxygen, but acts only on the peroxides which are formed following the reaction of oxygen with the valuable compounds of must and wines. |
| Aromax® | The strongly reductive compound generated by ***Aromax®*** (1,3-hexafuranose disulphite), reacts directly and very speedily with the oxygen dissolved in the must, preventing it from damaging the valuable compounds of must. |
| Aromax® Super | Thanks to its added tannins, ***Aromax® Super*** prevents must oxidation and stabilizes the free radicals. |

### Varietal effect on oxygen consumption

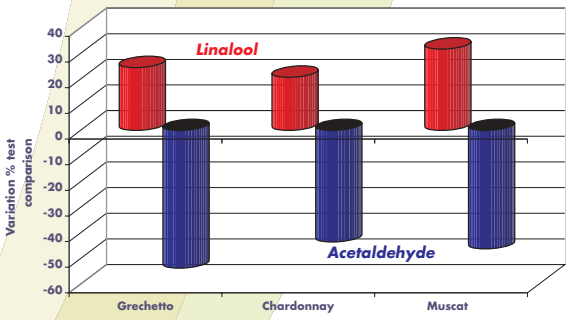



### The effect of $SO_2$ and ascorbic acid on the redox potential



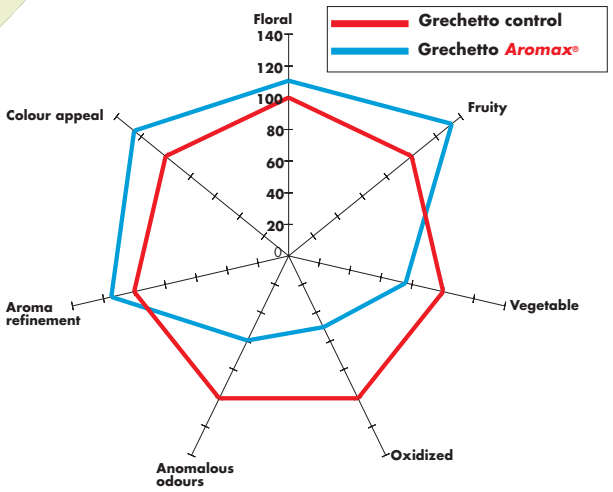

Ascorbic acid reduces by approximately 30% the must redox potential, whilst sulphur dioxide has a very limited influence.

### Effects of Aromax® on linalool and acetaldehyde concentration




In wines treated with ***Aromax®*** there is a 20-30% increase in linalool concentration, a terpene which indicates the intensity of varietal aroma. A decrease of more than 40% in acetaldehyde concentration is simultaneously noticed.

### Effect of Aromax® on sensory profile




By comparing the sensory profiles of the control wines with those treated with ***Aromax®***, an increase of floral and fruity nuances is noticed, accompanied by a decrease in vegetable, oxidized and defective nuances. The colour is more appealing, as the dark yellow and brown hues are diminished.