



# M·A·SILVA

Premium Cork Stoppers



Naturally about technology

# Between nature and technology

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**In 2022, we celebrate 50 years of technological leadership. 50 years embracing nature with the best technology, which contributes to the maximum quality of the cork stoppers we deliver.**

At M.A.SILVA, quality has always been, and continues to be, our North. It dictates our path, our choices and our investments in Research, Development & Innovation. All so that our cork stoppers are naturally the best, those that contribute most efficiently to the preservation and evolution of wines and sparkling wines.

It all starts in Alentejo, in the cork oak forest we manage, with the dedication of those who look after their greatest asset. This is where the quality of our cork stoppers is born, and it is at our Raw Material Centre, in Alter-do-Chão, that we select the best raw material, naturally.

Only the best cork travels from here to our production centres. The one that allows us to ensure the quality of our production process, with a guarantee of non-detectable TCA.

Our technology portfolio is vast and includes cutting-edge technologies internationally recognised and awarded by leading bodies in the cork industry.

Each one, with its own characteristics, naturally brings its benefits to the cork stoppers it processes. When these cork stoppers are subjected to different technologies, the result is naturally even better.



**M·A·SILVA**  
Premium Cork Stoppers

**At M.A.SILVA,  
we have naturally  
been technological  
leaders since 1972.**

 **ONEBYONE**®  
Premium Individual Cork Testing Technology

## Individual stoppers analysis

The revolutionary ONEBYONE® technology enables the individual analysis of natural cork stoppers, through a fully automated process, which reveals our maximum commitment to the performance and quality of premium cork stoppers.

The process works through a gas-phase spectroscopy system, and inspects cork stoppers one by one, in order to detect traces of TCA\*. This technology is associated with the 'Bottle buy back commitment' guarantee, which ensures reimbursement of the value of the bottle at retail price, if after analysing the wine and the stopper, at the M.A.SILVA laboratory, TCA  $\geq$  0.5 ng/L derived from the stopper is detected.

\*Releasable TCA content below the quantification limit of 0.5 ng/l; analysis carried out according to ISO 20752.

## Benefits and characteristics

- ▲ Individual stoppers analysis (One by One)
- ▲ State-of-the-art gas-phase spectroscopy technology for TCA detection
- ▲ Fully automated process
- ▲ Award-winning technology
- ▲ 5-second analysis per stopper



Stoppers that use this technology:  
NATURAL Stoppers



## Sterilisation and vaporisation of granules

The NEOTECH<sup>®</sup> technology is the most recent innovation by M.A.SILVA, and has revolutionised the market for technical stoppers, through a continuous and automatic process which uses controlled steam and pressure to expel TCA and other volatile compounds from the cork granules.

It is used to guarantee high quality in SILKTOP<sup>®</sup> stoppers and Sparkling Wine stoppers, as well as in micro-agglomerated NEO<sup>®</sup> stoppers.

All granules come from carefully selected raw materials at the raw material centre, located in the heart of Alentejo.

## Advantages of the technology

### No mechanical intervention

- Granules are shifted through vibration.
- Natural elastic memory of the granules.

### Ecological and sustainable

- No chemical solvents;
- Use of controlled pressure and steam.

### The granulate is treated with fluidised bed technology for molecular interaction with the gaseous substance.

- The gaseous flow goes through and involves all the cork particles, thus creating conditions for rapid mixing, turbulence and sterilisation.
- Highly optimised TCA removal, to ND levels.

### Uniform granules

- Functional treatment in various granule sizes;
- Consistency and natural appearance of the granules preserved without cellular destruction.

### High mass and heat transfer

- Product consistency;
- Improved effectiveness and technical performance of the final product.

### Rehumidification and treatment cycles

- Humidity is under constant monitoring;
- Physical performance of the granules is ensured.



### Stoppers that use this technology:

- VIVA<sup>®</sup> Sparkling Wine Stoppers
- SILKTOP<sup>®</sup> Technical Stoppers
- NEO<sup>®</sup> Micro-Agglomerate Stoppers

 **DYNADOX**®  
Premium Cork Boiling Technology

## Sterilisation and vaporisation of the raw material

The DYNADOX® technology allows the sterilisation and vaporisation of the raw material.

All our raw material is subject to intense steam and pressure and submerged in clean water, through our DYNADOX® system, so as to remove any unwanted substances from the innermost part of the cork. The process guarantees the elimination of microorganisms without using chemicals.

Using the DYNADOX® technology, anisoles such as TCA are reduced, along with other odour-causing compounds, as well as tannins and anisole precursor phenols, increasing the thickness and elasticity of the cork.

## Advantages of the technology

### Increased tca removal capacity

The boiling is done under pressure, at 105°C. It penetrates the cork structure, drags and volatilises TCA, as well as other anisoles and phenols.

### TCA is constantly removed during boiling

If the steam contains TCA, it is removed by degassing during the one-hour boiling cycle.

### The cork stabilisation period is short and safe

After the boiling process, cork planks are removed with around 17% moisture content. This significant reduction in residual humidity allows for the stabilisation period to be shortened from two weeks to two days.

### Water filtration and continuous monitoring

Water is filtered by a 100-micron filtration system. The DYNADOX® system continuously measures the pH of water, to monitor the level of tannins.



### Stoppers that use this technology:

NATURAL stoppers  
VIVA® Sparkling Wine Stoppers  
SILKTOP® Technical Stoppers  
NEO® Micro-Agglomerate Stoppers  
EVACORK® Colmated Stoppers

 **SARA ADVANCED**®  
Premium Cork Volatiles Extraction Technology

## Extraction of volatiles and sensory uniformity

The SARA ADVANCED® technology allows the extraction of volatiles and sensory uniformity. This is one of the most advanced sterilisation technologies on the market. It serves to improve performance and quality in the post-punching process. The SARA ADVANCED® technology uses the elastic memory of cork, allowing steam to penetrate the pores and eliminate TCA and other possible phenols during the production process and as the cork expands.

## Advantages of the technology

### **Pore dilation**

Using the elastic memory of cork, which allows the volatilisation and extraction of unwanted compounds through controlled steam.

### **Drastic reduction in TCA**

Use of pressurised steam to volatilise TCA and other phenols.

### **Safe, continuous and automatic process**

Dry steam extraction avoids any risk of cross-contamination by microorganisms, while maintaining an optimal moisture content to facilitate the production process.



### **Stoppers that use this technology:**

NATURAL stoppers  
VIVA® Sparkling Wine Stoppers  
SILKTOP® Technical Stoppers

## Sterilisation and elimination of microorganisms

The MASZONE® technology enables the sterilisation and elimination of microorganisms. It is used in the production process of all cork stoppers - natural and technical - produced and marketed by M.A.SILVA. All our cork stoppers are subject to a washing and sterilisation process, which uses not only ozone but also the most powerful peroxone, a combination of ozone and hydrogen peroxide, to disinfect and clean cork stoppers.

## Advantages of the technology

### Eliminates microorganisms and spores

3.000 times faster than chlorine.

### Inhibits the development of TCA

Finished stoppers are sterile from microorganisms.

### No residue

Ozone rapidly breaks down into inert oxygen molecules.

### Improves the capillarity of the stopper, facilitating bottling

The cleaning and washing system reaches the cork's pores.

### Improves the appearance of cork

Allows better quality printing of the customer's branding and a more uniform surface.



### Stoppers that use this technology:

NATURAL stoppers  
VIVA® Sparkling Wine Stoppers  
SILKTOP® Technical Stoppers  
NEO® Micro-Agglomerate Stoppers  
EVACORK® Colmated Stoppers

 **SARA**ADVANCED®

 **ONE**BYONE®

 **NEOTECH**®

 **MASZONE**®

 **DYNAVOX**®

+

In all our choices,  
we naturally  
guarantee  
the best.



## Naturally rigorous from start to end

At M.A.SILVA, we guarantee the total verticalisation of the production process, through a demanding and rigorous circuit which includes different stages, depending on the cork stoppers to be produced: natural stoppers or technical stoppers.

Full control of the production process represents two major advantages for the customer, naturally related to the quality of the cork stoppers:

- . Traceability of the best cork;
- . Quality control, from the cork oak forest to final delivery.

## Our production process

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Naturally we embrace nature  
with the best technology



**ONEBYONE®**  
Individual cork testing



**NEOTECH®**  
Sterilisation and vaporisation of granules



**DYNAVOX®**  
Raw material sterilization and vaporization



**SARA  
ADVANCED®**  
Extraction of volatiles and sensory standardization



**MASZONE®**  
Elimination of microorganisms

# Production Flow

NATURAL | EVACORK®

VIVA.<sup>2</sup>® | VIVA.<sup>1</sup>®  
SILKTOP®  
SILKTOP ADVANCED®

NEO PLUS® | NEO PRESTIGE®  
NEO II® | VIVA NEO PLUS®  
VIVA NEO PRESTIGE® | VIVA MIX®

RAW  
MATERIAL

**CORK OAK STRIPPING**

[ Cork planks are stripped from cork oak trees. ]

**GC / MS TCA CONTROL**

**YARD STABILIZATION**  
[ Planks are stored from 6 to 9 months on a concrete floor. ]

**BOILING | DYNAVOX® SYSTEM**  
[ Planks are sterilized and disinfected through a vaporized pressure system. ]

**GC / MS TCA CONTROL**

**STABILIZATION AFTER BOILING**  
[ Stabilization period after vaporization ]

**CORK PLANKS SORTING FOR PRODUCTION**  
[ First sorting of planks for production ]

PRODUCTION

**CORK PLANK CUTTING**  
[ Planks are cut into strips ]

**PUNCHING**  
[ Punching of cork strips ]

**STERILIZATION | SARA ADVANCED® SYSTEM**  
[ Natural cork stoppers are vaporized and sterilized ]

**PRE-DRYING**  
[ First moisture level definition ]

**GC / MS TCA CONTROL**

**CORRECTION OF SIZES**  
[ Precise correction of corks sizes ]

**ELECTRONIC GRADING | 2D AND 3D**  
[ First electronic sorting to determine visual classes. ]

**WASHING | MASZONE® SYSTEM**  
[ Washing and sterilization ]

**GC / MS TCA CONTROL**

**DRYING**  
[ Final moisture definition ]

**ELECTRONIC GRADING | 2D AND 3D**  
[ Second electronic sorting to determine visual classes. ]

**MANUAL SORTING**  
[ Final visual grading control ]

**GRINDING**  
[ Cork granule production process ]

**STERILIZATION | NEOTECH® SYSTEM**  
[ Cork granules are vaporized and sterilized ]

**GC / MS TCA CONTROL**

**AGLOMERATION**  
[ Production of agglomerated bodies ]

**GC / MS TCA CONTROL**

**DISC PRODUCTION**  
[ Thinner strips of cork are punched for disc purposes ]

**ELECTRONIC GRADING | 2D AND 3D**  
[ Electronic sorting to determine visual classes of the discs. ]

**STERILIZATION | SARA ADVANCED® SYSTEM**  
[ Cork stoppers are vaporized and sterilized ]

**GC / MS TCA CONTROL**

**GLUING**  
[ Assembly of agglomerated bodies and discs with grade glue ]

**GC / MS TCA CONTROL**

**CORRECTION OF SIZES**  
[ Precise correction of corks sizes ]

**DUSTING DOWN**

**WASHING | MASZONE® SYSTEM**  
[ Washing and sterilization ]

**GC / MS TCA CONTROL**

**DRYING**  
[ Final moisture definition ]

**ELECTRONIC GRADING | 2D AND 3D**  
[ Electronic sorting to determine visual classes. ]

**GRINDING**  
[ Cork granule production process ]

**STERILIZATION | NEOTECH® SYSTEM**  
[ Cork granules are vaporized and sterilized ]

**GC / MS TCA CONTROL**

**AGLOMERATION**  
[ Production of agglomerated bodies ]

**GC / MS TCA CONTROL**

**CORRECTION OF SIZES**  
[ Precise correction of corks sizes ]

**DUSTING DOWN**

**WASHING | MASZONE® SYSTEM**  
[ Washing and sterilization ]

**GC / MS TCA CONTROL**

**DRYING**  
[ Final moisture definition ]

**ELECTRONIC GRADING | 2D AND 3D**  
[ Electronic sorting to determine visual classes. ]

CUSTOMIZATION  
AND PACKAGING

**PRINTING**  
[ Customized printing on stoppers ]

**FINAL TREATMENT**  
[ To facilitate the bottling process ]

**GC / MS TCA CONTROL**

**PACKAGING**  
[ According to specifications ]



**M·A·SILVA**

Premium Cork Stoppers



Naturally  
**Better**