

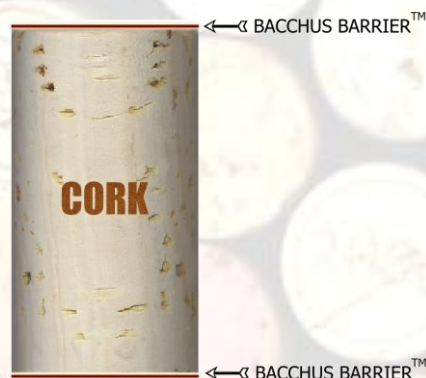
# Bacchus Barrier™

## Technical fact sheet

### BARRIER TECHNOLOGY

Treating corks with Bacchus Barrier™ involves applying a thin polymer coating to the ends of the corks.

This coating is a transparent and elastic membrane comprising layers of a high-performance barrier polymer, Ethylene Vinyl Alcohol (or EVOH), sandwiched between low density polyethylene and bonded to the cork with a special reactive hot melt adhesive.



### EVOH

EVOH is well known as a barrier to oxygen and has been used in the wine industry for decades in bag in box. In this role EVOH has performed well as a flexible, safe and effective barrier to oxygen, conserving wine for lengthy periods against oxidation despite the fact that the surface area of the plastic container is very large compared to the thickness of the film.

Correctly designed, as in the case of Bacchus Barrier™, EVOH film has also proven to be very effective in reducing the transmission of TCA, taints and flavours from cork to wine. Bacchus Barrier™ is designed to work with corks which have extractable levels of TCA from 0 to 15 ng/L. In this situation it will keep levels of TCA below 3ng/L for up to four years.

Tests conducted against another common high performance barrier material, PVdC, have demonstrated that Bacchus Barrier™ performs more effectively as a barrier and is more cost effective to use.

Bacchus Barrier™ film is 50 microns thick, transparent and completely safe in contact with wine; it has full FDA and EU approval.

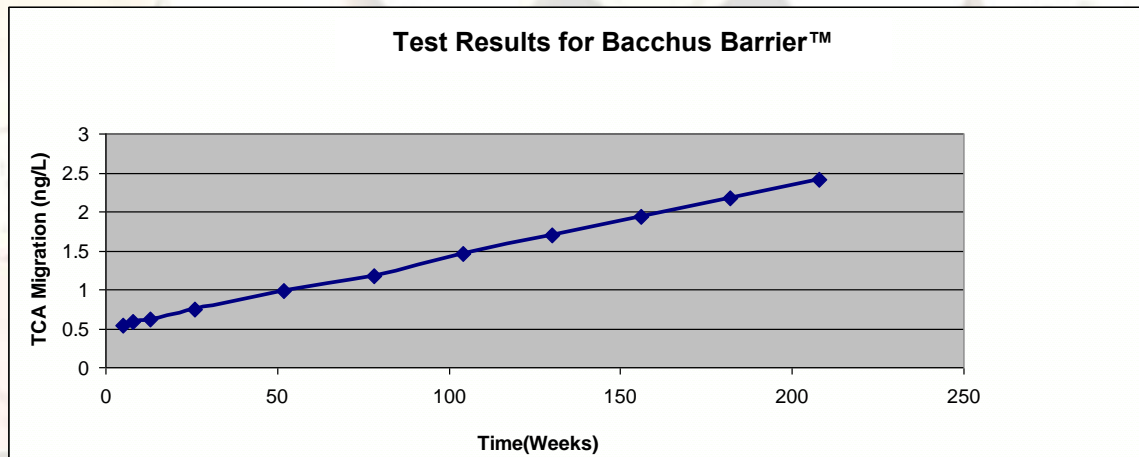
### REACTIVE HOT MELT POLYURETHANE ADHESIVE

A key component, unique to Bacchus Barrier™, is the thin layer of Reactive Hot Melt Polyurethane adhesive used to bond it to the surface of the cork.

Reactive Hot Melt Polyurethanes undergo a high degree of cross linking during curing. Once curing has taken place the bond is irreversible, very strong, completely inert, and resistant to moisture. Exposure of the cured Reactive Hot Melt Polyurethane adhesive to moisture actually increases the strength of the bond between film and cork.

This provides Bacchus Barrier™ with another unique advantage - the ability to resist completely the tendency of other hot melt adhesives to separate from substrates. This ensures that the barrier remains bonded to the cork during treatment, insertion and extraction.

### Bacchus Barrier™ TCA PERFORMANCE



The graph above shows the TCA transmission rate for natural corks containing up to 15ng/L of TCA coated with Bacchus Barrier™. It will be seen that despite such levels of TCA in the cork, TCA in the wine remains below discernible levels for up to 4 years.

### Bacchus Barrier™: OXYGEN BARRIER PERFORMANCE

Bacchus Barrier™ has a barrier performance to oxygen of 2 cc/m<sup>2</sup>/day. This means that there would typically be an oxygen transmission rate of 0.0005 cc per cork per day through the Bacchus Barrier™. Corks with faults such as cracks or wormholes, which would otherwise allow high levels of oxygen to permeate through the cork, show greatly improved performance when coated with Bacchus Barrier™. The overall effect depends on the cork employed, the diameter of the bottle neck and other factors such as the quality of the glass used.

Bacchus Barrier™ also prevents random premature oxidation due to the natural variability of corks. As a result the winemaker can have confidence that for a given cork type he will see consistent results.

Low oxygen transmission through corks as a result of using Bacchus Barrier™ improves SO<sub>2</sub> retention and thus extends the shelf life of the wine.

Bacchus Barrier™ has no negative flavour scalping effect on wine.

### FURTHER ADVANTAGES

Bacchus Barrier™ improves the seal between the cork and the bottle. Stored wine often leaks between the cork and the side of the bottle. The elastic properties of Bacchus Barrier™ reinforce the ends of the corks, and the polymer to glass contact at the edges of the cork improves the ability of the cork to resist seepage between the glass and the cork.

Bacchus Barrier™ eliminates the taste of cork from wine. Cork has many chemical constituents which change the flavour of wine. Modern winemakers and many consumers want their wine to taste only of wine.

Bacchus Barrier™ allows cork producers to better utilize their cork stocks by improving the quality of all grades of corks. The better utilization of cork resources means that the quality will improve across the board.

Bacchus Barrier™ greatly reduces the amount of moisture absorbed by the cork and so reduces the rate of oxygen diffusion through it.

Bacchus Barrier™ maintains the relative humidity inside the cork ensuring that it does not dry out, and so remains elastic through the cork's lifetime. This aspect also assists the cork in its use with wine stored vertically as there is no longer a need to keep the cork moist by keeping it in contact with wine.

Because the Bacchus Barrier™ coated cork will absorb less wine, ullage will also be reduced.

## **ENVIRONMENT**

The combination of Bacchus Barrier™ and cork is 99.99% natural and almost completely biodegradable. Bacchus Barrier™ contains no chlorine and is safe in the environment.

## **APPEARANCE**

Visual appearance is important for customers and consumers. Bacchus Barrier™ is therefore designed to be as unnoticeable as possible.

Bacchus Barrier™ can be applied to all types of corks: natural, agglomerate, cork disc corks, T-tops, colmated and champagne.

Bacchus Barrier™ forms smoothly onto the ends of chamfered corks providing an attractive, pleat-free appearance.

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