NATURAL CORK LIGHTENS YOUR CARBON FOOTPRINT

Most people in the wine industry are aware that the cork forest is a vital center of sustainability. According to the Word Wildlife Fund, "Cork oak landscapes are one of the best examples of balanced conservation and development anywhere in the world. They also play a key role in ecological processes such as water retention, soil conservation, and carbon storage."

Not all wineries know the extent that they can share some of these sustainable values from across the Atlantic. Last year, the EU Product Environmental Footprint Category Rules (PEFCR) were adopted for wine. They specified, "Carbon permanently stored in the soil and tree biomass of cork oak forests and vines shall be taken into account if this storage goes beyond 100 years." This action reinforces carbon sequestration as a relevant environmental issue to distinguish natural cork from artificial stoppers.
The scope of this consideration is quite significant. The average wine cork is carbon negative from manufacture, but when the carbon fixing value of the forest is added, the net carbon balance is -276 grams per cork!

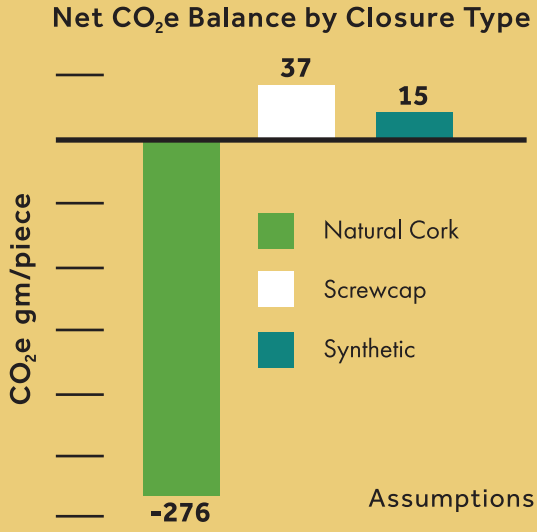
At that level, 1,000 cases finished in cork represents 3.3 metric tons of carbon dioxide emissions. To put this in perspective, 1,000 cases of cork contribute the same level of CO2 offsets as do 83 standard solar panels. Twelve cases of cork finished wine represent an equivalent amount of CO2 savings as the annual operation of one 250wt solar panel.

To assist in your carbon footprint calculations there is an application that shows the carbon offset value for natural cork closures at **www.corkqc.com/CO2**.

CO_2 CALCULATOR

www.corkqc.com/CO2

- **A Typical Wine Cork has a Net Carbon Balance of –276 grams**
- **That is x70 its Weight**
- **For 1,000 Cases of Wine. That is –3.3 Tons of CO2e**
- **Equivalent to Greenhouse Gas Savings from 83 Standard 250wt Solar Panels**
- **Compared to Screwcaps, +3.9 Tons CO2e Balance per 1,000 Cases**
- **Compared to Synthetics, +3.5 Tons CO2e Balance per 1,000 Cases**



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NOTES AND ASSUMPTIONS FOR CARBON FOOTPRINT CALCULATOR

1. Carbon Footprint for the Manufacture of Natural Corks

Model Based on Estimates for traditional corks from:

- Ernst & Young Life Cycle Analysis prepared for Corticeira Amorim
- KPMG International Life Cycle Analysis prepared for M.A. Silva

Both Models show a negative net footprint in which the stored carbon value of the product exceeds the emissions related to manufacturing. Resultst are described as "cradle to gate" and shoe an Average Carbon Footprint for Natural Cork = -4.95 g/cork. The breakdown includes an average of 2.1g GHG during manufacture and preparation. This is offset by -7.05 grams of stored carbon value found in the body of the cork

2. Carbon Footprint for the Manufacture of Aluminum Screwcaps

Model Based on Estimates from:

- Corticeira Amorim, PriceWaterhouseCooper, Ecobilan, "Analysis of the life cycle of Cork, Aluminium and Plastic Wine Closures - October 2008"PWCE-LCA-Cork-Report.pdf

Carbon Footprint for Screwcaps = 37.17 g/cap

3. Carbon Footprint for the Manufacture of Synthetic Stoppers

Model Based on Estimates from:

- Corticeira Amorim, PriceWaterhouseCooper, Ecobilan, "Analysis of the life cycle of Cork, Aluminium and Plastic Wine Closures - October 2008"PWCE-LCA-Cork-Report.pdf

Carbon Footprint for Synthetics = 14.83 g/stopper

4. Carbon Offset from Contribution of the Cork Forest

Rationale Based on Recommendations from:

- EU Product Environmental Footprint Category Rules (PEFCR) for Still and Sparkling Wine:

"Carbon permanently stored in the soil and tree biomass of cork oak forests and vines shall be taken into account if this storage goes beyond 100 years. The following methods shall be applied for calculating a) carbon permanently stored in the soil and/or b) biogenic carbon sequestration in permanent structure. Results shall be reported under the impact sub-category Climate Change - biogenic"

Model Based on Estimates from:

- Long term Ecosytem flux measurements from a representative cork forest in central Portugal.

Costa-e Silva, et.al 2015, Effects of an extremely dry winter on net ecosystem carbon exchange and tree phenology at a cork oak woodland (2015).

Summary Calculations

Average Carbon Sequestration Value	288.6	gC/m2/year
MW Conversion C to CO2	3.7	gCO2/gC
Avg Net Ecosystem Exchange CO2	-10,581	kg/ha
Avg Cork Production	144.4	kg/ha
Weight Ratio	-73.3	CO2/cork
Average Natural Cork Weight	3.8	g
Average Sink Offset	-278.4	g/cork
Net Carbon Balance	**-276.3**	**g/cork**