ENVIRONMENTAL APPROACH
Progress Update - June 2019

Presentation of our environmental approach

Our company Diam Bouchage develops, produces and markets micro-agglomerated corks to the highest quality standards and in keeping with our customers’ expectations. We work with a natural material; cork derived from an ecosystem whose biodiversity and economic value are essential to the Mediterranean basin. During the transformation of the cork and the manufacture of our DIAM, MYTIK and ALTOP closures, we use highly innovative industrial processes such as the supercritical CO₂ extraction of 2,4,6 TCA to guarantee the excellent quality of our finished products.

In 2009, in order to continue the environmental approach initiated in 2007 aimed at reducing the company’s carbon footprint, we implemented an environmental policy that has been seamlessly integrated into our Quality & Food Safety Management system and applied at all our manufacturing sites. Going beyond compliance with environmental regulations, we endeavour to prevent pollution and to continuously improve the performance of our manufacturing sites and our products throughout their life cycle.

As part of this environmental policy we are committed to implementing human, technical and financial resources to:

1. control our energy consumption and our greenhouse gas emissions;
2. recycle our cork by-products and waste as effectively as possible;
3. control the industrial risks of our technical facilities;
4. conduct research and development studies to design more environmentally friendly products.

The enforcement of this policy will ensure that our division is recognised as a responsible participant in the face of the environmental challenges facing our society.

Key event: integration of the DIAM Portugal site

For this update, the PIETEC plant located near Porto, renamed Diam Portugal, is included in the environmental performance indicators. It produces micro-agglomerated closures from cork flour that has undergone the REVTECH process (steam washing).
1. Control our energy consumption and our greenhouse gas emissions

1.1. Evolution of DIAM Bouchage’s GHG emissions

**Method:** The carbon footprint is calculated using the Carbon Balance tool, V8. It is applied to the extended scope of our activities (direct and indirect emissions), from the supply of raw materials to delivery of the finished product to our customers, via our production phases.

**Scope:** The end-of-life stage of the closure is increasingly difficult to estimate in an international context, so it has been excluded from the scope. International sea freight has only been included in the calculation of our carbon footprint since 2012.

Since 2012, DIAM Bouchage’s carbon footprint has evolved at half the rate of production. On an equivalent scope (excluding Portugal) DIAM Bouchage produced and marketed approximately 1.8 billion closures in 2018 (+27% compared to 2016), and its GHG emissions totalled 51,000 tons CO$_2$-eq, representing a 14% increase. Energy consumption is evolving at a slower rate than production due to the measures taken concerning the processes, and CO$_2$ emissions from DIAMANT plants have been reduced to absolute values. Our carbon footprint is primarily due to materials and freight; for which supply is dependent on production.
Focus on DIAMANT plants

The DIAM site in Spain completed a three-year energy efficiency program in 2018. This programme focused on the thermal insulation of the DIAMANT 1 and 2 installations, as well as optimising the use of the heat supplied by the boilers. DIAM had the support of a Spanish aid programme (ERDF funding). The reduction in energy consumption achieved through investments was estimated at 282 MWh per year, certified by an independent audit.

The thermal insulation of the DIAMANT 3 plant on the Céret site in France has also been completed. Insulating the thermal circuits resulted in the reduction of gas consumption by approximately 20% per ton of processed cork flour.

By integrating the DIAM Portugal site the division’s carbon footprint amounts to 62,000 tons CO₂-eq. The main emission sources at this site are energy consumption and incoming materials.

1.2. Evolution of the carbon impact of DIAM and MYTIK DIAM closures

Method: GHG emissions indicator from the life cycle analysis study. For this study, production data (energy and material consumption) are applied to a typical product closure over each stage of its life cycle. The scope is reduced: employee mobility and depreciation items were not considered; the carbon impact is established ex-factory, excluding customer freight (Céret for DIAM, Cumières for MYTIK).

Still Wine closure:

Due to internal improvements in terms of material; CO₂ emissions and energy consumption, the carbon impact of a DIAM 5 closure decreased by 5% between 2016 and 2018. (No significant change in the profile of incoming materials as per suppliers).
The ORIGINE by DIAM closure has a carbon profile 3% lower than DIAM 5, due to its bio-sourced products formulation that have emission rates lower than traditionally used binders.

**Sparkling Wine closure:**

The carbon impact of a MYTIK Classic closure decreased by 5% between 2016 and 2018: the DIAMANT3 plant, opened in 2016, has been optimised in terms of operational performance and thermal insulation. CO₂ emissions have been reduced by 40%.

![Evolution of the carbon impact of the MYTIK Classic closure](chart.png)

1.3. **Cork recovery contributes to carbon sequestration in cork forests**

Cork oaks have the particularity of having a long lifespan (more than 150 years) and being valued not for their wood but for their bark. Like all maintained and expanding European forests, cork forests are carbon sinks, capturing carbon through photosynthesis.

The valorisation of this capacity to sequester carbon by industries that transform forest-based biomass is recognized in multiple carbon accounting standards, provided that this sequestration is effective beyond a 100-year period. The work on the Product Environmental Footprint (PEF) led by the European Commission has been adapted for the wine sector in the ‘Product Environmental Footprint Category
Rules (PEFCR) for Still and Sparkling Wine. This document provides instructions detailing the method to be used when calculating the sequestration capacity of vines and cork oaks, beyond the 100-year time horizon.

Spain and Portugal - who together represent most of the surface area and provide the bulk of the cork used in the closure activity, have been conducting studies, as has France, using methods consistent with those recommended by the PEFCR Wine. Their analyses show that the carbon captured in the cork forests over a time horizon of more than 100 years presents an annual growth of around 1.5 and 2.5 tons of CO₂ per hectare per year, depending on their location and the silvicultural management used.

The valorisation of cork by the industry, which economically justifies the maintenance and planting of cork forests, therefore contributes to this carbon sequestration, in the order of **10 to 15 tons of CO₂ per ton of cork lifted from the tree**.

Considering the cork required by DIAM, a still wine closure contributes to the sequestration of 150 g of CO₂, i.e. 6 times more than the emissions attributable to its production; a sparkling wine closure contributes to the sequestration of 250 g of CO₂, i.e. 8 times more than the emissions attributable to its production.

**The use of cork therefore contributes to the long-term mitigation of climate change**, by preserving and enhancing the forest ecosystem from which it is derived. This is not the case for synthetic closures or closures using vegetable polymers from fast-rotating crops, where carbon captured by photosynthesis is degraded and re-emitted into the atmosphere well before the 100-year time horizon.

![Complete carbon impact of a closure, from the cork oak forest to its production](image)

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2. Based on the average production of 150 kg of cork/ha/year, widely accepted by the profession.
2. Recycling our cork by-products and waste

DIAM generates cork waste, including dust, which is directly recycled on its industrial sites reducing its use of fossil fuels by creating energy and supplying the heat necessary for the process.

The amount of waste sent to external treatment facilities increased between 2016 and 2018. Some of the cork dust generated on the Spanish site, in excess of heat requirements, is now forwarded to the shoe industry; an undertaking to valorise potential waste that will develop considerably in the future.

Source separation of common waste such as packaging, office waste and maintenance waste is implemented on all sites.

In order to produce less waste, the big bags used for transporting ground cork and closures between the Spanish and French sites are cleaned and since 2018 repaired in a dedicated workshop before being reused.

The recycling rate remains high at around 90%. Research continues to identify ways of recycling cork by-products to further improve our carbon footprint.
3. Control the risks on our industrial sites

- DIAM Bouchage continuously invests in its production sites, around €500k each year, to ensure the optimal management and monitoring of industrial and environmental risks: resources to prevent the risk of fire or dust explosion: all equipment installed on flour and cork dust circuits complies with ATEX (ATmosphères EXplosives) standards;
- technological adaptation of dust combustion boilers;
- risk management for accidental release prevention;
- noise control.

Significant investments have been made on the Portuguese site since its integration in 2016, with several process phases being brought up to ATEX standards.

On-site awareness campaigns and employee training, as well as regular emergency situation tests, contribute to the progress being made in the risk control culture.

4. Design environmentally friendly products

Between 2016 and 2018, cork supplies from France almost doubled (+80%)

The value creation of French cork is part of a stimulus policy initiated after the cork oak forests experienced a long period of inactivity. DIAM Bouchage contributes to the revitalisation of this silviculture by setting up long-term purchase contracts with groups of forest owners: since 2011, cork from the Pyrénées-Orientales, 2012 in the Maures massif (Var), and 2016 in Corsica. The closures made from these corks are primarily used by local winegrowers as part of a ‘regional cork’ scheme.

Between 2016 and 2018, FSC cork supplies more than doubled (+130%)

All DIAM Bouchage sites are FSC certified - producing FSC closures made from FSC cork.

Customer demand is on the rise, with the sale of FSC cork increasing by 130% (excluding the site in Portugal). On the Portugal site, also certified for many years, more than 200,000 kg of FSC cork were valorised in 2018, an increase of 68% compared to 2017.

ORIGINE by DIAM, an OK Biobased® closure

To meet its ambition to develop more environmentally friendly products, DIAM Bouchage’s R&D teams have developed a new closure called Origine by Diam, where to a very large extent petro-sourced products have been replaced by organic raw materials; castor oil and beeswax.
On the market since 2017, the Origine by Diam® closure is OK Biobased® certified with 4 stars. This TüV Austria label responds to the growing need of customers to source renewable materials by certifying, on the strength of analyses, the organic origin of the carbon contained in the products. ORIGINE by DIAM is certified 4 stars, the certification’s highest level: more than 80% of the carbon contained in the closure is of organic origin (fixed by photosynthesis).

R&D projects continue to be conducted with the objective of designing a closure whose origin would be 100% organic.

**Perspectives: ISO 14001 certification**

To validate the measures already taken, Diam Bouchage is actively working towards obtaining the ISO 14001 certification for the Céret and San Vicente de Alcantara sites by the end of 2020.