AMORIM CORK

CARBON FOOTPRINT

Qork®

Executive Summary

03-19-2024, v1

1.

Study


Goal and Scope Definition
Inventory Analysis
Interpretation and Results
Impact Assessment

1.

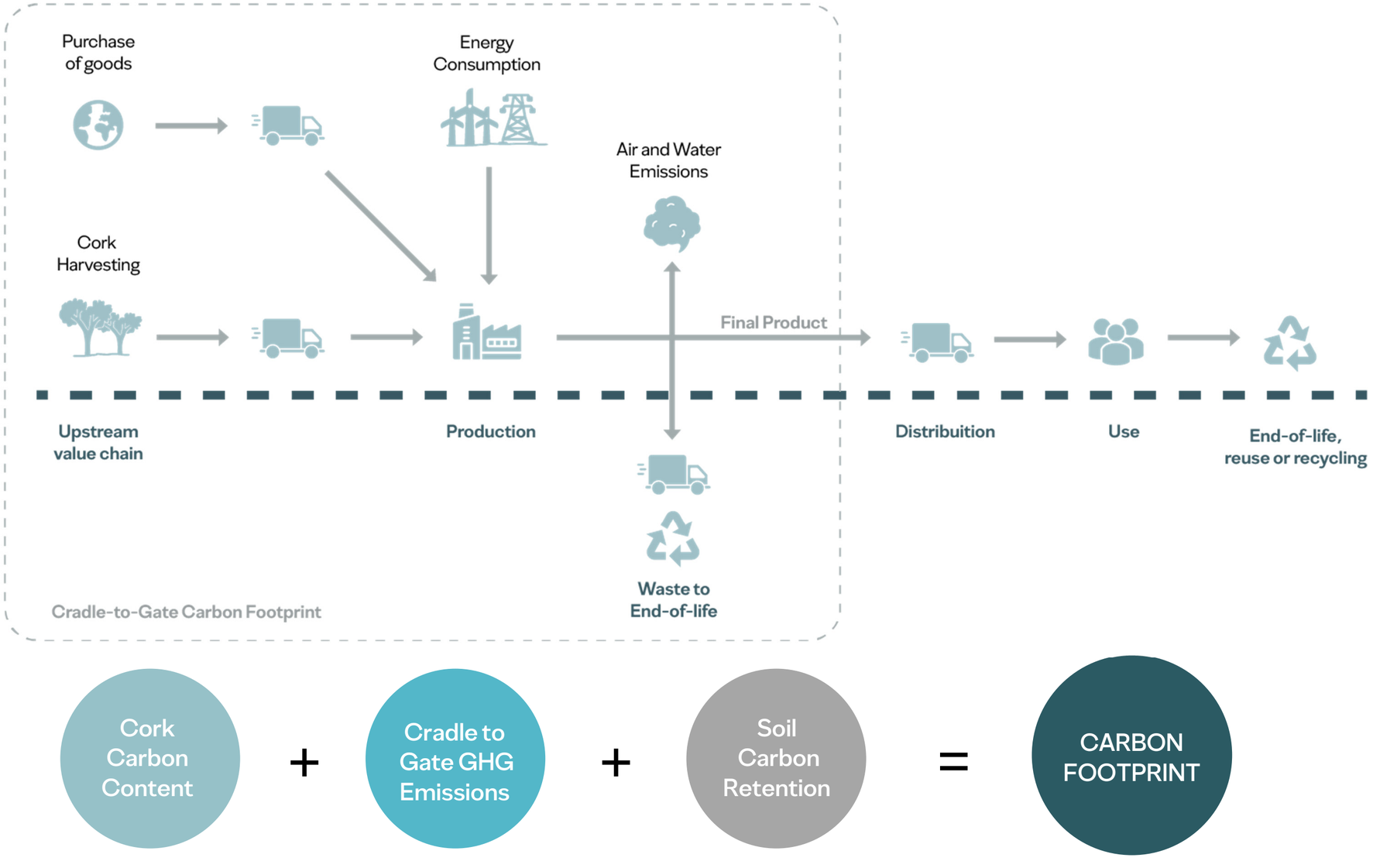
Study

2.

Carbon Footprint

3.

Conclusions


Purchase of goods
Energy Consumption
Air and Water Emissions
Cork Harvesting
Final Product
Upstream value chain
Production
Distribuition
Use
End-of-life, reuse or recycling
Waste to End-of-life
Cradle-to-Gate Carbon Footprint

Cork Carbon Content
+
Cradle to Gate GHG Emissions
+
Soil Carbon Retention
=
CARBON FOOTPRINT

1.

Study

Context

Corticeira Amorim has been a market leader in the cork industry since its founding in 1870. The company, a global leader in the production and supply of cork stoppers, has its own distribution network, giving it a unique competitive advantage in offering the perfect stopper for any segment and type of wine and spirits, everywhere in the world.

Amorim Cork is the world's leading producer, supplier, and distributor of cork stoppers. The most advanced production techniques, unmatched quality control, and extensive know-how ensure unrivalled security in the supply of cutting-edge products.

Cork is an **ecological, sustainable and 100 % natural raw material.**

The main goal of this study is to quantify the greenhouse gas emissions generated by the Qork® stopper produced by Amorim Cork, using a life cycle approach.

The Qork® stopper, made up of natural cork granules enveloped by a binding agent made of plant-based polyols, is the world's most sustainable and advanced micro-granulated cork stopper. Featuring Xpür®, the innovative 21st century supercritical fluid technology, Qork® allows for an enhanced and even deeper cleansing of cork's cellular structure, delivering non-detectable TCA performance and eliminating other volatile substances that could trigger sensory deviations, while keeping the natural characteristics of cork intact.

Size **(mm x mm)**	***Weight*** **(g)**	***Composition***
44 x 24	5,37	73,15% cork 24,14% binder 2,71% paraffinic oil

Methodology

The carbon footprint presented in this report was calculated in accordance with the ISO 14067:2018 standard, using a life cycle analysis approach that assesses the potential impacts of a product in its different phases, and whose methodology is described in the ISO 14040/44:2006 standard. This study was verified by an external, accredited entity which issued a verification opinion based on the emissions, removals and storage of greenhouse gases presented in the GHG statement "Qork® Carbon Footprint, 03-19-2024, v1" and its summary "Carbon Footprint - Qork® Executive Summary 03-19-2024, v1". The summary is available at:
https://www.amorimcork.com/en/sustainability/studies-and-certificates/

Using standard 14067:2018 as a basis, and in order to standardize the calculation of the carbon footprint of its products, Amorim Cork has drawn up an internal procedure for this process PG.GR.DSI.012.0 - Carbon footprint of products.

Approach

Cradle-to-gate (from the extraction of raw materials to the finished product when it leaves the factory).

Life Cycle Stages Assessed

Cork harvesting, sorting, boiling, and punching; cork stopper production, labelling, treatment and packing.

Method

The impact of CO_2 emissions over a 100-year period was calculated using the 'IPCC 2021 GWP100 (v.1.02)' method from the SimaPro v9.5 programme. The GHG calculation relies on conversion factors sourced from the Ecoinvent v3.9 database, which is derived from the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) published in 2023.

Functional Unit

1000 stoppers

Data Collection and Quality

Annual Production Data

Raw material consumption
Secondary material consumption
(chemicals, packaging materials)
Water and energy consumption
Annual cork stopper production

Management control

Secondary Data

Transport related factors
Emission factors linked to steam production
Forestry Management

Ecoinvent v3.9 data base

*It was assumed that all the cork raw materials entering the system possess a similar amount of stored carbon. The estimate of the enclosed CO_2 is determined by the atomic weights of carbon (12) and carbon dioxide (44). The calculation considers the carbon fraction of 55% (dry basis) and the moisture fraction of 6% present in cork (Dias et al., 2014b).

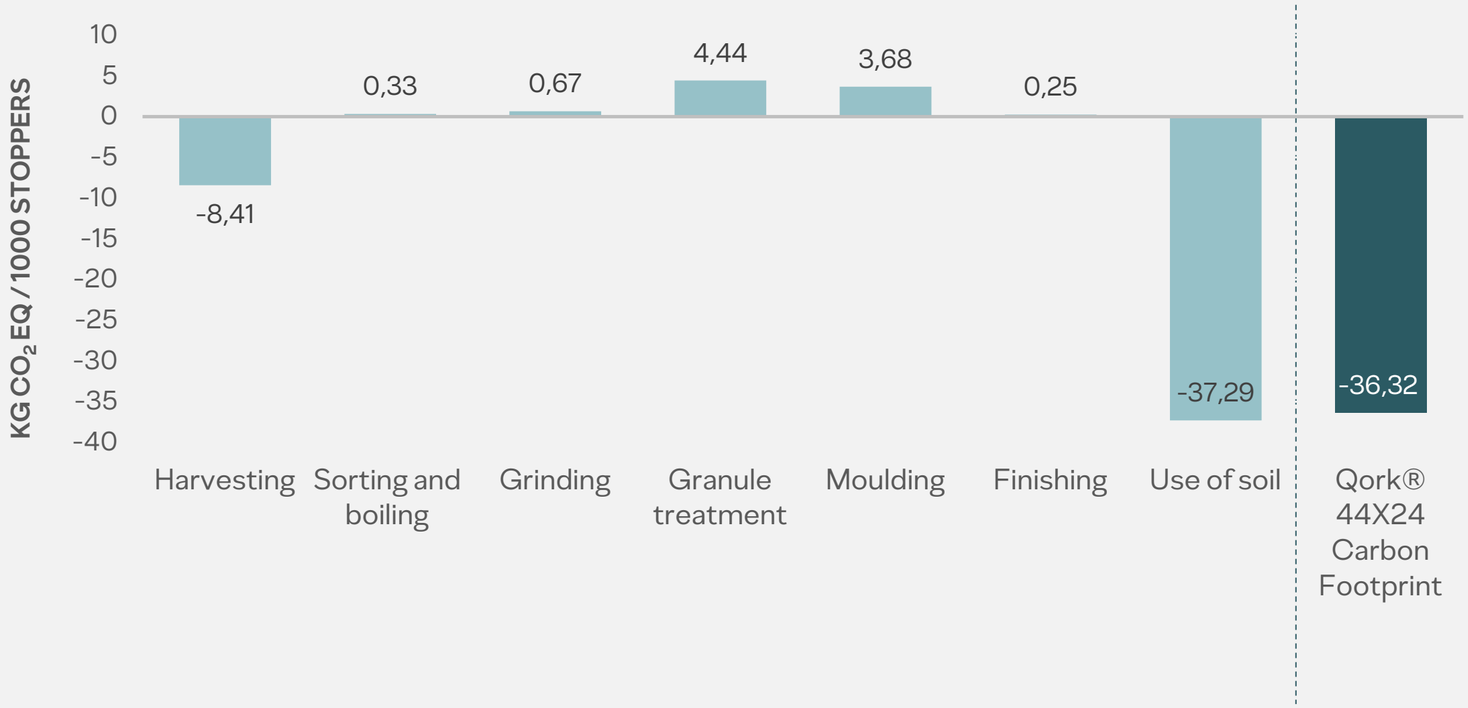
Emissions from biomass energy production are considered neutral because it is assumed that the CO_2 released during the process was previously captured and therefore results in a neutral net balance of CO_2 emissions.

The land use estimate considered the cork yield potential of cork oak trees (Pereira and Tomé, 2014) and the typical extent of soil root occupation (which absorbs CO_2 over its lifespan) (Woodland Trust & IFN6). The carbon sequestration value resulting from the land usage of cork oaks was determined by considering the soil occupation required to manufacture 1000 stoppers (as indicated in the UF study) and the soil carbon storage per cork oak (as specified in Table 6-14 of the NIR, 2023).

2.

Carbon Footprint

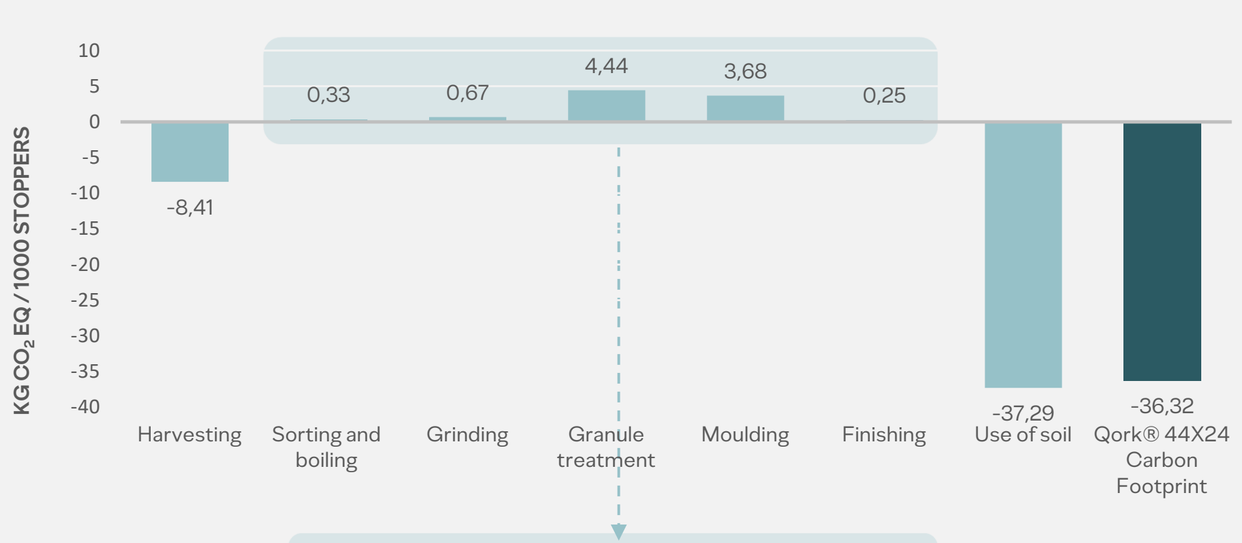
Results



Qork ® carbon footprint, according to standard 14067:2018: **-36.32kg CO2eq**/1000 stoppers.

Results

SB0



Emissions: 9.38 kg CO_2 eq/1000 stoppers

47%

of emissions come from granule treatment stage.

3%

of emissions come from the cork stopper finishing stage, which includes branding, surface treatment, and packaging.

Slide 11

SB0

Linhas brancas no retângulo azul.

Sara Beatriz Silva (AC); 2024-07-18T10:44:37.704

3.

Conclusions

Conclusions

The results, based on 2023 data, show that, using a cradle-to-gate approach, the greatest impacts are associated with the **granulate treatment stage, accounting for 47% of emissions.**

The emissions amount to a total impact of 9.38 kg CO2eq per 1000 stoppers. The carbon content of cork (8.41kg CO_2 eq per 1000 stoppers), and the land usage (37.29kg CO_2 eq per 1000 stoppers) combine to give a product **carbon footprint of -36.32kg CO_2 eq per 1000 stoppers, using a *cradle-to-gate* approach.**

Glossary

GEE Greenhouse Gases

IFN6 Sixth National Forest Inventory (Institute for Nature Conservation and Forests)

CO_2eq Carbon dioxide equivalents

INERPA Inventário Nacional de Emissões por Fontes e Remoção por Sumidouros de Poluentes Atmosféricos (Agência Portuguesa do Ambiente)

TCA 2,4,6-Trichloroanisole

UF Functional Unit

UI Industrial Unit

Technical Data Sheet

Title:
"Carbon Footprint– Qork®: Executive Summary, 03-19-2024, v1"

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Santa Maria de Lamas, Portugal
March 2024

ABOUT
AMORIM CORK

Amorim Cork is the world's largest producer and supplier of cork stoppers, trusted by leading wine producers in an industry that is continually expanding and reinventing itself.

With subsidiaries in all the main wine-producing countries, from Europe to South Africa, Australia and South America, Amorim Cork sells to more than 22,000 customers, including some of the world's most renowned wine and Champagne brands.

The company offers a portfolio of high-quality solutions with impeccable sustainable credentials, from natural cork stoppers to technical stoppers. With over 150 years of history, the company demonstrates a comprehensive commitment to innovation. A strong investment in R&D has launched some of the most advanced sorting technologies on the market for still and sparkling wine cork stoppers, such as NDtech®, Naturity® or Xpür®.

Innovative production technologies, unbeatable know-how and excellent quality control are some of the reasons why the world's leading wine and sparkling wine producers trust Amorim Cork to protect their best wines.

www.amorim.com

Santa Maria de Lamas, Portugal
March 2024