



## **Estimated carbon footprint of A Modo Mio Lavazza Capsules sold in 2022**

14th January 2022

### **Contact information**

Luigi Lavazza S.p.A.

HeadQuarter: Torino, Via Bologna 32 – 10152

[www.lavazza.it](http://www.lavazza.it)

## Introduction

Aware that not all emissions can be reduced, Lavazza Group embarked on an offsetting strategy by supporting projects that contribute to sustainable development and to the containment of greenhouse gas emissions.

In 2020, Lavazza Group began its journey towards Carbon Neutrality by offsetting Scope 1 and 2 emissions, i.e., direct greenhouse gas emissions (due, for example, to the burning of methane for heating) or those deriving from the generation of electricity that is then consumed.

In 2022, this process continues by introducing the offsetting of the whole amount of greenhouse gases emissions of A Modo Mio capsules sold in 2022. To assure to its customers that all the capsules, once bought, have already been compensated, an estimated Carbon Footprint (CFP) study was carried out. The calculation was based on the estimated sales for 2022 and on the CFP of Laverage A Modo Mio capsules piece sold in 2021.

To ensure the accuracy of the estimated calculation, the 2022 carbon footprint will be recalculated when all 2022 final data is available. In case the estimated and the final calculation are not aligned, the difference will be compensated.

The purpose of this report is to explain the carbon footprint quantification for A Modo Mio capsules.

## Carbon footprint assessment

The structure of this report follows the main steps of Life Cycle Assessment (LCA):

- A. *Goal and scope definition*: defines the aim of the study, the reference unit, the processes included in the study and other important characteristics of the assessment;
- B. *Inventory analysis*: describes which data are used;
- C. *Impact assessment*: presents impact results obtained through the use of scientific models;
- D. *Interpretation*: discussion of the results in order to formulate conclusions.

### A. Goal and scope

#### Type of Carbon Footprint

This Carbon Footprint study is cradle to grave, since all the relevant life cycle stages are included in the LCA (i.e., raw material acquisition, production, distribution, use and end-of-life).

The LCA follows an attributional approach.

#### Functional unit

The studied functional unit is the expected 2022 sales of A Modo Mio capsules.

#### System boundaries

The Carbon footprint of 2022 A Modo Mio capsules considers the following life cycle processes:

- The upstream processes include green coffee cultivation, its transport to suppliers, semifinished products and film production, packaging reel production (including printing, coupling and cutting) and its transport to the production plant.
- At the production plant the following core processes are performed: transport of green coffee blend, green coffee transformation into ground coffee, packet preforming, coffee dosing and filling, wrapping and palletization.
- Downstream processes include outbound distribution of the final product, coffee preparation and end-of-life stage of the packaging and of coffee dregs. In the use phase only water and electrical consumptions were evaluated.



Figure 1: LCA model

## Norms of reference

The reported carbon footprint is based on the CFP study of A Modo Mio capsules sold in 2021[1] which is validated ISO14067 compliant[2] and therefore in line with the existing PCR on espresso coffee [3].

## Disclaimer CFP limitations

The most important limitations of this Carbon Footprint study are:

- Focus on a single environmental indicator: where information regarding CFPs is used to inform consumer decisions, consideration shall be given to the potential importance of other relevant environmental aspects.
- Limitations related to the methodology: because of limitations related to the underlying LCA report [1], the results of the CFP are often not a sound basis for comparison.
- The 2022 CFP of A Modo Mio Capsules is based on the 2021 CFP study and on 2022 expected sales. For this reason, this estimated CFP will be revised when 2022 final data is available

## Exclusions

- Capital goods (e.g., equipment and buildings) already available in LCA databases (i.e., ecoinvent v3.7.1 [4]) were included in the LCA. Other capital goods have been excluded from the LCA, since it was assumed that they do not contribute significantly to the overall LCA results.
- The coffee machine life cycle was not assessed.
- Transport of coffee from the selling point to the consumer and coffee distribution transport not directly controlled by Lavazza were excluded.

## Biogenic CO<sub>2</sub> emissions and trapping

- For CO<sub>2</sub> emissions originating from biogenic materials (green coffee), the carbon neutrality approach was adopted. With this approach, we assumed that all the CO<sub>2</sub> emissions absorbed by plants and derivative materials will be released back into the atmosphere during the end-of life stage. Essentially, neither emissions nor trapping of CO<sub>2</sub> related to biological materials were evaluated, assuming a carbon net exchange equal to zero. It is important to highlight that biogenic methane release is evaluated under the global warming indicator.
- In accordance with the ISO norm, atmospheric CO<sub>2</sub> stored in bio-based materials was reported separately in the LCA report. The Global Warming Potential (GWP) results do not consider biogenic carbon emissions.

## Land Use Change

Land use change (LUC) impacts were considered as reported in WFLDB datasets for green coffee. Datasets are aligned with the ISO norm request on land use change. LUC emissions are reported separately in the LCA report.

## Time and geographical boundaries

Temporal data regarding average piece of A Modo Mio caps are reported in Table 1, according to the relative categories. Secondary data were found in the ecoinvent v3.7.1 database [4], and from WFLDB[5], both published in 2020.

The plant responsible for producing A Modo Mio Capsules products is in Europe. Raw materials are extracted from all over the world, as well as the destination of the final product.

## B. Inventory

This report uses data and results from the 2021 CFP study [1]. The only additional data used in this study is the estimation of the whole amount of capsules sold in 2022. The full LCI is available in the 2021 CFP study.

Data for categories	
Quantity sold	2022 data
Green coffee	Specific blend for system, data 2021 purchases
Transport green coffee	Data 2021+ Sustainability Report 2020 [6]assumption
Packaging	Main supplier data, 2021
Pack supply	
Final product production	Supplier data, 2021
Distribution and end of life coffee	Data 2020, Sustainability Report 2020 [6]assumption
Use of energy and H2O	Sustainability Report 2020 [6] distribution mix for energy used and consumption of competitor machine

Table 1: Inventory table

## C. Impact Assessment: Carbon footprint for 2022 estimated sales

The method used to assess the environmental impact of the A Modo Mio caps is the global warming potential of atmospheric emissions, evaluated through Intergovernmental Panel on Climate Change (IPCC) method [7].

The 2022 Carbon footprint was evaluated by multiplying the impact of 1 average piece of A Modo Mio Capsules sold in 2021 by the expected sales for 2022, in order to obtain the 2022 CFP prevision for A Modo Mio caps (Table 2).

Results are presented divided into coffee life cycle (coffee cultivation and processing in the Country of origin, transportation, transformation into ground coffee, packing, coffee dregs disposal), packaging life cycle (raw material extraction, processing, packaging end of life), distribution and use.

### LCA results for total expected sales in 2022

Global Warming Potential (GWP)	Unit	Total	LC coffee		LC Packaging		Distribution		Use		Lavazza processing	
GWP- IPCC 100a neutral approach	t CO2 eq	60412	43986	73%	12775	21%	250	0%	2379	4%	1022	2%
GWP- GHG emissions and removals caused by Land Use Change	t CO2 eq	14140	14105	100%	34	0%	0	0%	1	0%	0	0%
GWP- Biogenic methane emissions	t CO2 eq	3708	3546	96%	136	4%	0	0%	23	1%	2	0%
GWP- IPCC 100a neutral approach without Land Use Change and biogenic methane	t CO2 eq	42565	26336	62%	12605	30%	250	1%	2355	6%	1019	2%
Impact category	Unit	Total	LC coffee		LC Packaging		Distribution		Use		Lavazza processing	
GWP- Biogenic GHG emissions and removals	t CO2 eq	-1498	231	-15%	-2011	134%	1	0%	276	-18%	6	0%

Table 2: Carbon footprint of A Modo Mio caps 2022

In accordance with Article L229-68 (1) in Article 12 of French Law No. 2021-1104, the balance of emissions is given below, broken down by direct and indirect emissions (as defined by ISO 14064-1:2019 standard), with regard to:

2022 sales estimates and based on the carbon footprint of 1 average piece of coffee sold in 2021: 1% direct emissions (804 t CO2 eq); 99% indirect emissions (58,747 t CO2 eq);

2022 sales estimates and based on the carbon footprint of 1 average piece of ginseng sold in 2021: 0% direct emissions; 100% indirect emissions (547 t CO2 eq);

2022 sales estimates and based on the carbon footprint of 1 average piece of barley sold in 2021: 0% direct emissions; 100% indirect emissions (314 t CO2 eq).

## D. Interpretation and conclusion

According to the results obtained with the IPCC method, calculated with the described assumptions and limitations, the expected 2022 sales of A Modo Mio caps is potentially responsible for approximately 60412 tons of CO<sub>2</sub> eq.

### Reduction plan

For several years, the Lavazza Group has been committed to developing reduction plans for various emission categories, which aim to have a better energetic efficiency, use renewable energy sources, and optimize packaging and logistics.

The benefits in terms of reducing the environmental impact of the above plans involving A Modo Mio capsules will be reported for the year 2022.

### Offsetting activity

In 2020 Lavazza Group achieved carbon neutrality for all the emissions related to Scope 1 and 2 as the first step of its commitment.

On the other hand, at product level, the A Modo Mio capsules will be one of the first Lavazza products to be CO<sub>2</sub>-neutral; this means Lavazza Group offsets all annual carbon emissions related to the sold volumes. The neutrality of these capsules includes the offsetting of emissions throughout the life cycle of the product, from the cultivation of coffee to its end of life, passing through all stages of production, transport and disposal.

The Guanaré and Kariba projects were selected by Lavazza to offset the Lavazza A Modo Mio capsules starting in 2021. The projects are certified by internationally recognized standards (VCS and CCB) to ensure the high quality and robustness of the projects. In addition, the climate partner South Pole, in charge of all carbon offsetting transactions, ensures compliance with offsetting best practices from project selection to credit withdrawal on behalf of Lavazza.

## References

- [1] Document "Lavazza A Modo mio (AMM) capsule carbon footprint" - December,10th 2021 – Lavazza, 2B srl Capsule 2021, Confidential report, October 2021.
- [2] ISO/ TS 14067, 2018: Greenhouse gases- Carbon footprint of product- Requirements and guidelines for quantification and communication.ISO, ISO/ TS 14067, 2018 ([www.iso.org](http://www.iso.org)).
- [3] PCR 2018:03, v 1.01: Espresso coffee Product Category Rules UN CPC 23912 v 1.01, The International EPD® System, 2018 ([www.environdec.com](http://www.environdec.com))
- [4] ecoinvent, 2021: Database ecoinvent version 3.7.1 Swiss Centre for Life Cycle Inventories ([www.ecoinvent.ch](http://www.ecoinvent.ch))
- [5] Quantis, 2020, WORLD FOOD LCA DATABASE version 3.5 ([quantis-intl.com](http://quantis-intl.com)).
- [6] Luigi Lavazza (2021), Lavazza Sustainability Report 2020, Available on: <https://www.lavazzagroup.com/it/come-lavoriamo/il-bilancio-di-sostenibilita.html>
- [7] IPCC 100a 2013: Climate Change 2013, IPCC Fifth Assessment Report ([www.ipcc.ch](http://www.ipcc.ch))
- [8] Environment section of Company website (The Environment | Lavazza Group)