O MY BAG

AMSTERDAM

Life Cycle Assessment Report

ANALYSIS OF AUDREY MINI & DREW

Contents

1 | Introduction

1.1 ABOUT O MY BAG

O My Bag Amsterdam exists to make a positive difference in the world. We believe that by supporting conscious trade we can contribute to a better world with fair and decent employment, gender equality, safe working conditions, equal opportunities and respect for the environment. We design timeless, high quality, sustainable bags that will last a lifetime, and through our Second Chances and Repairs programs we do our best to ensure that they will not end up in landfill. We recognize that the production and shipping of our items come with an environmental impact and we aim to continuously reduce this environmental impact. This can be achieved in a more effective and efficient manner by identifying and better understanding the impact along our supply chain. Reducing environmental impact is an ongoing process that involves regularly checking the current situation and tracking improvements over time. That is why we conduct a Life Cycle Assessment.

1.2 WHAT IS A LIFE CYCLE ASSESSMENT?

An LCA is a methodology used to assess the environmental impact of a product throughout its entire life cycle, including raw materials, production and transport. Based on the findings, data driven priorities, targets and concrete action points can be set. The aim is to concentrate on the processes O My Bag can influence. Hence, the focus is on the manufacturing of the bags, materials used, production processes involved as well as transportation. Reporting transparently on the outcomes of these studies will also allow customers to make more conscious and environmentally friendly choices.

1.3 WHAT DID O MY BAG DO BEFORE?

The first time O My Bag performed an LCA was in 2019. This 2019 LCA has served as the basis for calculating our corporate carbon footprint and environmental impact of the bags for a few years now. From this LCA, we know that:

- Transport to our warehouse contributed heavily to the total carbon footprint of our products, as the bags were flown in from India.
- Although the hardware (magnets, zippers, buttons, etc.) used in our bags is not a primary material, the environmental impact is high. There are big differences between material types used for secondary components (e.g. Zamak used for the hardware is more impactful in comparison to iron and brass. Similarly, nylon has a higher impact than cotton or recycled polyester).
- Our producers utilized varying amounts of energy, resulting in disparities among bags with similar supply chains, thereby generating notable discrepancies in the footprint of each product.
- Even though the tanneries that we work with only use chrome-free tanning processses, the raw materials required for leather tanning still come with a high environmental footprint.

Refer to chapter 5.1 for details on actions taken regarding these matters and their corresponding results.

1.4 WHY A NEW LCA?

In 2023, we wanted to update the existing model to ensure calculations for 2023 (and beyond) are reliable and representative. More specifically, we wanted to update the emission factors, add new materials to the model and use different bags that better represent our current products. For example, in 2019, O My Bag did not work with a leather alternative yet. ERM has been selected to support this update. This report comprises the methods and the results of an update of the Life Cycle Assessment (LCA) commissioned by O My Bag in 2023. The set up of this study is the same as the LCA from 2019, but we have made the following changes:

- New functional units.
- Use phase has been included.
- The LCA calculations for leather and cotton have improved.
- Updated emission and conversion factors.
- Comparison of the impact of different materials has been included.

ERM

Environmental Resources Management (ERM) Group is a global sustainability consultancy with a Dutch team based in Utrecht. The company helps connect sustainability themes to business strategies and ensures efficient and transparent communication with the outside world. Utilizing mesurable reporting cycles and benchmark information that meet all relevant standards, ERM has developed the LCA tool to assess O My Bag's environmental impact.

1.5 OBJECTIVES

O My Bag's key objective for performing an LCA is to be able to further understand the environmental impact that comes with the production and shipping of our bags. Because we completed our first LCA in 2019, this time we wanted to identify and evaluate how effective our actions have been, and more importantly, what (new) priorities arise to further improve our environmental performance in the years ahead. More specifically, the objectives for the new 2023 LCA are to:

- Collect and incorporate data from our full production cycle, for the financial year ending 2022. This includes a specific focus on new functional units of Audrey Mini and Drew.
- Update the emission factors and add new material factors to create an up-to-date emission set for O My Bag's LCA and carbon footprint calculation.
- Optimize the calculation tool for better usability by adding a CO2 footprint dashboard and impact extrapolation option.

1.6 TIME PERIOD COVERED & STANDARDS USED

The study commenced in April 2023 and was completed in August 2023. It covers the sales and production data of 2022 (01.01.2022 – 31.12.2022). The LCA is performed in accordance with ISO 14040 and ISO 14044.

2 | Scope of the LCA

2.1 FUNCTIONAL UNITS

The goal of the study is to know and understand the environmental impact of two bags: the Audrey Mini and the Drew. We also included the cotton dustbag which is used to individually package each bag for protection. Since O My Bag has over 240 stock keeping units (SKU's) in its collection, it was decided to work with these functional units instead of doing a detailed analysis of every available product. Each O My Bag differs in size and structure, but consists of the same materials, therefore it is the most efficient to work with the functional units.

These two bags have been selected in 2023 as functional units because they are bestsellers, and are made of leather from both of O My Bag's leather suppliers. They are assembled by two different manufacturers that produce the majority of O My Bag's products, and are of average size. Hence, they are deemed as representative of the O My Bag collection.

FUNCTIONAL UNIT

A functional unit refers to the product, service, or system whose impacts are calculated in an LCA. The choice of functional unit influences an LCA's results and care is needed when comparing the results of LCAs with different functional units.

Accordingly, the defined functional units are 1) One Audrey Mini bag, including a dust bag and packaging, taken care of as instructed in O My Bag's Care Guide 2) One Drew bag, including a dust bag and packaging, taken care of as instructed in O My Bag's Care Guide.

Audrey Mini, Classic Leather (with webbing strap)

Drew, Soft Grain Leather

Dustbag

The total average weight as shipped from the manufacturing facility to the warehouse is 583 grams for the Audrey Mini, and 999 grams for the Drew. The analysis takes a cradle-to-gate approach. Thanks to the support and transparency of our supply chain partners, our LCA contains supplier-specific data from tier 1 partners. We also obtained some specific data from our tanneries, our most important tier 2 partners.

2.2 USE PHASE

We help our customers to take good care of their purchase. We offer care products, provide a lifetime guarantee, have a free repair service and have a big second hand program where customers can bring back an old O My Bag that they no longer use. Since the longevity of our products is such a fundamental part of our strategy, we decided to include our care products and their use as prescribed in our 2023 LCA.

Collonil Supreme Wax Spray

Collonil Bamboo Lotion

Collonil Organic Cream

2.3 SYSTEM BOUNDARIES

The system boundary describes which life cycle stages of the product are part of the LCA. In the analysis of the Audrey Mini and Drew, this study considers the raw materials, energy, transportation, the use phase products and the waste generated during the production processess. All life cycle stages are considered up until the product has been delivered to our warehouse in the Netherlands.

Services, materials, and energy that are not directly connected to the bags during its life cycle (e.g., they do not become the product, make the product, or directly carry the product through its life cycle) are defined as non-attributable processes. These processes are therefore not included in the analysis. However, they are included in our impact extrapolation to calculate our corporate carbon footprint for our annual sustainability report.

Non-attributable processes of this study include:

- Research & Design
- Sampling
- Transport of employees to and from work
- Corporate activities (sales and marketing)
- Business travel

2.4 IMPACT EXTRAPOLATION FOR TOTAL CORPORATE CARBON FOOTPRINT

To calculate O My Bag's total company footprint, an additional calculation file was created in which extrapolations of the Audrey Mini and Drew are used to estimate the impact of purchased goods & services in scope 3 emissions, based on weight shipped by air versus weight shipped by sea. In this file scope 1 and 2 are also included (covering the non-attributable processes as described in 3.3) so that O My Bag can get a complete overview of its corporate carbon footprint.

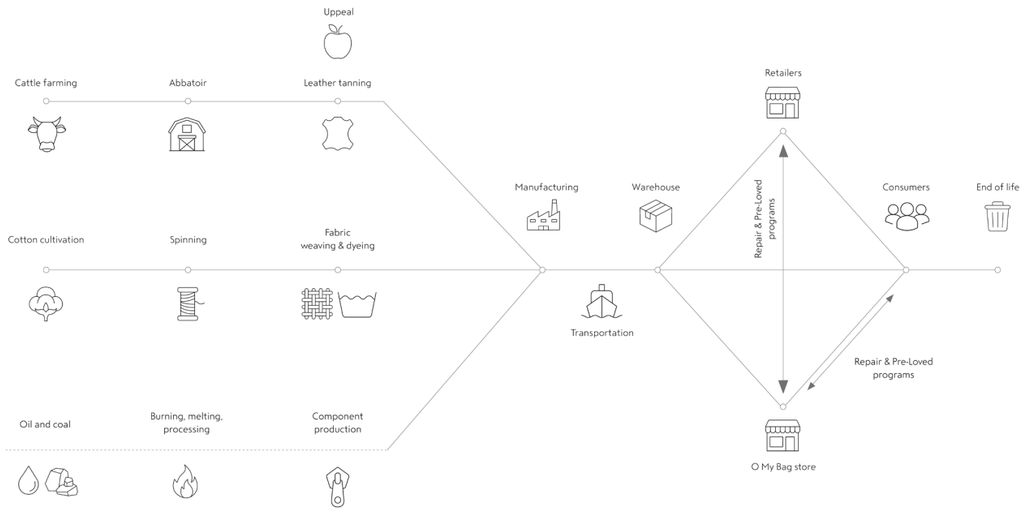
2.5 IMPACT CATEGORIES

To ensure that the full environmental impact of the products are assessed, all 18 ReCiPe midpoint indicators are included in the LCA model:

- Agricultural land occupation
- Climate change
- Fossil depletion
- Freshwater ecotoxicity
- Freshwater eutrophication
- Human toxicity
- Ionising radiation
- Marine ecotoxicity
- Marine eutrophication
- Metal depletion
- Natural land transformation
- Ozone depletion
- Particulate matter formation
- Photochemical oxidant formation
- Terrestrial acidification
- Terrestrial ecotoxicity
- Urban land occupation
- Water depletion
- Corporate activities (like sales and marketing)
- Business flights

2.6 BILL OF MATERIALS

2.7 OUR SUPPLY CHAIN



3 | Life Cycle Inventory Analysis

3.1 DATA COLLECTION

For this study, data from O My Bag and supply chain partners has been considered. All processes in the system boundaries were included in the analyses. Due to the diversity of materials used and the complexity of the bags, focus has been on the materials that account for large parts of the bag: leather and cotton. Primary data has not been requested from suppliers of materials that make up only a small part of the bag (e.g. glue).

Not all contacted suppliers were able to provide all necessary data. To account for the missing data, industry averages have been used and were modelled using Ecoinvent version 3.8.1 for the production of raw materials and the processing of these materials.

3.2 O MY BAG OPERATIONS

Emissions creating an environmental impact that can be attributed to O My Bag are due to the operations of O My Bag's warehouse. Utilities broken down per bag have been taken into account. When data was only partially available, it was extrapolated to account for the entire time period covered by the analysis, and an average per bag was created: packaging, the bags' actual weight and cut-offs, as well as transport mode and distance from the supplier to the warehouse have been included. O My Bag does not own or operate any assets related to the production of the bags.

3.3 WHAT DATA DID WE REQUEST FROM OUR SUPPLIERS?

Tier 1 suppliers, i.e. the manufacturing facilities for the Audrey Mini and the Drew, have been asked to provide all product details for this analysis. Furthermore, suppliers of leather, Uppeal (formerly known as AppleSkin™ our vegan alternative to leather produced by Mabel Synthetic) and cotton have also been contacted for the necessary information. The requested data includes:

- An LCA/EPD of the material if available:
  - Bill of material (type of material & gross and net weight of the materials)
  - Utilities required to produce the product (type and amount)
  - Waste or emission discharges occurring to air, water and soil
  - Transport details (mode of transport and distance)

Both tier 1 suppliers, both tanneries and the producer of Uppeal were able to share primary data that was integrated in this analysis.

3.4 CALCULATION METHODOLOGY

Data provided by suppliers regarding materials, waste, transport and energy use was directly used in the model. To be able to model all processes for which no primary data was available, the Ecoinvent v.3.8.1. cut-off database was used. Ecoinvent 3.8.1 is the latest version of the Ecoinvent database that provides well documented process data for thousands of products.

The environmental impacts have been calculated in the following way: All activity data from the suppliers (all materials and process data relating to the bags within the system boundary) have been multiplied by the emission factors to get to environmental emissions in all 18 environmental categories (i.e. ReCiPe Hierarchy midpoint indicators).

If no supplier data on a process was available, the weight of the material to be processed was multiplied with the conversion factors of the market average processes, as found in Ecoinvent.

In a subsequent step, these emissions were then summed up and multiplied with the ReCiPe characterization factors. ReCiPe is a method for the impact assessment (LCIA) in an LCA. The model translates emissions and resource extractions into a limited number of environmental impact scores. The model was chosen because it uses a current range of environmental impact categories that are deemed relevant to the products assessed in this analysis.

In a final step, the total impacts of the 18 environmental indicators were monetized using the weighting factors of CE Delft – Environmental Prices Handbook 2017.

3.5 ALLOCATION

CUT OFF CRITERIA

In this LCA the cut-off model is used to allocate impact. The cut-off model of Ecoinvent dictates that the primary (first) production of materials is always allocated to the primary user of a material. Consequently, secondary (e.g. recycled) materials bear only the impacts of the recycling processes. For example, recycled cotton only bears the impacts of the used cotton collection and the recycling process of turning it into usable cotton again. It is free of any burdens of the agricultural activities and processing required for the primary production of the cotton as that impact is allocated to the virgin cotton.

LEATHER

The default (economic) allocation as set by the production Environmental Footprint Category rules of Leather of the European Union have been followed. This means 3.5% of the impact of cattle slaughtering is allocated to the production of raw hides.

4 | Assumptions & Limitations

4.1 SUPPLIER DATA

As detailed in our 2019 LCA report, the LCA relies on market average process and material impacts. This makes it difficult to draw conclusions on what materials and processes contribute most to the total impact of the bags. This applies especially to the more complex processes such as leather tanning. The weights of the materials and (sub) components are corrected for their weights in the final product as reported by the bag manufacturers. It is assumed the reported weights are correct. The impacts in tier 2 and 3 depend on these weights.

5 | Results & Interpretation

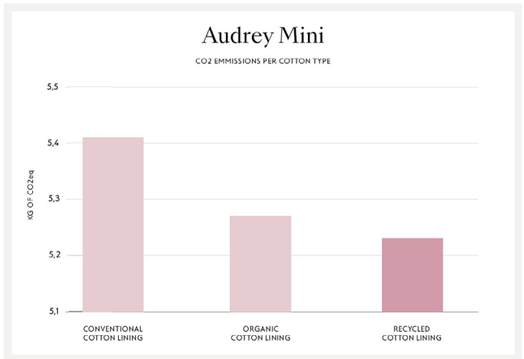
In this chapter we will share the outcomes of our LCA. The results reveal where high impacts occur in the life cycle of our bags. We'll explain how effective our reduction efforts have been since 2019, compare the environmental impacts of different leather types, compare the impacts of multiple components used in our bags, and separately zoom in on the use phase. To aggregate and compare environmental impacts, we included monetized impact too. This translates the impact of all impact categories into environmental costs to Euro.

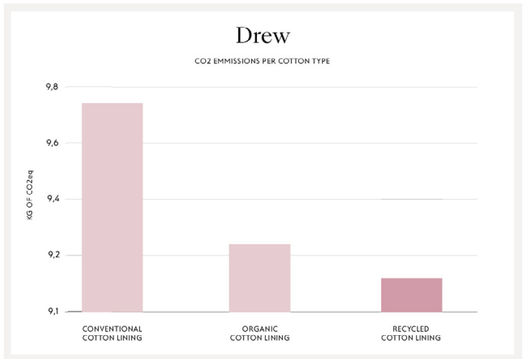
5.1 THE IMPACT OF OUR PRODUCT FOOTPRINT REDUCTION INITIATIVES

SWITCHING TO RECYCLED COTTON FOR OUR SIGNATURE LINING

In 2019, we used certified organic cotton for our signature lining. Although free from harmful pesticides and chemical fertilisers, organic cotton still carries an ecological burden due to its high water and soil requirements for cultivation. Consequently, we switched to utilizing 100% GRS certified recycled cotton fabric as soon as our supplier could meet our quality standards in its production. By eliminating the need for cotton cultivation in our supply chain, we achieved an average 1% reduction in the environmental footprint of our Audrey Mini and Drew.

While this reduction may seem modest, it holds significant importance as every single O My Bag item comes with this lining. Moreover, the 1% decrease is in CO2eq emissions, with additional positive impacts evident in other areas such as water depletion and freshwater ecotoxicity.





SWITCHING TO INBOUND SEA SHIPMENTS

The 2019 LCA clearly identified, unsurprisingly, that flying in our bags from India to the Netherlands was the biggest impact hotspot in our supply chain. Therefore, the past few years we have been very focused on improved forecasting and planning with our producers, to ship by sea. We successfully moved from 100% inbound air shipments in 2019, to 63% inbound sea shipments in 2023.

This means that this hotspot is "solved" because the environmental impact our inbound shipments have significantly decreased. In 2019 inbound shipping was 31% of our product footprint, now it is only 0,06%. For Audrey Mini and Drew, shipping by sea instead of air reduces their footprint by 52%.

OUR PRODUCERS SWITCHED TO RENEWABLE ENERGY

Our producers STC and Springfield have installed solar panels on their roofs and now operate with 100% renewable energy. This has led to an impact reduction of 15% in the production of Audrey Mini, and 11% for Drew.

IMPROVED DATA ON LEATHER IMPACT

For this LCA we have revisited the methodology, and updated conversion factors with a particular focus on leather and leather tanning processes. Over the past few years, there have been significant changes in these conversion factors. As a result, our data modeling for this LCA has become more precise. However, it's worth noting that these updates also reveal a higher environmental impact associated with leather compared to the findings from our analysis in 2019.

SEA VS AIR SHIPPING

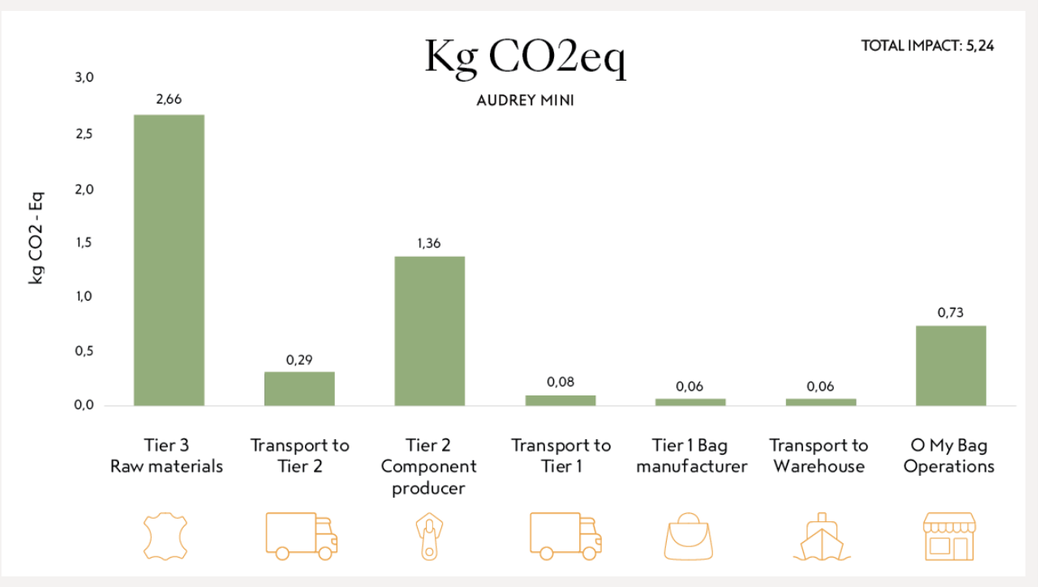
Sea shipping demands improved forecasting, planning, and communication with producers. Whereas an air shipment only takes a couple of days to arrive in our warehouse, a sea shipment can take around 3 months with higher risks of mold or other damages to our products.

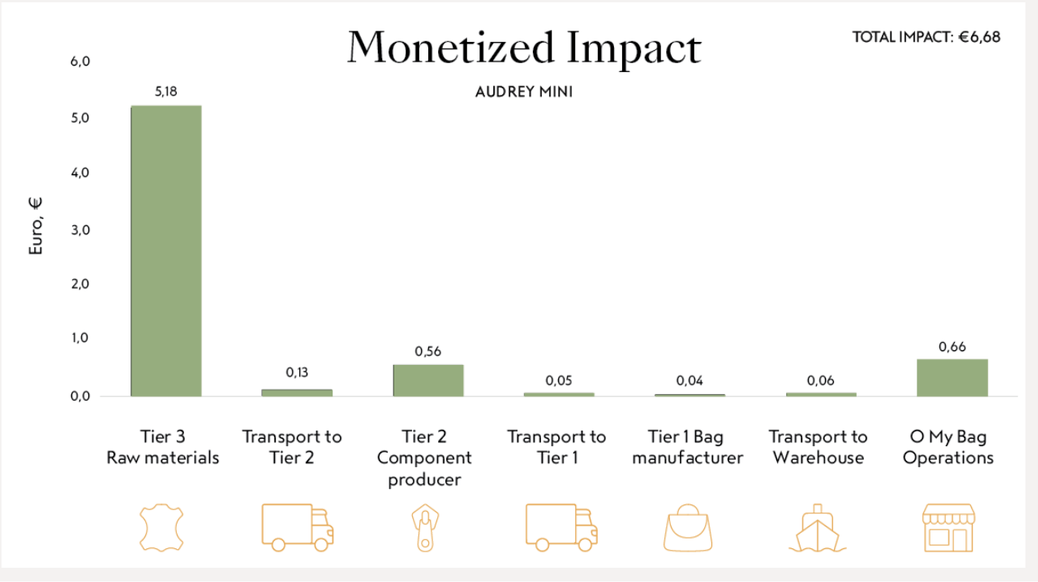
HOTSPOTS ARE RELATIVE

It's essential to understand that while addressing hotspots decreasing a product's footprint, in an LCA, hotspots are relative. Therefore, addressing one issue may reveal another. In our current scenario, our focus has shifted from inbound shipping to raw material utilization as a priority concern.

5.2 AUDREY MINI IMPACT

Audrey Mini is produced by STC factory in India, made from Italian classic cow leather and weighs a total of 583 grams. The following graph shows its impact in kg CO2eq when sold online in our own webshop.

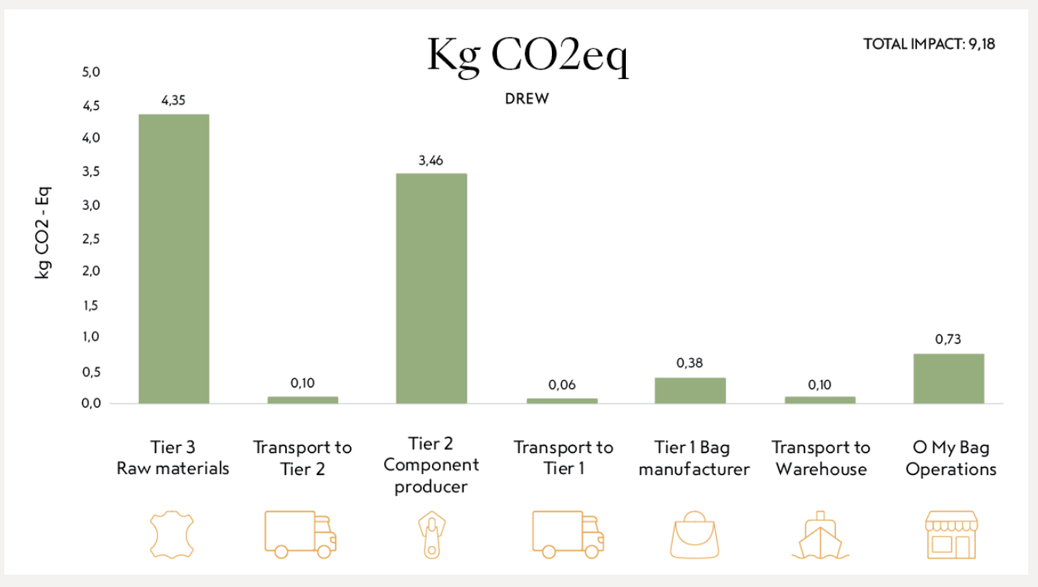


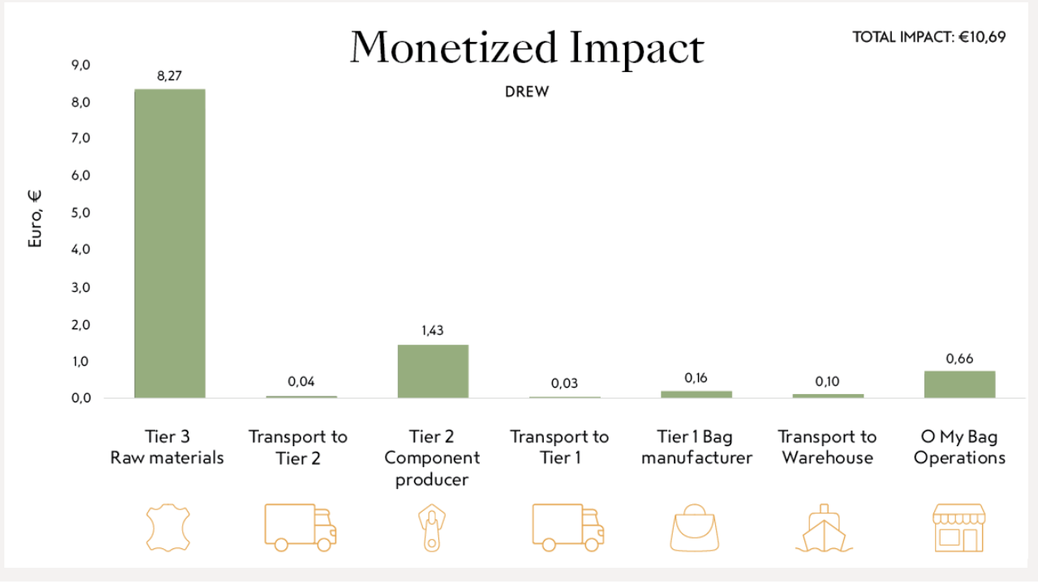


*based on weighting factors of CE Delft - Environmental Prices Handbook 2017

5.3 DREW IMPACT

Drew is produced by the Springfield factory in India, made of Indian soft grain cow leather, and weighs a total of 999 grams. The following graphs show its impact in kg CO2eq when sold online in our own webshop.





*based on weighting factors of CE Delft - Environmental Prices Handbook 2017

5.4 IDENTIFYING THE HOTSPOTS

TIER 3: RAW MATERIALS

Almost 50% of total product CO2eq footprint

This high impact can be assigned to (in order of impact):

- The **raw hides** that are necessary for the production of leather. These undergo a tanning process during which 5 kgs of raw hides are required to yield 1 kg of leather.
- **Metals** and in particular the **mining** of metals come with a high footprint on the environment. Although we are more focused on leather and cotton, this LCA confirms that raw materials required for the hardware of our bags also deserve our attention.
- The **cultivation phase** for the certified organic cotton used for our webbing straps and dustbags comes with a relatively large footprint in our raw materials stage.

TIER 2: COMPONENT PRODUCER

26% of total product CO2eq footprint for Audrey Mini, 38% for Drew

- The **component factories** that produce our hardware (magnets, chains, buttons, zippers).

O MY BAG OPERATIONS

14% of total product CO2eq footprint for Audrey Mini, 8% for Drew

- This hotspot is mostly caused by **high energy usage** of our warehouse, office and stores in the Netherlands. As we do not own our own warehouses, negotiation is required to persuade our warehouse to switch to 100% renewable energy and it's something we will continue to work on.

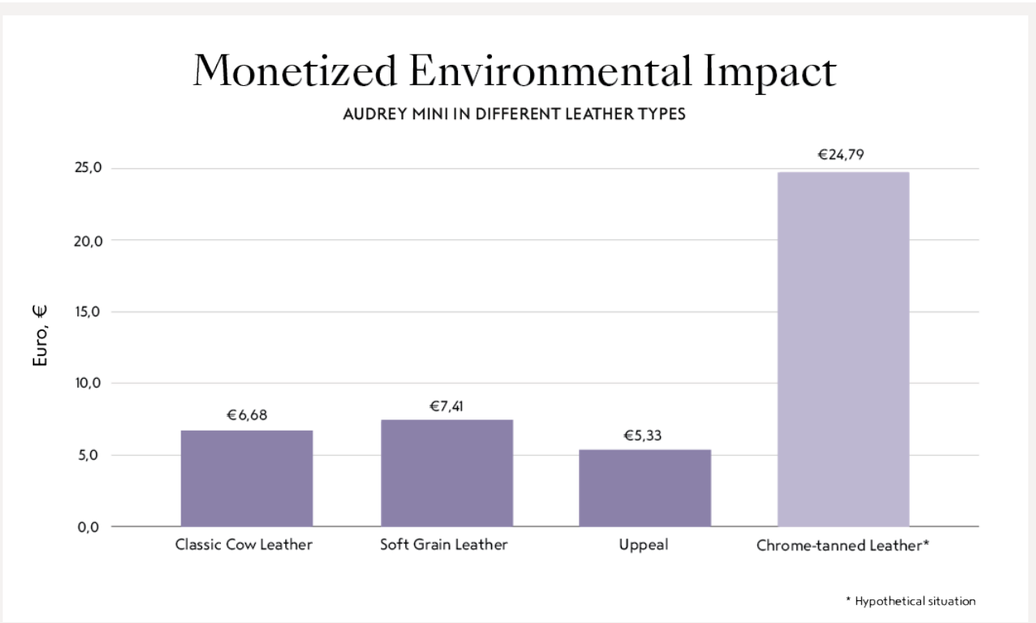
5.5 COMPARING THE ENVIRONMENTAL IMPACT OF DIFFERENT LEATHER TYPES

Leather is our primary material. There are a variety of leather types and tanning methods available. The majority (85-90%) of global leather production is done with chromium-tanning. O My Bag abstains from this polluting leather tanning process and works only with certified, vegetable tanned leather. Moreover, the emergence of vegan alternatives to leather has become increasingly notable. This graph shows the monetized environmental impact of Audrey Mini crafted from different leather variants. A few important notes:

- It is remarkable that even though our Classic Cow Leather is shipped from Italy to India, the impact is still lower compared to our Soft Grain Leather which comes from India. This is due to the lower energy efficiency of the India Tannery. You can read more about this in section 5.6.
- The environmental impact of raw materials for Uppeal might seem unexpected, given it is vegan and utilizing waste from the apple industry. However, the material still requires a partial polyurethane composition to enhance strength and durability. The relatively higher impact in raw materials is attributable to these additional materials used in this blend. Nevertheless, when looking only at the production stages (and not the use phase), Uppeal remains our lowest-impact leather-like material.
- O My Bag refrains from utilizing chromium-tanned leather. However, to illustrate the contrast in terms of the impact, we have included a graph depicting the Audrey Mini made of chromium-tanned leather, which shows that this leather type comes with a 300% higher footprint compared to our vegetable tanned Classic Cow Leather.

MONETIZED IMPACT

We use monetized impact to translate the impact of all impact categories in environmental costs to Euro, in order to aggregate and compare environmental impacts.



5.6 INDIAN VS ITALIAN LEATHER

We collaborate with two tanneries, one situated in Italy and the other in India, just around the corner of our producers. The rationale behind using Italian leather is the disparity in quality compared to Indian leather. We're working on achieving the same quality standard in India, but this proves challenging due to differences in cattle and the circumstances cattle live in.

We assumed that using only Indian leather would be much better for the environment because it removes the need to ship leather from Italy to our producers in India. We anticipated this LCA would validate our assumption, and indeed it proved that in terms of shipping materials to our manufacturers it is less impactful to use Indian hides, as visible in the transport to tier 1 impact in the graphs in sections 5.2 and 5.3. However, when considering the entire product lifecycle, the shipping of materials to our manufacturers accounts for less than 1% of the total product footprint, so in the bigger picture it doesn't make a large difference.

As explained earlier, the difference between the impact of Classic Cow leather and Soft Grain leather comes from the lower energy efficiency of the Indian tannery.

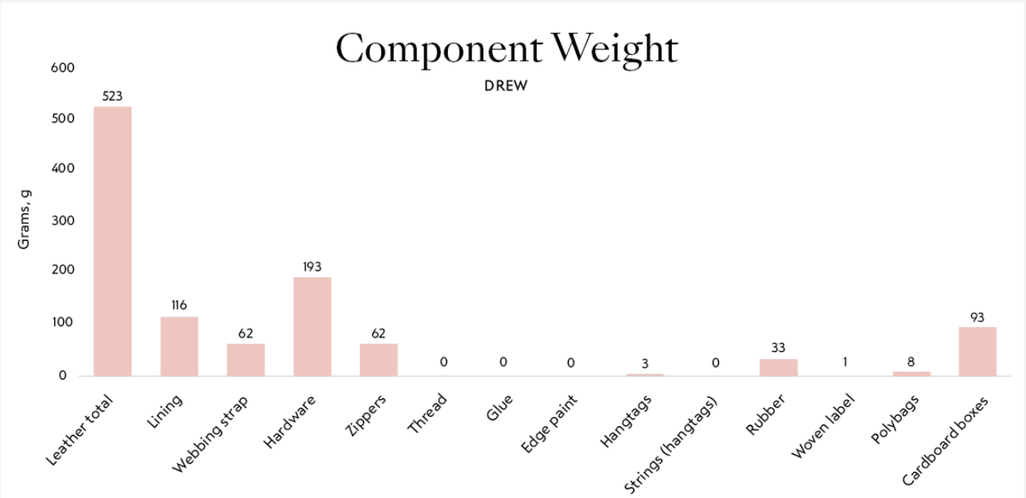
This is exactly why doing an LCA is so important. By identifying and comparing key data, we now understand that it is more important to decide what type of materials to use (e.g. coming from renewable sources, recycled), than focusing only on souring materials only from suppliers that are very close to our producers in Kolkata.

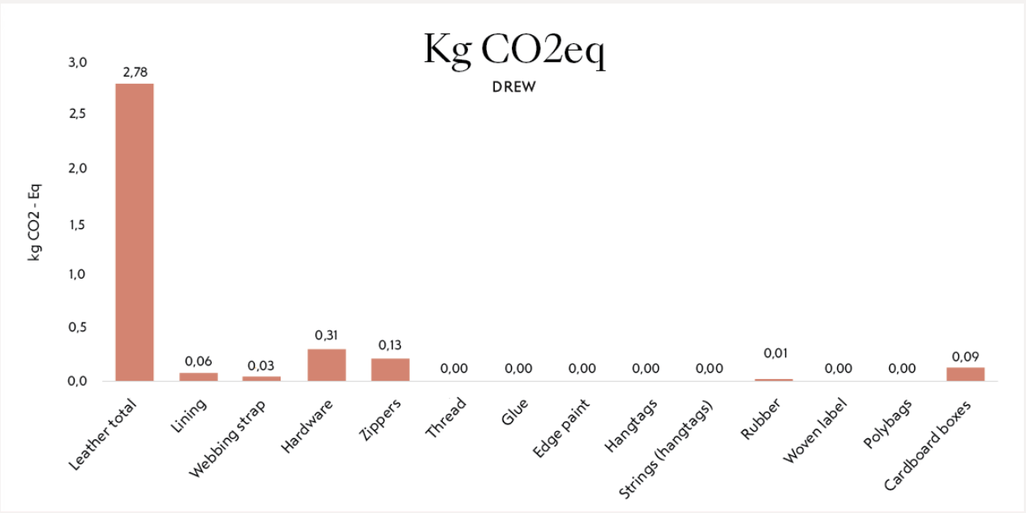
WE ARE MISSION DRIVEN

O My Bag is a mission driven company. We exist to make a positive difference in the world, so environmental impact is not our only driver. We aim to add value at the beginning of our supply chain, in India. Therefore, we'll assist our Indian tannery in improving their energy efficiency, while also continuing our collaborative efforts to develop high quality leathers together.

5.7 BAG COMPONENTS DEEP DIVE

In addition to identifying the primary impacts within our supply chain stages, we also assessed the varying environmental footprints of the components used in our bags. The following graphs illustrate the components of the Drew bag. The initial graph shows their respective impacts in CO2 emissions, while the subsequent graph displays their weights within a single Drew bag. Incorporating weight data offers valuable context, as it allows for a clearer understanding of the relative environmental impact—higher relative weights correspond to higher relative environmental impacts.





5.8 THE LONG-TERM IMPACT OF LEATHER

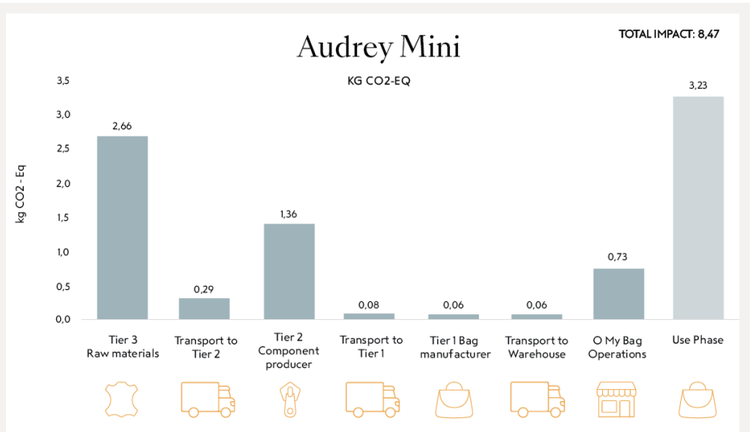
WHY IS INCLUDING THE USE PHASE SO IMPORTANT FOR A LEATHER LCA?

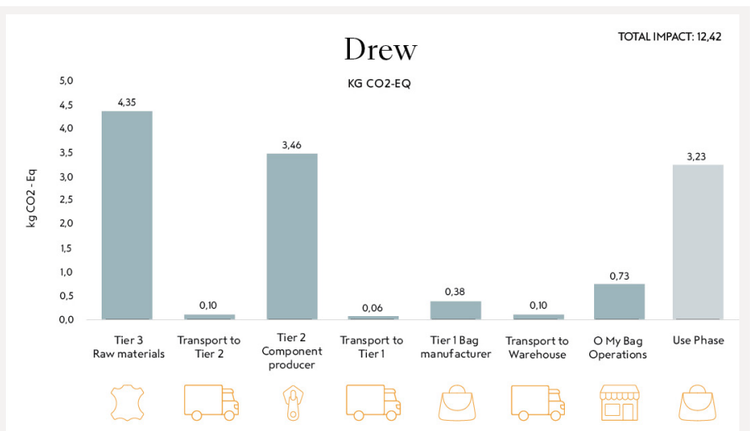
Usually, a cradle-to-gate LCA is used as a guideline to set priorities for emission reduction in the upstream supply chain. We want to take this LCA a step further. As a brand that is so focused on longevity by making high quality products with a lifelong guarantee, we want to know the use phase impact of our products too. So we are crossing an LCA-limit here. However, for a material as durable as leather, neglecting this step would mean we don't get a comprehensive understanding of its full ecological impact. Therefore, we included our recommended care products in this assessment.

WHAT DOES THE USE PHASE OF AN O MY BAG LOOK LIKE?

The use phase of a bag can look very different; critical influencing factors are how frequently an intensively a bag is used, which, how much, and how often cleaning and care products are used, and whether the bag was repaired in the case of defects. In this LCA we assumed that customers who bought an O My Bag closely followed our care instructions and applied the products exactly as we prescribed, because that would guarantee a lifetime which we valued at 60 years, i.e. our bags having multiple owners and being passed on to multiple generations.

IMPACT OF THE USE PHASE IN KG CO2eq





The specific impact in Kg CO2eq of using our care products on Audrey Mini and Drew is reflected in the graphs below. The 3,23 kg CO2eq is coming from applying our care products as prescribed for 60 years.

This shows that including the care products raises the product footprint. Although this might sound like a high impact, applying these care products will actually lower the environmental impact on the long run. Real positive environmental impact is in keeping products in the loop instead of them going to landfill and customers buying new products to replace them, which requires new raw material extraction.

HOW WE SUPPORT OUR BAGS TO LAST A LIFETIME

OUR CARE INSTRUCTIONS

We instruct our customers to take care of their bags with the following products, that have been included in the calculations for this LCA:

- Spray the protective Collonil 1909 Supreme Wax Spray every 2-4 weeks to protect your bag from weather conditions.
- Moisturize the leather every 3 months with Collonil Organic Cream to keep it soft andprevent scratches from daily use with.
- Remove stains with Collonil Bamboo Lotion.

Explore our digital Care Guide for more information!

OUR LIFETIME GUARANTEE & FREE REPAIR SERVICE

We design bags that don't easily break and give a lifelong guarentee. In case damage happens along the way, we've got you covered by offering a variety of repair services. Depending on the issue, we'll advise you on the best repair options: a DIY repair, a local repair, drop-off repair, or mail-in repair. Always for free!

OUR SECOND CHANCES PROGRAM

We believe all our bags and accessories deserve a loving home, whether they have been loved before or have gained an imperfection throughout their life.

Perfectly Imperfect

By Perfectly Imperfect we mean products that have a production imperfection. Other brands might send these items straight to the rubbish pile. For us, that is a no-go. Dedicated artisans have put a lot of effort and time in manufacturing. We think these bags deserve as much love as the bags from our regular collection. That's why we offer them online and in stores at a slightly reduced price.

Pre-loved

While we aim for timeless designs, we recognize your desire for change. You can trade in your old bag for a discout on a new one, or exchange it for a another preloved item in our stores. Our second-hand bags age beautifully, developing a unique smoothness and vintage appeal. Each preloved bag carries its own story, just like us!

Learn more about our Second Chances program!

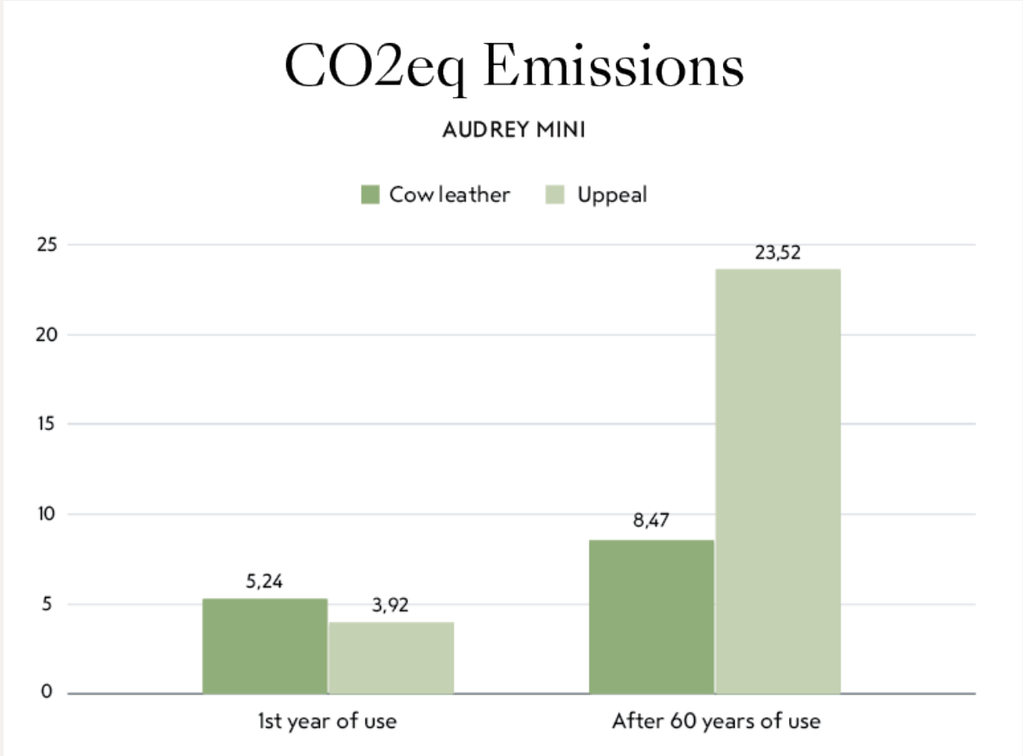
COMPARING LEATHER TYPES AND THEIR DURABILITY

This is relevant especially if you want to compare the sustainability of leather and vegan leather-like materials. Earlier in this report we saw that the Audrey Mini made of Uppeal comes with a lower footprint in production. However, at this moment we don't exactly know yet the durability, because the material has been in the market for only a few years. Although we strive for the highest quality and have tested the material intensively, we expect it will last around 10 years.

THE LONG-TERM IMPACT OF OUR LEATHER VS OUR VEGAN ALTERNATIVE

Following this logic, it is possible to do a thought experiment* to consider the impact of our Audrey Mini in cow leather vs Audrey Mini in Uppeal over their full lifespan. We know that Audrey Mini in classic cow leather and including the use phase has a footprint of **8,47 kg CO2eq**. It can be used for 60 years. Audrey Mini in Uppeal comes with a footprint of 3,92 kg CO2eq. It is currently estimated that Uppeal has a lifespan of approximately 10 years. Assuming that means that a customer would need to replace this product 6 times to be able to use it for 60 years, the footprint would increase to **23,5 kg COeq.**

So even though vegan leather-like materials have a lower environmental impact in the production phase than cow leather, the longevity of this type of material is generally lower, and as a result the environmental impact in the use phase is higher. In summary, both materials have their advantages and disadvantages, and we're happy to work with both.



*This is a first attempt of us modeling the use phase of our products properly. There are assumptions at play and data quality is low, which is a limitation to this LCA. In the years ahead we'll research how we can best calculate the impact of the longevity of leather products.

6 | Conclusions & Next Steps

Reducing our footprint is a continuous effort that requires lots of monitoring to make sure that we still have the right priorities for effective reduction. The outcomes of this LCA show that switching to sea shipments, installing solar panels at our producers and working with recycled cotton do have a positive impact on the environmental footprint of our products.

In this LCA we learned that our primary material leather comes with a high environmental footprint, and is therefore an impact hotspot in our supply chain. For both Audrey Mini and Drew, the raw material stage comes with the biggest environmental impact. When zooming in on the raw materials used in our supply chain, 38% of the impact can be attributed to raw hides. The supply chain stage with the second biggest environmental impact is tier 2, where the hides are tanned into leather at our tanneries, and where hardware is produced in steel processing factories.

These results are not surprising to us, as we know producing leather - even though vegetable tanned, certified, and chrome free - comes with an impact on the environment. Seeing that this impact is now the biggest hotspot in our supply chain serves as motivation for us to focus on cleaner leather tanning processes, guarantee the longevity of our products, and enhance their availability in the second-hand market to reduce the need for raw material extraction. We've discovered that solely focusing on production stages and neglecting the use phase is a constraint. We fully support the development of innovative, low-impact, vegan alternative materials and we'll continue to test and develop those. By considering and comparing the use phase of cow leather versus our vegan alternative, we've realized that simply replacing leather with a vegan alternative won't yield the long-term environmental advantages we aspire to achieve. As a result, both material options are incorporated into our future plans.

PLANS FOR THE YEARS AHEAD

Collaborate with Indian tanneries to improve their energy efficiency.

Raise awareness on the importance of longevity, so that our customers understand how to take care of their products.

Improve traceability of the raw materials used for our leathers.

Back up claims on leather durability with quantitative data.

Continue to build our vegan collection and test new low impact and durable vegan alternatives for leather.

Reach out to the supplier of our care products and collaborate on lowering their environmental footprint.

Expand our Second Chances program as a more substantial part of our business to lower the need for raw material extraction.

Continue the search for more sustainable alternatives for our current hardware, and reduce the amount of hardware used in new designs.

Research innovative sustainable tanning technologies and support our tanneries in working with those solutions.

Research the impact of and options for a product made of fully traceable, regenerative leather.

Last but not least: this LCA will serve as the basis for our updated company carbon footprint calculation starting from the year 2023.

CURIOUS TO KNOW MORE?

We're happy to answer any questions! Feel free to reach out to Femke, our Sustainability Manager at sustainability@omybag.nl

7 | Definitions

HANDBAG

Leather	Cow leather, vegetable tanned. Primary material.
Uppeal	Our vegan alternative to cow leather, formerly known as AppleSkin™.
Lining	Fabric that lines the inside of the bag.
Hardware	Metal components of a bag, such as buckles, clasp, rivets or buttons.
Zipper	Fastener consisting of three components: the tape, teeth and puller.
Thread	Used for stitching: holds leather and lining together.
Hangtag	Label showing the company logo and the price of the bag.
Woven label	Labels inside the bag with the company logo and batch number.
Edge paint	Paint used to color the leather edges of the bag.
Raw materials	Materials used to create the individual bag components listed above, for example cotton or chemicals.

PACKAGING

Dustbag	Cotton bag with string. Comes with every bag to protect it from dust and scratches.
Packaging	Materials used to transport the bag without damaging them (when shipped to customers).

PROCESSES

Tanning	The process by which raw hides are processed into durable leather. The decay of the natural material is stopped. Includes the dyeing of the leather.
Manufacturing	Assembly of the single components to the final bag. Carried out by tier 1 manufacturing partners.

GENERAL

Functional unit	Refers to the product, service, or system whose impacts are calculated in an LCA. The choice of functional unit influences an LCA's results and care is needed when comparing the results of LCAs with different functional units.

GENERAL

Greenhouse gas (GHG) emissions	Greenhouse gases, including the carbon containing gases carbon dioxide and methane, can be emitted through the burning of fossil fuels, land clearance and the production and consumption of food, manufactured goods, materials, wood, roads, buildings, transportation and other services.
Monetized impact	Monetization of environmental footprint: translates the impact of all impact categories into environmental costs to Euro, in order to aggregate and compare environmental impacts.
Tier 1, 2, 3, x suppliers	Tiers indicate where suppliers can be located in the supply chain. The higher the tier, the further "away" a supplier is. Tier 1 suppliers directly supply products to O My Bag, tier 2 suppliers are the direct suppliers of tier 1 suppliers.
B2B	Business to Business, meaning sales are direct to retailers.
B2C	Business to (end) Consumer.
Bill of materials	List of all the main components of a product.
Cradle to gate	Assessment of a partial product life cycle from resource extraction (cradle) to the factory gate (i.e. before it is transported to the end consumer.
Cut-off waste	Material left over after components are cut during the manufacturing of the end product, e.g. fabric scraps.
Environment 3.8.1	The Ecoinvent database is the world's leading Life Cycle Inventory database, providing well documented process data for thousands of products and their environmental impact.
Environment Product Declaration (EPD)	An independently verified and registered document that communicates transparent and comparable information about the life cycle environmental impact of products in a credible way.
Higg Index	The Higg Index is an apparel and footwear industry self-assessment standard for assessing the environmental and social sustainability throughout the supply chain.
ReCiPe hierarchy assessment method	ReCiPe is a method for the impact assessment (LCIA) in an LCA. Life Cycle Impact Assessment (LCIA) translates emissions and resource extractions into a limited number of environmental impact scores by means of so-called characterization factors. (source: RIVM)
Midpoint and endpoint indicators	Midpoint indicators focus on single environmental problems, for example climate change or acidification. Endpoint indicators show the environmental impact on three higher aggregation levels, being the 1) effect on human health, 2) biodiversity, and 3) resource scarcity. Converting midpoints to endpoints simplifies the interpretation of the LCIA results. However, with each aggregation step, uncertainty in the results increases (source: RIVM). In this study we focus on midpoint indicators.

8 | Appendix

AUDREY MINI IMPACT, LCIA RESULTS

		Tier 3: raw materials	Transport to tier 2	Tier 2: component producers	Transport to tier 1	Tier 1: bag manufacturers	Transport to warehouse	O My Bag operations
Agricultural land occupation: ALOP	AL (m2a)	7,89E+00	2,96E-03	1,71E-01	6,24E-04	3,84E-03	3,70E-04	1,49E+00
Climate change: GWP100	(kg CO2-Eq)	2,66E+00	2,93E-01	1,36E+00	7,55E-02	5,87E-02	5,83E-02	7,29E-01
Fossil depletion: FDP	(kg oil-Eq)	6,20E-01	1,08E-01	5,43E-01	2,61E-02	1,79E-02	1,89E-02	2,81E-01
Freshwater ecotoxicity: FETPinf	FE (kg 1,4-DC.)	1,01E-02	2,16E-04	2,61E-01	4,70E-05	6,89E-05	2,93E-05	8,85E-04
Freshwater eutrophication: FEP	(kg P-Eq)	2,96E-03	2,75E-06	5,02E-04	5,50E-07	4,21E-06	2,97E-07	9,57E-05
Human toxicity: HTPinf	HT (kg 1,4-DC.)	1,85E+00	6,82E-02	4,40E-01	1,17E-02	3,94E-02	4,32E-03	6,99E-02
Ionising radiation: IRP_HE	(kg U235-Eq)	1,14E-01	1,83E-02	4,11E-02	4,51E-03	2,33E-03	3,31E-03	7,06E-02
Marine ecotoxicity: METPinf	(kg 1,4-DB.)	1,24E-02	1,13E-03	1,08E-02	2,14E-04	6,86E-04	1,05E-04	8,60E-04
Marine eutrophication: MEP	(kg N-Eq)	2,38E-02	2,00E-05	9,34E-04	1,75E-05	4,42E-05	6,69E-05	1,30E-03
Metal depletion: MDP	(kg Fe-Eq)	1,19E+00	2,05E-03	1,76E-01	1,37E-03	2,60E-02	2,43E-03	1,66E-02
Natural land transformation: NLTP	(m2)	-7,85E-05	-9,59E-06	-1,70E-03	-5,61E-06	-1,77E-04	-2,73E-06	-3,67E-05
Ozone depletion: ODPinf	(kg CFC-11.)	1,67E-07	1,74E-08	7,32E-05	1,12E-08	2,13E-08	1,59E-08	6,12E-08
Particulate matter formation: PMFP	(kg PM10-Eq)	1,37E-02	2,24E-04	6,90E-03	1,90E-04	7,63E-04	6,86E-04	1,40E-03
Photochemical oxidant formation: POFP	(kg NMVOC-.)	1,30E-02	6,02E-04	8,13E-03	5,15E-04	9,69E-04	1,89E-03	2,64E-03
Terrestrial acidification: TAP100	(kg SO2-Eq)	6,00E-02	4,16E-04	1,06E-02	4,21E-04	1,30E-03	1,98E-03	3,99E-03
Terrestrial ecotoxicity: TETPinf	TE (kg 1,4-DC.)	8,78E-02	4,74E-05	1,84E-03	2,78E-05	1,60E-04	1,43E-05	5,81E-03
Urban land occupation: ULOP	UL (m2a)	6,48E-02	6,65E-03	2,28E-02	3,86E-03	1,86E-03	1,61E-03	1,61E-02
Water depletion: WDP	(m3 water-.)	1,59E+00	1,56E-04	2,65E-02	9,68E-05	4,64E-03	1,01E-04	7,62E-02

DREW IMPACT, LCIA RESULTS

		Tier 3: raw materials	Transport to tier 2	Tier 2: component producers	Transport to tier 1	Tier 1: bag manufacturers	Transport to warehouse	O My Bag operations
Agricultural land occupation: ALOP	AL (m2a)	1,33E+01	9,95E-04	5,70E-01	6,14E-04	4,78E-02	6,26E-04	1,49E+00
Climate change: GWP100	(kg CO2-Eq)	4,35E+00	9,85E-02	3,46E+00	6,42E-02	3,79E-01	9,77E-02	7,29E-01
Fossil depletion: FDP	(kg oil-Eq)	8,76E-01	3,62E-02	1,32E+00	2,32E-02	1,43E-01	3,17E-02	2,81E-01
Freshwater ecotoxicity: FETPinf	FE (kg 1,4-DC.)	1,08E-02	7,26E-05	2,80E-01	4,52E-05	6,10E-04	4,95E-05	8,85E-04
Freshwater eutrophication: FEP	(kg P-Eq)	3,12E-03	9,23E-07	2,26E-03	5,63E-07	1,59E-05	5,06E-07	9,57E-05
Human toxicity: HTPinf	HT (kg 1,4-DC.)	5,49E+00	2,29E-02	4,33E-01	1,35E-02	7,29E-02	7,52E-03	6,99E-02
Ionising radiation: IRP_HE	(kg U235-Eq)	1,13E-01	6,16E-03	5,30E-02	3,96E-03	4,96E-03	5,55E-03	7,06E-02
Marine ecotoxicity: METPinf	(kg 1,4-DB.)	3,24E-02	3,78E-04	1,09E-02	2,28E-04	1,11E-03	1,79E-04	8,60E-04
Marine eutrophication: MEP	(kg N-Eq)	2,38E-02	2,00E-05	9,34E-04	1,75E-05	4,42E-05	6,69E-05	1,30E-03
Metal depletion: MDP	(kg Fe-Eq)	1,19E+00	2,05E-03	1,76E-01	1,37E-03	2,60E-02	2,43E-03	1,66E-02
Natural land transformation: NLTP	(m2)	-7,85E-05	-9,59E-06	-1,70E-03	-5,61E-06	-1,77E-04	-2,73E-06	-3,67E-05
Ozone depletion: ODPinf	(kg CFC-11.)	1,67E-07	1,74E-08	7,32E-05	1,12E-08	2,13E-08	1,59E-08	6,12E-08
Particulate matter formation: PMFP	(kg PM10-Eq)	1,37E-02	2,24E-04	6,90E-03	1,90E-04	7,63E-04	6,86E-04	1,40E-03
Photochemical oxidant formation: POFP	(kg NMVOC-.)	1,30E-02	6,02E-04	8,13E-03	5,15E-04	9,69E-04	1,89E-03	2,64E-03
Terrestrial acidification: TAP100	(kg SO2-Eq)	6,00E-02	4,16E-04	1,06E-02	4,21E-04	1,30E-03	1,98E-03	3,99E-03
Terrestrial ecotoxicity: TETPinf	TE (kg 1,4-DC.)	8,78E-02	4,74E-05	1,84E-03	2,78E-05	1,60E-04	1,43E-05	5,81E-03
Urban land occupation: ULOP	UL (m2a)	6,48E-02	6,65E-03	2,28E-02	3,86E-03	1,86E-03	1,61E-03	1,61E-02
Water depletion: WDP	(m3 water-.)	1,59E+00	1,56E-04	2,65E-02	9,68E-05	4,64E-03	1,01E-04	7,62E-02