



*Micanda*  
**2021 | Sustainability**  
**2022 | Report**

# Miranda in 2021/2022

## Governance Data

**0** Verified cases of corruption, anti-competitive behaviour and non-compliance with laws and regulations

**100%** Code of Conduct communicated to all members of management, employees and suppliers (new and active)

 **87% / 86%** national suppliers

Label:

2021  
2022

## Social data

 **201/222** employees

 **59% men; 41% women / 55% men; 45% women**

 **0** Work-related diseases

 **1,20/1,30** Ratio average salary at Miranda vs average salary in the industry

 **18** Sustainability awareness campaigns carried out with Miranda employees

## Environmental data

 **-43%** Borehole water withdrawn per piece produced

 **88% / 87%** of renewable energy in the global energy mix

 **83% / 85%** of waste sent to recovery processes

 **78% / 91%** of materials from renewable sources used in product packaging

## Awards/Recognition

### 2021



### 2022



# Top management message



As a leading company within the bicycle industry, we acknowledge our role in promoting sustainable mobility and the numerous advantages it offers for individuals and the environment alike. At the heart of sustainable mobility is the elimination of CO<sub>2</sub> emissions, which positively impacts communities and promotes health and well-being. As a significant player in the shift towards sustainable mobility, we have made it our mission to operate our business in an environmentally responsible and sustainable way throughout the entire value chain. We believe that this is essential to not only meet our social and ethical obligations but also to remain competitive and relevant in an ever-evolving world. This sustainability report details our approach to Environmental, Social, and Governance (ESG) topics and demonstrates our ongoing commitment to enhancing our performance in these areas. We have set ambitious sustainability goals that we pledge and will continuously report on our progress. By doing so, we aim to keep our stakeholders informed and engage them in our sustainability journey. Our dedication to sustainability extends to our products as well. We have been leading sustainability movements within the industry and we are constantly exploring new and innovative ways to produce and deliver our products in a manner that minimizes harm to the environment and maximizes positive impact for people and communities around us. Whether it be through the use of recyclable materials or implementing green energy practices, we are committed to reducing our carbon footprint and making a positive impact. As a company operating in the bicycle industry, we are proud to be part of a movement that is making a tangible difference to the world. Our commitment to sustainable mobility and the environment is not just a business strategy, but it is a core part of our values and beliefs. We are confident that with our continued efforts, we will make a significant contribution towards creating a better and more sustainable future for all.

**João Miranda**  
CEO



# About this report

Miranda publishes its second Sustainability Report, for the years of 2021 and 2022, in order to communicate its Environmental, Social and Governance performance to all its stakeholders.

## Reporting period

This report covers the company's activity during the years of 2021 and 2022 - period from 01/01/2021 to 31/12/2022.

Whenever possible and in order to generate greater comparability between data, it is also presented data for the year of 2020.

## Global Reporting Initiative (GRI)

Miranda has prepared its sustainability report in accordance with the GRI Standards 2021, and the GRI Sector Standards are not applicable.

## Contacts

For questions or additional information on this report, please contact Miranda.

Address: Miranda & Irmão, Lda. EN1 Km228.9, Borralha 3750-871 - Águeda, Portugal

Phone number: +351 234 612 790

E-mail: [esg@miranda.pt](mailto:esg@miranda.pt)



Ch. I  
**Miranda**

# Mission, Vision and Values



## Mission

To develop better transport experiences for the final consumer, through the strong use of the company's technological innovation capacities and the overrun of market expectations.



## Vision

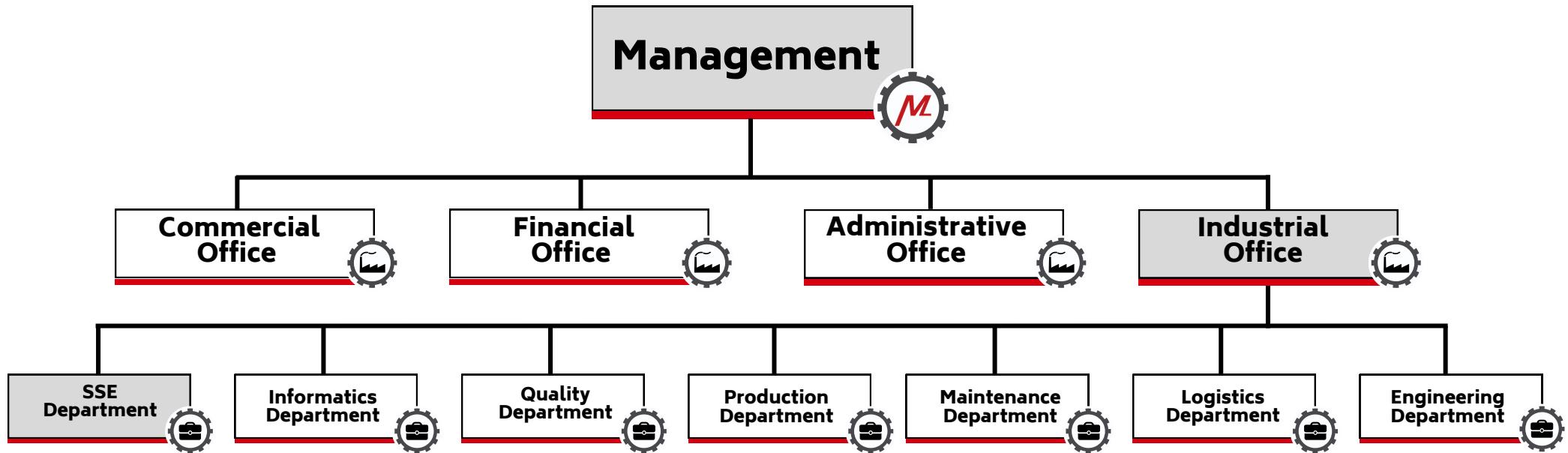
Miranda aims to continue to establish itself as a global reference in bicycle components, developing highly advanced technological solutions, through rigorous processes fostered by R&D activities and focusing on the multiple particularities of the sector.



## Values

Commitment;  
Quality;  
Ethics;  
Continuous improvement;  
Team work;  
Responsibility;  
Respect for the law;  
Honesty and integrity;  
Corporate responsibility;  
Independence;  
Citizenship;  
Cooperation;  
Innovation;  
Technological excellence;  
Customer focus.

# Organogram



Company management is responsible for developing, approving and updating the management system policy, which includes the company's mission, vision and values, strategies and policies.

## Sustainability

Management is an integral part of the materiality analysis processes and it is responsible for the final review and validation of the report.

The responsibility for the identification, monitoring and management of economic, environmental and social impacts lies with the industrial office and it is carried out by the Sustainability, Safety and Environment (SSE) department.

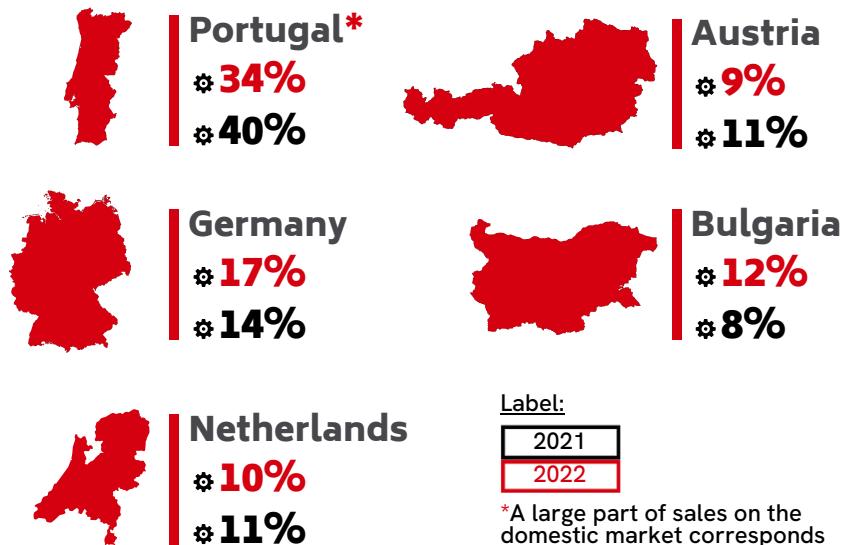
These processes can be addressed daily at the departmental meeting and are then overseen by management on an annual basis or whenever significant changes are identified.

The creation of the Sustainability Department in 2022 reinforced Miranda's commitment to the definition and implementation of good sustainability practices, with a department now dedicated to the daily management of this issue.

# Market presence

Miranda is mainly dedicated to the design and production of aluminium accessories and components for bicycles, specially focused on e-bikes. It also dedicates itself to the production and assembly of injection-moulded plastic material.

## The top 5 markets in 2021/2022



The top 5 markets represented 85% of total sales volume in 2021 and 82% in 2022, reinforcing the importance of other growing markets.

In 2021 and 2022 the products were mainly distributed in Germany, the Netherlands, Austria and Bulgaria.



Difference in total turnover from 2021 to 2022  
**+39%**

# Product lineup

Miranda specializes in the production of drivetrain components, including but not limited to cranksets and chainrings. Our innovative product range is a direct result of a skilled R&D team and our advanced manufacturing capabilities, which allow us to precisely cold forge these intricate parts, ensuring quality and durability with an always stable process. In addition to drivetrain components, we have the capacity to produce a range of other cold-forged parts. This manufacturing process, often chosen for its efficiency and ability to produce robust parts with excellent finish and better material properties, underscores our broad production capabilities.

Our expertise in cold forging positions us as a versatile manufacturer, capable of creating a wide array of bicycle components, all the while adhering to the principles of sustainability and environmental responsibility, which are core to our operations.

While metal components form the mainstay of our portfolio, we also have the expertise to produce high-quality plastic parts, such as battery and engine covers. These plastic components, though currently representing a smaller percentage of our total sales, further demonstrate our diversified manufacturing capabilities and ability to cater to a wide range of customer needs. Across all our production lines, we're committed to maintaining high standards of environmental responsibility and sustainable manufacturing, ensuring we minimize our environmental footprint while delivering superior products.

You can check more information about our products on:  
<https://www.mirandabikeparts.com>



# Investment

Miranda has made a series of investments aimed at increasing the production capacity and efficiency of its facilities, of which we highlight:

- ⚙️ Industrial Wastewater Treatment Plant (IWWTP)
- ⚙️ Liquid and powder painting station
- ⚙️ Photovoltaic power plant
- ⚙️ Technology 4.0

# Innovation

Miranda is currently one of the Portuguese entities with the largest number of patents registered in the EU, reflecting its capacity for innovation.

# Quality

The quality of Miranda products is ensured upstream by the rigorous control of the materials arriving at the factory, and during production, through the laboratory, measures and applicable control points.

A large industrial building with a long, flat roof covered in a grid of solar panels. The building has a light-colored facade with several vertical sections. The sky above is overcast with grey clouds.

Investment,  
innovation  
and quality

# Supply chain

Miranda has most of its suppliers in Portugal, with the remaining located in Europe and Asia.

## Supply chain size

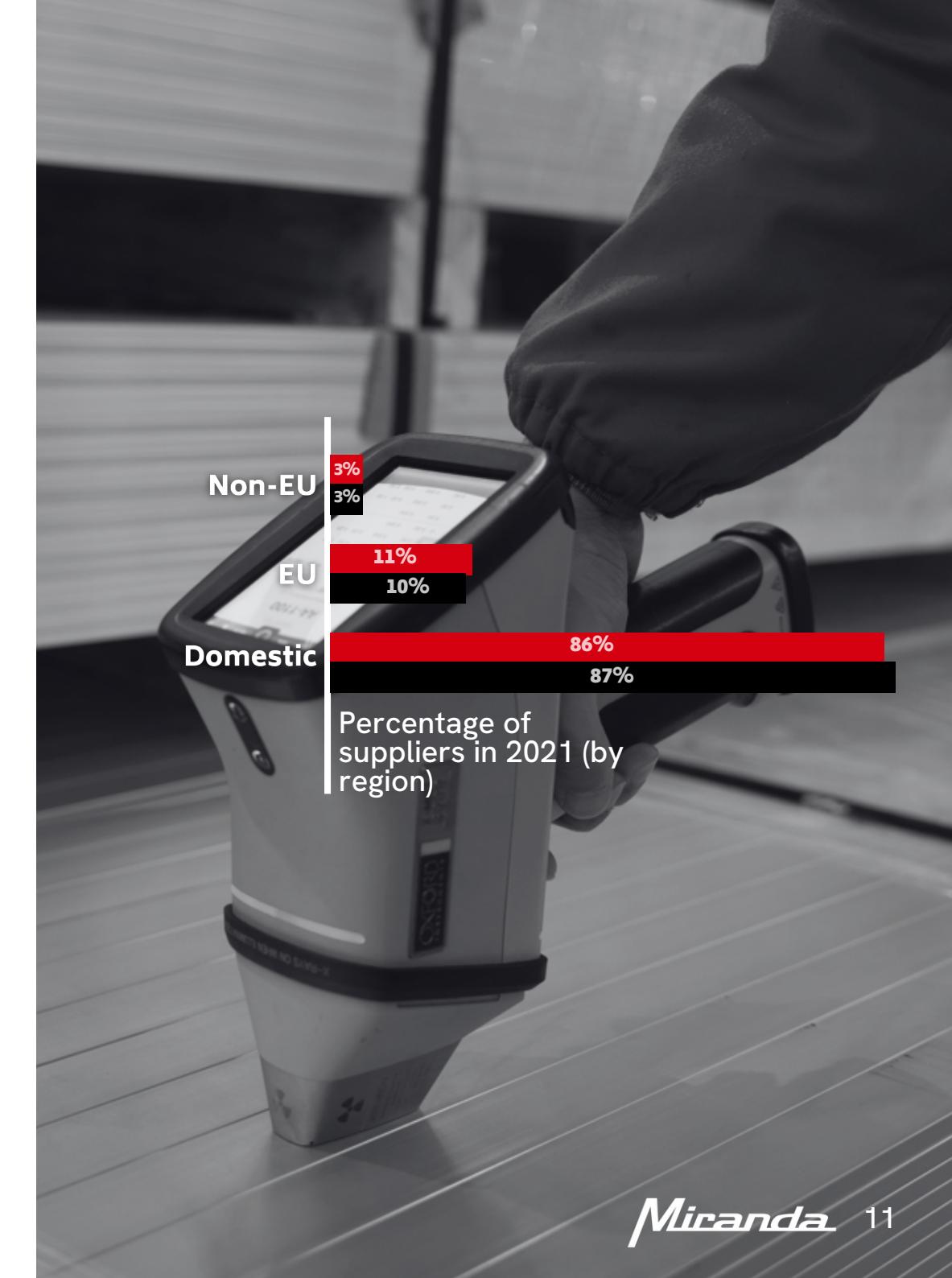


Total number of suppliers in 2021



Total number of suppliers in 2022

Years:



# I Associations



ASSOCIAÇÃO PARA O DESENVOLVIMENTO  
E INOVAÇÃO TECNOLÓGICA



ASSOCIAÇÃO INDUSTRIAL  
DO DISTRITO DE AVEIRO



bikevalueinnovationcenter  
association



## II Initiatives subscribed

### I Shift Cycling Culture



Global movement aiming to promote systemic  
change in the cycling industry by fostering  
sustainable production practices

### I Cycling Industry Sustainable Packaging Pledge



Movement promoted by the Confederation of the  
European Bicycle Industry (CONEBI) and Cycling  
Industries Europe (CIE) to reduce the amount of  
plastic used in product packaging and eliminate  
unnecessary packaging materials from the supply  
chain.

# Associations and initiatives subscribed



# Certifications

Management system of Miranda is implemented in all its activities, including:

- Design and production of accessories and components for two and four wheeled vehicles (ISO 9001/ISO 14001);
- Production and assembly of reflectors and technical parts, in injection moulded plastic material (IATF 16949).



**ISO 9001  
ISO 14001  
IATF 16949**

**The management system policy is guided by several interdependent principles:**

- Learn and improve continuously
- Quality products at competitive prices
- Stakeholder satisfaction
- Engagement
- Environmental protection
- Teamwork



# IStakeholders

Miranda promotes ongoing stakeholder engagement to ensure that the needs and expectations of our stakeholders are met. This engagement is ensured through various communication channels:

In a **sustainability** context, stakeholders are involved through the Code of Conduct, e-mails, communication platform, training activities and the sustainability report.

Stakeholder	Phone calls	Meetings	E-mails	Communication platform/social networks	Reports	Technical visits	Protocols	Projects	Partnerships	Curricular internships	Conferences	Announcements	Training activities
Employees	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙
Partners	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙
Clients	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙				⚙
Competition				⚙									
Insurance companies	⚙	⚙	⚙			⚙	⚙						
Suppliers	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙	⚙				⚙
Credit institutions	⚙	⚙	⚙										⚙
State*	⚙	⚙	⚙		⚙	⚙	⚙	⚙	⚙	⚙	⚙		⚙
Neighbourhood				⚙				⚙	⚙				
Educational institutions	⚙	⚙	⚙			⚙	⚙		⚙	⚙			⚙

\*Including IEFP



Ch. II

# Sustainability strategy



# I Materiality

Miranda has always tried to adopt an ethical and transparent approach to social and environmental responsibility in line with its progressive economic growth.

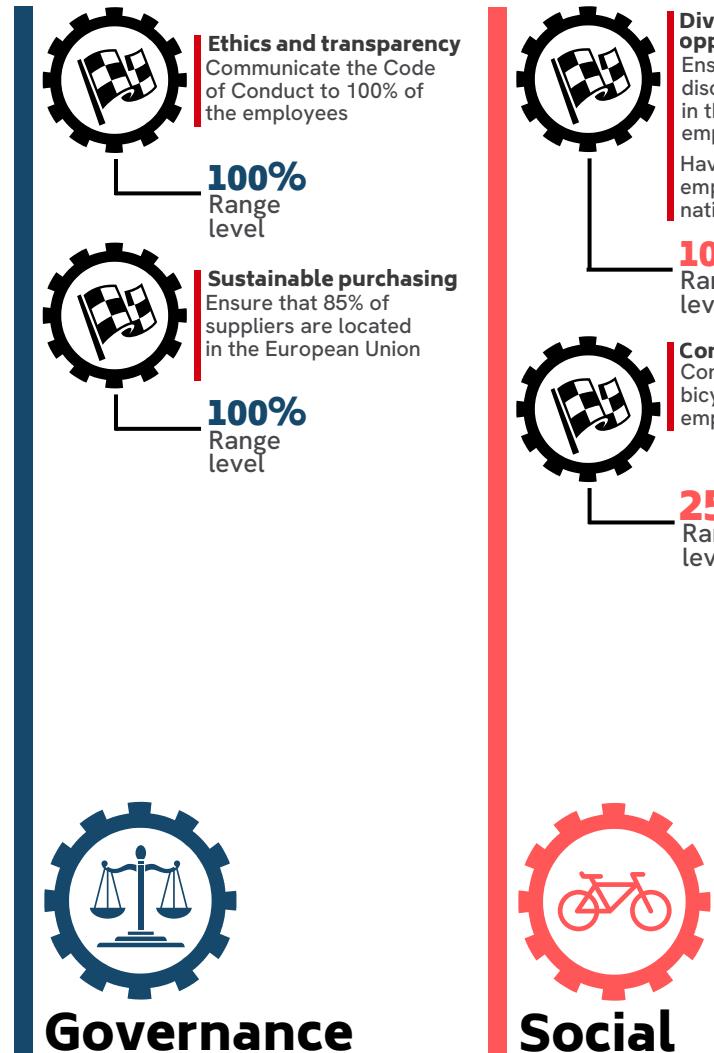
The concern with creating value for the customer is supported by a greater involvement in the community where it operates, by promoting the development of its employees and minimising the impact on the environment.

Miranda's sustainability engagement is based on this cross-cutting foundation between company strategy and stakeholder relations. It is founded on three pillars (Governance, Social and Environmental) which result in nine material issues.

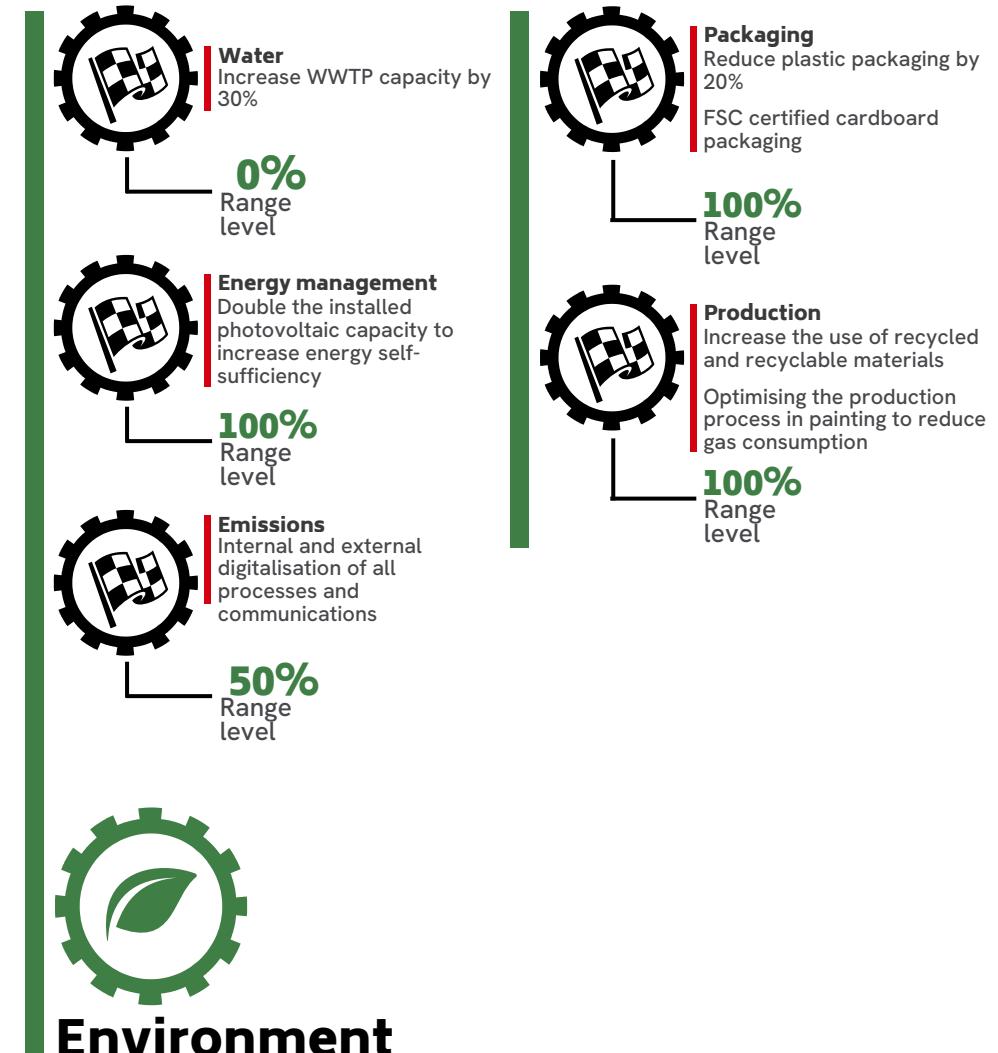
The material issues identified are related to Miranda's activities and their positive/negative impacts, which are directly linked to its most direct stakeholders such as employees, clients and suppliers.

# Goals/Aims

A set of goals and aims were defined for each material issue in 2020 and they must be met by 2025.



During 2021 and 2022 it was possible to achieve a large part of the defined engagements and make progress on others.



# Sustainable Development Goals

The definition and launch of the **17 Sustainable Development Goals** by **the United Nations** was a key guiding framework for countries, businesses and civil society in implementing actions to promote economic, environmental and social development.

As a socially responsible company, Miranda is aligned with the **17 SDGs** and this is part of its sustainability strategy.

Some of the **goals, aims and measures** that Miranda has implemented are directly and indirectly contributing to the achievement of internationally defined goals.



# Sustainable Development Goals



## Governance

- ⚙️ Ethics and transparency
- ⚙️ Sustainable purchasing



## Social

- ⚙️ Diversity and equal opportunities
- ⚙️ Community involvement



## Environment

- ⚙️ Water
- ⚙️ Production
- ⚙️ Packaging
- ⚙️ Emissions
- ⚙️ Energy management



# Ethics and transparency

Miranda believes that ethics is only possible through a business relationship based on the principles of **transparency, respect, responsibility and integrity**.

Miranda conducts and performs its business in compliance with national and international laws, including anti-corruption, fair competition, conflict of interest and the Universal Declaration of Human Rights.

The establishment of **win-win** relationships according to integrated, cooperative and transparent negotiation processes constantly seeks to **create value** and share benefits with all stakeholders.

In recent years, Miranda's focus on transparency has included the presentation of its Sustainability Report to all stakeholders. This report provides information on Miranda's economic, environmental and social activities, as well as other relevant information which reflects its daily business reality.

Our next **goal** is to obtain an external and independent accreditation to prove the data reliability and traceability in the Sustainability Report.

The detailed analysis of its activity has allowed Miranda to obtain key development data and thus make the **risk management** process more effective.

“ Sustainability, ethics and transparency are fundamental pillars for a company that seeks not only profit, but also responsibility towards the environment, society and stakeholders.

**Luís Vara**  
Industrial Department

**I Governance**  
Ethics and transparency



# Risk management

Risk analysis at Miranda is based on the **P(lan) D(o) C(heck) A(ct)** cycle and it is aligned with the effective implementation of the regulatory benchmarks, currently in force at the company.



**ISO 9001**  
**ISO 14001**  
**IATF 16949**

## **P(lan) D(o) C(heck) A(ct)**

- ✿ **1.** Risk analysis
- ✿ **2.** KPI definition
- ✿ **3.** Monitoring
- ✿ **4.** Revision

Risk analysis is carried out annually or whenever an update is deemed necessary to reflect the activities and associated risks of the company.

The risk analysis carried out in 2022 allowed the identification of a set of risks and opportunities framed in an internal and external context to its activities.

# **| Governance**

## Ethics and transparency



# Risk management

Through risk and opportunity analysis it was possible to define a set of key indicators and actions to implement by the responsible teams.

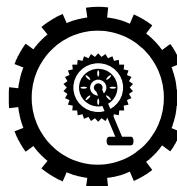
## Actions to implement

- ❖ R&D activities and technology/flexibility
- ❖ Meet market trends
- ❖ Maintain the certified Management System
- ❖ Reinforce the importance of the Management System
- ❖ Increase productivity
- ❖ Increase export capacity
- ❖ Cooperate with recognised competence entities



### Risks

- ❖ Reduced marketing investment
- ❖ Increased international competition
- ❖ Limited presence in the automotive sector
- ❖ Potential environmental offences
- ❖ Failure by suppliers to meet criteria



### Opportunities

- ❖ Search for high performance and innovative products
- ❖ Demand for components made in Europe
- ❖ Customers present in the bicycle and car markets
- ❖ Customers aware of sustainable development
- ❖ Increase in environmental awareness
- ❖ Increase in the number of conventional and electric bicycle users
- ❖ Funds for investment in infrastructures

# Risk management

Miranda's effective risk management is also evidenced by the absence of any internal or external instances of non-compliance with laws and regulations, corruption or anti-competitive behaviour.

## Indicators

- ✿ Total number and nature of internal/external corruption episodes;
- ✿ Number of legal actions pending or concluded regarding anti-competitive behaviour;
- ✿ Number of significant situations of non-compliance with laws and regulations



## Occurrences in 2021 and 2022

# Code of Conduct

By implementing its principles and values, Miranda reinforces its ethical dimension and position as a socially responsible organisation. In a community involvement context, Miranda takes **an ethical, social and environmental stand**.

This ethical commitment is reflected in the Code of Conduct implemented by Miranda and directed at its stakeholders:

### Clients

Competitive prices; Value for money; Customer service.

### Suppliers and business partners

Fair trading practices; Strong and fair competition; Impartial selection based on defined criteria.

### Partners

Complete and transparent information; truthful financial information.

### Employers

Career development and non-discrimination; Safety, health and well-being; Freedom of association; Respect for private life; Prevention of conflicts of interest, confidentiality and offers; Loyalty, exclusivity and impediments; Use of available means.

### Planet

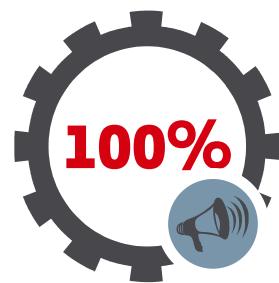
Waste and effluent management; Reduction of CO<sub>2</sub> emissions; Air quality; Chemical products management.

# Code of Conduct

It is through the Code of Conduct that Miranda seeks to ensure that its employees and partners are aligned with key issues for the correct development of its activities. Therefore, it is essential to **communicate** the code to all employees and partners as a defined objective.

By 2022, **all Miranda employees** had been informed of the company's employee code of conduct. This practice is repeated every time a new employee joins the group.

In the end of 2021 the supplier code of conduct was drawn up and approved and, in 2022, it was communicated to **100% of new suppliers** and **100% of active suppliers**.



Total number and percentage of management **members/employees/** **suppliers** to whom the Code of Conduct was communicated in **2022**

# | Governance

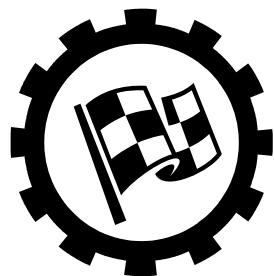
## Ethics and transparency



# Code of Conduct

Currently, for employees and suppliers to raise any questions or make any complaints regarding conduct rules, they must contact the administrative services and their Miranda contact.

In order to better speed up this process, Miranda will **implement** a **specific channel** for reports and complaints, which will be available on the website for any person/entity to access.



## Aim

Communicate the Code of Conduct to 100% of employees by 2025

**100%**  
Range  
level

# | Governance

## Ethics and transparency





# Sustainable purchasing

Miranda's approach to more sustainable purchasing focuses on the process of **selecting** its suppliers, their **location** and the **means used** for the materials or service providers to get to its facilities.

Miranda is convinced that increased rigour and efficiency in these three processes brings multiple advantages on an economic, environmental and social level.

## Supplier selection

The purchasing process at Miranda is divided into two approaches:

### New suppliers

New suppliers are selected for their ability to meet the best selling conditions regarding Miranda's purchasing requirements, with preference given to suppliers who have implemented an **ISO 9001** and **ISO 14001** certified management system. All new suppliers receive a copy of the supplier code of conduct.

“

Sustainability is not the topic of the future. It is the topic of the present. It is transversal to all areas of an organisation. Purchasing is not just a part: it is the fundamental part of the process. It is our commitment to make purchasing more sustainable! ”

**Ricardo Pimentel**

Logistics Department

## Governance

### Sustainable purchasing





# Supplier selection

## Active suppliers

Active suppliers are selected for their ability to meet the best selling conditions regarding Miranda's purchasing requirements, comply with legal requirements, the supplier code of conduct and have the best qualifications.

## Selection/purchasing decision

The purchasing decision and/or the need to select a supplier is assigned to the person in charge, who then proposes it to management for a final decision.

## I Governance Sustainable purchasing



# Supplier selection

The supplier code of conduct sets out the environmental and social criteria to which Miranda suppliers subscribe and by which they must abide:

## Environmental criteria

- ⚙ Respect for the law
- ⚙ Environmental protection
- ⚙ Product quality and safety

## Social criteria

- ⚙ Health and safety conditions
- ⚙ Non-discrimination
- ⚙ Remuneration and working hours
- ⚙ Freedom of association
- ⚙ Recognition of the right to collective negotiation



Number of suppliers identified for their negative environmental and social impacts in 2021/2022

In a post-selection phase and in partnership with Miranda, suppliers are indirectly integrated into an **annual qualification process**, resulting from monthly monitoring and classification.

Classification is carried out according to criteria that analyse the **quality of the product, the level of service**, the performance and the existence or not of quality and environmental management systems.

The structure of this process is reviewed quarterly, as part of the QEMS review and defines a set of actions:

- ⚙ Supplier audit
- ⚙ Assess the need to search for an alternative supplier
- ⚙ Results and follow-up monitoring on the action plan

After the assessment, if a supplier is rated less positively, they are followed up on a more individualised basis by Miranda, and may be subject to an audit and/or reinforced reception control, always with the objective of **continuous improvement**. This reduces the risk of the supplier penalising Miranda's processes and/or its relationship with its clients.

# Characterisation and volume of purchases

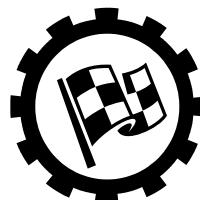
Miranda's chain of 540 suppliers is located primarily in three distinct regions: Portugal, Europe and Asia.

Miranda prioritises the selection of local and European Union (EU) suppliers with two main objectives: **reduce** the distances required for materials or service providers to reach Miranda and, at the same time, support the **local economy** and the development of nearby regions.



**Domestic and EU in 2021/2022**

Thus, the aim set to ensure that at least 85% of the supply chain belongs to the EU was exceeded.



## Aim

Ensure that at least 85% of the supply chain is located in the EU by 2025

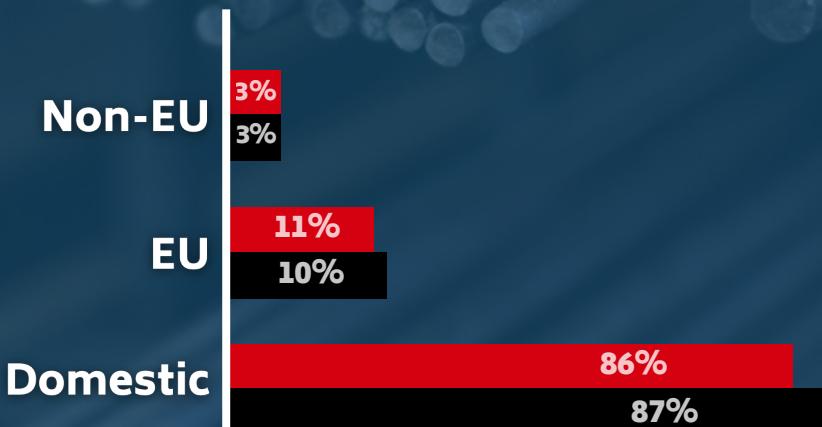
**100%**  
Range level

Years:

2021
2022

# I Governance

## Sustainable purchasing



Percentage of suppliers in 2021/2022 (by region)

# Characterisation and volume of purchases

The value of purchasing volume spent with suppliers in different regions still fails to be proportional to the value of the supply chain location.

Still, most of the purchasing budget is allocated to the **domestic market**, followed by Asia and other EU countries.

## Main purchases on the domestic market

Raw material; services

## Main purchases on the EU market

Raw materials; ink; consumables

## Main purchases on the non-EU market

Semi-manufactured materials

The difference between the number of suppliers originating from Asia and the value of purchasing volume attributed to this same region is justified by the lack of alternatives in EU and domestic markets to purchase semi-manufactured materials **essential** to the production of Miranda components, such as steel chainrings.



Domestic and EU in 2021



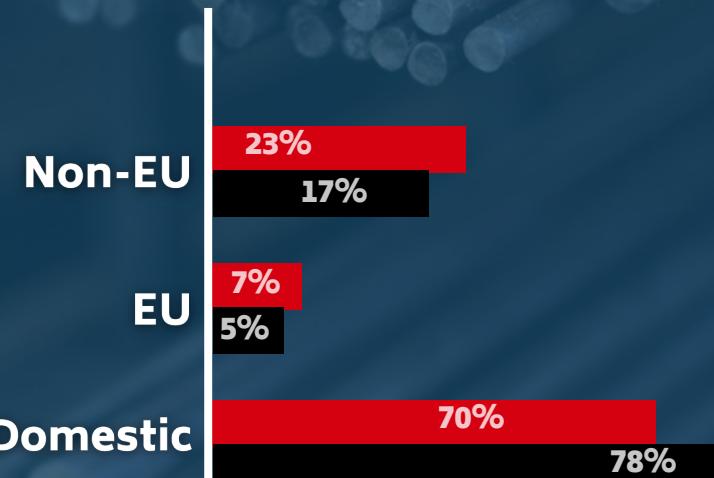
Domestic and EU in 2022

Years:

2021
2022

# I Governance

## Sustainable purchasing



Distribution of purchasing volume in 2021/2022 (by region)



# Transport

The purchase and transport of raw materials and materials usually represent a preponderant part of the **environmental impact** of companies, with more or less weight depending on the type of transport used to bring the materials to the factory.

As there are not currently many alternatives to make transport more **sustainable**, Miranda chooses to balance the type of transport used with the distance between the origin and the factory, although this is often a decision to be made by the suppliers themselves.

Most of the transports hired by Miranda in 2021 and 2022 were long distance sea transport, followed by air and road transport. Thus, the environmental impact associated with these transports ended up being lower, since sea transport has high cargo capacity and ability to be shared.

In 2022 there was a **reduction** in the number of trips originated by material purchasing (-22%).

# I Governance

## Sustainable purchasing



### Transport characterisation



#### Sea

Mainly used for long distances and to transport semi-manufactured materials



#### Air

Mainly used for medium/long distances and to transport semi-manufactured and processing materials



#### Road

Mainly used for short/medium distances and to transport raw material, semi-manufactured and processing materials



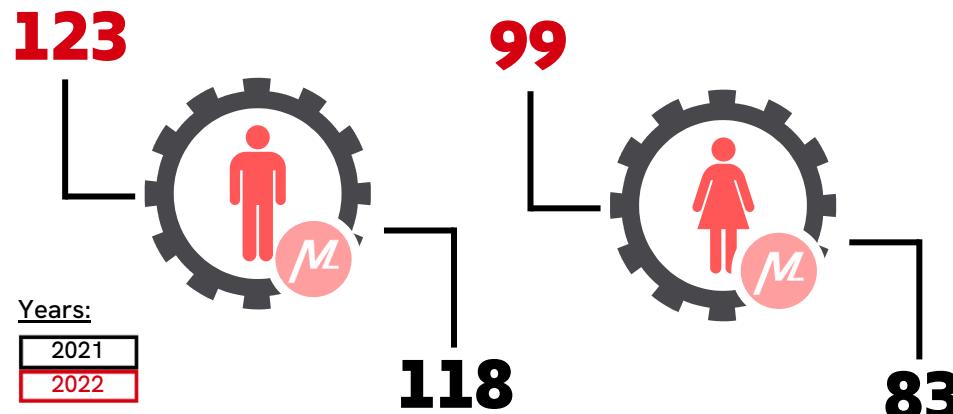
# Diversity and equal opportunities

Convinced about the potential that a diverse team can bring to the development of an organisation, Miranda seeks to offer the same opportunities to people of different genders, ages, races and nationalities.

This approach is also followed in the Electric Mountain Bike (eMTB) team, Miranda Factory Team, which consists of three male members of various ages and one female member

In 2022, Miranda's team grew when compared with the previous year, with a total of 222 employees, 55% of whom are men and 45% women, with the overwhelming majority having permanent contracts with the company.

## Number of employees by gender



## Social

### Diversity and equal opportunities





5 GENDER EQUALITY

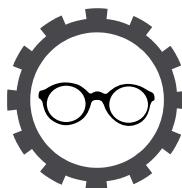


10 REDUCED INEQUALITIES

16 PEACE, JUSTICE  
AND STRONG  
INSTITUTIONS

# Diversity and equal opportunities

## Percentage of employees in 2021/2022 (by type of contract)



### Internship

1%  
2%



### Fixed-term contract

7%  
13%



### Permanent contract

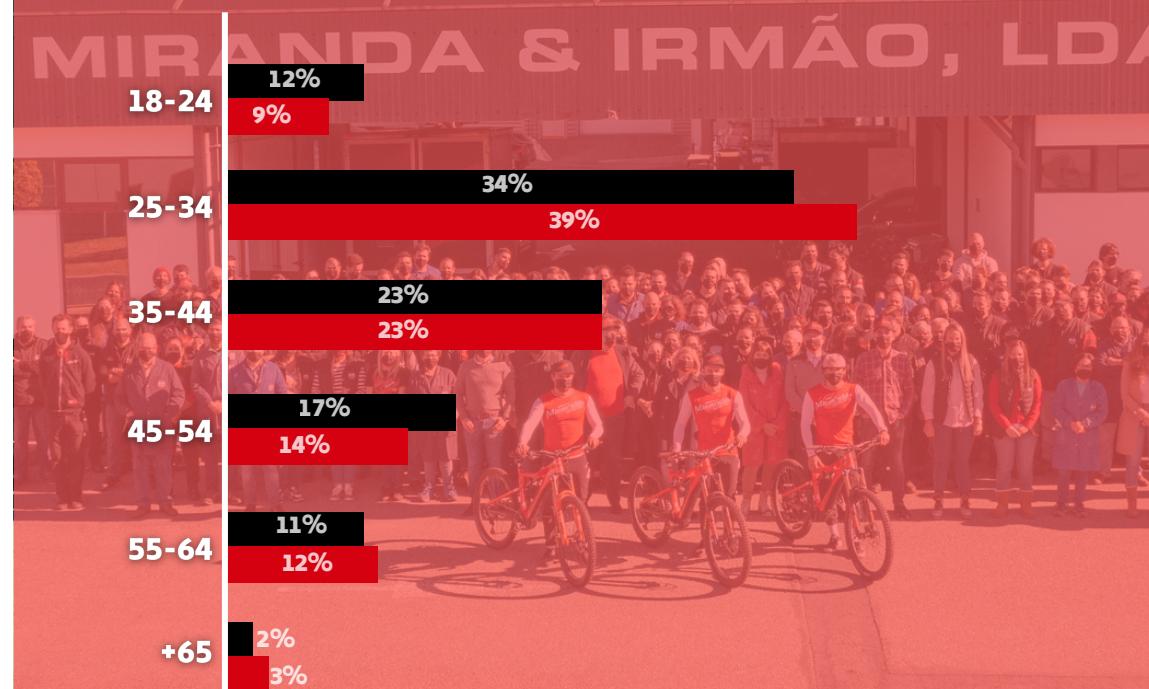
92%  
85%

Years:

2021
2022

# I Social

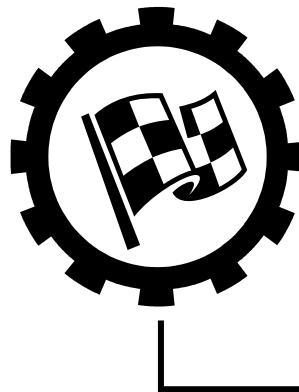
## Diversity and equal opportunities



Percentage of employees in 2021/2022 (by age group)



# Diversity and equal opportunities



## Aim

Ensure that there is no discrepancy in the number of male/female employees exceeding 15% by 2025

**100%**  
Range level

Another of the aims defined in terms of diversity is related to the number of foreign employees who work daily for the development of the company. In 2021 and 2022, the percentage of employees from other nationalities was maintained at 9%, allowing the defined aim of at least 5% to be reached.

## Percentage of employees with foreign nationality

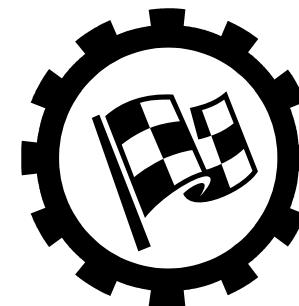


**2021**

Brazil  
Colombia  
Cape Verde  
Venezuela

**2022**

Brazil  
Colombia  
Venezuela



## Aim

Have at least 5% of employees with foreign nationality by 2025

**100%**  
Range level



## Employment

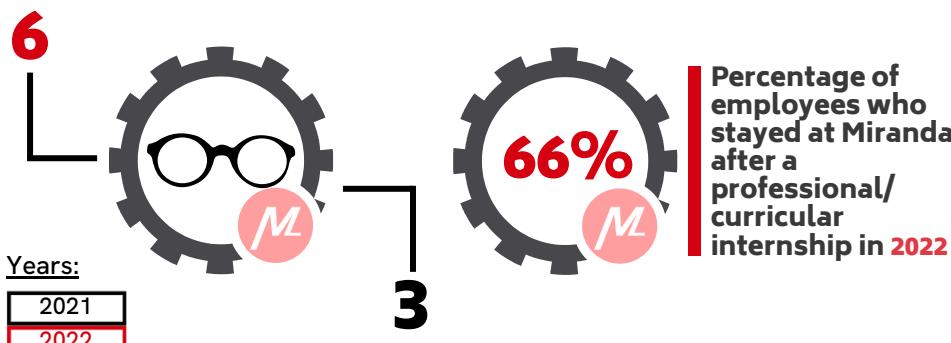
Miranda always tries to create new jobs whenever it needs to, due to market circumstances.

During the recruitment process it is common to seek potential new employees who live within a 50 km radius of Miranda, as we believe that commuting has a significant impact on people's **quality of life and satisfaction**.

It has been common practice in the company to work with curricular and professional trainees in order to give them a first experience in the labour market and to **integrate** them into the company's staff, once internships are over.

From 2021 to 2022, the **number** of student and professional internships at Miranda increased, with a total of **six active internships** on 31 December. Of these six, only two employees did not remain at Miranda under an employment contract and by choice.

### Number of carried out curricular/professional internships



## I Social

### Diversity and equal opportunities



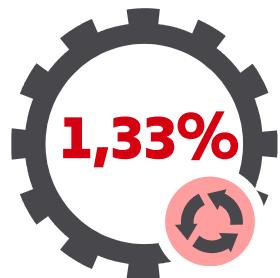


## Employment

Additionally, Miranda works closely with subcontractors to facilitate the recruitment of new recruits for specific areas of expertise. The goal is to ensure that, under the right market circumstances, people from these companies can subsequently join the **Miranda** team.

In 2022, Miranda underwent employee restructuring, where many workers who were hired by temporary employment companies became employees with Miranda contracts. For that matter, an important indicator was introduced to assess employee permanence: **Turnover rate**.

The turnover rate is calculated monthly by Miranda and the value presented represents the average of year 2022, where overall there were **44** admissions and **25** terminations.



**Turnover  
rate**



## I Social

### Diversity and equal opportunities



# Well-being, health and safety

## Well-being

The **well-being** of our employees is fundamental to Miranda. The benefits provided by the company play an important role in people's daily well-being and motivation.

### Benefits granted to employees

- ➊ Life insurance;
- ➋ Curative medicine consultations;
- ➌ Medical prescriptions.

Miranda is working towards providing more benefits to its employees, such as **health insurance, meal cards and more flexibility for employees** to choose their holidays throughout the calendar year (currently Miranda is closed during August and the last week of December).

“

Health and Safety at Work in companies assumes a fundamental role and contributes, in an indisputable way, to the development and sustainability of organisations. A safe and healthy working environment means satisfied, confident and motivated employees with direct impact on management and productivity.

”

**Bárbara Teixeira**  
Sustainability, Safety and Environment Department

## Social

### Diversity and equal opportunities





# Well-being, health and safety

## Health

All Miranda employees have life insurance and access to occupational health services available at the factory. The health services are available twice a month, for a total of **192** hours per year.

Additionally, a **curative medicine** doctor is also provided, which allows employees to have consultations equivalent to family doctor's appointments.

Both services can be activated in **various ways**: periodic consultations; scheduling at the employee's initiative; at the employer's request; occasional situations.

The register of reports of occupational **diseases** remained unchanged in 2021 and 2022.



Number of reports of occupational diseases, by type in 2021 and **2022**

In a short term, the **company's goal** is to **increase** the number of curative medicine appointments, which represents the understanding by employees of the importance of these for their health and well-being.

## Social Diversity and equal opportunities





# Well-being, health and safety

## Safety

Miranda does not currently have an occupational health and safety management system in place, but contracts a **service provider** in this area and has an **internal department** dedicated to identifying potential impacts on employees.

On a monthly basis, the service provider and the Sustainability, Safety and Environment department carry out a **hazard and risk analysis**, which ends in the preparation of a risk matrix and an action plan.

Employees may report situations of risk at work directly to the Sustainability, Safety and Environment department or through the employee portal. The confidentiality of all information reported by employees is guaranteed under the GDPR.

In 2022, there was **one less** accident leading to sick leave than in the previous year. From the six accidents that occurred in 2022, only **one** led to a long-term sick leave.



Scale:  
**Very good**  
 Good  
 Regular  
 Bad

Miranda also reports annually in its sole report two indicators that allow a more detailed assessment of safety issues at the company and which have "**very good**" ratings according to the World Health Organisation: accident frequency rate and accident severity rate.

In the short term we intend to reduce accident rates and increase awareness and prevention of accidents by increasing the **number of training hours** and the number of **near miss** communications.



## Remuneration

The remuneration policy at Miranda is currently applied **regardless of gender** and the only variation is when it comes to different functions, with remuneration being offered in line with the existing market for certain function requirements.

For new employees, without training in the desired areas, the minimum wage at Miranda is 850 €, since January 2022, **higher** than the national minimum wage.



Remuneration ratio between minimum wage at Miranda vs national minimum wage in 2021



Remuneration ratio between minimum wage at Miranda vs national minimum wage in 2022

\*For all wage calculations at Miranda, the base wage with regular allowances (meals; night; time off; holidays; Christmas) were considered

“

Sustainability is important, but it can only be achieved with fair and more equitable remuneration for employees, as they are the foundation for the long-term success of any company.

**Ana Bastos** ”  
Financial Department

## I Social

### Diversity and equal opportunities





5

GENDER EQUALITY



10

REDUCED INEQUALITIES



16

PEACE, JUSTICE AND STRONG INSTITUTIONS

## Remuneration

The average wage prevailing at Miranda increased in 2022 and it was almost equal to the one prevailing at national level and even **higher** when compared to the manufacturing industry.



Miranda  
average wage  
vs national  
average wage  
in 2021



Miranda  
average wage  
vs national  
average wage  
in 2022



Miranda  
average wage  
vs sector  
average wage  
in 2021



Miranda  
average wage  
vs sector  
average wage  
in 2022

The difference that still exists in remuneration between men and women is justified by the fact that, currently, most management positions are occupied by men and also justified by criteria such as qualifications and seniority in the company. The goal is to progressively tackle these differences to bring the **ratio closer to 1**.



Ratio of  
basic wage  
of men vs  
women at  
Miranda  
in 2021



Ratio of  
basic wage  
of men vs  
women at  
Miranda in  
2022

## I Social Diversity and equal opportunities





## Training

Miranda defines the training plan for its employees on a two-yearly basis. It conducts its training needs on an **ongoing basis** and this process can occur in several ways:

- Through the department director at the beginning of each year;
- In the employee assessment, where there is a part of the questionnaire dedicated to this subject;
- Through punctual identification.

After identification, training proposals are analysed by management and validated.

Training is generally provided by external organisations. Internally, there is an **integration plan** whenever a new employee joins the company, which involves induction training in the various departments.

In 2022 there was a reduction in the average number of training hours per employee when compared with the previous year, and some training hours still have to be accounted for.

## I Social Diversity and equal opportunities





5

GENDER EQUALITY



10

REDUCED INEQUALITIES



16

PEACE, JUSTICE AND STRONG INSTITUTIONS

## Training

### Average training hours per employee

**2021**

⌚ 57,9h

**2022**

⌚ 29,2h\*

\*The value for 2022 does not yet include all the training hours carried out. The two-year plan is set for 2022/2023

In a more specific analysis by area, namely the environmental area, there was an increase in the number of training hours per employee.

### Environmental training hours per employee

**2021**

⌚ 1,2h

**2022**

⌚ 1,6h

The main short-term goal is to **increase** the number of training hours for each employee, focusing on **sustainability, health and safety**.

## I Social

### Diversity and equal opportunities





# Community involvement

Community involvement is part of one of Miranda's core values, **corporate responsibility**, and brings joint benefits to the society involved, through a greater response to its interests and needs, and to the company, through the continuous **consultation** of its stakeholders and the reinforcement of its image.

Miranda's community involvement has been practiced in various ways over the years:

## Collaboration with peers

The contribution of Miranda and its peers in creating a prosperous environment for the economic, environmental and social development of the industry has allowed, over the years, to make the region of Águeda known and recognised as the land of two wheels.

## Associations

Support for associations that actively contribute to innovation and development in the metalworking and two-wheel industry.

## Sport

Support for sport has always been a company banner and it is constantly reinforced by sponsorship and by the presence of the eMTB Miranda team in various sporting competitions.

The Miranda team is managed internally by the company and aims to give opportunities to young sports talent. It currently consists of four members, three men and one woman, of different age groups and it is the only national MTB team accredited by the Union Cycliste Internationale (UCI).

“

For Miranda, community involvement is fundamental to an effective sustainable strategy. By involving the community, the company is able to have a better understanding of environmental, social and economic issues, contributing in a relevant and positive way. Furthermore, with the support granted, partnerships established and participation in activities with the community, the company builds positive relationships and transmits its corporate social responsibility, which helps strengthen the brand and disseminate its values.

João Filipe Miranda

Comercial Department

”

**I Social**  
Community involvement





## Sponsorship and donations

Three core values imparted at Miranda are **corporate responsibility, citizenship and cooperation**. One way in which Miranda mirrors these values is through sponsorships and donations to associations, institutions and other organisations that **support the development** of their noble activities and return their contribution to Miranda's activities.

In 2021 and 2022 Miranda focused all of its sponsorship in sports, an area that is symbolic and intrinsic to the industry in which it operates and to which it contributes on a daily basis.

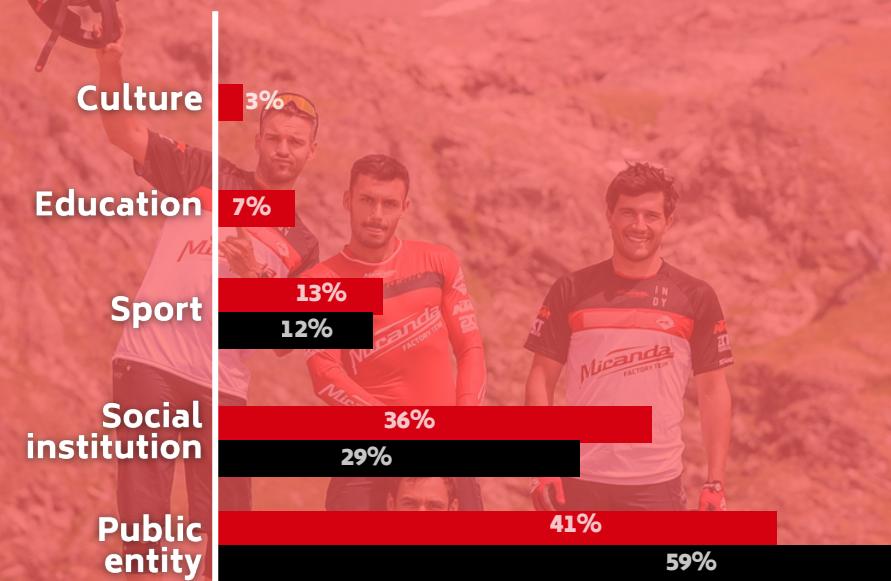


The donations made by Miranda in 2021 were allocated to **public, social and sports entities**. In 2022, the donations were extended to two more areas essential to the development of society: **education and culture**.

Years:

2021
2022

## Social Community involvement



**Miranda  
Donations  
2021/2022 (by  
areas)**





# Community

One of the community involvement strategies is the organisation of internal **events and communications**, which promote the integration and stimulation of employees in their daily work at the company, as well as the participation in external events related to the business. This allows Miranda to **share** its knowledge and experience in the industry and ultimately **reinforce** the brand's presence in the market.

## In 2022, several ephemerides were marked, of which the following stand out:

- ✿ Women's Day
- ✿ Forest and Arbor Day
- ✿ Water Day
- ✿ World Health Day
- ✿ World Day for Safety and Health at Work
- ✿ World Recycling Day
- ✿ World Bike Day
- ✿ World Environment Day
- ✿ World Ocean Day
- ✿ National Sustainability Day
- ✿ Christmas shared lunch

# Social Community involvement



## Events held/participated in contact with the community

### 2021

- ✿ Communications to employees to raise social, environmental, safety and health awareness;
- ✿ Participation as an exhibitor at Eurobike 2021.

### 2022

- ✿ Communications to employees to raise social, environmental, safety and health awareness: 18 campaigns carried out through leaflets, messages on the employee portal, e-mails, gifts, practical demonstrations and social gatherings;
- ✿ "Todos pelo IPO" campaign: for a period the company's employees were encouraged to collect WEEE and, in a campaign to raise funds to support IPO, store them on company premises to be later collected by a management entity;
- ✿ Participation as an exhibitor at Eurobike 2022;
- ✿ Participation as a speaker at the event "Future of Portuguese Metalomechanics", promoted by Instituto de Especialização Formativa e Estudos Empresariais (INFORMESP).



## **Social Community involvement**

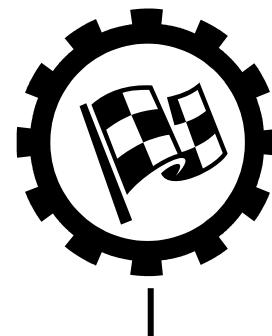


## **Community**

Miranda's intention in the coming years is to continue promoting interaction with the different communities in which it operates and to seek to increase their involvement in the context of its activities.

A defined goal that will be implemented during 2023 is the construction of a **bicycle park** for the company's employees. This will make it possible for employees to use electric bicycles provided by Miranda for internal trips, for commuting and for other recreational purposes.

This project is in line with the more sustainable mobility projects of the municipality of Águeda, namely "**Pedal In Águeda**", which mainly aims to strengthen, distinguish and value the role of the bicycle in society.



**Aim**  
construction of a  
bicycle park for  
employees by  
2025

**25%**  
Range  
level

6  
CLEAN WATER  
AND SANITATION

# Water

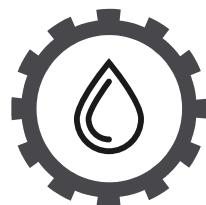
## Water consumption

The water consumed at the Miranda facilities is collected from a **artesian borehole** and from the **municipal supply network**, and part of it is **reused** through the WWTP installed at the factory.

The water from the borehole is used mainly in the industrial area, especially in processes such as machine cooling, vibration and wastewater treatment.

The water from the municipal supply network is mainly used in offices, canteen and toilets.

The overall volume of water **reduced** from 2021 to 2022 due to a significant reduction in borehole capture associated mainly with production processes. The greatest reductions were seen in the irrigation area, in the WWTP and in vibration.



**Volume of water capture, by source in 2021/2022**

**6203 m<sup>3</sup>**

**5190 m<sup>3</sup>**

“

Water is a scarce and finite resource. At the same time, it is indispensable to economic development because it plays a crucial role in the industrial sector. So, it is fundamental the existence of a sustainable water cycle, from its capture and distribution, to its discharge. By ensuring the efficient reuse of water, we are also guaranteeing its preservation in water systems, going hand in hand with the concept of sustainable industry.

”

**Raquel Jorge**

Sustainability, Safety and Environment Department

## Environment

### Water



6  
CLEAN WATER  
AND SANITATION

# Water consumption

The volume of water capture per piece produced had a significant **reduction** from 2021 to 2022 (-43%) as a result of the increase in the number of pieces produced and the reduction in the consumption of borehole water for industrial use.

## Borehole capture/piece produced in 2021/2022 (L/piece)



Although the volume of network water capture increased slightly in 2022, it was not proportional to the growth of the Miranda team, leading to a **decrease** in specific consumption per employee of about 8%.

## Municipal network capture/employee in 2021/2022 (m³/employee)

Label:

Network capture (m <sup>3</sup> )
Borehole capture (m <sup>3</sup> )

# Environment

## Water



2021	4986
2022	3941
2021	1217
2022	1249

Volume of water capture in 2021/2022 (by source)



# Water consumption

Miranda facilities are located in an area where, according to the 2021 Environment State Report, **no risk of drought** has been identified.

Nevertheless, as Miranda is aware of the problems associated with and imposed by the growing scarcity of water, daily **consumption monitoring** is implemented. This action makes it possible to identify the areas that represent the highest consumption and detect any leakage that could represent a waste of this resource. Associated with this, **other measures** are implemented to increase water efficiency of Miranda's facilities and simultaneously raise awareness of **responsible consumption**.

Miranda seeks to work with its stakeholders in order to raise their awareness about more efficient water management.

The supplier code of conduct sets out specific rules on **environmental protection**, ensuring the minimum possible impact on the environment and complying with applicable water legislation.

Employees are regularly made aware of water importance through leaflets on section panels, screensavers, messages on the employee portal and emails, and Miranda takes the opportunity to mark certain water-related days, such as **Water Day and World Ocean Day**, celebrated in 2022.

# Environment

## Water



### Measures implemented to increase water efficiency and awareness

- ⚙ Daily monitoring of consumption through counters
- ⚙ Taps with timers and flow reduction filters
- ⚙ Availability of network water to employees
- ⚙ Communications to employees regarding water-related events

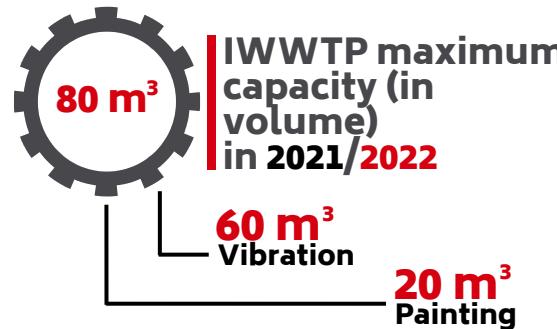
# Effluents

Miranda's IWWTP was designed and implemented according to the specific characteristics of the effluent produced and its final destination for the environment.

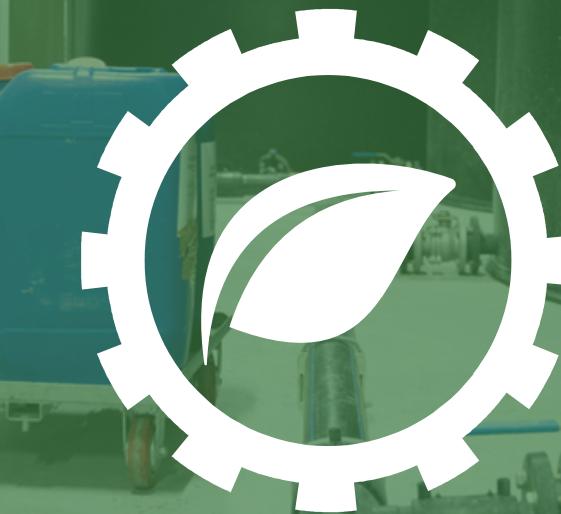
The effluent to be treated is formed by wastewater from the vibration system and the washing of the painting line. The effluents are then sent, by gravity, to the respective retention systems. The treated water is **reused** in the vibration process and the excess is discharged into the collector managed by Águas da Região de Aveiro (ADRA).

IWWTP is composed of two effluent retention systems, an oxidation module, a neutralisation/coagulation module, a flocculation system, reagent retention/dosification modules, a sedimentation tank, a sludge thickener, a filter press, a treated water retention tank and an electrical panel with control and command console.

IWWTP has wastewater treatment maximum capacity of **80 m<sup>3</sup>**, of which **60 m<sup>3</sup>** is for the vibration process and **20 m<sup>3</sup>** for the painting process.



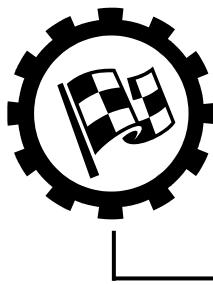
# Environment Water





## Effluents

During 2021 and 2022 the IWWTP capacity remained the same, therefore maintaining the goal of increasing its capacity. Thus, it will be possible to **respond** to the higher effluent generation caused by the increase in production and to increase the capacity for reuse.



### Aim

Increase the IWWTP capacity in 30% by 2025

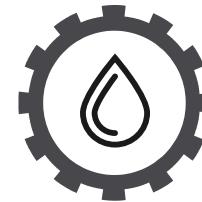
**0%**

Range level

Miranda conducts quarterly **chemical analyses** on the quality of the water that is reintroduced into the production process from the IWWTP and the quality of the treated effluent. These actions ensure: on the production side, the **non-contamination** of the materials in contact with the water and a greater **protection** of the employees operating the machines; and on the effluent side, they ensure that the legal discharge values are met.

In 2022, the increase in the number of pieces produced was not accompanied by an increase in the volume of effluent discharged into the municipal collector, with an **11%** decrease in the total volume of effluent discharged and a **37%** decrease in the volume of effluent discharged per piece produced. These numbers reflect a greater capacity to **reuse water** in production processes.

### Effluent discharged in 2021/2022 (m<sup>3</sup>)

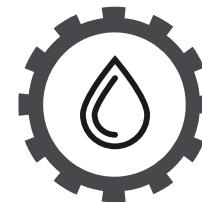


**Volume of effluent discharged in 2021/2022**

**2274 m<sup>3</sup>**

**2019 m<sup>3</sup>**

### Effluent discharged/piece produced in 2021/2022 (L/piece)



**Volume of effluent discharged per piece produced in 2021/2022**

**0,52 (L/piece)**

**0,33 (L/piece)**

At the moment there is no specific counter installed in the IWWTP allowing to account the amount of water that is reused in the production cycle after treatment. In this context, an improvement point to be implemented was identified.



# Energy management

Energy management is fundamental for the sustainability of a company and can lead to **increases in efficiency**, allowing for a reduction in the environmental impact of activities and also reducing the costs associated with the purchase of various types of energy.

As Miranda's facilities are classified as intensive energy consumers (energy consumption equal to or greater than 500 tep/year), they are covered by an **Intensive Energy Consumption Management System** (SGCIE). The SGCIE allows for a more active and detailed monitoring of energy consumption and aims to promote energy efficiency through an **Energy Consumption Rationalisation Plan**.

The Rationalisation Plan is currently in force at Miranda and foresees **3 aims** incident on: energy intensity, specific consumption and carbon intensity.

The fact that Miranda has energy-intensive consumption facilities only reinforces the company's desire to continuously integrate **energy transition processes**. The focus has been on increasing the installed photovoltaic capacity and the efficiency of its processes, reducing the energy required and increasing production.

“

Miranda & Irmão, Lda is committed to energy transition, with special interest in greener energies and increasing energy efficiency. The company is constantly seeking new procedures/equipment that can bring better guarantees of sustainability and with this, bring less impact to the environment and society.

**Ricardo Mendes**  
Maintenance Department

”

# Environment

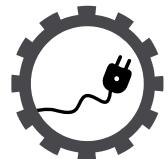
## Energy management





# Energy consumption

Energy consumption at Miranda is associated with electricity, gas, diesel and petrol.



## Electricity (100% renewable)

From the distribution network and solar panels installed in the factory; used in offices and production



## Gas

Used in the heat treatment and painting process;



## Diesel/Petrol

Used for the commercial and distribution fleet.

From 2021 to 2022 the global consumption of energy was practically identical, with the biggest consumption associated with electricity from renewable sources.

## Global consumption of energy (toe)



Total consumption of energy in 2021



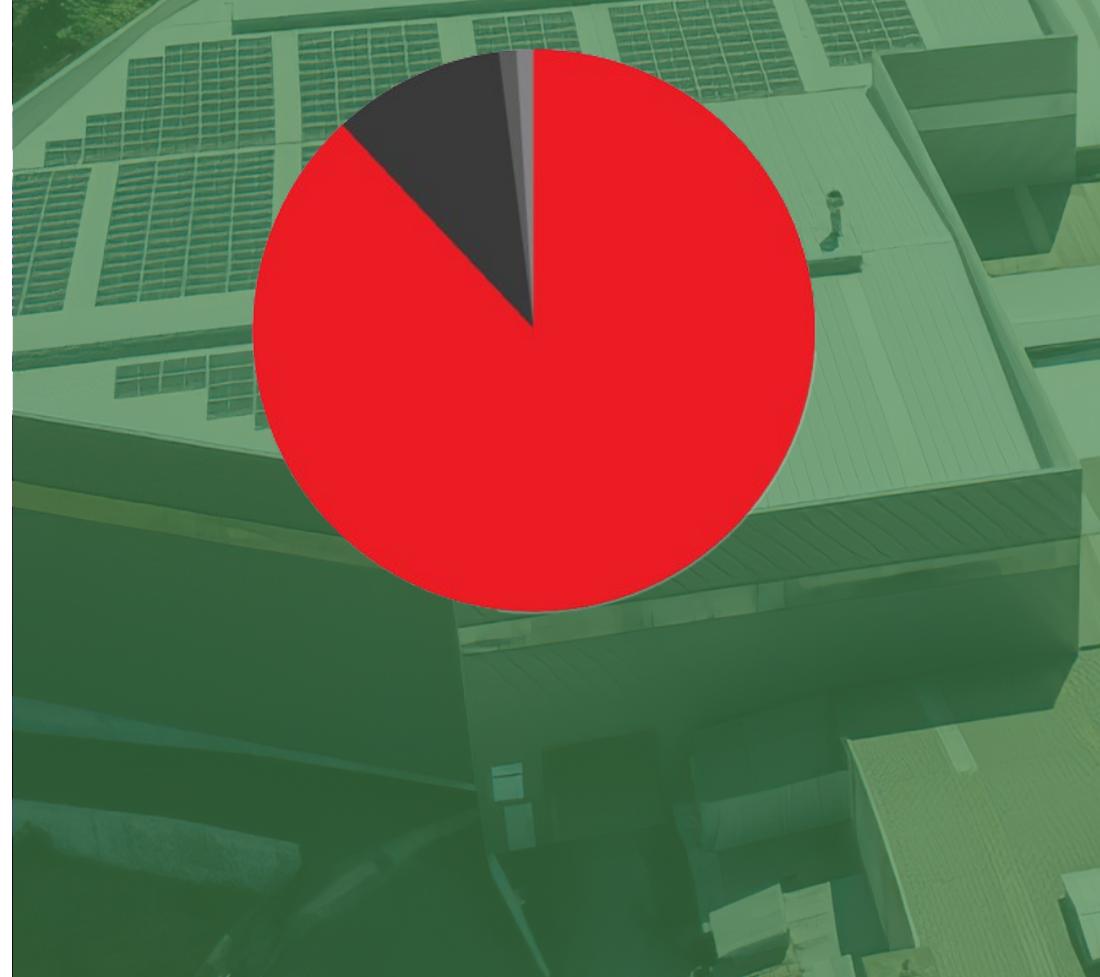
Total consumption of energy in 2022

Label:

Electricity	88%
Gas	10%
Petrol	1%
Diesel	1%

# Environment

## Energy management



# Environment

## Energy management



Non-renewable energy

13%

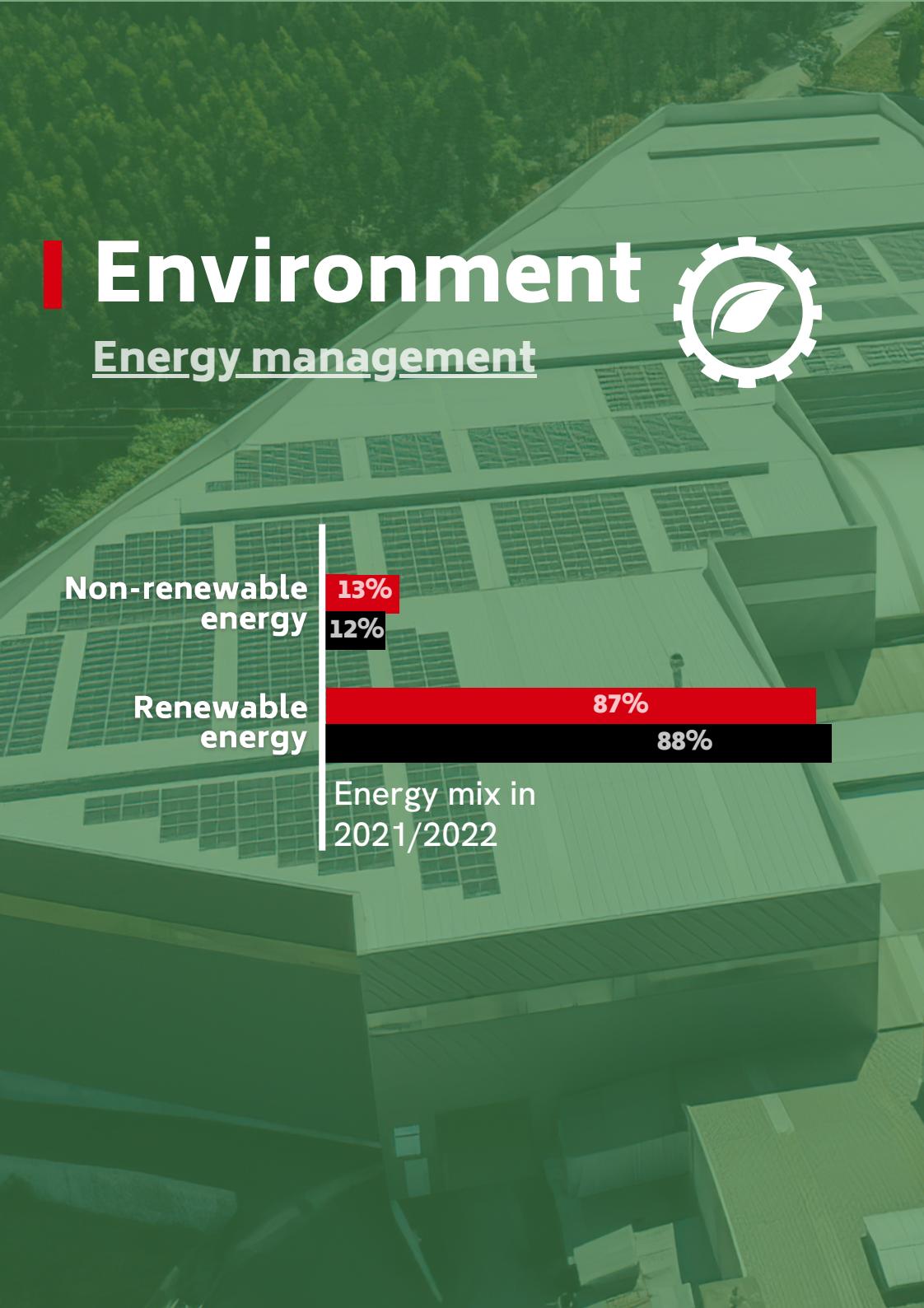
12%

Renewable energy

87%

88%

Energy mix in  
2021/2022



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



## Energy consumption

Similarly to the global amount of energy consumed, the energy mix remained practically unchanged, where there is a large representation of **renewable energies**. This value is supported by the consumption of network electricity produced using renewable sources and self-consumed photovoltaic energy.

In 2022 there was a significant increase in the number of **pieces produced** and the **turnover generated**, in contrast with the minimal variation in energy consumption. This scenario led to a **28%** reduction in energy intensity and a **29%** reduction in specific consumption per piece produced, mirroring progress in increasing the efficiency of production processes.

### Energy intensity (per million turnover)



Energy intensity in 2021  
(toe/M€)

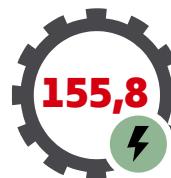


Energy intensity in 2022  
(toe/M€)

### Specific energy consumption (per million pieces produced)



toe/million pieces produced in 2021



toe/million pieces produced in 2022

Years:

2021
2022

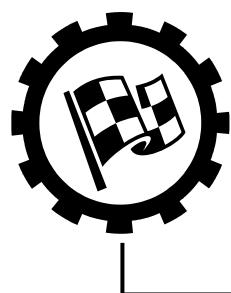


# Production of renewable energy

Miranda seeks to monitor, integrate and implement **energy transition** projects, a fact that is ultimately reinforced by the intensive energy consumption at its own facilities.

Since 2016, Miranda has implemented renewable energy production systems, namely through the installation of **photovoltaic panels** that produce electricity for **self-consumption**. This action allowed us to reduce CO<sub>2</sub> emissions between 2016 and 2021 by reducing the consumption of electricity from the network, which was partly produced through fossil fuels.

Since the first 112 kWp installation in 2016, the installed photovoltaic capacity has increased, as a result of the 259 kWp boost carried out in 2019, and more recently 464 kWp in 2021.



**Aim**  
Double photovoltaic installation to increase energy self-sufficiency

**100%**  
Range level

# Environment

## Energy management



Photovoltaic power installed (kWp)



# Production of renewable energy

The increase in installed capacity meant an increase in the photovoltaic energy produced, with a 9% increase between 2021 and 2022.

## Total production of photovoltaic energy in 2021/2022

**366,1 MWh**  
**400,1 MWh**

The increase in installed photovoltaic capacity and consequently the energy produced for self-consumption has made it possible to reduce the energy needs of the electricity distribution network, making Miranda progressively **more energy independent**. This scenario brings mainly economic benefits, with the reduction of costs for electricity purchase.

## Energy independence level from the network in 2021/2022

**9%**  
**10%**

The management and monitoring platform of the photovoltaic power plant provides some complementary data to that of the photovoltaic energy produced and is related to the **gains**, in the form of equivalence, for using renewable energy instead of energy generated from fossil sources.

With the production of photovoltaic energy it has already been possible to avoid the emission of **774 tonnes of CO<sub>2</sub>** emissions corresponding to approximately **3.100.000 km** by car, and to what **19848 trees** would be capable of sequestering during their lifetime.

## Case study





## Emissions

Currently, at Miranda, part of **scope 1** emissions and all **scope 2** emissions are monitored by energy consumption inside and outside the organisation. For these scopes, Miranda uses international standard methodologies and requirements proposed by clients, **committing to reduce** emissions through energy efficiency programmes and switching from non-renewable to renewable energy sources, such as the photovoltaic panels installed at the factory.

As a result of its production processes, Miranda has direct emission sources on its facilities generated by the use of gas, cooling systems and vehicles. **Minimising** air pollution depends on the effectiveness of the filtering system. To this purpose, **air quality tests** are carried out, namely performance and ambient air tests, ensuring constant adaptation to the characteristics of the pollution generated and **compliance** with regulations and sustainability commitments.

Due to information and data complexity involved in a study of this size, Miranda was only able to present in this report a reliable accounting and analysis of the emissions associated with one of the most important products commercialised.

Throughout 2023 a **global accounting** of scope 1, 2 and 3 GHG emissions associated with Miranda's activities will be carried out. The commitment includes result presentation in the next sustainability report.

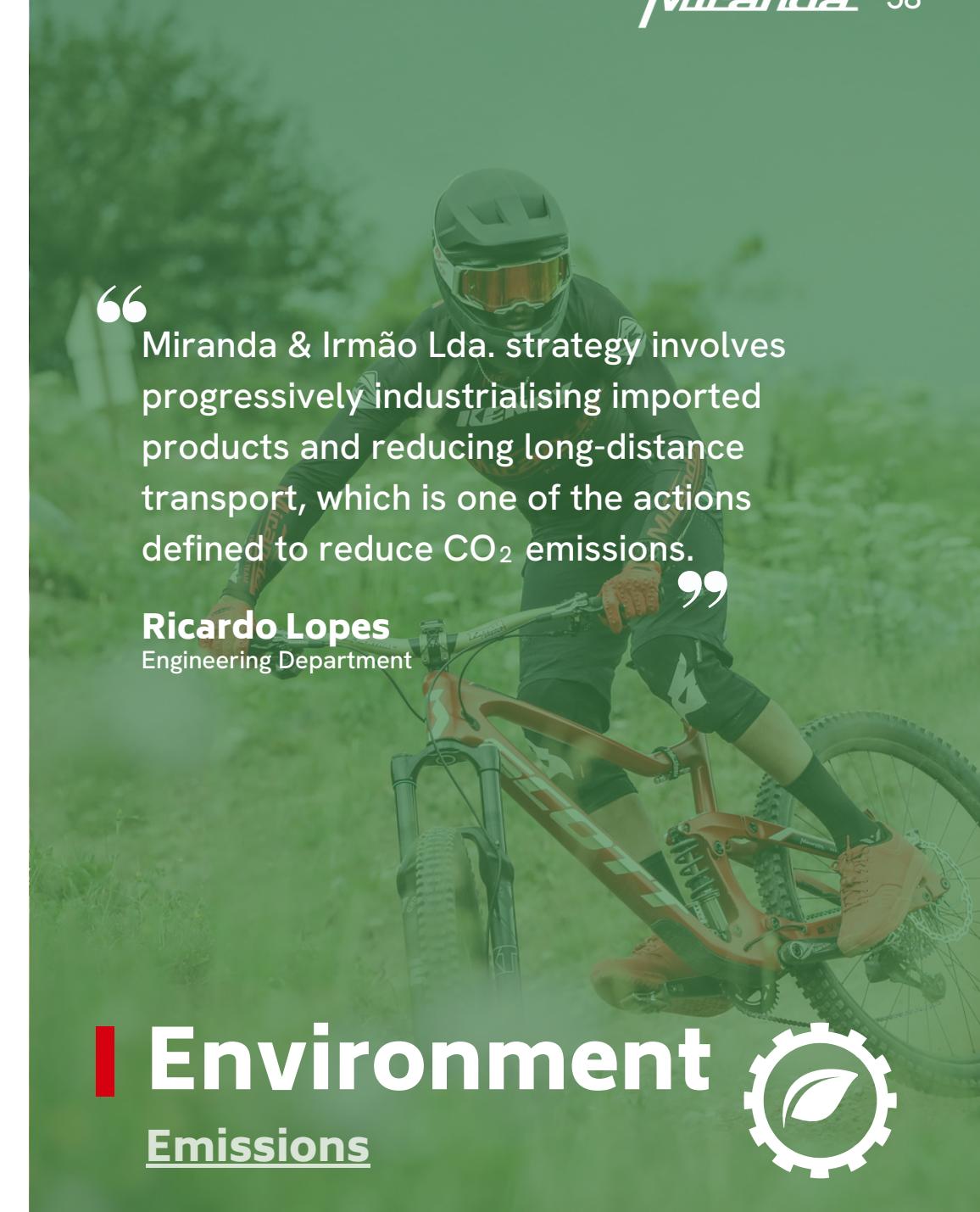
“

Miranda & Irmão Lda. strategy involves progressively industrialising imported products and reducing long-distance transport, which is one of the actions defined to reduce CO<sub>2</sub> emissions.

”

**Ricardo Lopes**  
Engineering Department

## Environment Emissions

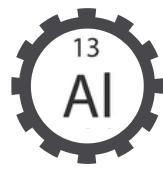




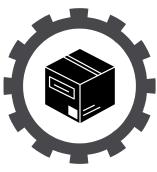
# GHG emissions from a Delta Crank

The Carbon Footprint of a Delta Crank was calculated based on **GHG Protocol** guidelines and the Product Life Cycle Accounting and Reporting Standard. A **Cradle to Gate** approach was taken to account for all CO<sub>2e</sub> emissions regarding purchased goods, transportation, and production process.

## Elements considered in the Carbon Footprint accounting:



**Aluminium**



**Powder Coat**

### Packaging

- Cardboard
- Plastic
- Wood

### Energy

- Electricity
- Gas
- Fuel

# Environment Emissions





# GHG emissions from a Delta Crank

## Scope 1

Stationary combustion sources were considered to account for CO<sub>2e</sub> emissions from Scope 1, in particular propane emissions from the production process.

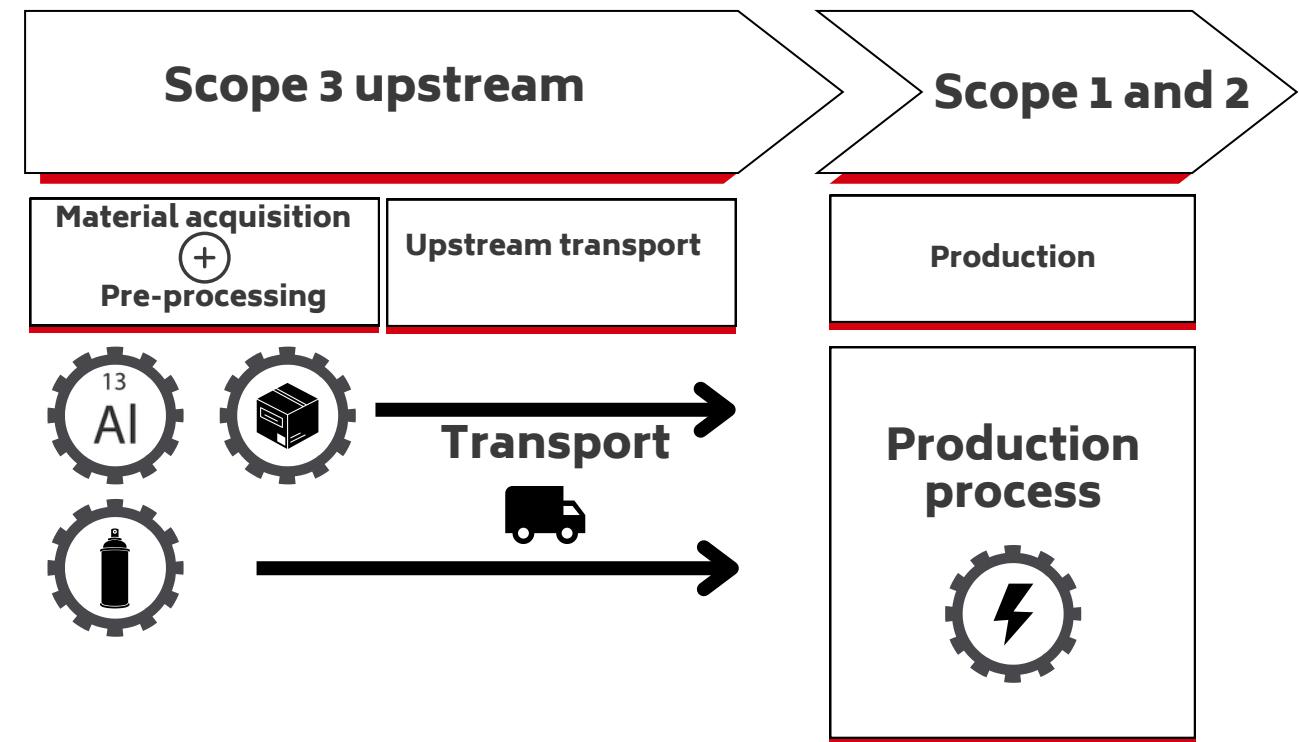
Characterization	Propane consumption per piece (m <sup>3</sup> )	Quantity of emissions (KgCO <sub>2e</sub> /piece)
Stationary source - Propane	0,007	0,0006

## Scope 2

Purchase of electricity category was considered to account for CO<sub>2e</sub> emissions of Scope 2. This account was based on Market Based Location given that the emission factor was supplier specific.

Characterization	Propane consumption per piece (kWh)	Quantity of emissions (KgCO <sub>2e</sub> /piece)
Purchase of electricity	0,45	0

## Scope of evaluation





# GHG emissions from a Delta Crank

## Scope 3

Purchased goods, upstream transportation and waste transportation categories were considered to account for CO<sub>2e</sub> emissions of Scope 3.

Characterization	Quantity of emissions (KgCO <sub>2e</sub> /piece)
Category 1 - Purchased goods	2,17
Category 4 - Upstream transportation and distribution	0,09
Category 5 - Waste generated in operations (only transport)	0,0007

# I Environment

## Emissions





# GHG emissions from a Delta Crank

## Global

Overall, aggregating Scope 1, 2 and 3, the production of a **Delta Crank** generates, approximately, 2,27 Kg of CO<sub>2e</sub>.

Scope 3 emissions represent almost all the emissions (99,97%). This greater preponderance is mainly attributed to the **acquisition of aluminium**, which, being an indirect emission, reflects the difficulty and complexity of the industry in implementing actions that can lead to reduce the carbon footprint of processes such as extraction, refining and electrolysis.

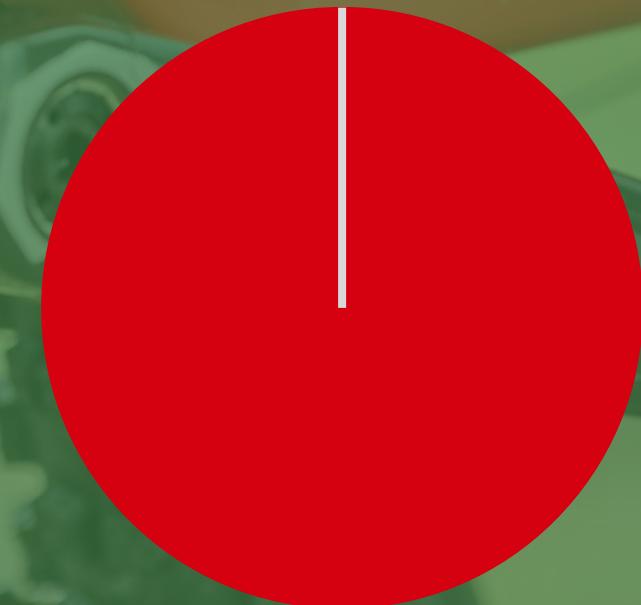
Miranda ends up avoiding such a high carbon footprint in this category due to the fact that much of the aluminium used to produce the Delta Crank is **recycled** and from suppliers located within **short distance** of Miranda.

Another positive aspect in Scope 3 is the fact that the plastic and cardboard packaging used is **recycled**, therefore generating fewer emissions. In a gate-to-gate analysis, the only emission associated and accounted was propane consumption in heat treatment and painting processes. This value is around half a gram of CO<sub>2e</sub> per piece produced, and therefore considered residual.

Scope	Quantity of emissions (KgCO <sub>2e</sub> ./piece)	Percentage (%)
1	0,0006	0,03
2	0	0
3	2,27	99,97
Total:	2,27	100

Label:  
 Scope 1 0,03%  
 Scope 2 0%  
 Scope 3 99,97%  
 CO<sub>2e</sub>.  
 emissions  
 per  
 category

# Environment Emissions





# Emission reduction initiatives

In 2021 and 2022 some measures were implemented to directly or indirectly allow GHG emissions to be reduced:

## Installation of electric charging stations

The 8 electric charging stations installed at Miranda are provided free of charge to employees. The aim is to encourage the use of electric mobility and thus reduce the emissions associated with the home-work exchange.

## Launch of the MGreen crankset

The MGreen crankset has a patented mechanism that allows the separation of the two components: the chainring (steel) and the crank (aluminium). This allows, in case of malfunction, to replace only the damaged part and, in case of end of life, to separate the parts for recycling. Both actions will have an impact on the reduction of emissions by treating end-of-life waste.

## Replacement of the type of paint applied on pieces/use of more ecological solvents

The change in the piece liquid painting process allowed the use of more ecological solvents and increased reuse per cycle, reducing the need for new paint and consequently the emissions associated with its production and transport.

## Translucent covering area in the facilities

The greater incidence of natural light in the new facilities reduces the consumption of electricity, which generates emissions in its production.

## WEEE collection campaign

In 2022 there was a WEEE collection campaign, where the delivery of this type of waste by employees ensured that it was sent to the best possible destination and for that reason avoided possible emissions generated by the inadequate treatment at the end of its life.

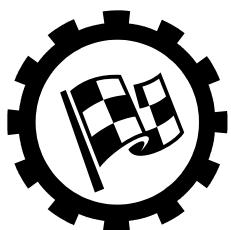


## Emission reduction initiatives

One of the goals set by Miranda, which will also progressively reduce GHG emissions, is the **digitalisation** of various processes and communications. For this reason, the company gives preference to internal and external digital communications, and whenever this is not possible and they have to be in paper format, they are all done using only **FSC** or **PEFC** certified paper.

**As next steps in the digitalisation context, two actions are planned, which once implemented will generate a positive impact**

- ⚙ Automate the administrative documentation process;
- ⚙ Implement a radio-frequency identification system (RFID) as a way to replace the piece identification paper which accompanies the pieces during their movements within the factory, throughout the entire production cycle.



### Aim

Digitise all internal and external paper-based processes and communications

**50%**  
Range level

## Environment Emissions



**In 2021 and 2022 it was possible to achieve some progress in digitalisation, with several actions implemented**

- ⚙ The supplier code of conduct is only sent in digital format;
- ⚙ All internal invoices and supplier invoices are only sent in digital format. When dealing with client, Miranda only sends paper invoices if this is a client request;
- ⚙ All the documentation associated with the employee portal is now digital (e.g. documentation of medical appointments);
- ⚙ All design projects are digital, executed and managed through specific PLM software integrated with the ERP. Drawing validations and revisions are all digital.



# Production

The production processes at Miranda are associated with the **forging of aluminium, machining and injection of plastics**, comprising the use of two major materials.

## Materials

- ⚙️ Aluminium (main);
- ⚙️ Plastics (secondary).

Throughout the different phases of the production process, semi-manufactured materials are incorporated, purchased externally, which are essential for the constitution of the final products.

## Semi-manufactured materials

- ⚙️ Steel chainrings;
- ⚙️ Screws;
- ⚙️ Paints.

Associated with the operation and maintenance of the production equipment are also the processing materials.

## Processing materials

- ⚙️ Lubricants;
- ⚙️ Absorbents and filters;
- ⚙️ Oil;
- ⚙️ Diluents;
- ⚙️ Other.

“Sustainability - The beginning of our descendants' future.”

**Hilário Miranda**

Managing partner

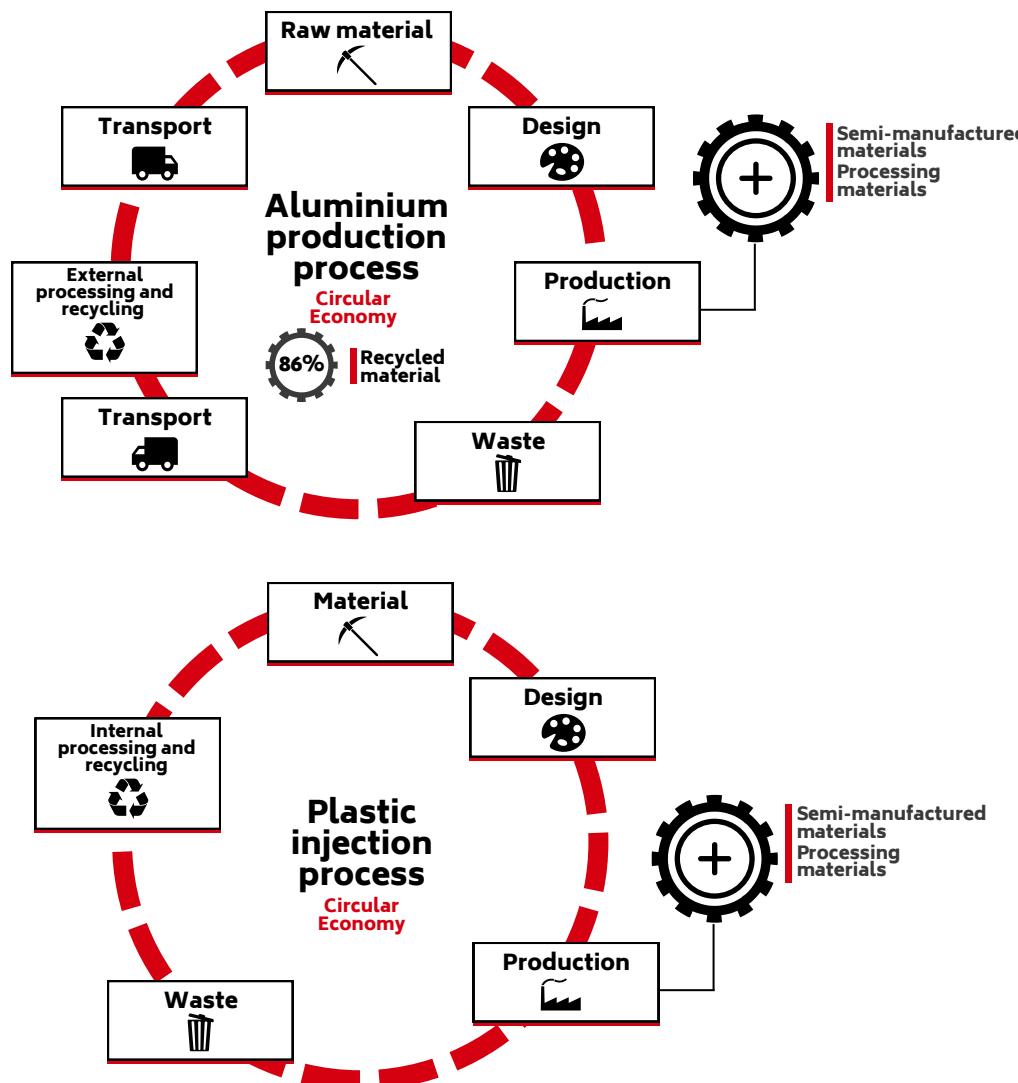
# Environment

## Production





# Production



# Environment

## Production



Total weight of main materials used in production in 2021/2022

# Production efficiency

Miranda's growth and affirmation as one of the largest manufacturers of bicycle components in Europe demands that production levels are always very high and for this reason it is essential to establish and achieve **goals** related to **efficiency gains**.

Although Miranda has no direct influence on how the resources it uses are produced upstream, it plays an **active and rigorous** role in supporting decision-making and determining the best environmental, social and economic partners to collaborate with.

An important factor in the decision moment is related to the capacity of **recycled material incorporated** into new materials, which will serve to produce a wide range of Miranda products. This also represents high levels of efficiency.

In 2021 and 2022, an analysis of the levels of **recycled** material incorporated in the main raw material used, aluminium, was carried out, and the **objective** is to extend this type of analysis to other materials in the future.

On average, in 2021, the aluminium bars, rods and sheets used by Miranda to manufacture a large part of its products had **80%** recycled material in their composition. In 2022 there was a **6%** increase in the amount of recycled material. For this analysis, Miranda's two largest aluminium suppliers were considered, which together represent **82%** of the total aluminium supply.

## Percentage of recycled material incorporated in product manufacture

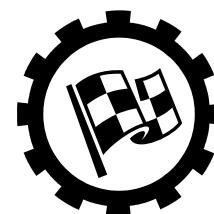
**2021**

✿ Recycled material incorporated in aluminium: **80%**

**2022**

✿ Recycled material incorporated in aluminium: **86%**

The increase in the amount of recycled material incorporated in aluminium and the increase in the amount of packaging cardboard at the expense of plastic have allowed for an overall increase in the use of **recycled and recyclable materials**.



**Aim**  
increase the use  
of recycled and  
recyclable  
materials

**100%**  
Range level



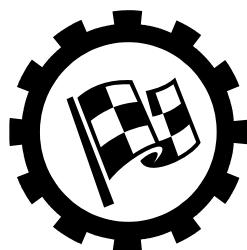
## Production efficiency

The painting process is made up of four major stations: bathing; drying; painting (liquid or powder); polymerisation.

Of the four stations, three use gas for heating: bathing; drying; polymerization. In these three stations gas consumption is recorded through totalisers.

In 2022 it was possible to increase by **40%** the number of equivalent pieces produced and simultaneously reduce gas consumption in the painting process by **25%**.

These data demonstrate efficiency improvements achieved through well-structured and optimised circuits for the different pieces and by increasing the number of racks present simultaneously at each station of the process.



### Aim

Optimising the production process in painting to reduce gas consumption

**100%**

Range level

## Environment

### Production





## Waste

As a result of its activity and production processes, Miranda generates multiple hazardous and non-hazardous **wastes** with different characteristics.

The main ones are: packaging, ferrous and non-ferrous; paint; oils, solvents and diluents; WWTP sludge.

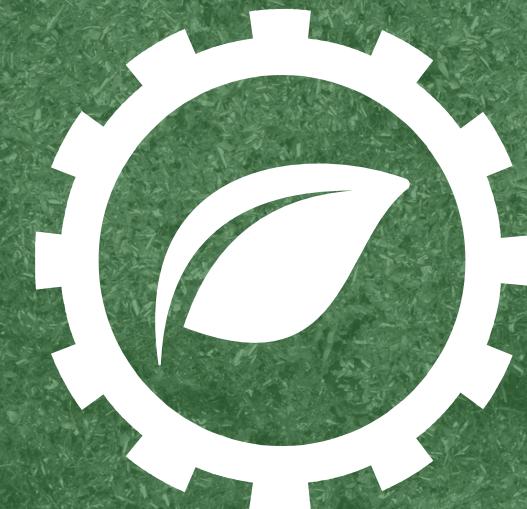
**Waste management** is carried out as correctly as possible in order to limit pollution and public health risks. The waste produced in the offices, canteen and toilets (equivalent to urban waste) is stored in a single container, and this aspect has already been referred to as a point of improvement to be implemented.

The paper/cardboard and plastic packaging waste generated during the production processes are duly **separated and stored** in containers before being collected by a Waste Management Operator (**WMO**).

Hazardous waste is stored in a **protected area** with a system to collect any leaks (secondary containment). All waste is regularly collected and treated by authorised and qualified partners in accordance with local regulations and customer requirements, if applicable. All entities collecting waste at Miranda are legally authorised to do so by means of WMO licensing.

The entire process prior to collection by waste management companies is **monitored and "audited"** by the SSE department.

## Environment Production





# Waste

In 2022 there was the production of new waste compared to the previous year, namely **WEEE** originated by the campaign "**Todos pelo IPO**" and by the disposal of other electronic materials. This addition of new waste also led to an increase in the total amount of waste produced.

## Total quantity of waste produced

### 2021

✿ 989,6 ton

### 2022

✿ 1070 ton

The amount of waste **sent to recovery processes** increased in 2022. This amount is due to the fact that more WMOs have collected waste at Miranda's facilities and some waste that was previously sent for disposal, particularly hazardous waste, is now recovered.

## Amount of waste sent to recovery processes

### 2021

✿ Total weight of waste sent to recovery processes in 2021: 819,7 ton



### 2022

✿ Total weight of waste sent to recovery processes in 2022: 907,4 ton



Label:

Hazardous waste sent to recovery processes

Non-hazardous waste sent to recovery processes

# Environment

## Production



Amount of waste sent to recovery processes in 2021 and 2022



# Waste

## Case study

13  
Al  
Aluminium  
26.98

Miranda strives to work with its supply chain to constantly seek **innovative solutions** that bring economic, environmental and social benefits to both parties.

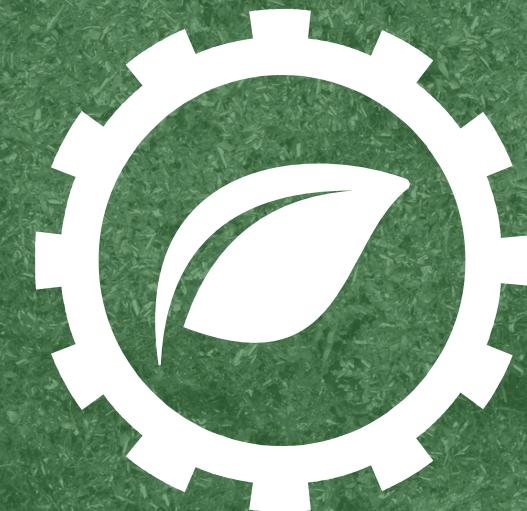
This approach led to an agreement between Miranda and its main aluminium supplier that can be framed within a **circular economy** perspective.

Every time it comes to Miranda's facilities to deliver aluminium, it also collects aluminium chips and filings. Thus, the entity has a **dual role**: supplier and WMO.

After transportation to its facilities the aluminium waste enters a **recycling** process and it is again incorporated into new aluminium that will be delivered for production. The **cycle** is repeated.

# Environment

## Production





# Waste

Almost all the waste sent to landfill is classified as hazardous and therefore cannot be treated for recovery or valorisation. Even so, part of the waste for elimination undergoes **physico-chemical** treatment before being deposited in order to reduce its **danger degree**.

## Amount of waste sent to landfill

### 2021

✿ Total weight of waste sent to landfill in 2021: 169,9 ton (17%)

### 2022

✿ Total weight of waste sent to landfill in 2022: 163,5 ton (15%)

#### Label:

Non-hazardous waste sent to landfill

Hazardous waste sent to landfill

# Environment

## Production





# Waste

## Case study

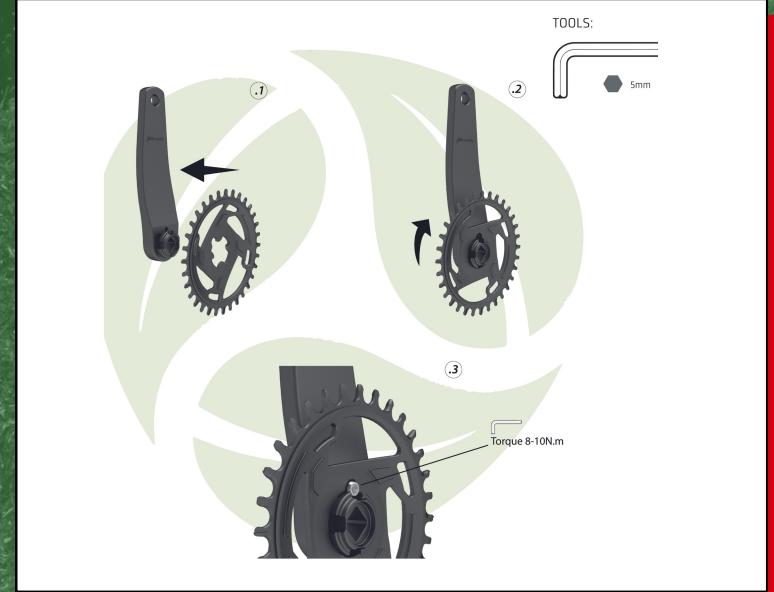
The **MGreen** crankset has been designed based on **ecodesign** concepts and is a patented system that presents itself as an alternative to the traditional cranksets sold in the market for having a **distinctive feature** that allows **the separation of the two components**: the chainring (made of steel) and the crankset (made of aluminium).

This allows, in case of malfunction, to replace only the damaged part - avoiding the **waste** of the part which is in good condition - and, in case of end of life, to separate the parts for **recycling** - facilitating the recycling process of the two types of material.

# Environment

## Production

**MGreen**





# Packaging

Packaging and distribution is an important part of Miranda's production process and it is an issue that has been worked on upstream, with preference given to the choice of materials of **renewable origin and FSC certification**. These have more **recycled and recyclable** materials in their constitution, and the optimisation of the company's own fleet.

After leaving the factory, and without having any direct influence on how the client/consumer disposes of the waste generated by the packaging of the pieces, Miranda still seeks to raise **awareness** for correct disposal, whenever possible through signs on the packaging itself.

“

By betting on more sustainable packaging Miranda contributes to a healthier planet and stands out for its environmental concerns. By buying Miranda products, customers know they are contributing to the environment.

”

**Beatrix Ferreira**  
Production Department

# Environment

## Packaging





## Materials used and transport

Three main materials are used to package the components sold by Miranda: **cardboard, plastic and wood**.

**Cardboard** is used in the packaging boxes, and it is also used to create divisions inside the box when necessary.

**Plastic** is used for packaging inside the boxes, especially in the cranks and whenever it is necessary to distinguish between the left and right side, and for this purpose two types of distinct colours are used.

**Plastic goblets** are also used for transporting some products sold on the domestic market, with the advantage that they are continuously recovered after the respective deliveries and reused by Miranda.

The **wood** used corresponds to the wooden pallets used to transport the boxes.

As the plastic packaging is single-use, Miranda's priority has been to progressively **reduce** the amount of plastic used in packaging, as it has little or no recyclable characteristics, and to replace it with **100% recyclable** cardboard.

# I Environment Packaging





# Materials used and transport

To achieve the defined reduction target, measures were implemented to reduce the use of plastic, with this type of packaging mostly only used to distinguish cranks inside the cardboard packaging.

Thus, in 2022, there was a significant reduction in the amount of plastic used in product packaging (**-65%**) and an increase in the amount of cardboard packaging used (**+4%**), but not in a proportion equivalent to the reduction in plastic packaging, since in 2022 a measure was also implemented to distribute certain products in "goblets". These packages are **recovered and reused** by Miranda after each product delivery.

## Packaging materials by weight

### 2021

✿ Total weight of packaging materials used in 2021: 191,7 ton\*

### 2022

✿ Total weight of packaging materials used in 2022: 157,6 ton\*

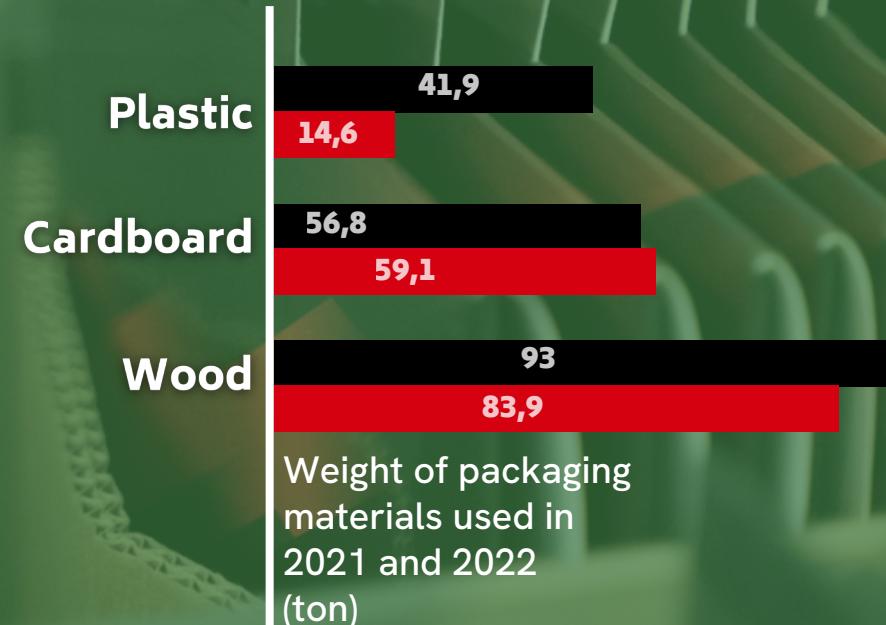
\*Does not take into account the weight of the plastic goblets because they are reusable

Years:

2021
2022

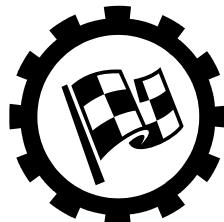
# Environment

## Packaging





# Materials used and transport

**Aim**

Reduce plastic packaging by at least 20% by 2025

**100%**  
Range level

The reduction in the amount of plastic used and the increase in the amount of cardboard allowed an increase in the amount of **renewable materials** used in packaging, in this case cardboard and wood.

Label:

Materials of non-renewable origin
Materials of renewable origin

# Environment

## Packaging

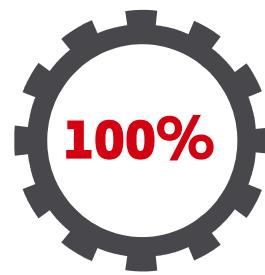


Materials of renewable and non-renewable origin used in 2021 and 2022

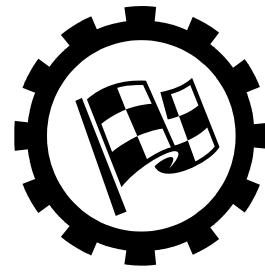


## Materials used and transport

In 2021 and 2022 all **6** suppliers that distributed Miranda cardboard for packaging were certified with the **FSC** seal, guaranteeing that the resources used in some of the products it sells come from **sustainably** managed forests. As of 2022 all cardboard packaging purchased was **FSC** certified, although uncertified cardboard packaging was still used in stock.



**Percentage of cardboard suppliers with FSC certification in 2021 and 2022**



**Aim**  
Ensure that 100% of the cardboard used in packaging has the FSC label

**100%**  
Range level

## Environment Packaging





# Case Study

## I XMOD Crankset

The (patented) **XMOD** crankset unit incorporates the world's first modular system which allows the **complete and independent** combination of its various parts.

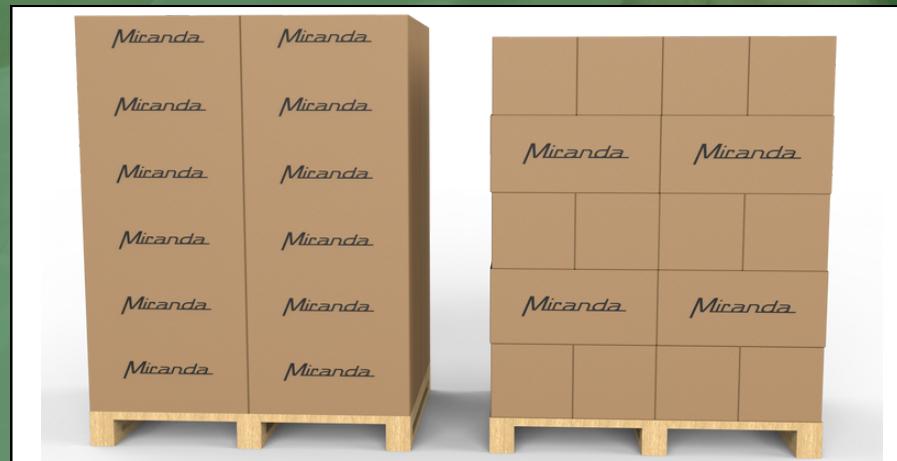
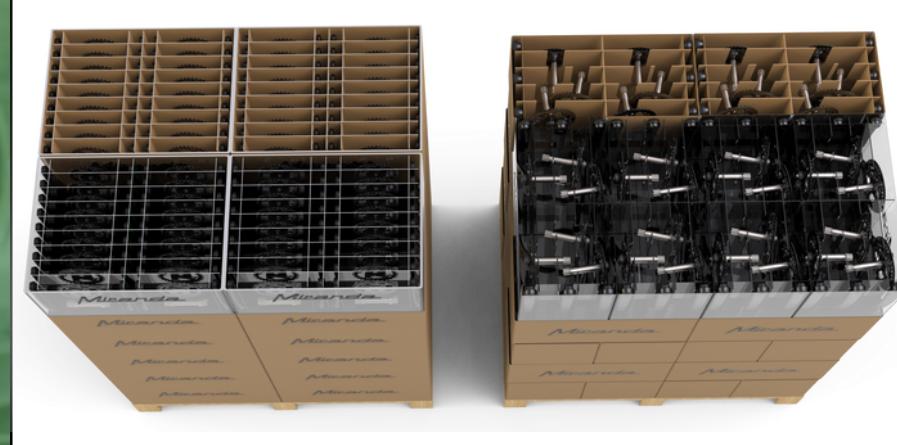
Traditionally, **XMOD** cranksets were transported unassembled and **360** crankset could be fitted per pallet. Later, for quality reasons, the cranksets started to be transported already assembled, leading to a **50%** reduction in the quantity transported per pallet.

Currently, there is another possibility that is being studied: sending the cranksets disassembled and reducing the height of the boxes by **5 cm**, reducing the volume of air that is sent in each box and considered unnecessary. This opens up the possibility of **adding** another level of boxes without increasing the final height of the pallet load.

Once implemented, the measure will allow an increase to **432** cranksets per pallet, a **140%** increase in the number of pieces that can be transported, translating into two main **environmental and economic benefits**:

- ⚙ Reduce the amount of cardboard needed to pack the products;
- ⚙ Reduce the number of journeys needed to deliver the same quantities of product, avoiding CO<sub>2</sub> emissions and reducing transport costs.

## Environment Packaging





# Case Study

## Packaging reuse

Another **measure** to reduce packaging material was also implemented in 2022. Traditionally, the pieces for a specific customer were transported in cardboard boxes, with a capacity of **75** pieces per box, and are now transported in **reusable** plastic troughs. Since between June and December 2022 approximately 56.500 pieces were shipped, sending them in reusable packaging made it possible to **avoid** the use of approximately **7500** cardboard boxes.

## Transport

In its own distribution fleet, Miranda has two vehicles of different characteristics and sizes that allow **optimisation of logistics** when it comes to smaller loads and distances.



### Light commercial vehicle

- Used for local and small quantity deliveries (e.g. 1 pallet).



### Boxed light commercial vehicle

- Used for short/medium distance deliveries, with loads up to 800 kg.

# Environment

## Packaging



www.miranda.pt

# IGRI Table

GRI	Description	Information/Location	Page
<b>GRI 2 – General disclosures 2021</b>			
<b>Organisation and reporting practices</b>			
2-1	Organisation details	Miranda & Irmão is a limited company, located in Portugal at EN1 Km 228.9, Borralha 3750-871 - Águeda	
2-2	Entities included in the sustainability report	No external entities were included in the sustainability report	
2-3	Reporting period, frequency and form of contact	"About this report"	4
2-4	Information changes	"About this report"	4
2-5	External audit	Miranda sustainability report has not been externally verified	
<b>Activities and employees</b>			
2-6	Activities, value chain and business relationships	Sector: Manufacturing Industry – Metalworking Activities: Design and production of accessories and components for two and four-wheeled vehicles / Production and assembly of reflectors and technical parts, in injection-moulded plastic material "Market presence"; "Supply chain"	8: 13
2-7	Employees	"Diversity and equal opportunities"	34
2-8	Other workers who are not employees	No data	
<b>Governance</b>			
2-9	Governance structure and composition	"Organogram"	7
2-10	Appointment and selection of senior management	As Miranda is a family company, the members of the Board of Directors are composed of three brothers, and for this reason there is no formal selection process	
2-11	Chairmanship of top management	"Organogram"	7
2-12	Role of senior management in overseeing impact management	"Organogram"	7
2-13	Delegation of responsibilities in impact management	"Organogram"	7
2-14	Top management's role in the sustainability report	"Organogram"	7

# IGRI Table

GRI	Description	Information/Location	Page
<b>Governance</b>			
2-15	Conflicts of interest	A weekly management meeting takes place, where conflicts of interest are discussed. This meeting involves the second hierarchical level	
2-16	Communication of critical situations	Management is aware of all complaints	
2-17	Collective knowledge of top management	The actions adopted by the administration to strengthen knowledge related to sustainability are divided into: webinars and conferences	
2-18	Top management performance assessment	N.A.	
2-19	Remuneration policy	"Diversity and equal opportunities"	42
2-20	Process for determining remuneration	"Diversity and equal opportunities"	42
2-21	Total annual compensation ratio	"Diversity and equal opportunities"	42
		Ratio of remuneration between the highest paid individual and the average of all employees: 4.84	
<b>Strategy, policies, and practices</b>			
2-22	Declaration on the sustainability strategy	"Message from top management"	3
2-23	Implemented policies	"Ethics and transparency"	22
2-24	Incorporation of implemented policies	"Ethics and transparency"	22
2-25	Processes to mitigate/compensate negative impacts	"Materiality"; "Governance"; "Social"; "Environmental"	18; 22; 34; 50
2-26	Mechanisms for seeking advice and raising concerns	"Ethics and transparency"	27
2-27	Compliance with laws and regulations	"Ethics and transparency"	25
2-28	Associations	"Associations/initiatives subscribed"	14
<b>Stakeholder engagement</b>			
2-29	Stakeholder engagement process	"Stakeholders"; "Materiality"	16; 18
2-30	Collective bargaining agreements	100%. All employees are covered	

# IGRI Table

GRI	Description	Information/Location	Page
<b>GRI 3 – Material issues 2021</b>			
3-1	Processes for determining material issues	"Materiality"	18
3-2	List of material issues	"Materiality"	18
3-3	Management of material issues	Reported on each material issue	
<b>GRI 204 – Purchasing practices</b>			
3-3	Management of the material issue	"Sustainable purchasing"	28
204-1	Proportion spent on local suppliers	"Sustainable purchasing"	31
<b>GRI 205 – Anticorruption</b>			
3-3	Management of the material issue	"Ethics and transparency"	22
205-1	Operations assessed for corruption risk	No occurrences	
205-2	Communications and training on anticorruption	"Ethics and transparency"	26
205-3	Confirmed incidents of corruption and actions taken	"Ethics and transparency"	25
<b>GRI 206 – Anticompetitive practices</b>			
3-3	Management of the material issue	"Ethics and transparency"	22
206-1	Legal actions against unfair competition, anti-trust, and monopoly behaviour	"Ethics and transparency"	25
<b>GRI 301 – Materials</b>			
3-3	Management of the material issue	"Production"; "Packaging".	67; 76
301-1	Materials used by weight or volume	"Production"; "Packaging".	68; 78
301-2	Used materials from recycling	"Production"	69
301-3	Recovery of products and their materials	"Packaging"	82

# IGRI Table

GRI	Description	Information/Location	Page
<b>GRI 302 - Energy</b>			
3-3	Management of the material issue	"Energy management"	55
302-1	Energy consumption within the organisation	"Energy management"	56
302-2	Energy consumption outside the organisation	No data	
302-3	Energy intensity	"Energy management"	57
302-4	Reducing energy consumption	"Energy management"	56
302-5	Reductions in energy requirements of products or services	"Energy management"	57
<b>GRI 303 – Water and effluents</b>			
3-3	Management of the material issue	"Water"	50
303-1	Interactions with water as a shared resource	"Water"	50
303-2	Management of impacts from the discharge of effluents	"Water"	53
303-3	Water capture	"Water"	51
303-4	Water discharges	"Water"	54
303-5	Water consumption	No data	

# IGRI Table

GRI	Description	Information/Location	Page
<b>GRI 305 - Emissions</b>			
3-3	Management of the material issue	"Emissions"	60
305-1	Direct GHG emissions (scope 1)	No data for corporate footprint accounting	
305-2	Indirect GHG emissions (scope 2)	No data for corporate footprint accounting	
305-3	Indirect GHG emissions (scope 3)	No data for corporate footprint accounting	
305-4	GHG emissions intensity	No data	
305-5	Reduction of GHG emissions	No data	
305-6	Emissions of ozone-depleting substances (ODS)	No data	
305-7	Nitrogen oxides (NOx), sulphur oxides (SOx) and sulphur (SOx) and other emissions	No data	
<b>GRI 306 - Waste</b>			
3-3	Management of the material issue	"Production"	71
306-1	Production of waste with significant impacts	"Production"	71
306-2	Waste impact management	"Production"	71
306-3	Waste generated	"Production"	72
306-4	Waste diverted from landfill	"Production"	72
306-5	Waste sent to landfill	"Production"	74
<b>GRI 308 – Environmental assessment of suppliers</b>			
3-3	Management of the material issue	"Sustainable purchasing"	28
308-1	New suppliers that were selected based on environmental criteria	No data	
308-2	Negative environmental impacts in the chain of suppliers and actions taken	"Sustainable purchasing"	30

# IGRI Table

GRI	Description	Information/Location	Page
<b>GRI 401 - Employment</b>			
3-3	Management of the material issue	"Diversity and equal opportunities"	37
401-1	New hirings and employee turnover	"Diversity and equal opportunities"	38
401-2	Benefits granted to full-time employees that are not granted to temporary or part-time employees	"Diversity and equal opportunities"	39
401-3	Parental leave	No data	
<b>GRI 403 – Operational health and safety</b>			
3-3	Management of the material issue	"Diversity and equal opportunities"	40
403-1	Occupational health and safety management system	N.A.	
403-2	Risk and hazard assessment, and incident investigation	"Diversity and equal opportunities"	41
403-3	Occupational health services	"Diversity and equal opportunities"	40
403-4	Participation, appointment and communication of occupational health and safety to workers	N.A. "Diversity and equal opportunities"	40
403-5	Occupational health and safety training	"Diversity and equal opportunities"	41
403-6	Health promotion at work	"Diversity and equal opportunities"	40
403-7	Prevention and mitigation of impacts on occupational health and safety directly related to commercial relations	"Diversity and equal opportunities"	40
403-8	Workers covered by an occupational health and safety management system	N.A.	
403-9	Accidents at work	"Diversity and equal opportunities"	41
403-10	Diseases at work	"Diversity and equal opportunities"	40

# IGRI Table

GRI	Description	Information/Location	Page
<b>GRI 404 – Training and education</b>			
3-3	Management of the material issue	"Diversity and equal opportunities"	44
404-1	Average hours of training per year and per employee	"Diversity and equal opportunities"	45
404-2	Employee skills improvement programmes and transition support programmes	"Diversity and equal opportunities"	44
404-3	Percentage of employees receiving regular performance and career development reviews	100% in 2021	
<b>GRI 405 – Diversity and equal opportunities</b>			
3-3	Management of the material issue	"Diversity and equal opportunities"	34
405-1	Diversity of the governance bodies and employees	No occurrences	
405-2	Ratio between basic pay and remuneration of women and men	"Diversity and equal opportunities"	43
<b>GRI 406 – No discrimination</b>			
3-3	Management of the material issue	"Ethics and transparency"; "Diversity and equal opportunities"	25; 34
406-1	Discrimination cases and measures taken	No occurrences	
<b>GRI 413 – Local communities</b>			
3-3	Management of the material issue	"Community involvement"	46
413-1	Operations with local community involvement, assessment of impact assessment and programme development	"Community involvement"	46
413-2	Operations with significant current and potential negative impacts on local communities	N.A.	
<b>GRI 414 – Social assessment of suppliers</b>			
3-3	Management of the material issue	"Sustainable purchasing"	28
414-1	New suppliers that were selected based on social criteria	No data	
414-2	Negative social impacts on the supply chain and measures taken	"Sustainable purchasing"	30