

2022 Sustainability Report

Our ambitions to accelerate the circularity of plastics

by creating positive value
for people and the environment.



CARBIOS

Biotechnology powering
plastic and textile circularity

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Questions to...

Emmanuel Ladent

Chief Executive Officer
of CARBIOS

CARBIOS is not subject to the obligation to publish a Sustainability Report: why did you decide to publish one?

In 2022, CARBIOS voluntarily published its first Sustainability Report in which we made structuring commitments for our environmental, social and societal initiatives. One year later, through this second Sustainability Report, we are proud to share with you our progress as well as the future targets that we are committed to achieving.

What are your ambitions in terms of sustainable development?

Our ambition at CARBIOS is clear: to meet the challenge of plastic pollution by making plastic and textile waste a sustainable resource and by developing a true circular economy for these materials. For more than ten years now, working hand in hand with our industrial, institutional and academic partners, we have delivered on our commitment to a circular economy. By making plastic and textile waste into new raw materials, we contribute to preserving natural resources and biodiversity and we fight against land and water pollution.

CARBIOS describes itself as a pioneering company. In what way are you at the forefront of recycling?

What sets us apart and gives meaning to what we do is our ability to leverage the best of innovation to push the boundaries of existing technologies. Our teams of researchers have developed innovative enzymes capable of depolymerizing PET - the second most used plastic, particularly in the manufacture of bottles, trays and polyester textiles - into its basic components, thus enabling truly circular recycling and significantly reducing the carbon impact of these plastics and textiles. This not only reduces plastic pollution, but also the reliance on fossil fuels used to produce virgin plastic.



”

By working together,
we will create a positive
and lasting impact
on our planet and
for future generations.”

You place a lot of emphasis on the environmental impact of your technological solutions, but the responsibility of companies is not limited to the products they put on the market. It is also the societal impact and the way you conduct your business that are at the heart of sustainability issues.

Being a sustainable development player should not be reduced to proposing technological solutions with a low environmental impact, however innovative they may be. Our vision of our role as a sustainable development player must be applied to all our activities: we want and need to be exemplary in terms of environmental, social and governance practices, business ethics as well as the involvement of all our stakeholders. We consider this to be our responsibility on a daily basis. And it is this requirement to set an example that drove us in 2022 to achieve several of our key objectives: strengthening the place of independent directors on our Board of Directors, first carbon assessment, consolidation of the life cycle analysis of our PET biorecycling process and continued training of our employees, particularly in safety and environmental issues. These initiatives help to lay the foundations of our CSR approach, which is a pillar of our strategy in the same way as R&D or industrial and commercial development.

How do you see yourself in the coming years?

Our vision is bold: to become an undisputed player in the circular economy by offering sustainable and innovative solutions. We are determined to redouble our efforts, to constantly innovate and to take into account the social and environmental impacts of our activities. This commitment will materialize for CARBIOS in 2024 with a major stage in its development: the construction of the first PET biorecycling plant in the world. With a capacity to process 50,000 metric tons of plastic waste, this France-based plant will demonstrate CARBIOS' ability to deploy its technology on a large scale and support its partners in their own responsible approach.

Our vision only has value if it is not only translated into concrete actions as part of an ongoing CSR commitment, but also if the progress of its implementation is measured. This is why we are committed to obtaining an ESG certification in 2025, guaranteeing the reality and transparency of our CSR approach.

What message do you want to share with readers through this report?

First of all: the circularity of plastic is possible. Our commitment to a true circular economy of plastics and textiles has been deeply rooted in our corporate DNA since its inception, and we are convinced that our present and future actions will shape a more sustainable future for generations to come.

The road is long, but it is a journey that we are undertaking with conviction and tenacity. We firmly believe that the diversity of perspectives and experiences is a powerful driver for the future of CARBIOS. We will, therefore, continue to work and innovate to create an environment where everyone can thrive and contribute to our shared mission of making the circularity of plastics and textiles possible on a large scale.

We invite you to join us in this quest, as we firmly believe that by working together we will create a positive and lasting impact on our planet and for future generations. With ambition and determination, for a more sustainable future.



Who are we?

Our purpose:
making the
circularity of
plastics and
textiles possible
on a large scale

We lead biotech expertise to catalyze plastic and textile circularity at scale. Let's free our oceans and lands from further waste! This is achievable when all plastics and textiles already in use are effectively reduced, reused or recycled.

That's why we rally forces. That's why we catalyze unprecedented expertise-based partnerships to innovate in biorecycling and biodegradation technologies.

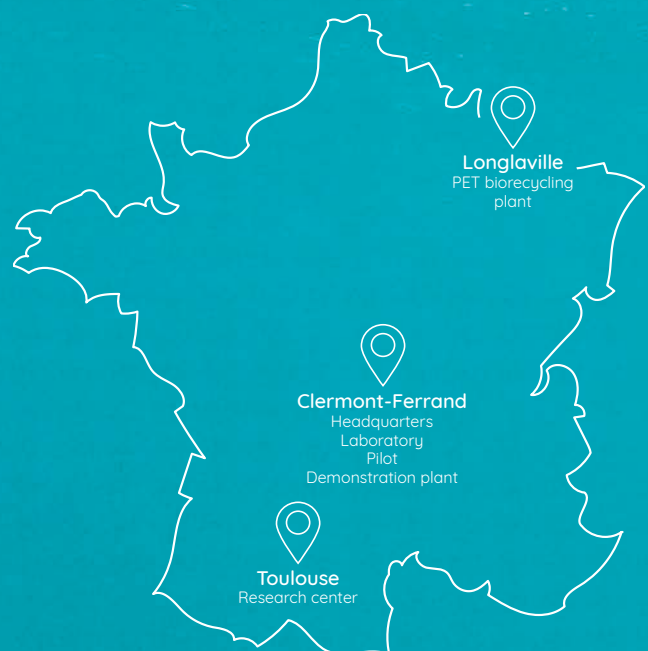
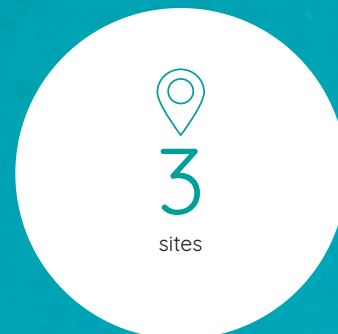
Every day, we optimize unique enzymes that make our core technologies thrive.

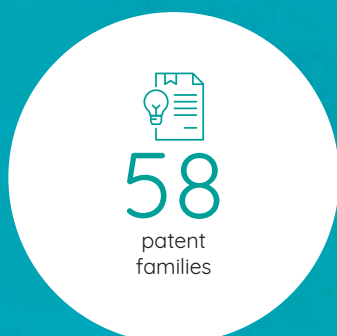
Every day, this teamwork makes the circularity of plastic and textile possible at scale.

At CARBIOS, we are renowned scientists, engineers and entrepreneurs.

Nature is our source of inspiration.

Our key figures





Our values



We are committed

Our teams and partners are committed to a truly circular economy on a daily basis.



We're passionate about innovation

Thanks to high-level scientific research combining, for the first time, the worlds of enzymology and plastics processing, we innovate on a daily basis to offer high-performance, sustainable industrial solutions that meet the major environmental challenges of our time.



We are bold

Because there is an urgent need to take action against plastic pollution, we are undertaking bold projects and giving ourselves the means to bring them to fruition quickly.



We have integrity

At CARBIO, we keep our promises: the agility of our teams and the diversity of their expertise enable us to rapidly propose reliable solutions and turn them into industrial realities. Integrity is the watchword in our ecosystem.

A range of technologies that are unique in the world

CARBIOS is a biotechnology company that develops and industrializes biological solutions to reinvent the life cycle of plastics and textiles. Inspired by nature, CARBIOS is developing enzyme-based biological processes to deconstruct plastics with the ambition of avoiding plastic and textile pollution and accelerating the transition to a circular economy. Through **its unique approach combining biotechnologies and plastics for the first time**, CARBIOS aims to address new consumer expectations and the challenges of the broader environmental transition faced by governments and industrial companies by taking up a major challenge of our time: the fight against plastic and textile waste pollution.

Through our **biorecycling technology**, we provide an **industrial solution to the recovery of PET¹** (the dominant plastic used in bottles, trays and polyester textiles), which is a market of nearly 100 million metric tons per year worldwide².

Our technology differs from conventional recycling processes by its ability to process all types of PET waste, whether clear, colored, opaque, complex or polyester textiles. This innovation, based on the use of high-performance enzymes, enables the production of 100% recycled and 100% recyclable PET products, without loss of quality.

After the commissioning of our industrial demonstration plant in Clermont-Ferrand in 2021, we took a key step towards the industrialization and marketing of our PET enzymatic recycling process in 2022. By partnering with Indorama Ventures, the world leader in the production of recycled PET for the bottle market, our objective is to build and operate the world's first PET biorecycling plant in France. This plant, with an estimated processing capacity of around 50,000 metric tons of post-consumption PET waste per year, should be operational in 2025.

We have also developed a **biodegradation solution for single-use PLA-based plastics³** (plastic of plant origin) **to create a new generation of plastics that are 100% compostable at room temperature** thanks to the integration of an enzyme encapsulated at the very core of these plastics. This technology is part of a growing market with global production of 400,000 metric tons in 2022, which should reach 700,000 metric tons in 2026⁴.



¹ Poly(ethylene Terephthalate)

² Source: IHS Markit in 2021

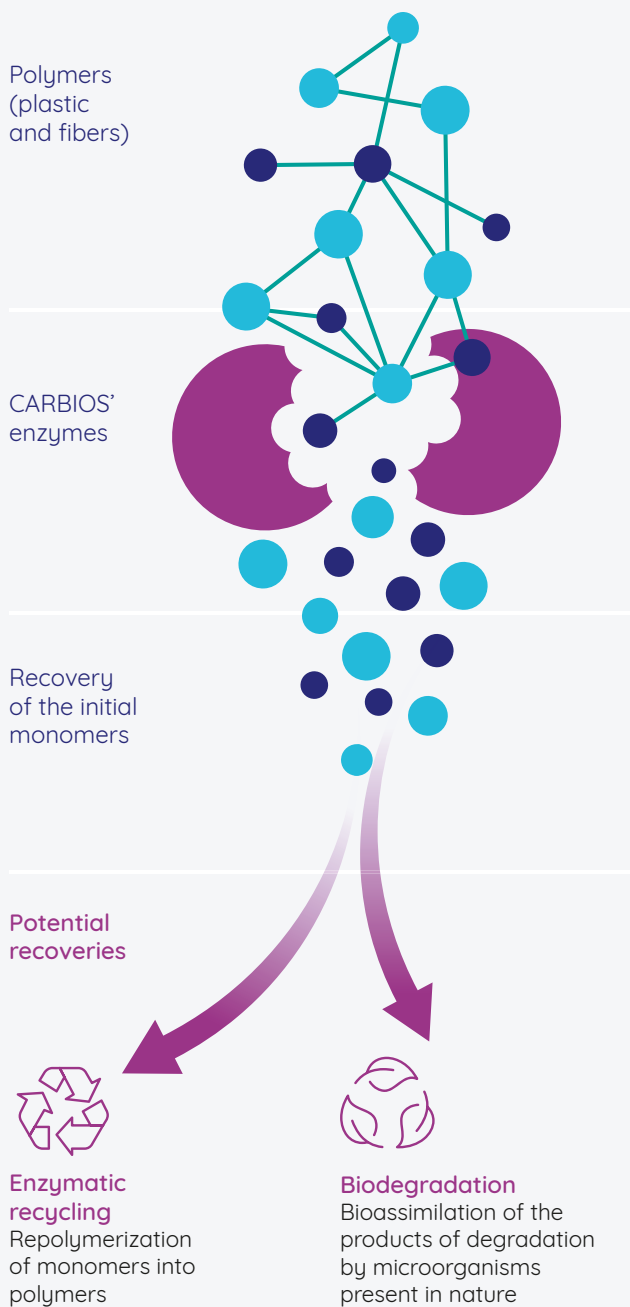
³ Polylactic acid

⁴ Source: IHS Markit in 2021 and Nova Institute Projection in 2021.

Technologies developed by CARBIOS

Enzymes are the new high-performance catalysts for the chemical industry

Enzymatic depolymerization of the polymers



//

As part of our 'Forever Better' sustainability strategy, we aim to use 75% recycled polyester in our clothing and accessories by 2025. The partnership with CARBIOS and their innovative biorecycling methods offer a promising approach to achieving our objectives and making our industry more circular as a whole. //

PUMA



A forward-looking business model

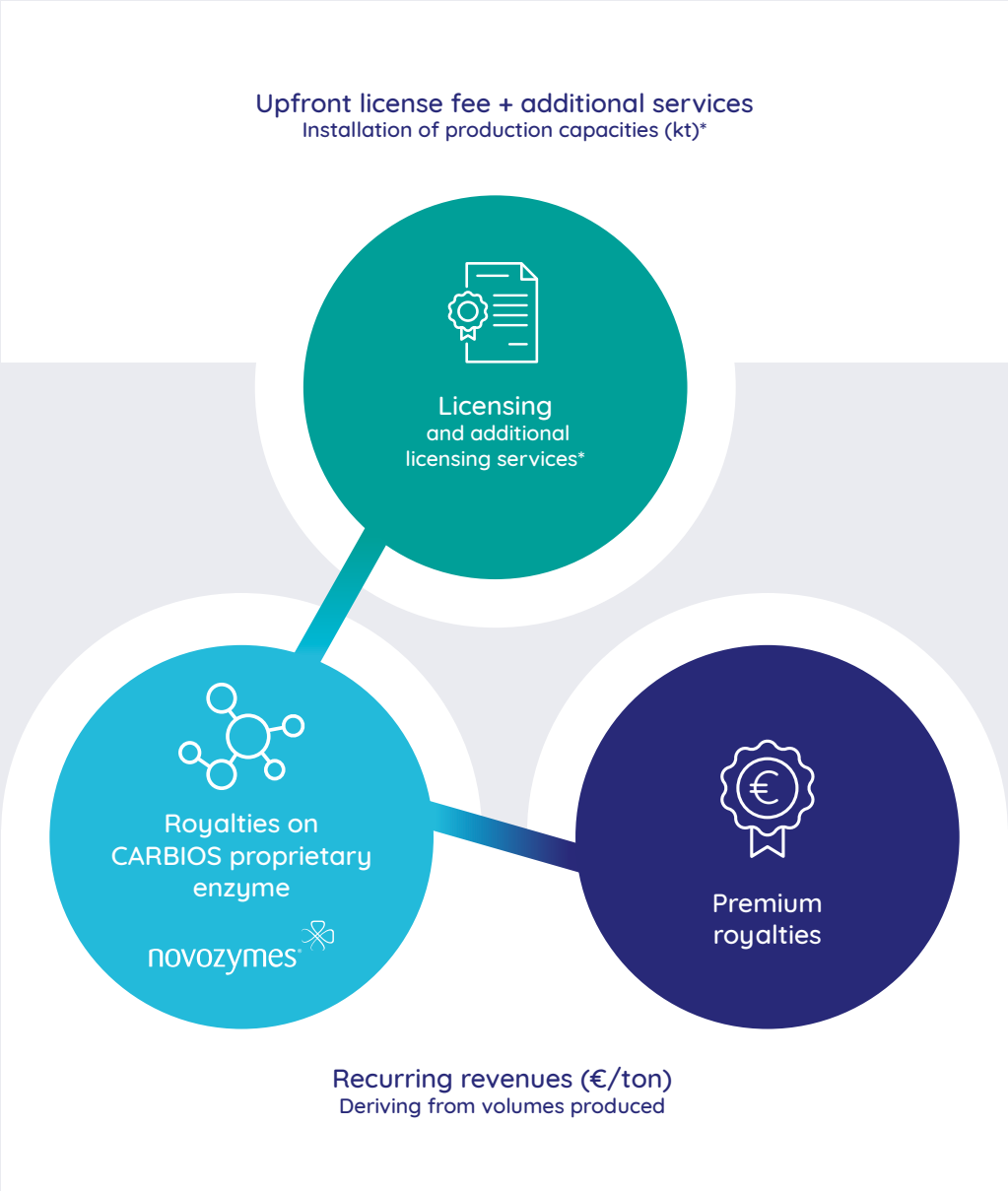
Our business development model is based on three types of revenue:

- the **granting of licenses for the use** of our know-how and intellectual property; the licenses granted will generate revenues in the form of upfront payments;
- **royalties from the sale by our partner Novozymes of CARBIOS proprietary enzymes** directly to manufacturers using CARBIOS technology;
- and **royalties from the premium generated by manufacturers on the sale of biorecycled PET.**



Our ambition to design solutions with a positive impact feeds our long-term competitiveness to meet the immense needs of the markets concerned. By placing the circular economy at the heart of our innovations and strategy, we are committed to creating sustainable financial, environmental, social and economic value for all our stakeholders. //

Pascal Bricout,
Director of Strategy and Finance at CARBIOS



*: Technical assistance services to licensees such as training and supervision during detailed engineering, construction, commissioning, start-up and performance testing of the industrial plants.

Our partner ecosystem




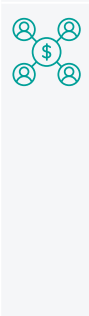

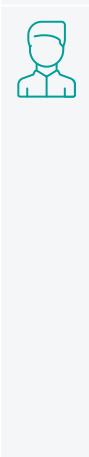


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Dialogue with our stakeholders is at the heart of CARBIOS' DNA. The success of our industrialization model is based, in particular, on our ability to forge strategic partnerships. Thanks to the strength of our activities, we have brought together an ecosystem of leading partners in the fields of research, business and industrialization, as well as consortia with major brands in the packaging, cosmetics and textiles sectors. ”

Lionel Arras,
Director of Industrial Development at CARBIOS

Interaction methods with our stakeholders

	<p>Partners</p> <p>Industrialists</p> <ul style="list-style-type: none"> • Collaboration with Indorama Ventures for the construction of the first plant in the world using CARBIOS' PET biorecycling technology (Longlaville, France). • Exclusive and global partnership with Novozymes guaranteeing the production and supply of CARBIOS' PET degradation enzymes on an industrial scale for the Longlaville plant, as well as for future plants operated under license. • Since 2017, collaboration with Technip Energies, world leader in engineering in the areas of energy, chemistry and bio-sourced industries, on the industrial development of CARBIOS' PET enzymatic recycling process. <p>Trademarks</p> <ul style="list-style-type: none"> • Coordination and organization of two consortia bringing together world leaders in their fields. Packaging Consortium with L'Oréal, Nestlé Waters, PepsiCo and Suntory Beverage & Food Europe. Fiber-to-Fiber Consortium with On, Patagonia, PUMA, PVH Group and Salomon. <p>Academics</p> <ul style="list-style-type: none"> • Strategic alliance with the I'Institut National des Sciences Appliquées de Toulouse (National Institute of Applied Sciences of Toulouse) (INSA) through its Toulouse Biotechnology Institute (TBI) laboratory, a mixed research unit (INSA Toulouse, INRA, CNRS). • Academic collaborations on innovation projects with the École polytechnique de Paris, the Toulouse Chemical Engineering Laboratory, Synchrotron SOLEIL (Paris), the university of Delaware, the university of Portsmouth, the university of Manchester, the university of Greifswald, Aminoverse (AI), the CRPP laboratory (Microfluidics). • Publications in some of the most influential scientific journals in the world (Nature, Chemical Reviews, Biophysical Journal and ACS Catalysis).
	<p>Institutional partners</p> <ul style="list-style-type: none"> • Support from leading institutional partners, notably ADEME (financing of R&D projects), the European Commission through the Life program, the European Investment Bank, France 2030 and the Grand-Est Region.
	<p>Civil society/NGOs</p> <ul style="list-style-type: none"> • Non-profit organizations: Member of the Ellen MacArthur Foundation and the World Alliance for Efficient Solutions. • Presentation of CARBIOS' solution in the Solar Impulse Foundation's "Ready to Vote" Book: 50 legislative proposals for the environment" as part of a proposal to strengthen the collection of PET plastic waste and thus recycling it.
	<p>Shareholders/Investors</p> <ul style="list-style-type: none"> • Investor Relations Department. • Investor Relations website bringing together regulatory documentation and all useful information for shareholders and investors (presentations, financial and non-financial reports, share coverage). • Annual and half-year results presentation webcast, SFAF⁵ meetings. • Meetings with investors: 13 conferences, 11 roadshows, 173 institutions met, 16 countries covered. • Answers to questionnaires from investors and non-financial rating agencies: Ethifinance ESG rating (Gaïa Index), S&P Global Corporate Sustainability Assessment, Sustainalytics. • Proxy roadshow ahead of the Shareholders' Meeting and engagement with the voting policy advisory agencies at the Shareholders' Meetings: ISS, Glass Lewis and Proxinvest. • Letter to Shareholders.
	<p>Suppliers/Customers</p> <ul style="list-style-type: none"> • Offering labeled and certified products, recognized at European and international level. • 2 "Efficient Solution" labels for technologies awarded by the Solar Impulse Foundation. • Implementation of the necessary means to guarantee a responsible and sustainable supply of raw materials. • OK compost HOME certification by TÜV Austria Group awarded to several formulations using the CARBIOS PLA biodegradation solution (flexible films and rigid plastic packaging with a high PLA content) and the French Ministry for the Environmental Transition Greentech Innovation label obtained.
	<p>Employees/Candidates</p> <p>Employees</p> <ul style="list-style-type: none"> • Organization of corporate events (CARBIOS Day, CARBIOS Breakfast News, Christmas tree, etc.), team building and integration of new employees (mentoring). • Social dialogue through SEC actions and meetings. • Financial assistance to employees for the purchase of a bicycle or scooter (conventional or electrically assisted) to promote low-carbon mobility. • Employee training, particularly in safety issues (55% of headcount trained in 2022 with an average of 15.3 hours of training per employee). • Raising awareness of environmental issues and eco-responsible actions through the actions of the Environment and Sustainable Development Committee (educational sheets, World Recycling Day, World Cleanup Day). • Employee volunteering to carry out awareness-raising actions in schools. <p>Candidates</p> <ul style="list-style-type: none"> • Participation in the job day of the IUT Génie Chimique et Génie des Procédés (Chemical and Process Engineering) of Toulouse. • Participation in the trade fair for work and professional mobility at the Grande Halle de la Villette in Paris. • Response to 100% of candidates who contacted CARBIOS.

⁵ French Society of Financial Analysts



CARBIOS
accelerates its
commitment to
a circular
economy

A strategic turning point in our commercial and industrial development



2022: a pivotal year...

February

Launch of the
world's first PET
biorecycling plant

March

Production
of recycled white
fiber from colored
textile waste

July

Launch of the
Fiber-to-Fiber
Consortium with On,
Patagonia, PUMA,
PVH and Salomon

Publication in the
scientific journal
Biophysical Journal

Launch of the
European
WhiteCycle
Consortium

August

Alain Marty,
awarded
the prestigious
Biocat Award

December

First World
Congress on
PET biorecycling

...to achieve our ambition
to become a key player
in the advanced recycling
of plastic and textile waste.

CARBIOS asserts its ambition to be the world leader in recycled PET by targeting a share of 4 to 8% of this market by 2030, and between 8 and 12% by 2035.

At CARBIOS, we are convinced that the large-scale deployment of our biorecycling technology can significantly contribute to accelerating the transition to a circular economy for plastics and textiles. By bringing value to all types of PET waste, CARBIOS' technology benefits all players in the plastics value chain: PET producers and chemical companies along with other players in this ecosystem such as waste management companies and public players. CARBIOS offers an eco-responsible alternative to petro-sourced plastics for companies that must meet increasing regulatory requirements and achieve their own sustainability objectives, particularly in terms of incorporating recycled PET into their products and packaging.

CARBIOS should fully benefit from the strong growth in demand for recycled PET in a context where conventional technologies (mainly thermomechanical) are unable to process all types of PET waste. At CARBIOS, we also believe that the growth of the virgin PET market will be more limited due to a transition in demand from raw materials from petrochemicals to more sustainable materials from recycling, resulting from both corporate ambitions in the field of sustainable development and government regulations around the world.

At the same time, CARBIOS is continuing the commercial deployment of its PLA biodegradation technology.

In a PLA market whose global production is expected to increase from 400,000 metric tons in 2022 to approximately 700,000 metric tons⁶ in 2026, our ambition is to have our solution adopted by the largest consumer product brands. As such, we plan to make the first sales in the United States in 2024.

Offering the broadest portfolio of solutions to circularize a wide variety of plastics.

Today, our processes are applied to PET and PLA. Building on the strength of our R&D infrastructure and the structuring of multiple international academic partnerships, we aim to expand our portfolio of innovations in other types of plastics. Future polymers of interest, such as polyamides (including nylon) and polyolefins (polyethylene/polypropylene), will benefit from our strategic lead in R&D. The development of new solutions based on the use of enzymes to treat other types of plastics will open up new market opportunities for CARBIOS.

Recycled PET, a growing market

Based on our estimates, with the improvement in the collection and sorting of textiles, the use of raw materials of textile origin and the industrial deployment of new recycling technologies, the global recycled PET market is expected to almost double in 25 years. Recycled PET could thus represent **50% of the total PET market by 2050.**

Polyamides: a promising and accessible market for CARBIOS

CARBIOS is particularly interested in the recycling of polyamides, for which end-of-life recovery methods are still very limited. Mainly used as fibers for textiles or in resins in the automotive and electronics industries, polyamides represent a booming market estimated at around \$30 billion.



⁶ Source: IHS Markit in 2021 and Nova Institute Projection in 2021.

Strengthened governance to support our growth and commitments

Convinced that the successful deployment of a CSR strategy depends on solid governance, we are working to integrate CSR into CARBIOS' highest governance bodies. Thus, the members of the Executive Committee and the Board of Directors are made aware of socio-environmental issues through regular training (eco-design, ISO regulations and certification, etc.) or through their respective professional experiences (energy transition, business ethics, creation of impact funds, reduction of CO₂ emissions in industrial activities, etc.). We are also striving to integrate Social and Environmental performance into job descriptions, objectives, and executive performance and compensation assessments. Lastly, in 2023, CARBIOS set up a CSR Committee which meets several times a year. Chaired by an independent director, its general mission is to assist and make recommendations to the Board of Directors on the Company's CSR commitments, action programs and roadmap. In particular, it is responsible for drawing up a CSR charter and verifying its proper application within the Company, and for implementing CSR indicators and measures to improve the processes in place within the Company.

The effective implementation of our CSR strategy also relies on the full mobilization of all internal departments. Thus, a CSR Steering Committee was set up in 2022. Led by our CSR manager, it is made up of nine employee "ambassadors" covering a wide range of expertise: Research & Development, Engineering, QHSE (Quality, Health, Safety, Security), Human Resources, Investor Relations, Communication.

Key figures

36%

women on the Board
of Directors
(+16% compared to 2021)

33%

women on the
Executive Committee

64%

independent
directors

96%

average attendance
rate of directors
at Board meetings

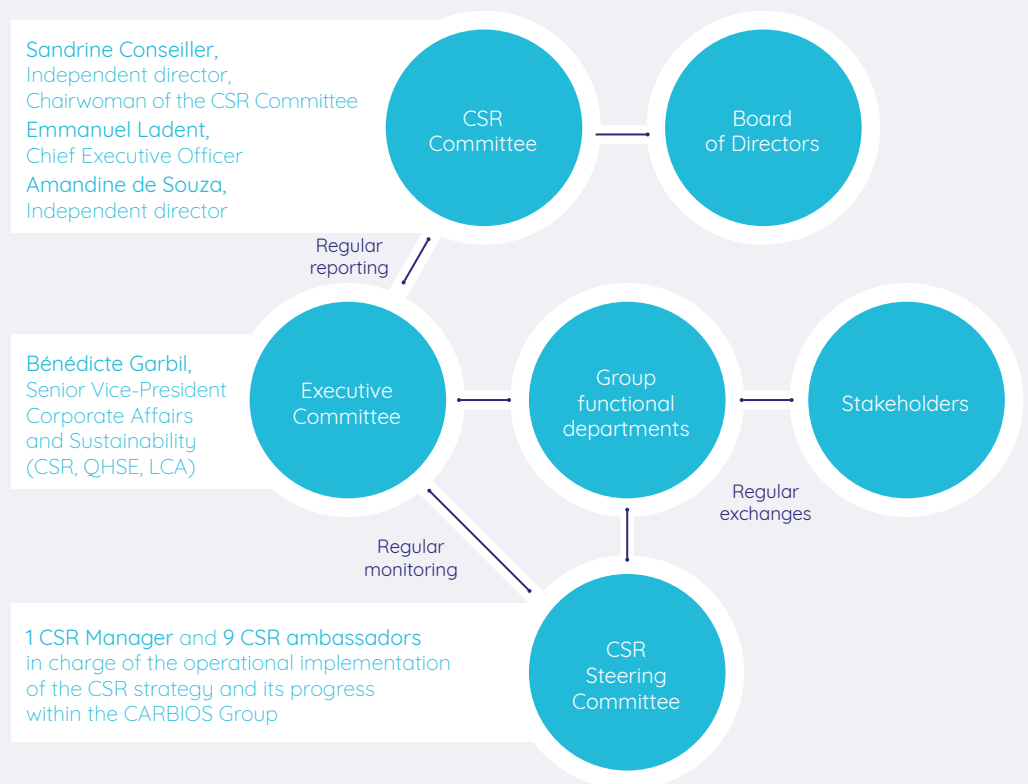


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In 2022, CARBIOS strengthened its governance, thus building a solid foundation for our continued growth and Corporate Social Responsibility (CSR) commitments. This strategic shift demonstrates our commitment to operational excellence and transparency. We have integrated the principles of sustainability, ethics and environmental responsibility at the heart of our governance, making CSR a concrete driver of our actions. Together, we are forging a more sustainable future, aligning our CSR objectives with robust governance to ensure the sustainability of CARBIOS. //

Bénédicte Garbil,
Senior Vice-President Public Affairs and Sustainability at CARBIOS

CSR governance within CARBIOS



Our 4 ambitions to accelerate the transition to a more sustainable industry

Our materiality analysis

To strengthen its credibility and strategic scope, our CSR approach is built around listening to our stakeholders. In 2022, we conducted a two-step analysis of our material challenges on environmental, social and governance issues:

- 1. A documentary review of sustainability reports and annual corporate reports:** ten companies in the recycling technology sector, or more broadly in the chemical sector, were selected in order to include the challenges identified as material in their risk analysis. All of the challenges identified were then weighted by order of importance and fed into CARBIOS' final analysis in order to list their identified challenges;
- 2. Interviews with internal and external stakeholders:** in total, 13 stakeholders expressed the priority material challenges to be prefigured in the Sustainability Report. Thus, an order of importance for each challenge was established according to its number of occurrences and by separating internal and external stakeholders.

All of these steps made it possible to identify **22 challenges** positioned according to their importance for internal and external stakeholders. The size of the discs reflects their importance, according to the documentary review from the first phase. Each of the material challenges identified leads to the implementation of a dedicated policy and the monitoring of performance indicators.

Key figures

13

interviews
carried out

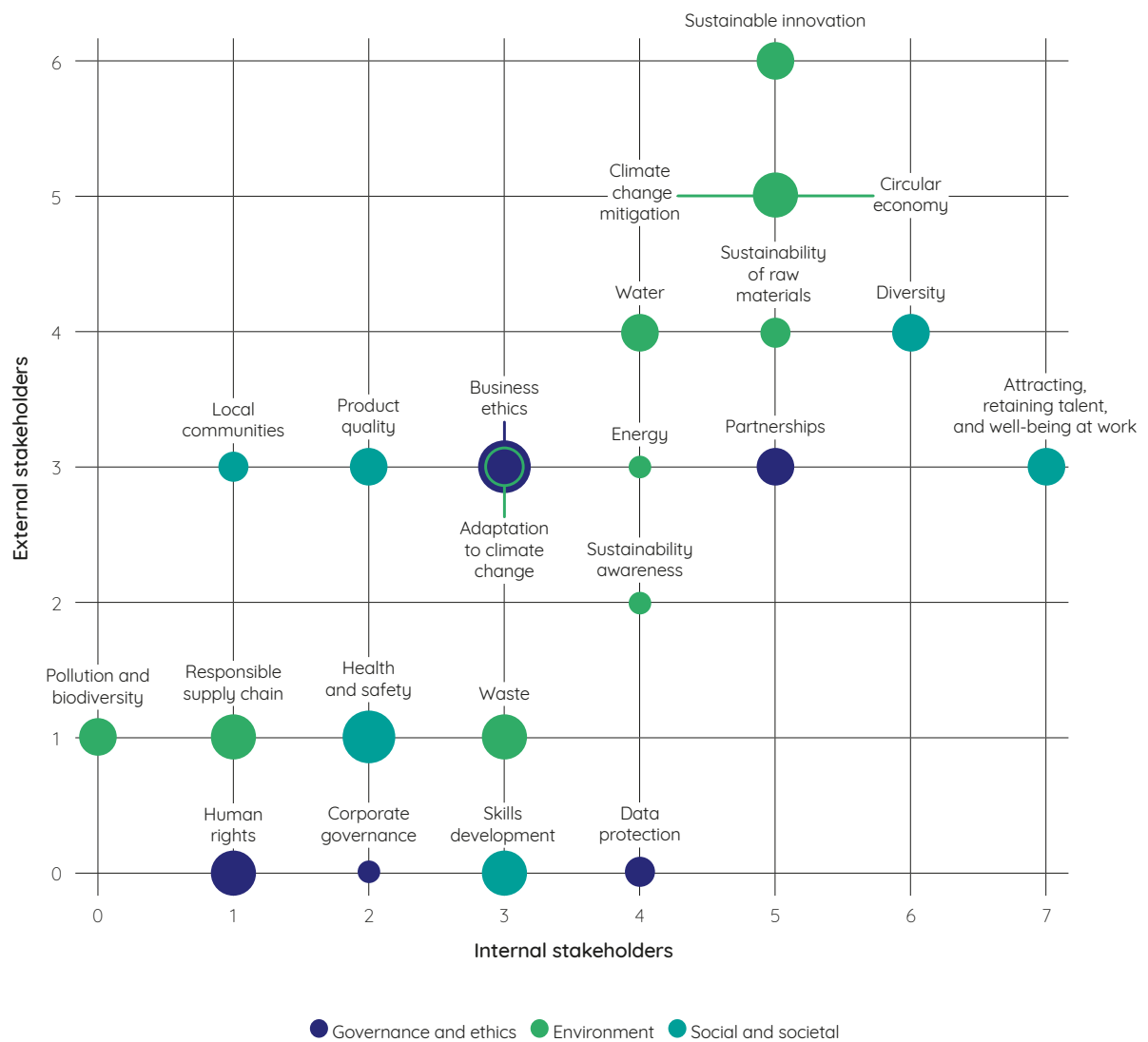
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external stakeholders
consulted (investors,
industrial partners,
brands using PET)

7

internal stakeholders
consulted (members
of the Executive
Committee,
senior executives)

Materiality of challenges for internal and external stakeholders



Our commitments for a more sustainable industry

Sustainable development has always been in our DNA, from the vision to the very activities of CARBIOS. To continue looking ahead and building a solid future that is true to our values and our purpose, we have formalized the integration of CSR issues at the heart of the corporate strategy. Our responsibility approach, which is based on our material challenges, is thus built around four ambitions, broken down into concrete objectives accompanied by associated roadmaps.

Thus, we are committed to:

1. Contributing to accelerating the circularity of plastics
2. Reducing our environmental impacts
3. Being an involved employer
4. Becoming a trusted partner by forging long-term relationships with our customers, suppliers and civil society

These commitments were built around the 2030 Sustainable Development Goals (SDGs) set by the United Nations.



Our progress since 2022

Target set for 2023	Achievements 2022/2023				
Depolymerize 60 tonnes of PET in 2023 (equivalent to around 2.4 million bottles or 3 million food trays) at the Cataroux site using our processes	<p>CARBIOS depolymerized 20 batches of PET waste in 2022. This work confirmed the robustness of the technology:</p> <ul style="list-style-type: none">• The reaction (productivity, yield) is replicable and not very sensitive to variations in raw materials and operating conditions.• The batches of monomers produced in 2022 are in line with the product quality objectives. <p>These results were verified in 2023 with larger volumes produced from diversified PET feedstocks.</p>				
Use the Life Cycle Analysis (LCA) method to maximize circularity and aim for the lowest carbon impact of our technological offer	<p>Conduct of a preliminary Life Cycle Analysis study demonstrating that the PET biorecycling technology developed by CARBIOS allows a potential savings of 51% in CO₂ emissions compared to the production of virgin PET, taking into account the avoidance of a conventional end-of-life.</p>				
Maximize the use of low-carbon means of transportation (rail, electric vehicles, etc.) in business trips for all journeys of less than 1,000 km > Target of 40% sustainable mobility at end 2023	<p>Unilateral decision by the employer: payment of assistance for the acquisition of a zero-emission means of transportation: 10 employees benefited from this scheme.</p> <p>Share of sustainable mobility</p> <table><tr><td>End of 2022</td><td>ACHIEVED 41%</td></tr><tr><td>End of 2023</td><td>TARGET 40%</td></tr></table> <p>Exceeded 102% of target</p> <ul style="list-style-type: none">• 25% of employees use low-carbon means of transportation (public transportation, bicycle or scooter)• 16% use carpooling	End of 2022	ACHIEVED 41%	End of 2023	TARGET 40%
End of 2022	ACHIEVED 41%				
End of 2023	TARGET 40%				
In a context of strong growth, promote employee well-being and safety by developing training and ensuring the prevention and management of PSRs (psychosocial risks)	<p>Training rate of employees</p> <table><tr><td>End of 2021</td><td>ACHIEVED 33%</td></tr><tr><td>End of 2022</td><td>ACHIEVED 55%</td></tr></table> <p>Implementation of a well-being at work barometer to be carried out each year from 2023.</p>	End of 2021	ACHIEVED 33%	End of 2022	ACHIEVED 55%
End of 2021	ACHIEVED 33%				
End of 2022	ACHIEVED 55%				

Our progress since 2022

Target set for 2023	Achievements 2022/2023
Enhancing the Company's contribution to local economic development in France	The establishment of the Longlaville plant in Meurthe-et-Moselle should create 150 direct and indirect jobs in the region.
Reinforce CARBIOS' commitment to supporting research dynamics	4 major scientific publications. Organization of the first World Congress on plastics biorecycling.
Achieve 40% female members on the Board of Directors by end 2023, and 40% within the Executive Committee by end 2024	<p>Percentage of women on the Board of Directors</p> <p>End of 2022: ACHIEVED 36% (90% of target)</p> <p>End of 2023: TARGET 40%</p> <p>Percentage of women on the Executive Committee</p> <p>End of 2022: ACHIEVED 33% (82.5% of target)</p> <p>End of 2023: TARGET 40%</p>
Achieve 60% independent members of the Board of Directors by end 2024	<p>Percentage of independent directors</p> <p>End of 2022: ACHIEVED 64%</p> <p>End of 2023: TARGET 60%</p> <p>Exceeded 107% of target</p>
Incorporate sustainability targets into executive compensation from the 2023 fiscal year	Incorporation of a target to improve CARBIOS' non-financial performance in the long-term compensation of executives. (Resolution approved at the 2023 Shareholders' Meeting)
Structure CSR governance, including independent stakeholders (creation of a CSR Committee)	Implementation in 2022 of a CSR governance structure involving the various business divisions of the CARBIOS Group.



Our CSR performance

Ambition #1: become a leading player in the circularity of plastics

Challenge 1 Improve the recovery of plastic and textile waste

CARBIOS is the first and only company in the world to develop a biological technology aimed at revolutionizing the life cycle of plastic and textile materials **on an industrial scale**.

We are now heading in a new direction, that of accelerating the industrialization of our technology and the expansion of our innovation portfolio, with the ambition to become the global reference in the circular economy of plastics and textiles.

Our objectives

- > Provide a solution to the current limits of PET recycling
- > Bring CARBIOS PET biorecycling technology to industrial scale
- > Extend CARBIOS technology to the treatment of other types of plastic waste

Steps taken

In 2022, CARBIOS achieved major new milestones in its industrial development, including: the announcement of the construction of its first plant following the success of the operations carried out within its industrial demonstration plant, the continuation of collaborative research projects with its partners institutions and private individuals and lastly, the conduct of work on the extension of our biorecycling technology to other families of polymers.

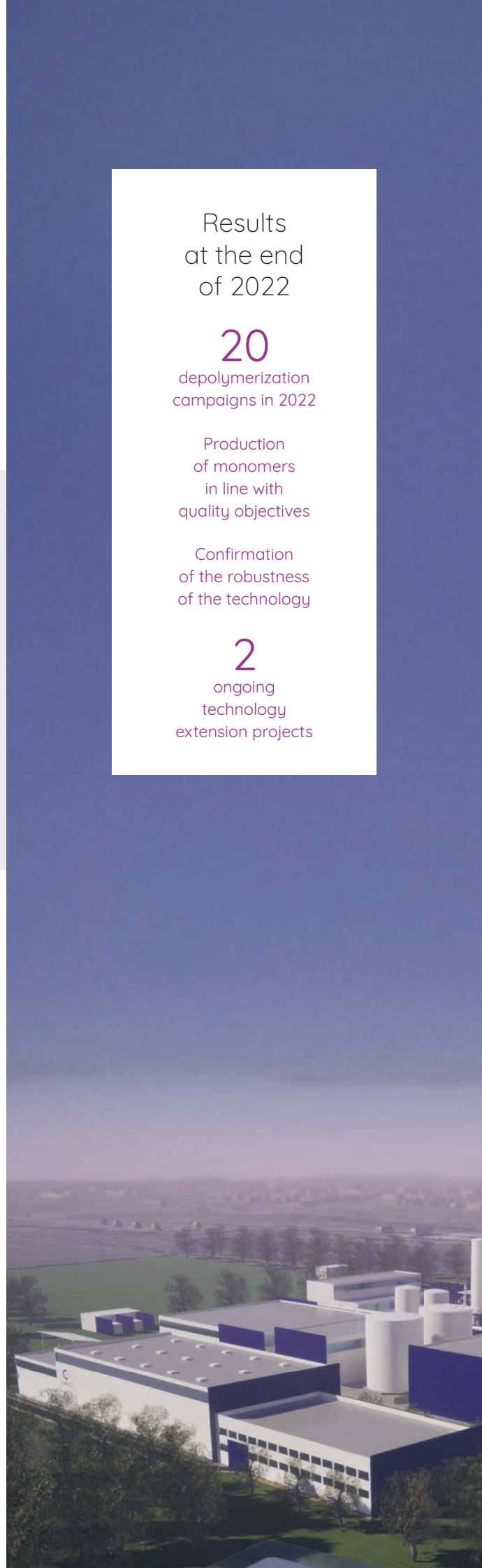
Results
at the end
of 2022

20
depolymerization
campaigns in 2022

Production
of monomers
in line with
quality objectives

Confirmation
of the robustness
of the technology

2
ongoing
technology
extension projects



Based in Longlaville (France), this first plant will have an estimated processing capacity of around 50,000 metric tons of post-consumption PET waste per year, i.e. the equivalent of 2 billion bottles or 2.5 billion trays.

Project milestones

- **2022**
Filing of construction permits
First orders of equipment with lengthy lead times
- **2023**
Obtaining construction and operating permits
Start of construction
- **2024**
Recruitment of CARBIOS operations team and training at the Cataroux Demonstration plant
- **2025**
Commissioning of the Unit
- **2026**
Ramp-up

Construction of the world's first PET biorecycling plant

In February 2022, CARBIOS announced a collaboration with Indorama Ventures, the world leader in the production of recycled PET for the bottle market, for a project to **construct the first plant in the world to exploit its PET biorecycling technology**.

This announcement follows the positive results obtained from CARBIOS industrial demonstration plant in Clermont-Ferrand, whose objective was to confirm the Company's technical choices for the large-scale application of this unique technology in the world.

This strategic project, for which **the investment is estimated at €230 million**, benefits from solid support from the French State and the Grand-Est Region.



By committing to this partnership with Indorama Ventures, we confirm our desire to continue our industrial development in France. This plant will pave the way for the production of the first industrial and commercial volumes of biorecycled PET from our process. In line with our business model, our international development ambition will be based on the licensing of our technology and know-how to our future licensees. We would like to thank our shareholders, our partners, the French government and the Grand-Est Region for sharing our ambitions and our vision of a sustainable circular economy, a source of value creation for all. "

Emmanuel Ladent,
Chief Executive Officer of CARBIOS



Our CSR performance

“LIFE Cycle of PET” collaborative project

As part of the European “LIFE Cycle of PET” financing program, CARBIOS and its partners Technip Zimmer and Deloitte obtained, in November 2021, a European Union subsidy of €3.3 million (including €3 million for CARBIOS) spread over the 39-month duration of the project. The purpose of this subsidy is to partially finance the development of tests to support the ramp-up of the process and lead to its industrialization. These tests relate to plastic waste (packaging), textiles (used clothing) and home textiles.

Participation in the European WhiteCycle Consortium

CARBIOS joined the WhiteCycle project initiated in July 2022 and coordinated by MICHELIN. Its main objective is to develop a circular solution to transform complex textile-based plastic waste into high value-added products. Co-financed by Horizon Europe, the European Union’s research and innovation program, this unprecedented European public/private partnership includes 16 entities and will last four years. WhiteCycle predicts that by 2030, the adoption and deployment of its circular solution will lead to the annual recycling of more than 2 million metric tons of PET, the most widely used plastic worldwide. **This project is expected to prevent more than 1.8 million metric tons of this plastic from being landfilled or incinerated each year. It should also reduce CO₂ emissions by approximately 2 million metric tons per year.**

Other focuses of innovation

Lastly, CARBIOS is working on **extending its biotechnology expertise to other families of polymers.**

As part of its research and development work, CARBIOS aims to extend its range of processes to other polymers and other applications of interest to industry.

The work carried out to date has focused on the following areas:

- **Polyamides**, including PA6 (global market of 5.3 million metric tons⁷), and PA6.6 (global market of 3.0 million metric tons⁸);
- **Polyolefins**, including polyethylene (global market of 107 million metric tons⁹) and polypropylene (global market of 72 million metric tons¹⁰).

These polymers are present in the packaging and textiles industry and also in other sectors, in particular the automotive category, where an extended producer responsibility chain exists in France, but where end-of-life recovery methods are still very limited.

⁷ Source: Research and Markets in 2020.

⁸ Source: Paoller Mats in 2019, Transparency Market Research in 2018.

⁹ Source: Mordor Intelligence in 2020 and Icis in 2019.

¹⁰ Source: Precedence Research relayed by GlobeNewswire in 2020.



Objectives

1.8 million
metric tons of PET
incinerated or landfilled
avoided each year

2 million
metric tons of CO₂
avoided each year

Challenge 2

Design ever more responsible products

Safeguarding our know-how and technological advances while optimizing the environmental impact of our processes is a major challenge for CARBIOS. Since the creation of the Company, we have pursued **an active policy of safeguarding and strengthening our innovations**, which is based on the implementation of many fields of expertise (microbiology, enzymology, polymer chemistry, plastics and process engineering).

Our objectives

- > Ensure the protection of intellectual property with an active policy
- > Offer innovative and sustainable biological processes

Steps taken

During the 2022 fiscal year, **3 new patent families** enhanced the CARBIOS Group's portfolio. The new applications filed relate to its enzymatic recycling process and to new compositions of PLA-based biodegradable plastics.

At the end of 2022, **the Group's intellectual property portfolio consisted of 53 patent families¹¹** (including one under exclusive worldwide license from the CNRS and the University of Poitiers). Of these 53 families, 11 patent families belong to the subsidiary Carbiolice and are directly related to manufacturing biodegradable plastics, and more particularly those incorporating enzymes. In total, there are **336 patent applications filed in various countries or regions of the world** (including the United States, the United Kingdom, Canada, Brazil, China, India, Malaysia, South Korea, Indonesia, Japan and Europe) and covering the Company's development focuses (biodiversity, enzymatic recycling process, biodegradable plastics production process and bioproduction).

¹¹ To date, the Group's patent portfolio includes 58 patent families.



Results
at the end
of 2022

79
patent applications
granted

53
patent families¹¹

€13.6 million
invested in Research
& Development
and Industrialization

Ambition #2: reduce the environmental impact of our solutions

Challenge 1

Identify the impacts of our activity on the environment

By implementing its enzymatic recycling technology, CARBIOS reduces **the end-of-life of plastics on sensitive resources and natural environments**. Concerned about the environmental footprint related to the operation of its activities, we are also working on **constantly optimizing our industrial processes and raising awareness among our teams**.

Our objective

> Deploy a certified Environmental Management System (EMS) by 2024

Steps taken

With the objective of formalizing an Environmental Management System by 2024, in September 2022, CARBIOS set up an **internal division dedicated to the Quality, Health, Safety and Environment (QHSE) policy**. Composed of several employees, it is tasked with:

- Carrying out a documentary audit on safety regulatory compliance and deployment of an SMSE (Safety and Environmental Management System) in relation to legal obligations;
- Ensuring constant monitoring of Health, Safety and Environment via a dedicated monitoring tool;
- Making teams aware of the QHSE approach and risk prevention.

Results
at the end
of 2022

Site water consumption:

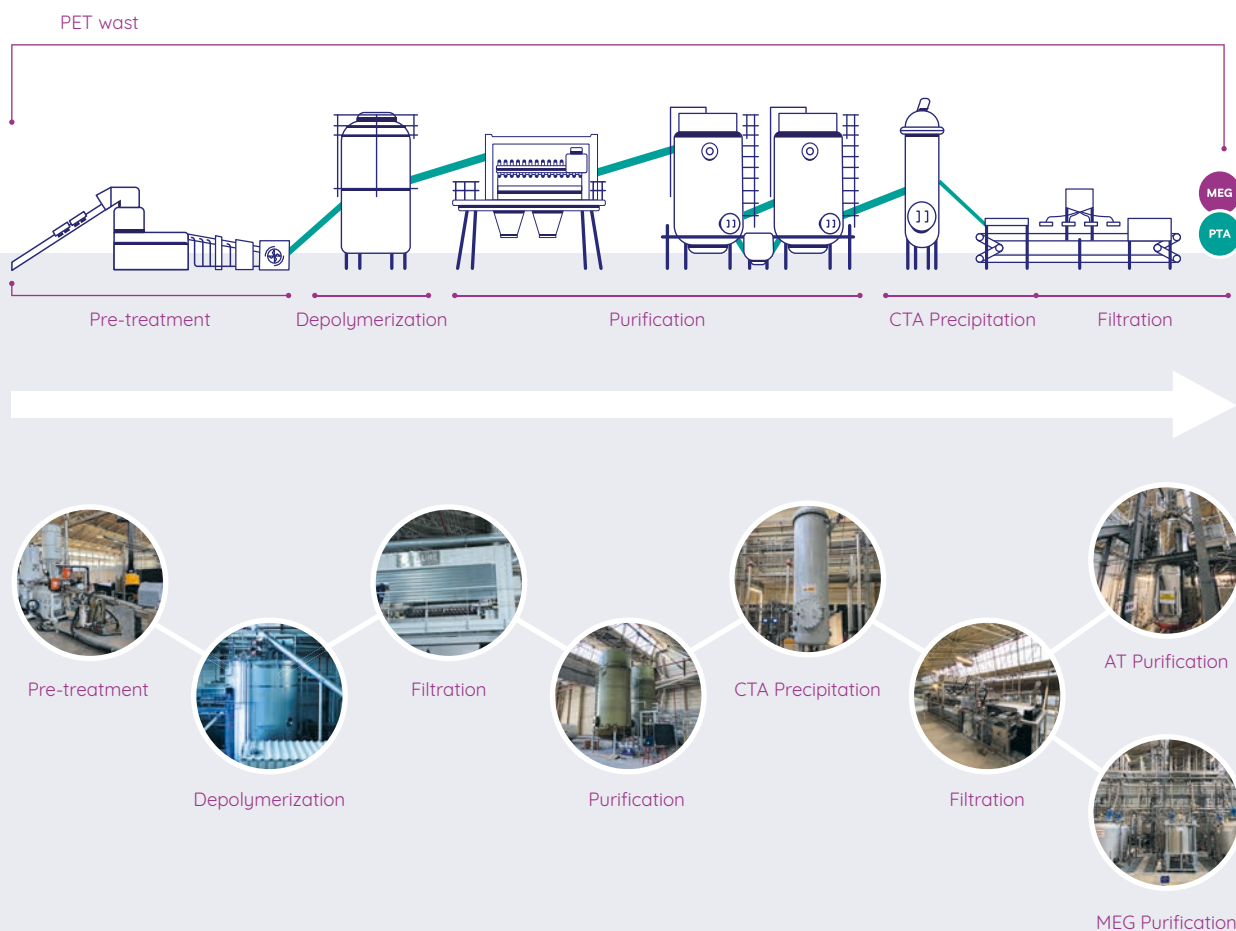
2,357 m³

€15 million

in investment planned
for the construction
of a water treatment
plant in Longlaville



PET enzymatic recycling process



ZOOM

Optimizing water management at each stage of the value chain: a priority for CARBIOS

The biorecycling technology developed by CARBIOS does not use any chemical solvents for the depolymerization of PET waste. The various stages of the process, in particular the hydrolysis phase, are optimized to limit their impact on water consumption. This process, unique in the world, also operates under mild conditions with hydrolysis in an aqueous medium, at low temperature (c. 65°C/149°F) and at atmospheric pressure.

We strive to reduce water consumption, ensure a high quality of discharged water and increase the circularity of water in our operations. At all our sites, we work on the principles of the circular economy in order to optimize our uses:

- Our engineering teams have already managed to reduce the water requirement of our process by more than 30%. We are currently working to set up a closed loop circuit to use part of the recycled water for the cooling towers.
- 90% of the water used by CARBIOS will be returned to the natural environment after treatment in accordance with regulatory provisions. An investment of €15 million is dedicated to the construction and installation of a water treatment plant on the Longlaville site. In addition, we are collaborating with INSA (CRIT Toulouse), a public research institute, to identify complementary water treatment technologies in order to guarantee a high quality of treated water from the operational phase.

Challenge 2

Manage our impact on climate change

Although CARBIOS has few major infrastructures, we pay great attention to **managing the impact of our daily operations on climate change**. We are committed to a process of continuous improvement, through **regular impact assessments** and the **development of more energy-efficient processes**.

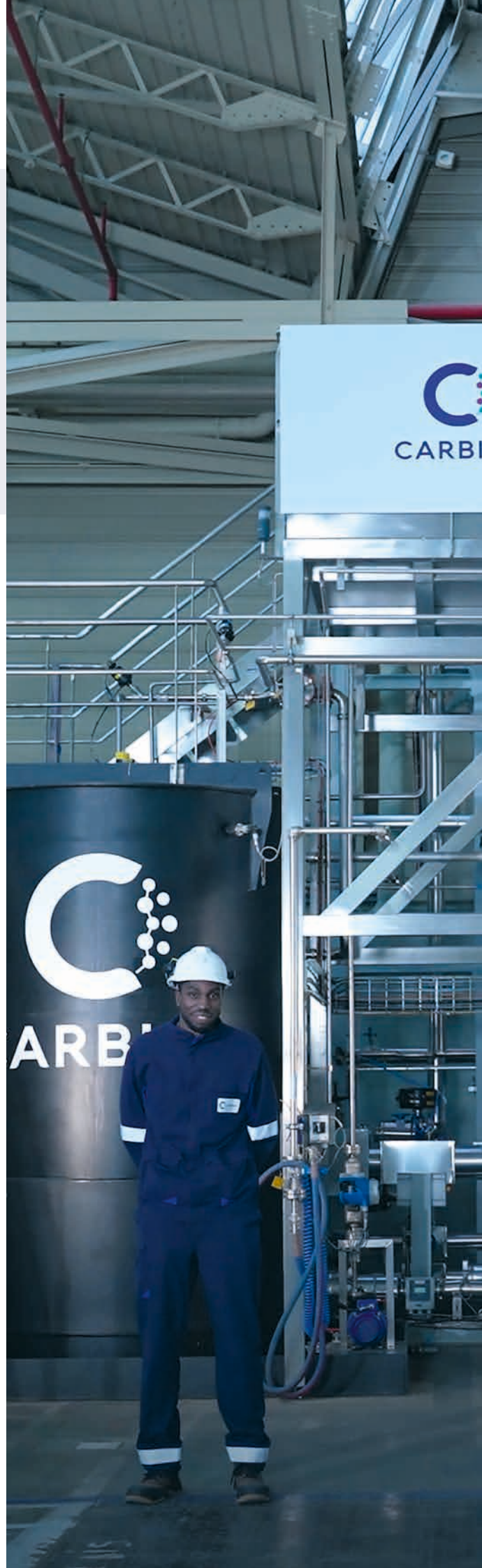
Our objectives


- > Conduct an annual assessment of our carbon impact and take action in our daily operations to reduce our footprint
- > Carry out Life Cycle Analyses (LCA) of our solutions and regularly update them with new data
- > Quantify the environmental benefit of our activity on the main impacts identified by the LCA
- > Integrate an energy performance assessment into all industrial projects and prioritize the least-consuming solutions
- > Increase the share of renewable energy in the energy mix

Steps taken

CARBIOS participates in the mitigation of climate change by developing an enzymatic recycling process to optimize the life cycle of plastics and textiles. Thus, by producing r-PET from all types of PET waste, the Company can contribute to significantly reducing the landfill and incineration of PET waste and limiting the extraction of mineral and fossil resources. In addition, CARBIOS' technology uses an environmentally friendly process: depolymerization without organic solvents and at low temperatures; these strengths, among others, translate into a **51% reduction in CO₂ emissions** compared with the production of PET from fossil materials extraction, taking into account the avoidance of landfill or PET waste incineration.

These very promising results demonstrate the significant environmental benefits of CARBIOS technology compared to conventional end-of-life plastic waste.





Results
at the end
of 2022

51%
reduction in CO₂
emissions

Total GHG emissions:

4,862 tCO₂e

CO₂ emissions - Scope 1:

68 tCO₂e

CO₂ emissions - Scope 2:

37 tCO₂e

CO₂ emissions - Scope 3:

4,757 tCO₂e

To go further, CARBIOS is committed to **conducting an annual carbon assessment**. For the second consecutive year, CARBIOS carried out an assessment of its Carbon Footprint taking into account scopes 1, 2 and 3 defined by the Greenhouse Gas Protocol. This approach aims to identify the sources of emissions and manage and reduce our carbon footprint. It allows us to better control the impact of our daily operations on climate change.

For the 2022 fiscal year, direct (Scope 1) and indirect emissions related to energy consumption (Scope 2) represented 2% of the total Carbon Footprint i.e. 105 tCO₂e (68 tCO₂e for scope 1 and 37 tCO₂e for scope 2). Direct emissions from mobile sources with thermal engines are responsible for 47%, indirect emissions linked to electricity consumption for 19% and indirect emissions linked to the consumption of steam, heat or cold for 17%.

CARBIOS' main emission items are concentrated in Scope 3 (which totals 98% of total carbon emissions), in particular on purchases of products or services (chemical products and R&D expenses - representing 46%), capitalized assets (representing 18%), upstream leased assets (machine and premises rentals - representing 16%) and employee commuting (representing 12%).

In addition, the grouping of the Group's main activities (laboratory, pilot plant, demonstration plant, administrative, legal, commercial divisions, etc.) initiated in 2021 at the Cataroux site and finalized in 2023 with the integration of Carbiolice's activities, is actively contributing to controlling our carbon impact and energy costs. These synergies contribute to our continuous progress in our operations with regard to climate change issues.

Ambition #3: act as a responsible employer


Challenge 1 Develop a safe working environment

The health and safety of our employees is a priority. We are committed to establishing **working conditions that guarantee the physical integrity and the physical and psychological health of our employees** through **HSS management** (Hygiene, Health, Safety) and risk prevention.

Our objectives

- > Deploy, by 2024, a Health & Safety Management System to guarantee maximum safety for our employees and subcontractors with the aim of: zero injuries, zero incidents and zero accidents
- > Offer a safe, motivating and sustainable working environment
- > Ensure quality of work for each employee





Results
at the end
of 2022

21%
of the training budget
allocated to safety

18%
of employees
FRW-certified
(first-aiders at work)

Number of accidents
resulting in lost time:

0

Number of accidents
without lost time:

3

Workplace safety, a strategic priority for CARBIOS

The profit-sharing agreement signed in December 2022 sets a target to raise awareness of 85% of employees annually on security issues and rules.

Steps taken

CARBIOS' growth cannot be achieved without a safe working environment for its employees. This is why we are strengthening the culture of prevention and risk management as part of the Company's scaling up transition. In 2022, we set up a **Quality, Health, Safety and Environment Department (QHSE)** whose role is **to lead "safety culture"** daily so that each employee contributes to their own safety, that of their colleagues and that of our subcontractors. Our action plans focused on employee training and awareness:

- Establishment of **"Safety Onboarding"** during the **orientation day** to raise awareness of CARBIOS' Health & Safety issues to all new hires;
- Organization of an **internal "safety month" campaign**: creation of a quiz dedicated to all employees with a reward at the end (driving risk prevention session);
- Placing in all premises **"Safety Flash" sheets** with themes whose aim is to recall the best practices to be adopted for different types of risks (fires, accidents, etc.);
- **Creation of an email inbox** enabling any employee to alert the QHSE department of a dangerous event or potential risk on our sites.

In order to protect the health and safety of our employees and apply a risk management system designed to ensure a safe working environment for those most exposed, a reinforced safety system exists for laboratory staff. Specific procedures have been put in place for the use of dangerous products (CMR¹², toxic) and the handling of class 2 strains. Fire and Rescue Worker (FRW) training is also offered to all employees. **In 2022, 18% of employees were FRW certified.**

¹² Carcinogenic, mutagenic or reprotoxic substances.

Challenge 2

Support and improve the skills of our employees

At CARBIOS, we are convinced that **maintaining and developing skills** are at the heart of the **motivation, commitment** and **performance** of our employees.

Our objective

> Provide individualized support to all employees

Steps taken

We offer **continuous and tailor-made training**, adapted to all points of the employee's life within the structure. In order to identify the training and development needs of employees, **annual assessments are carried out in the form of an Individual Activity Interview** allowing everyone to express their desire to evolve, take stock of the past year and look ahead to the targets for the coming year. Thus, training on project management, change management, language learning or specific skills in the laboratory were provided to meet the expectations and wishes expressed by certain employees. In 2022, the **workforce training rate was 55%**, with an average of 15.3 hours per person; an increase of 25% compared to 2021.

At the same time, various awareness-raising sessions on "core" CARBIOS issues (such as enzymatic hydrolysis, intellectual property, etc.) were rolled out in 2022. Intended for all employees, these training courses aim to create a common knowledge base and strengthen the corporate culture.

Results
at the end
of 2022

55%

of employees received
training during the year,
i.e. a 25% increase
compared to 2021

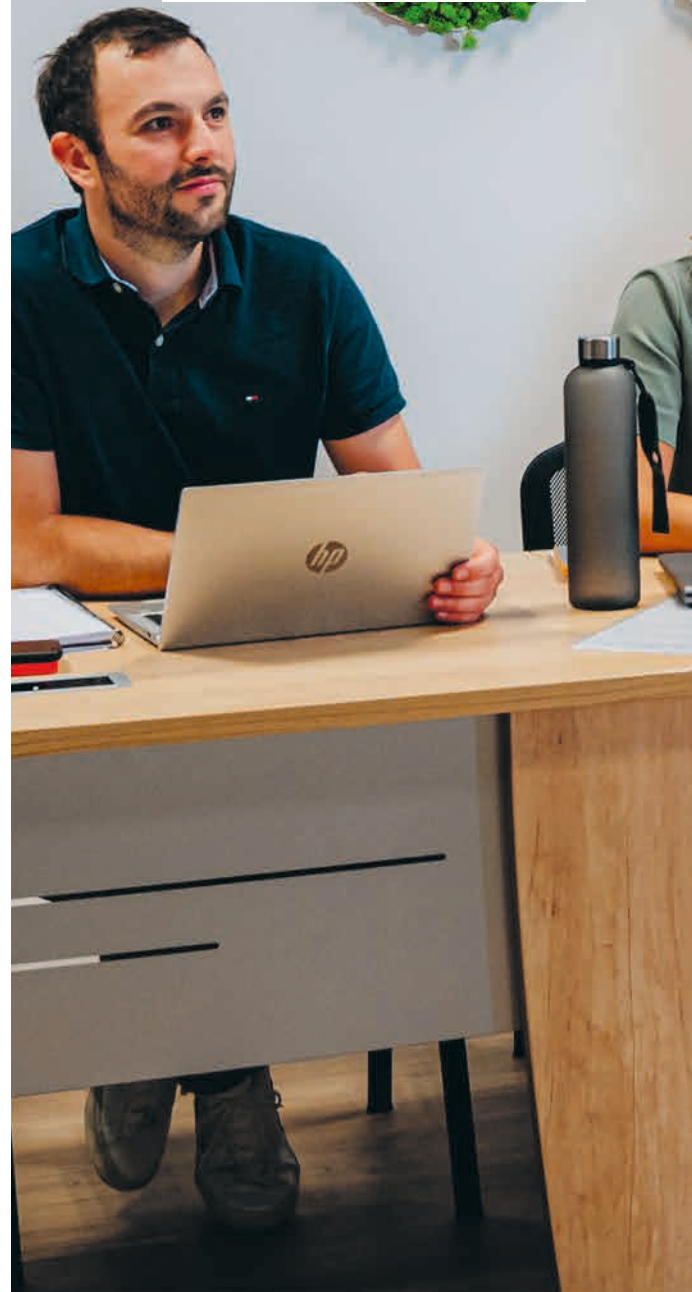
15.3

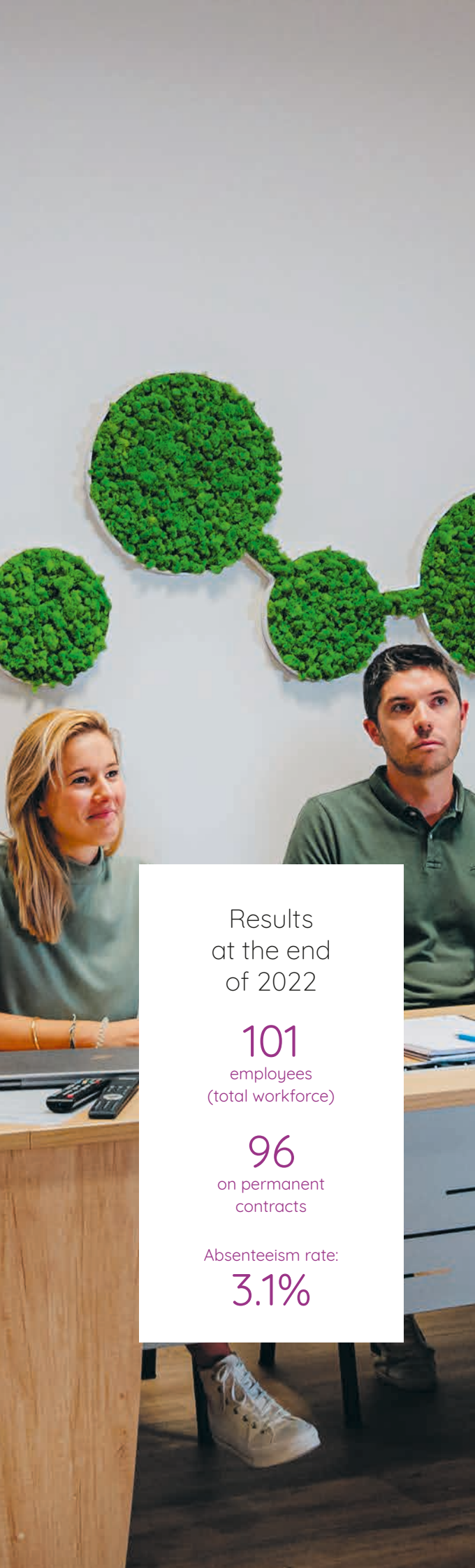
average training hours
per employee

More than

€80 thousand

dedicated to employee training





Results
at the end
of 2022

101
employees
(total workforce)

96
on permanent
contracts

Absenteeism rate:
3.1%

Challenge 3

Promote the development and well-being of our employees at work

CARBIOS places **employee well-being at work** at the center of its concerns in order to **ensure the development of everyone and support the Group's performance** in a context of strong growth.

Our objectives

- > Formalize a human resources management policy in line with our CSR approach
- > Support the Company's strong growth
- > Engage in a long-term relationship with each employee by promoting social dialogue on a daily basis
- > Define a compensation policy and benefits in line with the Company's values and strategy
- > Ensure a working environment and internal dialogue conducive to the development of each employee
- > Encourage the development of good managerial practices

Steps taken

In a constantly changing sector where companies must adapt quickly to meet their growth and innovation challenges, CARBIOS has chosen a **recruitment policy based on trust**. Thus, at the end of 2022, **95% of the Group's workforce had permanent contracts**.

A compensation policy aligned with our CSR ambitions

CARBIOS has always practiced **incentive-based, attractive compensation** to attract and retain the best talent. The compensation of managers and employees consists of a fixed portion and a variable portion. To go even further, **CARBIOS signed a profit-sharing agreement in December 2022**. This system provides, from 2023, **the payment to each employee of a bonus linked to the achievement of the Company's CSR objectives**. Three CSR criteria were selected: a safety criterion, an environmental criterion and a human resources criterion.

Our CSR performance

A favorable working environment

In 2022, CARBIOS' commitment to quality of life at work was reflected in particular by: **the development of new spaces**. Following the commissioning of its industrial demonstration plant in 2021, CARBIOS brought its teams together at the MICHELIN Group's emblematic Parc Cataroux. Located in the center of Clermont-Ferrand, the premises now include the Company's registered office, the laboratory, the pilot unit, the industrial demonstration plant and the activities of its PLA biodegradation division. The objective of this grouping is twofold: **to strengthen communication and operational synergies** between teams in order to successfully industrialize our technologies; and **to promote employee well-being** with the provision of new collaborative spaces (dining hall with open kitchen, break rooms, meeting rooms, etc.).

And because well-being at work also involves moments of conviviality, CARBIOS organizes **local events** throughout the year. Several initiatives were launched in 2022: CARBIOS Day and the CARBIOS Breakfast News, a monthly meeting whose objective is to present, during a breakfast, the newcomers, the latest news and current and future developments within CARBIOS.

Finally, CARBIOS attaches great importance to the **integration of new employees**. Since 2022, an onboarding system has been formalized in order to create the best possible conditions for the arrival and integration of new employees: distribution of a Welcome Pack, an HR and safety onboarding on the day of arrival, followed by a tour of the premises and a presentation of the teams.



ZOOM CARBIOS Day

In June 2022, the first edition of the CARBIOS Day was held, bringing together 86 employees. On the agenda: a morning plenary session to present the results of the past year and the challenges for the coming year, fun outdoor activities in the afternoon, followed by a drink and a soiree. Very popular with employees, this annual event has become a highlight in the life of the Company.



Challenge 4

Fight against discrimination and promoting diversity

Convinced that diversity in employee profiles is a source of wealth and performance for the Company, we are committed to **ensuring fairness** in terms of employment and **equal opportunities** based on objective criteria.

Our objectives

- > Foster diversity
- > Prevent all forms of exclusion or discrimination
- > Achieve a 40% percentage of women on the Board of Directors by the end of 2023
- > Achieve a 40% percentage of women on the Executive Committee by the end of 2024

Steps taken

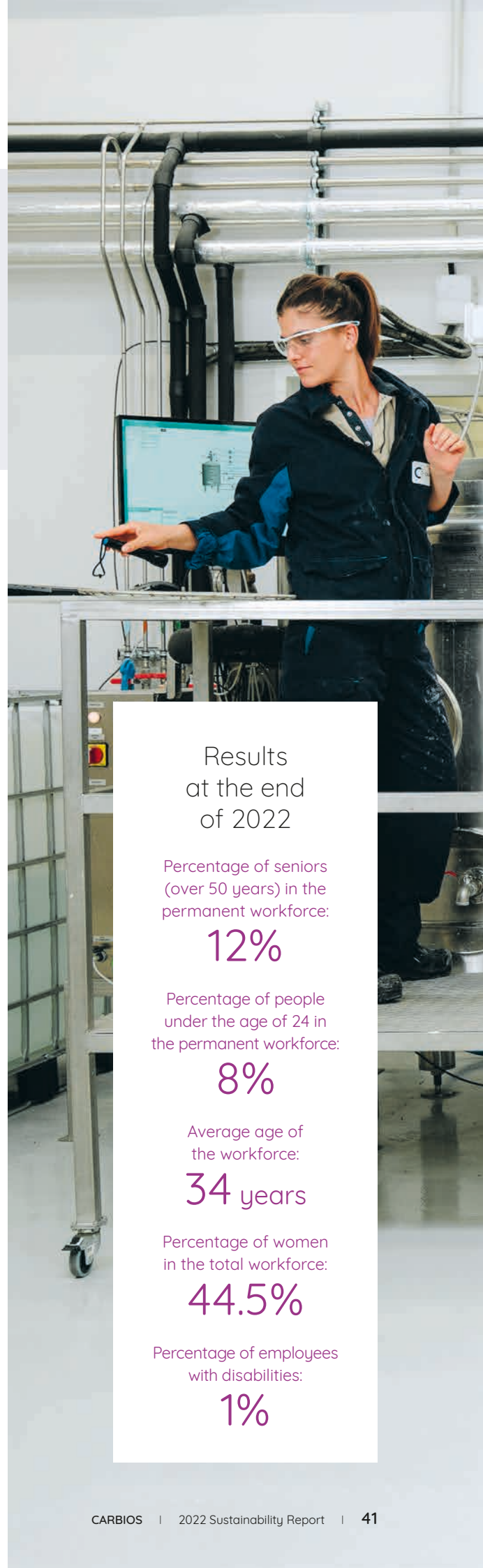
Since its creation, CARBIOS has pursued a proactive **policy on diversity and equal opportunities** which translates into concrete commitments on a daily basis, namely:

- Promoting the representation of diversity at all levels of responsibility;
- Promoting the application of the principle of non-discrimination in all management actions and in all company decisions, particularly in the various human resources management processes;
- Lastly, in its Ethics charter, CARBIOS reaffirms its values in terms of non-discrimination and non-exclusion.

Our commitment in these areas continued in 2022:

- The **proportion of women in the total workforce** amounted to 44.5% in 2022 (compared to 44% in 2021);
- The **proportion of women on the Board of Directors** amounted to 36% in 2022 (compared to 20% in 2021).

Lastly, CARBIOS is conducting a **recruitment policy for the professional integration of young people** (young graduates, interns, work-study students, etc.). In 2022, CARBIOS took part in the job day at the IUT Génie Chimique/Génie des Procédés in Toulouse, as well as the Labor and Professional Mobility Fair in Paris la Villette. This was an opportunity for CARBIOS to promote its jobs and strengthen its proximity to potential candidates.



Results at the end of 2022

Percentage of seniors (over 50 years) in the permanent workforce:

12%

Percentage of people under the age of 24 in the permanent workforce:

8%

Average age of the workforce:

34 years

Percentage of women in the total workforce:

44.5%

Percentage of employees with disabilities:

1%

Ambition #4: strengthen ties with our partners

Challenge 1

Continue a strong collaboration around the Packaging and Fiber-to-Fiber Consortia

Collaboration with all stakeholders in our value chain is necessary to drive in-depth changes to accelerate the transition to true circularity in plastics and textiles. By partnering with world-class players within the framework of consortia and leading industrial leaders, CARBIOS is structuring an ecosystem favorable to the development of its innovations and the industrialization of its processes.

Our objective

> Strengthen our collaborations with all players in the value chain

Steps taken

In 2022, CARBIOS continued its work as part of its two flagship collaborations: the **PET Packaging Consortium** and the **Fiber-to-Fiber Consortium**.

Results
at the end
of 2022

1

new Fiber-to-Fiber
Consortium launched
by CARBIOS



patagonia

SALOMON





PET Packaging Consortium

Co-founded in 2017 by CARBIOS and L'Oréal, this Consortium brings together several manufacturers (Nestlé Waters, PepsiCo and Suntory Beverage & Food Europe) committed to finding innovative solutions for the circular economy. The partners aim to support the industrialization of CARBIOS PET technology and thus increase the availability of high-quality recycled plastics. As part of this collaboration, technical steps and support are being implemented to collectively reduce the use of virgin plastics and increase the proportion of recycled materials in packaging.

To this end, CARBIOS and its partners within the Consortium worked in 2022 on the challenges of structuring the upstream PET waste supply chain and also on issues relating to regulations (Food contact in particular) and environmental impacts (life cycle analysis) of recycled PET production via CARBIOS technology.

In 2022, batches of monomers from the depolymerization of PET waste at the demonstration plant confirmed the product quality objectives expected for pre-industrial production. On the strength of these results and the quality of the r-PET produced from these first batches, CARBIOS and its partners intend to continue their collaboration to support the industrialization of CARBIOS PET technology.

Launch of a Fiber-to-Fiber Consortium

In July 2022, CARBIOS signed an agreement with On., Patagonia, Salomon and Puma, then with PVH Group in January 2023, to work collectively to develop solutions that increase the recyclability and circularity of polyester fiber items. In addition to supporting the industrial deployment of CARBIOS PET technology, which is a major breakthrough for the textile industry, the five partners will cooperate in the collection and sorting of used polyester items as well as on the structuring of large scale "fiber" recycling.

In 2022, the work of this Consortium focused on the processing of textiles from partners (polyester/cotton, polyester/elastane blends, etc.) in order to assess the robustness of the process on different types of textiles and notably blends.

As a reminder, CARBIOS' biorecycling process uses an enzyme capable of selectively extracting the polyester and regenerating it to recover a virgin fiber. This technology makes it possible to deconstruct the PET polyester present in all textile waste that cannot be recycled with current technologies.

In 2023, CARBIOS has developed an automated line of textile preparation integrating the necessary steps (shredding and extraction of hard spots) to transform textile waste into resources for enzymatic recycling. Thanks to this tool, CARBIOS has acquired the means to transpose its textile biorecycling technology to the demonstration plant scale.



The global issue of plastic waste requires innovative, transformative thinking, creative partnerships and innovative brands working together to find new solutions. Continuously investing in new ways of tackling waste and implementing a truly circular process such as CARBIOS' breakthrough technology will be key to supporting Suntory Beverage & Food Europe in its ambition to use 100% sustainable plastic.

Suntory Beverage & Food Europe

Challenge 2

Meet our customers' expectations in terms of quality

More than a commitment to our customers, **the quality of our solutions plays a key role in our sustainability policy**: all our technologies are designed to respond to the new **societal expectations of consumers and challenges of the energy transition**. Quality products are an essential lever for the satisfaction and trust of our partners and also contribute to reducing environmental impacts.

Our objectives

- > Deploy a certified Quality Management System
- > Offer labeled and certified products, recognized at the European and international levels

Steps taken

For several years, CARBIOS has received awards recognizing the innovative and sustainable nature of its solutions:

- In 2019, PET biorecycling and PLA biodegradation technologies were among the **first innovations awarded the “Efficient Solution” label** by the Solar Impulse Foundation. Assessed by independent experts, the “Solar Impulse Efficient Solution” label combines several criteria of technical feasibility, positive socio-environmental impact and economic profitability;
- In 2020 and then in 2021, CARBIOLICE received the **Ok Home Compost certification** by TÜV Austria Group, awarded to several formulations using the CARBIOS Active solution (flexible films and rigid plastic packaging with a high PLA content);
- In May 2021, CARBIOLICE received the **Greentech Innovation label** from the French Ministry for the Environmental Transition. This award attests that our solution is innovative, has strong growth potential and contributes to the acceleration of the ecological transition.

In line with the commitment to product quality, **several prestigious awards recognized CARBIOS' approach to excellence in 2022** in the field of enzymatic recycling of PET plastics and fibers.



Professor
Alain Marty,
Chief Scientific Officer
of CARBIOS

BioCat Award

Considered one of the most prestigious in biotechnology, the **Biocat Prize was awarded to Professor Alain Marty, Chief Scientific Officer of CARBIOS**, at the tenth International Congress of Biocatalysis (Biocat) at the Technical University of Hamburg (TUHH). This award recognizes in particular his research work on enzymatic optimization and the use of the exceptional specificity of enzymes to serve the circular economy of plastics. Since 2004, this award has been given to scientists who have distinguished themselves by outstanding achievements in the field of biocatalysis.

Scientific publication in the journal Biophysical Journal

In July 2022, CARBIOS published an **article in Biophysical Journal, a renowned American scientific journal**. Entitled “An NMR look at an engineered PET depolymerase” and carried out in partnership with the Toulouse Biotechnology Institute (TBI), this study focuses on the use of nuclear magnetic resonance (NMR) spectrometry to study the stability of enzymes. This innovative approach, which required months of development, is a world first and opens up new ways of improving these enzymes. This publication reinforces CARBIOS’ international lead in the development of the most efficient enzymes for the depolymerization and recycling of plastics.

Organization of the first World Congress on PET biorecycling

CARBIOS organized the **first global summit on PET biorecycling** in Paris from December 7 to 8, 2022. The event attracted more than a hundred international participants from the scientific, academic and industrial worlds. It was held in the presence of Bertrand Piccard, Chairman of the Solar Impulse Foundation, to discuss advances in biological recycling and solutions for marketing these innovations for the benefit of a better circular economy.



Nuclear Magnetic Resonance is an extraordinary biophysical technique for visualizing an enzyme directly in solution. Our study is the first to use NMR as a complementary technique to crystallography and molecular modeling to observe a PETase¹³. This gives new perspectives to better understand the functioning of these enzymes and makes it possible to imagine new ways to improve these enzymes. "

Guy Lippens,
CNRS Research Director

¹³ PETase: PET degradation enzyme.

Challenge 3

Connect with local communities

In line with its values, CARBIOS intends to participate in the **building a local economic network and a regional dynamic**. 2022 was a year of structuring our organization with a view to integrating our local stakeholders as much as possible. Our ambition in this context is to strengthen the local economic fabric, both in our choice of suppliers and in our recruitment policy. In addition, CARBIOS continues to support research in France and abroad, particularly through sponsorship.

Our objectives

- > Integrate regional dynamics to strengthen the research and development of our technologies
- > Support a sponsorship policy in line with the Company's values

Steps taken

Since the creation of the Company, we have demonstrated our **commitment to working closely with leading academic teams** in the fields of microbiology, enzymology, molecular biology, bioinformatics, bioprocesses and polymer chemistry.

Among our research and development programs:

- In 2020, we decided to forge a strategic alliance with **INSA Toulouse** through its TBI laboratory to provide us with a world-renowned enzymatic engineering research center for the recycling and biosynthesis of plastics. This laboratory, named **PoPLaB (Plastic Polymers and Biotechnologies)** since its inception, has given a new dimension to our research activities by strengthening the internalization of our work;
- Collaboration with the **Laboratory of the École polytechnique de Paris** (Dr. Eric Larquet) for the study of the adsorption of PETases on PET by Cryogenic electron microscopy;
- Collaboration with the **Paul Pascal Research Center (CRPP)** (Dr. Jean Christophe Baret) in the field of ultra-high throughput microfluidic screening of enzymes that depolymerize PET. This cutting-edge technology from the medical world and used by CARBIOS and CRPP for industrial applications now makes it possible to screen millions of enzymes in one day compared to a few thousand per week with conventional technologies.

CARBIOS is also a sponsor of the **INSA Toulouse Foundation**, which makes a significant contribution to the training and international profile of students and scientific executives, in particular through a program backed by the "Biotechnologies and Environment" Chair.

Results
at the end
of 2022

Over **20**
ongoing academic
partnerships





Challenge 4

Support and encourage the involvement of our suppliers

Without our suppliers, we would not be able to fully meet our CSR challenges. Beyond our scope of activities, we must take into account our entire value chain to control all risks as well as to support our customers and suppliers in their CSR initiatives.

We aim to develop an exemplary purchasing and supplier relations policy.

Our objectives

- > Formalize a responsible purchasing policy
- > Define criteria for assessing suppliers taking into account their CSR commitments and practices
- > For raw materials, construct a supplier questionnaire to collect the data useful for calculating the carbon footprint (Scope 3)

Steps taken

To meet this challenge, CARBIOS is committed to formalizing a responsible purchasing policy by 2024. It will be able to draw on the ecosystem of its partners, particularly its Consortia, whose members benefit from a very high level of maturity in their responsible purchasing policies.

In order to secure a responsible supply of PET waste to the future Longlaville plant, CARBIOS strengthened its Executive Committee in 2022 with the appointment of Mathieu Berthoud, Director of Strategic Sourcing. He has more than 30 years of experience, including 10 years at Rhodia (now Solvay) and more than 20 years at Suez in various positions in France and internationally. He was previously Technical and Performance Director of the recycling and recovery activities for the entire Suez Group.

As part of the structuring of the Group's Purchasing function, CARBIOS has also recruited a Purchasing Director and a Purchasing Manager who will be responsible for formalizing and implementing the responsible purchasing policies applicable to CARBIOS and its subsidiaries.

Taxonomy

Reminder of the regulatory context

Regulation (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment, or the Green Taxonomy Regulation, is **a classification system for activities to promote sustainable investments**. The aim is **to establish a common framework for the definition of “sustainable” activities** in order to redirect capital flows towards sustainable investments and limit greenwashing.

To this end, companies must indicate the extent to which the activities in which they are engaged are in line with the economic activities formally defined by the Taxonomy as sustainable, with reference to six environmental objectives defined by the Green Taxonomy Regulation, as follows:

- climate change mitigation (Objective 1);
- climate change adaptation (Objective 2);
- sustainable use and protection of water and marine resources (Objective 3);
- transition to a circular economy (Objective 4);
- pollution prevention and control (Objective 5);
- protection and restoration of biodiversity and ecosystems (Objective 6).

For the 2022 fiscal year, taxonomy reporting is carried out on the first two environmental objectives, in accordance with the scope of application of the regulation which will eventually be extended to the other four environmental objectives.

According to the Taxonomy, **an activity can be considered sustainable when:**

- It **substantially contributes to one of the six environmental objectives**: climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems;
- It does not cause **any major harm** to the other five environmental objectives;
- It respects **minimum social guarantees**.

Article 8 of the Taxonomy Regulation requires companies already subject to the obligation to report non-financial information to publish the share of their turnover, capital expenditure (CapEx) and operating expenses (OpEx) associated with sustainable activities. These obligations are specified in Delegated Regulation (EU) 2021/2178, “Article 8.” This reporting obligation does not apply to CARBIOS for the time being. However, a review of its activities and the calculation of its taxonomy indicators were carried out in order to align with best reporting practices.

The indicators published (turnover, CapEx and OpEx) for the year 2022 concern the eligibility and alignment of CARBIOS’ activities that contribute to the climate mitigation (objective 1) and adaptation (objective 2) objectives according to the technical criteria associated with each of these activities.

Scope of reporting

The turnover, capital expenditure (CapEx) and operating expenses (OpEx) taken into account in this reporting cover the CARBIOS separate financial statements and correspond to the scope described in section “5.1 Financial Statements” of the 2022 Universal Registration Document.

In the long term, the scope of reporting will cover the Group’s consolidated financial statements under IFRS.

Taxonomy-eligible activities carried out by CARBIOS

Eligible income

Net income means “the amount resulting from the sale of products and the provision of services, net of sales discounts, value added tax and other taxes directly related to income.” The definition also refers to paragraph 82 (a) of IAS 1 and must therefore correspond to income presented in the income statement. For CARBIOS, this is the income presented in the income statement of €1.227 million (see Section 5.1.2 of the 2022 Universal Registration Document) restated for inter-company billings and partnerships, i.e. a figure for turnover of €0.265 million within the meaning of the taxonomy regulation.

The turnover of €0.265 million consisted of research and development services.

These research services concern activities that are not eligible within the meaning of activity 9.1 because the level of technological maturity of this work is less than 6.

Thus, CARBIOS’ eligible turnover for 2022 is zero compared to a total turnover of €0.265 million, i.e. a share of 0%.

Eligible CapEx

Capital expenditure covers increases in property, plant and equipment and intangible assets and right-of-use assets for the year before revaluation, depreciation and amortization and excluding changes in fair value as well as increases related to business combinations.

Based on the methods for calculating the key performance indicators defined by Article 8 of the European Taxonomy, the eligible investment expenditures identified for CARBIOS can be identified in two ways:

- When they are related to assets or processes associated with eligible economic activities (pursuant to §1.1.2.2 [a]);
- When they are linked to the purchase of the production of economic activities eligible for the Taxonomy and to individual measures (pursuant to §1.1.2.2 [c]).

All identified eligible CapEx are linked to individual measures. They correspond to almost all of CARBIOS' CapEx. In particular, the activities eligible for the Company are as follows:

- 9.1. Market-related research, development and innovation: these expenses correspond to all other investment expenses involved in the development of the technology (equipment costs, materials used in the laboratory, the pilot plant and the demonstration plant).
- 7.2 Renovation of existing buildings: these expenses correspond to renovation work on the buildings housing the Group's offices, its development laboratory, its pilot unit, its demonstration plant and the activities of its biodegradation division.

Lastly, in the case of CARBIOS, the CapEx does not include leases normally consolidated under IFRS. These amounts will be included in the OpEx.

For the 2022 fiscal year, CARBIOS' eligible capital expenditure amounted to 85.1% out of a total of €10.8 million.

Eligible OpEx

These are direct non-capitalizable costs covering R&D, short-term leases and other IFRS 16 exemptions, upkeep, maintenance and repair of assets, building renovation measures and any other expenses related to the routine maintenance of assets.

In the case of CARBIOS, all leases (short and long term) are counted in OpEx.

CARBIOS has therefore applied a broad definition of OpEx by incorporating all types of expenses related to the R&D activity: raw materials and consumables, supplies, leasing contracts, maintenance and repair, services, salaries, expenses related to consultants and payment of fees, etc.

As for CapEx, eligible OpEx identified for CARBIOS can be identified in two ways:

- When they are related to assets or processes associated with eligible economic activities (pursuant to §1.1.3.2 [a]);
- When they are linked to the purchase of the production of economic activities eligible for the Taxonomy and to individual measures (pursuant to §1.1.3.2 [c]).

Eligible OpEx identified for CARBIOS are related to the second category (mainly individual measures). They correspond to the following activities:

- 6.5. Transportation by motorcycles, passenger cars and light commercial vehicles: fleet of vehicles leased by CARBIOS;
- 7.7. Acquisition and ownership of buildings: real estate leases;
- 9.1. Market-related research, development and innovation: expenses related to CARBIOS' R&D activities, in particular salaries, maintenance costs, supplies and all other types of expenses.

For the 2022 fiscal year, CARBIOS' eligible capital expenditure amounted to 33.2% out of a total of €17.85 million.

It is important to note that during the taxonomy eligibility reporting for the 2021 fiscal year, 100% of OpEx had been qualified as eligible because the description of activity 9.1 had not been applied exhaustively. All R&D-related OpEx were considered eligible. In 2022, the Technological Maturity Level used to qualify R&D-related OpEx as eligible (minimum of 6 out of 10) was taken into account, which explains this sharp decrease between 2021 and 2022.

Analysis of the alignment criteria for activities eligible for the Taxonomy

In accordance with the provisions of Article 3 of the Taxonomy Regulation, the Group analyzed whether the activities eligible for the Taxonomy identified in the previous paragraph are also sustainable from an environmental point of view (i.e. activities aligned with the Taxonomy) by assessing:

1. Their compliance with the “Minimum Safeguards” applicable to all activities eligible for the Taxonomy as identified by the Taxonomy Regulation;
2. Their respective compliance with the substantial contribution criterion, as defined in Commission Delegated Regulation (EU) 2021/2139 of June 4, 2021;
3. Their compliance with the “Do No Significant Harm” criterion as defined in Commission Delegated Regulation (EU) 2021/2139 of June 4, 2021.

The result of this analysis for each of the activities eligible for the Taxonomy identified is detailed below.

Minimum safeguards applicable to all activities eligible for taxonomy at CARBIOS

With regard to compliance with the Minimum Safeguards, CARBIOS has set up a risk prevention system in line with its size and its current value chain, which is limited.

This prevention system, deployed within the Company and its subsidiaries, includes, among other things, a system for collecting alerts that may relate to breaches in the areas of competition law, labor law, anti-trust corruption, respect for human rights and fundamental freedoms or financial offenses.

In addition, concerning:

- **Human Rights:** for the time being, the Company mainly has European suppliers and partners, so the human rights risk on its value chain is limited. In addition, in its responsible purchasing policy, CARBIOS ensures that its suppliers comply with the rules of the International Labor Organization.
- **Corruption:** the Company has no activities in countries with significant risks of corruption. Nevertheless, the Company has the expertise of a Director of Strategic Procurement and a Director of Public Affairs. As part of the industrial and commercial deployment of its activities, the Company plans to include anti-corruption clauses in the PET supply contracts for the Longlaville plant. In addition, the code of conduct provided to all employees in the Company recalls the principles applicable to all in terms of business ethics.
- **Taxation:** the Company undertakes to fully comply with the applicable tax norms and standards.
- **Fair competition:** the principle of fair competition is reiterated in the code of conduct and the whistleblowing mechanism put in place by the Company and covers this type of breach.

It should be noted that CARBIOS has never been in violation of human rights, labor law or consumer rights, has never been convicted of corruption, has never been convicted of tax evasion and has never violated the principles of fair competition.

Accordingly, all activities eligible for the Taxonomy carried out by CARBIOS are aligned with the “Minimum Safeguards” set by the Taxonomy Regulation.

Analysis of compliance with the substantial contribution criterion and compliance with the principle of “do no significant harm to the other five environmental objectives”

With regard to the DNSH¹⁴ principle on climate change adaptation, CARBIOS has not, to date, formally conducted an analysis of resilience to climate change because the Company operates on few physical sites and the logistics chains and raw material supply areas are under development.

However, the physical impact of climate change is well assessed in the strategic choices made by CARBIOS in the industrialization of its process and, if necessary, remedial solutions will be considered.

Economic activity 9.1 – Market-based research, development and innovation

CARBIOS' main activity is to develop biological solutions to reinvent the life cycle of plastics and textiles and thus avoid the GHG emissions that would be generated by new production of plastics or textiles from fossil fuels.

To CARBIOS' knowledge, its PET plastic and fiber biorecycling process can be considered as aligned with the European Taxonomy objective relating to climate change mitigation (objective 1) because it meets the criteria of substantial contributions and does not harm the other five environmental objectives.

The process designed and implemented by CARBIOS makes it possible to develop a 100% biorecycled plastic manufacturing activity that has better performance in terms of GHG emissions throughout its life cycle than other technologies available for manufacturing PET, in particular by making it possible to avoid a conventional end-of-life for these products (incineration and landfill). This technology has obtained a permit from the competent authorities to operate a demonstration site whose commissioning has been effective since July 2021.

This process developed by CARBIOS does not harm climate change adaptation, does not harm water, as explained on page 33 of this report, contributes positively to the circular economy by giving new life to plastic waste, does not increase the risk of pollution in water, air and soil and does not harm the ecosystems surrounding its activities.

All CapEx and OpEx related to eligible 9.1 activity are therefore considered aligned.

Economic activity 7.2 – Renovation of existing buildings

In 2022, CARBIOS incurred capital expenditure to continue the conversion and renovation of the two buildings that now house the Group's main activities in Parc Cataroux in Clermont-Ferrand.

This building renovation work complies with the requirements applicable to major renovation work and, to CARBIOS' knowledge, was carried out in compliance with the highest standards in terms of sustainable use of water and the preservation of marine resources, circular economy, pollution and biodiversity protection.

All CapEx related to eligible activity 7.2 are therefore considered to be aligned.

Economic activity 7.7 – Acquisition and ownership of buildings

CARBIOS leases office buildings, the rental expenses of which are part of OpEx. However, as these eligible expenses do not meet the substantial contribution on energy performance, these OpEx are therefore not aligned with the Taxonomy.

Economic activity 6.5 – Transportation by motorcycles, passenger cars and light commercial vehicles

CARBIOS has a fleet of leased vehicles belonging to categories M1 (cars) and N1 (light trucks) as defined in Regulation (EC) no. 715/2007.

The rental expenses paid by the Company are eligible but only aligned for some of the vehicles that meet the substantial contribution relating to the level of CO₂ emissions, which must be established at less than 50g of CO₂/km.

A portion of eligible OpEx is aligned with the taxonomy in the amount of €0.048 million out of the eligible €0.131 million.

In total, OpEx are aligned at €4.899 million out of a total of €17.85 million, i.e. 27.4% and CapEx for €9.178 million, i.e. 85.1%.

¹⁴ DNSH: Do No Significant Harm

Calculation of Taxonomy Key Performance Indicators (KPIs)

Turnover

				Substantial contribution criteria		Do No Significant Harm (DNSH)										
Economic activities (1)	Code(s) (2)	Absolute turnover (3)	Proportion of turnover (4)	Climate change mitigation (5)	Climate change adaptation (6)	Climate change mitigation (11)	Climate change adaptation (12)	Water and marine resources (13)	Circular economy (14)	Pollution (15)	Biodiversity and ecosystems (16)	Minimum safeguards (17)	Taxonomy - aligned proportion of turnover, year N (18)	Taxonomy - aligned proportion of turnover, year N-1 (19)	Category (enabling activity) (20)	Category (transitional activity) (21)
		Currency	%	%	%	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	%	%	H	T
A. ACTIVITIES ELIGIBLE FOR TAXONOMY (A.1 + A.2)																
A.1. Environmentally sustainable activities (aligned with taxonomy)																
N/A	N/A	0	0%										0%			
Turnover from environmentally sustainable activities (aligned with the Taxonomy)													0%			
A.2. Activities eligible for taxonomy but not environmentally sustainable (not aligned with taxonomy)																
N/A		0	0%													
Turnover from activities eligible for taxonomy but not sustainable																
Total (A.1 + A.2)		0	0%													
B. ACTIVITIES NOT ELIGIBLE FOR TAXONOMY																
Turnover from activities not eligible for taxonomy		0.265	100%													
TOTAL (A + B)		0.265	100%													

CapEx

				Substantial contribution criteria		Do No Significant Harm (DNSH)										
Economic activities (1)	Code(s) (2)	Absolute CapEx (3)	Proportion of CapEx (4)	Climate change mitigation (5)	Climate change adaptation (6)	Climate change mitigation (11)	Climate change adaptation (12)	Water and marine resources (13)	Circular economy (14)	Pollution (15)	Biodiversity and ecosystems (16)	Minimum safeguards (17)	Taxonomy - aligned proportion of CapEx, year N (18)	Taxonomy - aligned proportion of CapEx, year N-1 (19)	Category (enabling activity) (20)	Category (transitional activity) (21)
		Currency	%	%	%	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	%	%	H	T
A. ACTIVITIES ELIGIBLE FOR TAXONOMY (A.1 + A.2)																
A.1. Environmentally sustainable activities (aligned with taxonomy)																
Renovation of existing buildings	7.2	2,558,665.67	23.7%	100%	0%		yes	yes	yes	yes	yes	yes	23.7%			T
Market-based research, development and innovation: expenditure related to R&D activities	9.1	6,619,802.53	61.4%	100%	0%		yes	yes	yes	yes	yes	yes	61.4%		H	
CapEx of environmental activities (aligned with the Taxonomy)		9,178,468.20	85.1%	100%	0%		yes	yes	yes	yes	yes	yes	85.1%			
A.2. Activities eligible for taxonomy but not environmentally sustainable (not aligned with taxonomy)																
N/A	N/A	0	0%													
CapEx of activities eligible for taxonomy but not environmentally sustainable		0	0%													
Total (A.1 + A.2)		9,178,468.20	85.1%													
B. ACTIVITIES NOT ELIGIBLE FOR TAXONOMY																
CapEx of activities not eligible for taxonomy		1,605,922.70	14.9%													
TOTAL (A + B)		10,784,390.90	100%													

OpEx

				Substantial contribution criteria		Do No Significant Harm (DNSH)										
Economic activities (1)	Code(s) (2)	Absolute OpEx (4)	Proportion of OpEx (4)	Climate change mitigation (5)	Climate change adaptation (6)	Climate change mitigation (11)	Climate change adaptation (12)	Water and marine resources (13)	Circular economy (14)	Pollution (15)	Biodiversity and ecosystems (16)	Minimum safeguards (17)	Taxonomy - aligned proportion of OpEx, year N (18)	Taxonomy - aligned proportion of OpEx, year N-1 (19)	Category (enabling activity) (20)	Category (transitional activity) (21)
		Currency	%	%	%	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	%	%	H	T
A. ACTIVITIES ELIGIBLE FOR TAXONOMY (A.1 + A.2)																
A.1. Environmentally sustainable activities (aligned with taxonomy)																
Transportation by motorcycles, passenger cars and light commercial vehicles: fleet of vehicles leased	6.5	48,035.25	0.3%	100%	0%	yes	yes	yes	yes	yes	yes	yes	0.3%			T
Market-based research, development and innovation: expenses related to R&D activities	9.1	4,850,885.95	27.2%	100%	0%	yes	yes	yes	yes	yes	yes	yes	27.2%		H	
OpEx of environmentally sustainable activities (aligned with the Taxonomy)		4,898,921.20	27.4%	100%	0%	yes	yes	yes	yes	yes	yes	yes	27.4%			
A.2. Activities eligible for taxonomy but not environmentally sustainable (not aligned with taxonomy)																
Transportation by motorcycles, passenger cars and light commercial vehicles: fleet of vehicles leased	6.5	83,435.11	0.5%													
Acquisition and ownership of buildings: real estate leases	7.7	935,722.74	5.2%													
OpEx of activities eligible for taxonomy but not environmentally sustainable		1,019,157.85	5.7%													
Total (A.1 + A.2)		5,918,079.05	33.2%													
B. ACTIVITIES NOT ELIGIBLE FOR TAXONOMY																
OpEx of activities not eligible for taxonomy		11,932,211.52	66.8%													
TOTAL (A + B)		17,850,290.57	100%													

Appendices and methodological note

Our sustainability policy

Pillars	Operational challenges	Policies and actions identified	Main indicators monitored
Governance & Ethics Pillar	Anchoring sustainable development at the heart of our governance	Building a strong collaboration around the PET Packaging and Fiber-to-Fiber Consortia	<ul style="list-style-type: none">• Percentage of independent members on the Board of Directors• Percentage of women on the Board of Directors• Number of Board of Directors meetings• Attendance rate of directors and non-voting directors at meetings of the Board of Directors
		Definition of CSR governance bodies, their functioning and their respective missions	
		Integration of Social and Environmental performance in job descriptions, objectives, performance appraisals and executive compensation	
	Being responsible for business ethics	Code of Business Conduct	<ul style="list-style-type: none">• Number of alerts/questions/requests for advice received by the alert system
		Procedure for collecting and processing alerts	
	Protecting our data	Ensuring the security of IT systems	
Raising employee awareness of data protection			
Ensuring compliance with the General Data Protection Regulation			
Environmental pillar	Identifying the impacts of our activity on the environment and reducing them	Deployment of a certified environmental management system	<ul style="list-style-type: none">• Site water consumption• Site energy consumption• Share of sustainable mobility in employee travel• CO₂ emissions - Scope 1• CO₂ emissions - Scope 2• CO₂ emissions - Scope 3
	Limiting the risks related to climate change	Energy	
		Climate change mitigation	
		Adaptation to climate change	
		Integration of an assessment of the energy performance of the industrial project in order to favor the least consuming solutions	
	Becoming a major player in the circularity of plastics	Providing a solution to the current limits of PET recycling	<ul style="list-style-type: none">• Extension of research and development work to other families of polymers, in particular polyamides and polyolefins
		Bringing CARBIOS PET processing technology to an industrial scale	
		Extending CARBIOS technology to the treatment of other types of plastic waste	
	Designing more responsible products	Ensuring the protection of intellectual property with an active policy	<ul style="list-style-type: none">• Budget allocated to Research & Development and Industrialization• Number of patent families filed• Number of patents granted• Gross investment in intellectual property protection
		Offering innovative and sustainable biological processes	
	Taxonomy	Taxonomy	<ul style="list-style-type: none">• Taxonomy ratio

Our sustainability policy

Pillars	Operational challenges	Policies and actions identified	Main indicators monitored
Social & Societal Pillar	Developing a safe working environment	Deploying a Health & Safety management system	• Percentage of training budget allocated to health and safety
		Proposing an optimized working environment	• Number of accidents with lost time (AAAT)
		Ensuring quality of work for each employee	• Number of accidents without lost time (ASAT)
	Promoting the development and well-being of our employees at work	Formalizing a human resources management policy in line with the CSR approach	• Number of incidents or near misses
		Establishing a long-term relationship with each employee.	• Absenteeism rate due to work-related illness and accidents
		Promoting daily social dialogue	• AAAT frequency rate
		Ensuring a working environment and internal dialogue conducive to the development of each employee	• AAAT severity rate
		Encouraging the development of good managerial practices	
	Fighting against discrimination and promoting diversity	Fostering diversity	• Percentage of permanent employees
		Preventing all forms of exclusion or discrimination	• Turnover rate
	Supporting and improving the skills of our employees	Providing individualized support to all employees	• Percentage of people aged over 50 in the permanent workforce
	Connecting with local communities	Integrating into regional dynamics to strengthen R&D and development of the technologies	• Percentage of people under the age of 24 in the permanent workforce
		Supporting a sponsorship policy in line with the Company's values	• Percentage of women in the total workforce
	Integrating/involving stakeholders in the supply chain	Formalization of a responsible purchasing policy, Code of conduct and associated commitments	• Percentage of employees with disabilities
		Definition of criteria for assessing suppliers, taking into account their CSR commitments and practices	• Combating discrimination
	Identifying our customers' expectations in terms of quality and meeting their needs	Deployment of a certified Quality Management System	• Percentage of employees trained during the year
		Offering labeled and certified products, recognized at European and international level	• Percentage of employees who had an individual interview

Appendices

Governance

	Suffix	2020	2021	2022
Risk of dilution of minority shareholders				
Share of capital held by founders, families and executives	%	2.00	0.60	0.42
Control of the share capital ($\geq 34\%$ shareholding) by a shareholder or group of shareholders	Y/N	NO	NO	NO
Share of capital held in treasury stock	%	0.02	0.03	0.03
Share of capital held by employees (excluding executives)	%	0.00	0.00	0.00
Share of capital held by other shareholders holding at least 5% of total shares	%	13.80	11.80	11.73
Existence of double voting rights	Y/N	YES	YES	YES

Composition of governance bodies

Separation of the roles of Chairman of the Board of Directors and Chief Executive Officer	Y/N	YES	YES	YES
Number of members of the Board of Directors	AV	9	10	11
Number of women on the Board of Directors	AV	1	2	4
Percentage of women on the Board of Directors	%	11.11	20.00	36.36
Number of executive members of the Board of Directors	AV	1	0	1
Number of directors representing a significant shareholder (holding > 10% of the shares or voting rights) (excluding founders and families)	AV	0	0	0
Number of (non-executive) members representing the founders and families on the Board of Directors/Supervisory Board	AV	1	1	1
Number of employee representatives on the Board of Directors	AV	0	0	0
Number of independent directors	AV	4	4	7
Number of members on the Executive Committee	AV	6	6	9
Number of women on the Executive Committee	AV	0	2	3
Percentage of women on the Executive Committee	%	0.00	33.33	33.33

Operation of governance bodies

Commitment to comply with the recommendations of a corporate governance code	Y/N	YES	YES	YES
Assessment of the functioning of the Board of Directors	Y/N	YES	YES	YES
Number of Board meetings	AV	12	11	8
Average attendance rate of directors at Board meetings	%	96.30	92.02	96.59
Existence of an Audit Committee whose Chairman is independent and has significant experience in audit/finance	Y/N	YES	YES	YES
Existence of a non-statutory Appointments and Compensation Committee/number of meetings per year	Y/N	YES / one meeting in 2020	YES / one meeting in 2021	YES / one meeting in 2022
Existence of a non-statutory CSR commission/number of meetings per year	Y/N	NO	NO	YES / one meeting in 2022

Compensation of executives and directors

Total amount of compensation paid to members of the Board of Directors	€K	138.38	212.64	289.91
Total compensation paid to the Chief Executive Officer (excluding compensation for the directorship)	€K	410.95	1,363.64	358.62
Transparency on the criteria for variable compensation of the Chief Executive Officer	Y/N	NO	YES	YES

Appendices

Gouvernance

	Suffix	2020	2021	2022
Business ethics				
Publication of a formalized business conduct and anti-corruption policy	Y/N	YES	YES	YES
Activities in countries exposed to corruption risks	Y/N	NO	NO	NO
Existence of a whistleblowing system	Y/N	NO	YES	YES
Number of alerts/questions/requests for advice received by the alert system	VA	0	0	0
Share of audit fees out of total statutory auditors' fees	%	70.05	64.35	72.83
Have you been the subject of a public controversy (founded or unfounded), litigation or an unfavorable court decision (conviction) in the last three years?	Y/N	NO	NO	NO
CSR Policy/Social & Environmental Performance				
Formalization of a structured CSR/ESG strategy (with or without targets)	Y/N	NO	YES	YES
Analysis and prioritization of the Group's ESG issues	Y/N	NO	YES	YES
Signatory of the United Nations Global Compact	Y/N	NO	NO	NO
Existence of a manager dedicated to CSR/sustainable development issues	Y/N	NO	YES	YES
Presentation of the CSR strategy to the Board of Directors during the year	Y/N	NO	YES	YES
Annual review of the Company's environmental and societal performance by the Board of Directors	Y/N	NO	NO	Initiative launched in 2023
% of employees trained in CSR issues	%	N/A	N/A	Initiative launched in 2023
Cybersecurity/Data protection				
Compliance with European GDPR regulation (General Data Protection Regulation)	Y/N	N/A	YES	YES
Presentation of IT risks to governance bodies at least once a year	Y/N	NO	YES	YES

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Social

	Suffix	2020	2021	2022
Characteristics and social policy				
Existence of a Human Resources Department at Group level	Y/N	YES	YES	YES
Total workforce at the end of the fiscal year (in FTE)	AV	38	58	101
Permanent workforce at the end of the fiscal year (in FTE)	AV	36	57	96
Number of women permanent employees in FTE at the end of the fiscal year (December 31 - open-ended contracts)	AV		23	45
Share of total workforce located in the country of the registered office	%	100.0	100.0	100.0
Turnover rate	%			26.2
Working conditions				
Publication of a commitment to promote freedom of association and social dialogue	Y/N	NO, general commitment	NO, general commitment	NO, general commitment
Departure rate of permanent employees (number of departures of permanent employees (FTE)/total workforce (FTE))	%	6.5	10.9	23.0
Existence of profit-sharing schemes (profit-sharing, employee shareholding, etc.) excluding legal schemes	Y/N	YES	YES	YES
Number of employees operating under collective agreements	AV	25	40	101
Employee surveys conducted over the last three years	Y/N	YES	YES	YES
Percentage of headcount operating in countries sensitive to fundamental rights at work	%	0.0	0.0	0.0
Skills development				
Percentage of employees having an annual individual appraisal interview	%	100.0	100.0	100.0
Workforce training rate/Percentage of employees having received training	%	32.0	33.3	55.0
Average number of training hours per employee	AV	28.8	42.7	15.3
Diversity/Equal opportunities				
Percentage of women in the workforce	%	50	44	44.5
Percentage of women in the managerial workforce	%	52	71	48
Percentage of employees with disabilities	%	0	0	1
Percentage of people aged over 50 in the permanent workforce	%			12
Percentage of people under the age of 24 in the permanent workforce	%			8
Average age of employees	AV			34
Health and safety				
Existence of an HSS (hygiene, health, safety) management system	Txt	YES	YES	YES
Carrying out a risk analysis in terms of health and safety at work, including psychosocial risks	Y/N	NO	NO	NO, initiative launched in 2023
% of training budget allocated to safety	%			21
Absenteeism rate due to work-related illness and accidents	%	1.66	1.68	3.10
Number of accidents with lost time (AAAT)	AV			0
Number of accidents without lost time (ASAT)	AV			3
Workplace accident frequency rate	AV			0.00
Workplace accident severity rate	AV			0.00

Appendices

Environment

	Suffix	2020	2021	2022
Environmental policy and management system				
Existence of a formalized environmental approach	Y/N	NO	NO	YES
ISO 14001 certification	Y/N	NO	NO	NO
Percentage of products/services subject to a Life Cycle Assessment (LCA)	%	0.0	50.0	50.0
Total provisions for environmental risks	€K	0	0	0
Share of products/services (or turnover) with a recognized environmental label/eco-label	%	50.0	100.0	100.0

Biodiversity

Sites or activities located near biodiversity-sensitive areas	Y/N	NO	NO	NO
Activities leading to land degradation, desertification or soil sealing	Y/N	NO	NO	NO

Energy and GHG

Has the company set a quantitative climate target (energy, GHG emissions)?	Y/N	NO	NO	NO
Measures to save energy and reduce greenhouse gas emissions	Y/N	YES	YES	YES
Total electricity consumption	MWh	158.9	170.9	222.0
Total gas consumption	MWh			
Total energy consumption	MWh	158.9	170.9	222.0
Greenhouse gas emissions for scope 1 (tCO ₂ e)	tCO ₂ e		32	68
Greenhouse gas emissions for scope 2 (tCO ₂ e)	tCO ₂ e		119	37
Greenhouse gas emissions for scope 3 (tCO ₂ e)	tCO ₂ e		2,496	4,757
Contribution to the reduction (or offsetting) of greenhouse gases by financing carbon reduction or sequestration projects outside its sector of activity (tCO ₂ e)	tCO ₂ e	NO	NO	YES

Water

Total water consumption	m ³	885	1,097	2,357
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Waste

Existence of an action plan for waste management	Y/N	YES	YES	YES
Non-hazardous waste generated	T			1,250
Hazardous waste generated	T			8

Appendices

External stakeholders / suppliers / customers

	Suffix	2020	2021	2022
Supplier relationship / Supply chain				
Responsible purchasing policy, including social and/or environmental criteria	Y/N	NO	YES - Not formalized	YES - Formalization initiated in 2023
Customer relations, civil society and product liability				
Existence of a quality management system and proportion of activities benefiting from external certification	Y/N	Subsidiary CARBIOLICE certified ISO 9001 Level 2	Subsidiary CARBIOLICE certified ISO 9001 Level 2	Subsidiary CARBIOLICE certified ISO 9001 Level 2
Conducting of customer satisfaction surveys over the last three years	Y/N	NO	NO	NO
Presence of subsidiaries registered in countries at risk of financial opacity or tax havens	Y/N	NO	NO	NO
Number of interns, apprentices, PhD students, etc.	AV			9

European green taxonomy

	Suffix	2020	2021	2022
Target 1 – Climate change mitigation				
Share of turnover eligible for the European green taxonomy for target 1 – climate change mitigation (%)	%		0	0
Share of CapEx eligible for the European green taxonomy for target 1 – climate change mitigation (%)	%		100	85.1
Share of OpEx eligible for the European green taxonomy for target 1 – climate change mitigation (%) ¹⁵	%		99	33
Company activities aligned with the European Taxonomy	Y/N	N/A	N/A	YES
Percentage of CapEx aligned with the European Taxonomy	%	N/A	N/A	85.1
Percentage of OpEx aligned with the European Taxonomy	%	N/A	N/A	27.4

¹⁵ Change in the calculation scope between 2021 and 2022. Please refer to the Taxonomy chapter of this report for more details.

Methodological Note

This methodological note details the definitions, details of the scope or methodologies used to calculate the CSR indicators included in the tables in the appendices to this report.

Social indicators

Total workforce at year-end

The total workforce at fiscal year-end includes permanent and non-permanent, full-time and part-time employees, present as of December 31 of the year reported.

Interns, work-study students and temporary workers are not included in the total workforce.

The workforce is expressed in full-time equivalents.

Scope: CARBIOS and its subsidiaries

Staff turnover rate

Scope: permanent and non-permanent, full-time and part-time workforce.

It is equal to (number of departures + number of arrivals) / 2 / workforce members at January 1 of the year N*100.

It is expressed as a percentage.

Workforce training rate

Rate calculated on the basis of permanent and non-permanent, full-time and part-time workforce.

Calculation formula = (number of training hours completed during the year / total workforce at 12/31/N)

The 2022 training plan focused on three types of training: Job adaptation, Skills development and Safety.

The calculation of the workforce training rate includes only those recorded as such with attendance sheets or confirmation of attendance.

Percentage of women in the workforce

Women present in the permanent and non-permanent workforce as at 12/31/N / Total permanent and non-permanent workforce as at 12/31/N

Absenteeism rate

Scope: permanent and non-permanent, full-time and part-time workforce.

Calculation formula: Number of hours of absence (paid or not) within the permanent and non-permanent workforce / Number of theoretical hours worked for the permanent and non-permanent workforce.

It is expressed as a percentage.

Number of accidents with or without lost time

Scope: permanent and non-permanent workforce, temporary employees and interns, at full-time or part-time.

Environmental indicators

Non-hazardous waste generated

99% of the non-hazardous waste generated is wastewater and 1% is paper, cardboard and ordinary residual waste.

Hazardous waste treated

Hazardous waste treated, in accordance with the applicable regulations, corresponds to contaminated water, industrial packaging waste and various products meeting the classification of hazardous waste as defined by the French Ministry for the Environmental Transition and Regional Cohesion. (ecologie.gouv.fr).

Total electricity consumption

Scope: CARBIOS and its subsidiaries, excluding the Toulouse cooperative laboratory (PoPLab).

Greenhouse gas emissions

Scope: CARBIOS and its subsidiaries.

Greenhouse gas emissions were calculated based on the GHG Protocol.

Scope 1 is composed of the Company's direct emissions: direct emissions from mobile sources with combustion engines, direct fugitive emissions and direct emissions from stationary combustion sources.

Scope 2 is composed of the Company's indirect emissions, therefore mainly the consumption of electricity used in the offices and the demonstration plant and steam, heating or cooling.

Scope 3 consists of all other indirect emissions, see detail of CARBIOS' main scope 3 categories on page 35.

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