



Press release

2022 half-year results

- **Project to build the world's first PET biorecycling plant, in partnership with Indorama Ventures, the world's largest manufacturer of recycled PET: Establishment in France with strong backing from national government and the Grand-Est Region**
- **On track to bring recycled PET from Carbios' proprietary innovation process to market by 2025**
- **Fully operational industrial demonstration plant and step-by-step technological validation of the scale-up of the industrial solution designed and developed by Carbios**
- **Launch of a textile consortium in partnership with On, Patagonia, PUMA and Salomon**
- **Scientific article in the prestigious *Biophysical Journal***
- **Carbios strengthens its Governance and Management team**
- **Carbios enhance its financial structure, banking the €30 million loan from the European Investment Bank (EIB)**
- **Carbios Group's net cash position: €121 million at June 30, 2022**

Clermont-Ferrand, France, September 30, 2022 (6:45 a.m. CEST) - Carbios (Euronext Growth Paris: ALCRB), a pioneer in the development of biological solutions to optimize the life-cycle management of plastics and textiles, today reported its operating and financial results for the first half of 2022. The financial statements as of June 30, 2022 were approved by Carbios' Board of Directors.

“In the first six months of the year, we launched a textile consortium in partnership with On, Patagonia, PUMA and Salomon to work and innovate together to help build a more socially responsible and circular textile industry. We also continued to develop our operations by validating the technological scale-up of our biological recycling solution for PET polyester plastic and fibers. The demonstration plant has produced excellent results and represents a major step forward in Carbios' industrial and commercial journey. These technical advances mean we can confidently pursue our joint project with Indorama Ventures to build a Reference Plant, and get ready to set first operating partnerships in 2023. I would like to thank all our teams for these achievements, which confirm our ambition and our strategic vision of making Carbios a key player in the environmental transition.” **Carbios CEO Emmanuel Ladent** said.

[Results and business review for the first-half 2022](#)

Accounting principles

The Company's financial statements as of June 30, 2022, are presented in accordance with the International Financial Reporting Standards (IFRS) published by the International Accounting Standards Board and adopted by the European Union. These consolidated financial statements comprise those of Carbios, the parent company, and its subsidiary Carbiolice, reported using the equity method until June 3, 2021, when Carbios took over and consolidated Carbiolice, creating “the Group”. Under

IFRS 3, assets and liabilities acquired from Carbiolice were initially recognized at fair value as of the acquisition date.

These IFRS financial statements were prepared in order to provide high-quality financial information, based on international standards, and consistent with that of comparable companies.

Income statement and 'adjusted' indicators reflecting the impact of IFRS 3 following the Carbiolice takeover (in thousands of euros)

	6/30/2022	6/30/2021
	6 months	6 months
Revenue	9	28
R&D expenses, net	-5,540	-2,335
<i>R&D expenses</i>	-8,970	-4,324
<i>Subsidies and other business income</i>	2,825	1,989
<i>Capitalized development expenses</i>	604	-
Sales and marketing expenses	-1,354	-845
General & administrative expenses	-4,637	-2,491
Operating expenses	-11,531	-5,671
Other operating income and expenses	26	21,204
Operating income (loss) (2)	-11,496	15,560
Net financial income	-316	-187
Income before taxes	-11,811	14,245
Income tax	-	-
Contribution of companies reported using the equity method (3)	-	-1,128
Net income or loss for the period (4)	-11,811	14,245
IFRS accounting impact following the Carbiolice takeover:		
<i>Other operating income and expenses (1)</i>	-	21,204
<i>Contribution of companies reported using the equity method (3)</i>	-	-1,128
Operating income (loss) 'adjusted' for IFRS impacts linked to the Carbiolice takeover (2)-(1)	-11,496	-5,643
Net income or loss 'adjusted' for IFRS impacts linked to the Carbiolice takeover (4)-(1)-(3)	-11,811	-5,830

- **Current operating expenses**

In its consolidated financial statements prepared under IFRS, the Group presents income statement items by function. This means that current operating expenses are classified and recognized in the income statement under the following items: R&D expenses, net, Sales and marketing expenses and General & administrative expenses.

The figures for first-half 2022 comprise the financial statements of Carbios and Carbiolice over the full reporting period plus those of new subsidiary Carbios 54 over one month¹. The financial statements

¹ Carbios 54: new subsidiary registered on June 8, 2022. It is wholly owned by Carbios and its purpose is to run the Company's Reference Plant in Longlaville (France).

for the first-half 2021 report Carbios' figures over the full reporting period and those of Carbiolice as from June 4, 2021, Carbiolice being reported using the equity method until this date. Carbios 54 was only set up in the first half of 2022.

Operational expenses in the first half of 2022 stood at €11,531 thousand compared to €5,671 thousand in the first half of 2021.

R&D expenses, net: The Group amplified its research and development push in all its innovative themes, particularly in the biorecycling of PET plastic and fibers. R&D expenses, net, totaled €5,540 thousand in the first half of 2022 versus €2,335 thousand in the first half of 2021.

In first-half 2022:

- The Group committed €8,970 thousand in *R&D expenses* as it pursued its industrialization ambitions. This is a significant jump and mainly reflects the development of the PET biorecycling project. Note that the joint R&D effort in partnership with TWB was until 2021 financed through the CE-PET project, supported by ADEME, France's Environment and Energy Management Agency. Since the project closed the Group now pays all expenses for ongoing work.

The main changes are increased staff costs, particularly relating to the industrial demonstration plant, and the use of third-party providers for various tasks linked to the Reference Plant project, whose initial costs, totaling €1,419 thousand, were paid by Carbios and rebilled to Carbios 54.

- The Group booked €2,825 thousand of *Subsidies and other business income*, which partly covered these R&D expenses. This item mainly consists of:

- o €2,110 thousand in tax credits for first-half 2022, of which €1,763 thousand relates to Carbios: €1,459 thousand in research tax credit (CIR), plus €304 thousand for the research collaboration tax credit (CICo), and €348 thousand for Carbiolice. This compares to CIR funding of €1,182 thousand and €69 thousand², respectively, in first-half 2021; and
- o €636 thousand of operating subsidies.

- Finally, the Group continued to capitalize the *Development expenses* of its PET biorecycling project, booking a total €604 thousand in the first half of 2022. Capitalization dates from October 1, 2021 in accordance with IAS 38 capitalization criteria.

Sales and marketing expenses: Sales and marketing expenses totaled €1,354 thousand in the first half of 2022 versus €845 thousand in the first half of 2021. The €509 thousand increase mainly reflects the cost of studies and consultants engaged to investigate consumer perceptions of Carbios' technological solutions and support its bids at calls for projects. It also partly reflects the strengthening of the Group's sales teams to support the acceleration of its development and prepare for the future licensing of its PET biorecycling technology.

General & administrative expenses: General and administrative expenses totaled €4,637 thousand in the first half of 2022 versus €2,491 thousand in the first half of 2021. The €2,146 thousand increase is notably attributable to greater use of advisory and support services related to the structuring of the Group's CSR approach and other services. Accounting and financial fees also rose substantially following the Group's decision to prepare its accounts under IFRS. Staff costs also increased, reflecting the rise in headcount over the period. In addition, Carbios held for the first time a Capital Markets Day on May 31, 2022 (a Carbon Neutral event with PAS 2060 certification).

² CIR granted to Carbiolice in 2021 and booked for the period following Carbios' takeover from June 4, 2021 to June 30, 2021.

- **Other operating income and expenses, 'adjusted' operating income (loss) and 'adjusted' net income or loss**

The application of IFRS and the takeover of Carbiolice on June 4, 2021 required the restatement of some accounting items under IFRS, which had an impact on Other operating income and expenses on the consolidated income statement.

At June 30, 2021, under IFRS 3, the transfer of stocks previously reported using the equity method (preparatory to the acquisition of 100% of Carbiolice stocks) gave rise to a net non-cash gain, which was measured at the fair value of Carbios' pre-takeover stake in Carbiolice, €21.2 million. This had no impact on the Group's cash flow.

To make the half-year financial statements easier to read and understand, the Group has included an 'adjusted' operating income (loss) item, restated to strip out items relating to the Carbiolice transactions, which are reported under 'Other operating income and expenses'. The adjusted item therefore shows only ordinary revenue and 'recurring' operating expenses. This 'adjusted' operating income (loss) item shows a loss of €11.5 million at June 30, 2022, compared to a €5.6 million loss at June 30, 2021. Most of the difference is due to the higher R&D and G&A expenses cited above, including the contributions of Carbiolice as from June 4, 2021.

The Group has also reported an 'adjusted' net income or loss, restated for the effects of reporting the Carbiolice takeover under IFRS, including impacts on financial income (loss), tax expense and the restatement/cancellation of the Contribution of companies reported using the equity method. This 'adjusted' net income or loss shows a loss of €11.8 million at June 30, 2022, versus a €5.8 million loss at June 30, 2021.

The Group enjoys a robust financial position, with net cash of €121 million as of June 30, 2022 compared to €105 million as of December 31, 2021, thanks largely to the banking in June 2022 of the €30 million loan granted to Carbios by the European Investment Bank.

Given the financial position as of June 30, 2022 and the Company's projected operational expenses, Carbios expects to be able to cover its financial needs beyond the next 12 months.

Highlights of the first half of 2022 and events after the reporting period

- **Reference Plant project**

In February 2022³, Carbios announced it was partnering with Indorama Ventures to build the world's first manufacturing plant to use its technology.

This Reference Plant is designed to process 50,000 tons of PET waste annually. It will also strengthen Carbios' business model which consists of the licensing of its technologies and know-how and the sale of enzymes to its licensees, who will build their own PET recycling production units.

The Unit will be adjacent to the Indorama–Glanzstoff plant at Longlaville (France).

Engineering design studies are progressing in line with the calendar for regulatory applications and Unit start-up. Working meetings are held with stakeholders – including local politicians, the prefecture, and DREAL and DDT, local iterations of the state environmental, development and housing departments – to think through the next stages of the project.

³ Cf. February 23, 2022 press release

The provisional calendar⁴ and key steps for the building of the Unit are:

2022:

- Engineering studies and filing of requests for construction authorizations
- Environmental authorization

End-2023:

- Start of the construction of the Unit

2025:

- Mechanical completion and commissioning
- First revenue from the operation of the Unit

- [Industrial demonstration plant: Carbios scales up its technology for industrial production](#)

In accordance with the Company's provisional calendar, all stages of the process, from pre-treatment of PET waste to monomer production, are now linked together. The demonstration plant is operated by technical team of 12 engineers and technicians.

Results from the demonstration plant inform the drafting of the process design package (PDP) for building and running a Reference Plant and, from 2023/2024, should allow Carbios to grant several licenses for this technology and to sell the associated enzymes to industrial operators who will build and operate their own units.

The core elements of the process, the depolymerization kinetics and the yield from enzymatic recycling of PET plastic waste, are achieving identical results to those in the laboratory and pilot schemes. At these stages, the key challenges lie in optimizing productivity, yields and in the qualification of sources of raw materials. At the same time, the purification train is being made more reliable and fine-tuned in close collaboration with the design team for the Reference Plant and technology suppliers.

- [Textile consortium](#)

In July 2022⁵, Carbios announced the signing of an agreement with **On, Patagonia, PUMA and Salomon**, to develop solutions that would enhance the recyclability of their products. An important aim of the two-year deal will be to speed up the introduction of Carbios' unique biorecycling technology, which represents a breakthrough for the textile industry. Carbios and the four companies will also research how products can be recycled, assess possible solutions for collecting worn polyester items, including sorting and dismantling technologies, and gather data on fiber-to-fiber recycling as well as circularity models. The common goal of the consortium members is to create real circularity in this industry by innovating to recycle fibers from one product into another and so reduce the problem of textile waste in a collaborative approach that helps create a more sustainable future.

- [Textile R&D developments](#)

In March 2022⁶, Carbios successfully completed the **3rd and final technical stage of the CE-PET research project** co-financed by ADEME, (France's Environment and Energy Management Agency)⁷. The work done on this project by Carbios and academic partner TWB resulted in the successful manufacture at pilot scale of a white PET fiber that is 100% enzymatically recycled from colored textile waste. Thanks

⁴ Estimated dates, depending on the grant of the authorizations to build and operate

⁵ Cf. [July 06, 2022 press release](#)

⁶ Cf. [March 10, 2022 press release](#)

⁷ Project carried out under ADEME's Future Investment Program (PIA 1882CO098).

to the successful completion of this stage, which sought to develop Carbios' biorecycling process to recover textile waste, the Company received €827 thousand (€206,800 in subsidies and €620,400 in repayable advances).

- [Scientific article](#)

In July 2022⁸, Carbios and the Toulouse Biotechnology Institute (TBI) announced the **publication of an article entitled “An NMR look at an engineered PET depolymerase” in the prestigious *Biophysical Journal***. The article describes how the authors used Nuclear Magnetic Resonance spectrometry to investigate the thermal stability of PET depolymerization enzymes and how the enzyme is absorbed by the polymer. This novel approach, which required months of development, is a world first and opens up new ways to improve the performance of these enzymes. Publication of this article further consolidated Carbios' international lead in developing the most effective enzymes for plastic depolymerization and recycling.

- [WhiteCycle project](#)

In August 2022⁹, Carbios announced it had joined the **WhiteCycle project**, launched in July 2022 and coordinated by Michelin. The project's main goal is to develop a circular solution to convert complex¹⁰ waste containing textile made of plastic into products with high added value. Co-funded by Horizon Europe, the European Union's research and innovation program, this public/private European partnership includes 16 organizations and will run for four years.

WhiteCycle envisions that by 2030 the uptake and deployment of its solution will lead to the annual recycling of more than 2 million tons of PET. This project should prevent landfilling or incineration of more than 1.8 million tons of plastic each year. It should also reduce CO₂ emissions by around 2 million tons.

WhiteCycle has a global budget of nearly €9.6 million and receives European funding of nearly €7.1 million.

- [A strengthened financial structure to support development](#)

In June 2022, **Carbios received the €30 million loan (€29.55 million net of costs) granted by the European Investment Bank (EIB)** as announced on December 20, 2021¹¹. The principal of the loan, which is supported by the European Commission's InnovFin energy demonstration program, will be repaid in constant annual installments between June 29, 2025 and June 29, 2030.

This type of finance is earmarked to support promising innovative projects, developed by companies seeking to effect major change in pursuit of the EU's climate goals, and is intended to help European industry take the lead in developing sustainable technologies. The €30 million loan, disbursed in one single tranche by the EIB, carries a fixed annual interest of 5%, with a maturity of 8 years and the first repayment due in 2025. This agreement is supplemented by a warrants' issuance agreement under which Carbios issued 2.5% of its fully diluted share capital in warrants to the EIB, of which 1.25% with an exercise price of €40 per share, and 1.25% with an exercise price of €38.8861 per share, corresponding to the volume-weighted average of the trading price of an ordinary share of the company over the last three (3) trading days preceding the fifth day prior to the signing date. The creation and issuance of these EIB warrants, and therefore the disbursement of the €30 million loan,

⁸ Cf. [July 20, 2022 press release](#)

⁹ Cf. [August 09, 2022 press release](#)

¹⁰ Complex waste: waste composed of multi-materials (rubber goods, composites and multi-layer textiles).

¹¹ Cf. [December 20, 2021 press release](#)

was subject to approval at an Extraordinary Meeting of Carbios Shareholders held on February 2, 2022, the delegation of appropriate powers to Carbios' Board of Directors and subsequent resolution of the Board of Directors exercising these powers.

Based on the current cash position and projected operating expenses, Carbios considers that it can cover its financial needs beyond the next 12 months.

- Strengthening governance

Change in the Board of Directors

At the Annual Ordinary and Extraordinary Shareholders' Meeting of June 22, 2022, **Mr. Philippe Pouletty** was appointed Chairman of the Board and Director and **Mr. Emmanuel Ladent** was appointed Director.

In June 2022¹², Carbios also announced the strengthening of its Board with the appointments of **Ms. Isabelle Parize** (Chairman of Delsey) and **Mr. Juan de Pablo** (Executive Vice-President at the University of Chicago) as independent Directors.

Evolution of the Executive Committee

In May 2022¹³, **Mr. Lionel Arras**, Industrial Development Director, and **Mr. Mathieu Berthoud** (ex. Suez), Sourcing and Public Affairs Director, were appointed to Carbios' Executive Committee.

In September 2022¹⁴, **Mr. Pascal Bricout** (ex. Michelin), joined Carbios' Executive Committee as Chief Strategy and Financial Officer.

- Strengthening of Intellectual Property

During the first half of 2022, Carbios pursued its active policy of securing its technologies and know-how with the filing of a new patent application protecting its recycling process.

Carbios has also consolidated its Intellectual Property portfolio with new grants of major patents in the United States, Canada, China, South Korea, Mexico and Brazil protecting the various technologies developed by the Company.

As of June 30, 2022, **Carbios' Intellectual Property portfolio included 42 families of patents** (including one under an exclusive worldwide license with the CNRS and University of Poitiers), representing 274 patent titles filed across the world's key regions and 63 patents already delivered. Of these patent families, 24 are related to Carbios' proprietary PET recycling technology with applications filed in Europe, the United States, Canada, Mexico, China, India, Thailand, Indonesia, South Korea, Japan and Taiwan.

These families of patents cover the Company's various areas of development (biodiversity, enzymatic recycling process, biodegradable plastic production process and bioproduction).

¹² Cf. June 30, 2022 press release

¹³ Cf. May 30, 2022 press release

¹⁴ Cf. September 1, 2022 press release

Carbiolice, now wholly owned by Carbios, also has its own separate portfolio comprising, at June 30, 2022, 9 patent families. All these patents are directly related to Carbiolice's business of manufacturing biodegradable plastics, particularly those incorporating an enzyme.

- [Awards](#)

In May 2022¹⁵, Carbios announced that it had received the **Efficient Solution label from the Solar Impulse Foundation** for its PET biorecycling solution. As part of the renewal of this label, the technology implemented by Carbios has been reassessed by a group of independent experts according to multiple criteria covering the three main themes of technical feasibility, social and environmental impact, and economic profitability.

In August 2022¹⁶, Carbios announced that its Chief Scientific Officer, Prof. Alain Marty, had received the **Biocat Award** in the “Industry” category. This award is considered one of the most prestigious in biotechnology. Prof. Alain Marty is recognized for his significant achievements in the field of enzymatic recycling of PET plastics and polyester fibers. The award recognizes his work on enzymatic optimization and the application of enzymes' extraordinary specificity to support the circular economy of plastics.

[Publication of the interim financial report](#)

The interim financial report as of June 30, 2022 has been published on the Company's website and filed with the French regulator, the *Autorité des Marchés Financiers*.

[About Carbios](#)

Established in 2011 by [Truffle Capital](#), [Carbios](#) is a green chemistry company, developing biological and innovative processes. Through its unique approach of combining enzymes and plastics, Carbios aims to address new consumer expectations and the challenges of a broad ecological transition by taking up a major challenge of our time: plastic and textile pollution.

Carbios deconstructs any type of PET (the dominant polymer in bottles, trays, textiles made of polyester) into its basic components which can then be reused to produce new PET plastics with equivalent quality to virgin ones. This PET innovation, the first of its kind in the world, was recently recognized in a scientific paper published in front cover of the prestigious journal [Nature](#). Carbios successfully started up its demonstration plant in Clermont-Ferrand in 2021. It has now taken another key step towards the industrialization of its process with the construction of a first-of-a-kind unit in partnership with Indorama Ventures.

In 2017, Carbios and L'Oréal co-founded a consortium to contribute to the industrialization of its proprietary recycling technology. Committed to developing innovative solutions for sustainable development, Nestlé Waters, PepsiCo and Suntory Beverage & Food Europe joined this consortium in April 2019. In 2022, Carbios signed an agreement with On, Patagonia, PUMA, and Salomon, to develop solutions promoting the recyclability and circularity of their products.

The Company has also developed an enzymatic biodegradation technology for PLA-based (a bio sourced polymer) single-use plastics. This technology can create a new generation of plastics that are 100% compostable in domestic conditions, integrating enzymes at the heart of the plastic product.

For more information, please visit www.carbios.com/en

Twitter: Carbios LinkedIn: Carbios Instagram: [insidecarbios](#)

¹⁵ [Solar Impulse Foundation](#)

¹⁶ [Cf. August 31, 2022 press release](#)



Carbios (ISIN FR0011648716/ALCRB) is eligible for the PEA-PME, a government program allowing French residents investing in SMEs to benefit from income tax rebates.

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