

Global Consumer Brands Unveil World's First Enzymatically Recycled Bottles

- *Food grade sample bottles produced by Consortium – including Carbios, L'Oréal, Nestlé Waters, PepsiCo and Suntory Beverage & Food Europe – using breakthrough enzymatic recycling process*

Clermont-Ferrand, France, June 24, 2021 (07:01 AM CEST): The promise of endlessly recycled PET plastic is one step closer today, as the Consortium – Carbios, L'Oréal, Nestlé Waters, PepsiCo and Suntory Beverage & Food Europe – announces the successful production of the world's first food-grade PET plastic bottles produced entirely from enzymatically recycled plastic.

Each Consortium company has successfully manufactured sample bottles – based on Carbios' enzymatic PET recycling technology – for some of their leading products including: Biotherm®, Perrier®, Pepsi Max®** and Orangina®.

Today's announcement is the culmination of nearly 10 years' research and development by Carbios to create a new process and supercharge an enzyme naturally occurring in compost heaps that normally breaks down leaf membranes of dead plants. By adapting this enzyme, Carbios has fine-tuned the technology and optimized this enzyme to break down any kind of PET plastic (regardless of color or complexity) into its building blocks, which can then be turned back into like-new, virgin-quality plastic.

Carbios' patented enzymatic PET recycling process enables a wide variety of PET plastics to be recycled into virgin quality, food grade rPET. PET plastics that would otherwise go to waste or be incinerated, can now be brought back into a continuous circular system of recycling. And this can be achieved at high speed – breaking down 97% of plastic in just 16 hours – 10,000 times more efficient than any biological plastic recycling trial to date (*peer-reviewed article in [Nature](#)*).

Together, these brands will work to scale this innovation to help meet the global demand for sustainable packaging solutions. In September 2021, Carbios will break ground on a demonstration plant, before launching a 40,000 tons capacity industrial facility, by 2025.

Commenting on the announcement, Carbios' CEO Jean Claude Lumaret commented:

“In a world first, we have created food-grade clear bottles from enzymatically recycled colored and complex plastic with identical properties to virgin PET, and in partnership with the Consortium, we have proved the viability of the technology with the world's leading brands. This is a truly transformational innovation that could finally fully close the loop on PET plastic supply globally, so that it never becomes waste.”

Jacques Playe, L'Oréal's Global Head of Packaging and Product Development added:

“We have been working with Carbios since 2017 to develop this first bottle made from PET derived from enzymatic recycling technology, an alternative to mechanical recycling. We are pleased to announce today the feasibility of these bottles in a pilot phase and are delighted to be in a position to create the packaging of the future with our partners. This is a promising innovation for the years to come that demonstrates our commitment to bring to market more environmentally friendly packaging and which is part of a circularity initiative begun more than 15 years ago”.

Jean-Francois Briois, Head of Packaging Material Science and Environmental Sustainability Nestlé Waters global R&D added:

“It is very exciting to see that the quality of the prototype bottles made from colored recycled PET materials is virtually identical to clear virgin PET. When we reach industrial scale, this enzymatic recycling technology will

enable us to produce high-quality rPET bottles and help Nestlé Waters in our journey to boost the circular economy and reduce the use of virgin plastics.”

Ron Khan, Global VP of Packaging, Beverages, PepsiCo added: *“PepsiCo is committed to building a circular economy to achieve our vision that packaging never becomes waste. We are dedicated to reducing the virgin plastic we use and with the breakthrough Carbios enzymatic recycling technology, we can help keep valuable material in the circular economy, reduce waste and take another step toward a truly closed loop system.”*

Roberto Vanin, Chief R&D Officer, Suntory Beverage & Food Europe, added: *“The global issue of plastic waste requires transformational thinking, creative partnerships and innovative brands coming together to seek out new solutions. Continued investment in new ways of tackling waste and creating true circularity such as this ground-breaking technology from Carbios will be key to Suntory Beverage & Food Europe achieving its 100% sustainable plastic ambition.”*

Enzymatic recycling overcomes the issue of degradation in conventional recycling and can be used on any type of PET plastic. Because Carbios’ recycling process works under mild conditions, it could also lower the carbon footprint of PET waste treatment by saving 30% of CO₂ emissions compared to a conventional end of life mix of incineration and landfill, taking virgin PET production substitution into account.***

The successful completion of these initial food-grade bottles is a major milestone in the Consortium’s validation of Carbios’ technology. This partnership is part of a growing trend amongst brands to collaborate across industries to tackle these global challenges, working towards a world of circularity, where we limit the production of virgin plastic.

Carbios will license its technology to PET manufacturers worldwide, accelerating the global adoption of enzymatic recycling for all kinds of PET based products.

Notes to Editors

To book interviews or to request further information or images, please contact lon-carbios@ketchum.com

For statistics about plastic and recycling, please refer to Fast Facts document.

** *Pepsi Max® also known as Pepsi Black or Pepsi Zero Sugar in other global markets.*

*** *Preliminary Life Cycle Assessment of Carbios PET recycling process, 2021*

About Enzymatic Recycling

Around 70 million tons of PET plastic is manufactured globally every year – equal to around 20% of all plastic – but through repeated conventional thermomechanical processes, the plastic used in packaging is degraded over time and requires new virgin plastic to retain its quality.

Carbios has successfully hyper-charged naturally occurring enzymes from compost heaps that breaks down leaf membranes of dead plants. PET plastic is made from a string of building blocks also called monomers and this optimized enzyme is super-efficient at cutting the PET plastic into these building blocks: terephthalic acid and ethylene glycol. Those monomers can then be recombined to recreate the PET polymer, at food grade quality, in an infinite, virgin-quality loop.

About Carbios

Carbios, a green biotech company, develops biological and innovative processes to revolutionize the end of life of plastics and textiles. Through its unique approach of combining enzymes and plastics, Carbios aims to address new consumer expectations and the challenges of a broader energy transition by taking up a major challenge of our time: plastic and textile pollution. Carbios was named one of the [World Economic Forum's Technology Pioneers of 2021](#).

Carbios and L'Oréal founded the Consortium in 2017 and were joined in 2019 by Nestlé Waters, PepsiCo and Suntory Beverage & Food Europe.

For more information, please visit <http://www.carbios.com/en/>

About L'Oréal

L'Oréal has devoted itself to beauty for over 100 years. With its unique international portfolio of 35 diverse and complementary brands, the Group generated sales amounting to 27.99 billion euros in 2020 and employs 85,400 people worldwide. As the world's leading beauty company, L'Oréal is present across all distribution networks: mass market, department stores, pharmacies and drugstores, hair salons, travel retail, branded retail and e-commerce.

Research and innovation, and a dedicated research team of 4,000 people, are at the core of L'Oréal's strategy, working to meet beauty aspirations all over the world. L'Oréal sets out ambitious sustainable development goals across the Group for 2030 and aims to empower its ecosystem for a more inclusive and sustainable society.

For more information, please visit: <https://www.loreal.com/en/mediaroom/>

About Nestlé Waters

Water transforms us. It's the guiding principle for Nestlé Waters, one that's helped us deliver water in smart and sustainable ways for over 100 years. The water division of the Nestlé group operates in 26 countries, with 49 facilities and more than 21,000 employees, with a portfolio of 38 unique brands – including NESTLÉ PURE LIFE, PERRIER and S.PELLEGRINO. It's through these brands that Nestlé Waters is inspiring families to enjoy drinking more water and natural drinks, as well as working with local communities to protect shared water resources and helping eliminate the impact of plastic packaging on the environment.

For more information, please visit: <https://www.nestle.com/brands/bottledwater>

About PepsiCo

PepsiCo products are enjoyed by consumers more than one billion times a day in more than 200 countries and territories around the world. PepsiCo generated more than \$70 billion in net revenue in 2020, driven by a complementary food and beverage portfolio that includes Frito-Lay, Gatorade, Pepsi-Cola, Quaker, Tropicana and SodaStream. PepsiCo's product portfolio includes a wide range of enjoyable foods and beverages, including 23 brands that generate more than \$1 billion each in estimated annual retail sales.

Guiding PepsiCo is our vision to Be the Global Leader in Convenient Foods and Beverages by Winning with Purpose. "Winning with Purpose" reflects our ambition to win sustainably in the marketplace and embed purpose into all aspects of our business strategy and brands.

For more information, please visit: www.pepsico.com

About Suntory Beverage & Food Europe

Suntory Beverage & Food Europe (SBFE) was established in 2014 and is one of five regional divisions of the Japan-based Suntory Group, one of the leading global drinks companies. We're proud to be part of a family-owned business with its inspiring 120-year heritage and we are guided by Shinjiro Torii's founding spirit. SBFE is made up of 3,800 passionate people working throughout Europe on hugely iconic brands including Schweppes*, Orangina, Lucozade, Ribena, La Casera, Oasis*, Pulco and MayTea with a commitment to producing great-tasting, healthier drinks. Everything we do flows from our Mizu To Ikiru promise and our vision of Growing for Good. Being in harmony with people and nature is at the heart of our business, and we're working every day to ensure that future generations inherit and enjoy a healthy planet.

**Owned and commercialized within SBFE respective territories*

For more information, please visit:

<https://www.suntorybeverageandfood-europe.com>

<https://www.linkedin.com/company/suntory-beverage-&-food-europe-limited/>