– Press Release –

CARBIOS' enzyme-based technology for rendering PLA biodegradable at ambient temperatures has confirmed its effectiveness on a pre-industrial scale; potential for new industrial applications for PLA is thus expanded

Clermont-Ferrand, France, 22 June 2015 CARBIOS (NYSE Alternext Paris: ALCRB), an innovative green chemistry company specializing in breakthrough technologies dedicated to the recovery of plastic waste and the production of bio-polymers, announced today that it has successfully applied its biodegradation technology, which entails embedding an enzyme in plastic at the time of production, to polylactic acid (PLA). This follows CARBIOS' July 2014 announcement that it had successfully and completely biodegraded a first polymer, polycaprolactone (PCL), in less than three months. In adding the complete biodegradation of a second polymer, PLA, to its technology portfolio, CARBIOS has significantly expanded the breadth of industrial applications that it is able to offer its future partners and clients, and the markets that they address.

The market for PLA, the most widely-used bio-sourced polymer at the industrial level, is currently estimated at 190,000 tons (according to Nova Institute and European Bioplastics in 2011) with an expected annual growth rate between 10% and 28% through 2018 (according to Ceresana Research in 2011, Research and Markets in 2013), and could thus reach one million tons by 2025. The growth potential for the use of PLA lies in its capacity as a substitute for PET and for expanded polystyrene, also known as EPS (Utrecht University, PRO-BIP 2009). The largest application for PLA is in packaging materials (accounting for 60% of PLA use), particularly food packaging, followed by textile and biomedical applications (according to MarketsandMarkets in 2013).

Given the broad range of potential applications and uses of PLA, CARBIOS and its partners in the Thanaplast™ project prioritized this polymer in the development of their technologies for enzymatically biodegrading and bio-recycling plastics. Currently, using existing technologies, PLA is only compostable under industrial conditions, in confined environments that require temperatures above 50°C and high levels of humidity. Consequently, the use of PLA for applications that require complete biodegradation under uncontrolled conditions that are considered "environmental", faces significant constraints. Carbios' successful biodegradation of PLA at ambient temperatures via the use of an enzyme thus constitutes a technological break-through for which many applications may be envisaged.

The specific enzyme used in the degradation of PLA, which is proprietary to CARBIOS, is a result of the vast biodiversity screening work carried out by the Thanaplast™ project. After having been

identified and isolated, this enzyme, which is a cornerstone of the bio-processes applied by CARBIOS to PLA (both for biodegradation and bio-recycling), is currently produced by the CRITT (Center for Research and Innovation in Technology Transfer) and CARBIOS as part of their previously-announced formal collaboration, in 300 liter reactors. These first productions have enabled CARBIOS and its teams to validate the general principles of the future process for producing this enzyme on an industrial scale. Moreover, these first batches have enabled the production of a "compound" based on biodegradable PLA obtained by including the enzyme during the extrusion process.

The next stage will entail producing the first commercial objects in PLA, such as soft and rigid food packaging, that are completely biodegradable under ambient conditions as outlined in and surpassing standard EN 13432, and in compliance with other standards applicable to the anticipated applications of the biodegradable PLA. The enzyme that has been identified and isolated by CARBIOS effectively degrades plastic material made from PLA into lactic acid, a PLA monomer and metabolite that can be naturally assimilated by all living organisms.

Jean-Claude Lumaret, CEO of CARBIOS, stated: "We have proven that CARBIOS' bio-processes are no longer a utopia to be reached, but are now are an actual reality. A decisive milestone has been reached with PLA. We are eager to continue, along with our academic partners (the University of Poitiers-CNRS-EBI, TWB-INRA-LISBP, CRITT…) to further develop our biodegradation and bio-recycling processes, targeting industrial applications that address the growing regulatory and societal requirements and constraints affecting the end-of-life of plastics."

About CARBIOS

Carbios is a young, innovative green chemistry company, whose mission is to find biological solutions to the environmental and sustainable development issues faced by industrial businesses today. Carbios acquired the rights to research that was conducted over a number of years by various public and private sector laboratories. By leveraging the unique properties of biological catalysts (enzymes), it has used this research as the foundation for developing innovative industrial bioprocesses that optimize the technical, economic and environmental performance of polymers (thermoplastic materials and synthetic or food-based fibers). The company has focused its efforts on a strategic application sector: plastics. Carbios' growth strategy is based on a clear business model of industrial value creation that targets attractive markets, develops innovative and competitive bioprocesses and licenses them to major industrial stakeholders for commercialization. Carbios benefits from the financial support of the leading European venture capital firm Truffle Capital. Carbios was founded in 2011 and has been funded, since its inception, by funds managed by the *Holding Incubatrice Chimie Verte* fund. Carbios was granted the label "Young Innovative Company" by Bpifrance (former OSEO) and is eligible for investments by private equity mutual funds (FCPIs). For more information, please visit www.carbios.fr

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CARBIOS is eligible for France's PEA-PME investment regime

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