

Avantium and Origin Materials to Accelerate the Mass Production of FDCA and PEF for Advanced Chemicals and Plastics

AMSTERDAM, 21 February 2023, 22:05 hrs CEST – Avantium N.V. (“Avantium”), a leading technology company in renewable chemistry, and Origin Materials, Inc. (“Origin” and “Origin Materials”), a leading sustainable materials company based in the USA, today announced a partnership to accelerate the mass production of FDCA and PEF for use in advanced chemicals and plastics. The partnership aims to bring the technology platforms of both companies together in order to produce FDCA from sustainable wood residues on an industrial scale. FDCA (furandicarboxylic acid) is the key building block for the biopolymer PEF (polyethylene furanoate) – a 100% plant-based, fully recyclable plastic material, with superior functionality and a significantly reduced carbon footprint compared to conventional plastics. PEF can be used in a wide range of applications such as bottles, packaging, films, fibers and textiles, which represent major end-markets.

This new partnership brings together Avantium’s proprietary YXY® Technology that converts plant-based sugars into FDCA, with Origin’s patented technology platform which turns carbon found in sustainable wood residues into useful building-block chemicals such as CMF (chloromethylfurfural). Bridging these two complementary technologies creates a route that can convert sustainable wood residues via CMF into FDCA. Avantium is currently constructing the world’s first commercial-scale FDCA Flagship Plant in Delfzijl, the Netherlands. Avantium has signed offtake agreements for the supply of FDCA and PEF to major brand names and industry leaders for a range of applications, including Carlsberg, LVMH and AmBev. Origin Materials has recently reported that it has mechanically completed its first commercial manufacturing plant Origin 1 in Canada. This plant is anticipated to produce materials including CMF from sustainable wood residues, which can subsequently be converted into high-performance products used in packaging, textiles, apparel, automotive, and other applications. For Origin 1 and future plants, Origin has signed numerous capacity reservations and offtake agreements with well-known brand owners.

Industrial technology license agreement

The technology partnership between Avantium and Origin includes a non-exclusive industrial technology license agreement, providing Origin Materials access to relevant parts of Avantium’s process technology to enable the conversion of Origin-produced CMF derivatives into FDCA at a 100 kilotonnes per annum scale facility. Under the technology license agreement, Avantium grants Origin a non-exclusive license to use certain parts of Avantium’s proprietary YXY® process (including certain patent rights) for the purpose of (a) designing, constructing and operating the licensed facility and (b) producing, using, selling and converting FDCA manufactured at that facility. Avantium will also execute a development program under the license agreement to establish a bridge between Origin’s and Avantium’s technologies. Origin Materials expects to incorporate Avantium’s process technology into the supply chain for product from its future plants.

In support of the industrial technology license agreement, Avantium and Origin Materials have made ancillary arrangements to develop the market for FDCA and PEF applications.

Financial terms

Under the terms of the transaction, Avantium received an upfront payment of €5 million in 2022. As a result of signing the industrial technology license agreement, Origin Materials will pay Avantium a milestone fee of €7.5 million. Origin agreed to pay Avantium subsequent license fees dependent upon achievement of different development milestones. Following the commercial operations date of the licensed facility, Avantium will be eligible to receive royalties for each metric ton of FDCA produced at the licensed plant. The license fee milestone payments and overall royalty rate are in line with industry practices and with previous guidance provided by Avantium.

Offtake agreement

In support of the industrial technology license agreement, Origin Materials and Avantium have also entered into a conditional offtake agreement ("COA"), whereby Avantium will sell FDCA and PEF to Origin Materials from its FDCA pilot plant in Geleen (the Netherlands) in 2023 and from its FDCA Flagship Plant in Delfzijl (the Netherlands) as from the commercial operations date in 2024. During the term of the COA, Origin will purchase a gradually increasing minimum annual volume of FDCA on a take-or-pay basis, which has the potential to enable Origin to accelerate market adoption of FDCA and PEF. Avantium continues to pursue its dialogue on additional offtake and industrial license agreements with other industrial partners to further expand and diversify the market for FDCA and PEF applications.

"We are excited to enter into this strategic partnership with Origin Materials, a like-minded partner committed to revolutionizing the chemical and plastics industry," said Tom van Aken, Chief Executive Officer of Avantium. "The technologies of both companies are highly complementary and will also enable the use of non-edible, renewable feedstocks for the production of FDCA and PEF, meeting the expectations of brand owners and consumers worldwide. This supplements the feedstock options for our technology. We look forward to working together on our shared ambition to transition the world to large-scale sustainable materials made from non-fossil resources."

"We are excited to partner with Avantium, a leading innovator and developer of sustainable chemistry, on a project with far-reaching impact," said John Bissell, Origin Co-Founder and Co-Chief Executive Officer. "Together we aim to bring the value of FDCA and one of its main applications, PEF, to the industry at large and to drive decarbonization throughout the supply chain. By combining Origin's revolutionary platform, which can produce key FDCA precursors like CMF from sustainable wood residues, with Avantium's YXY[®] process technology, we aim to transform the polymers and materials industry. This partnership accelerates our efforts to bring economical non-food based FDCA and PEF to market."

About Avantium

Avantium is a leading technology development company and a frontrunner in renewable chemistry. Avantium develops novel technologies based on renewable carbon sources as an alternative to fossil-based chemicals and plastics. The company currently has three technologies at pilot and demonstration phase. The most advanced technology is the YXY[®] plant-to-plastics-technology that catalytically converts plant-based sugars into FDCA (furanicarboxylic acid), the key building block for the sustainable plastic PEF (polyethylene furanoate). Avantium has successfully demonstrated the YXY[®] Technology at its pilot plant in Geleen, the Netherlands, and has started construction of

the world's first commercial plant for FDCA in 2022, with planned large-scale production of PEF in 2024. The second technology is Ray Technology™ and catalytically converts industrial sugars to plant-based MEG (mono-ethylene glycol) and plant-based MPG (mono-propylene glycol): plantMEG™ and plantMPG™. Avantium is scaling up its Ray Technology™ and the demonstration plant in Delfzijl, the Netherlands opened in November 2019. The third technology is called the Dawn Technology™ that converts non-food biomass into industrial sugars and lignin in order to help transition the chemicals and materials industries to non-fossil resources. In 2018, Avantium opened the Dawn Technology™ pilot biorefinery in Delfzijl, the Netherlands. Avantium also provides R&D solutions in the field of sustainable chemistry and is the leading provider of advanced catalyst testing technology and services to accelerate catalyst R&D. Avantium works in partnership with like-minded companies around the globe to create revolutionary renewable chemistry solutions from invention to commercial scale.

Avantium's shares are listed on Euronext Amsterdam and Euronext Brussels (symbol: AVTX). Avantium is incorporated in the Euronext Amsterdam SmallCap Index (AScX). Its offices and headquarters are in Amsterdam, the Netherlands.

About Origin Materials, Inc

Headquartered in West Sacramento, Origin Materials is the world's leading carbon negative materials company. Origin's mission is to enable the world's transition to sustainable materials. For over a decade, Origin has developed a platform for turning the carbon found in inexpensive, plentiful, non-food biomass such as sustainable wood residues into useful materials while capturing carbon in the process. Origin's patented technology platform can help revolutionize the production of a wide range of end products, including clothing, textiles, plastics, packaging, car parts, tires, carpeting, toys, and more with a ~\$1 trillion addressable market. In addition, Origin's technology platform is expected to provide stable pricing largely decoupled from the petroleum supply chain, which is exposed to more volatility than supply chains based on sustainable wood residues. Origin's patented drop-in core technology, economics and carbon impact are supported by a growing list of major global customers and investors. For more information, visit www.originmaterials.com.

Origin Materials, Inc is listed on NASDAQ (ORGN, ORGNW).

Forward-looking information / disclaimer

This press release may include forward-looking statements. Other than reported financial results and historical information, all statements included in this press release, including, without limitation, those regarding our financial position, business strategy and management plans and objectives for future operations, are forward-looking statements. These forward-looking statements are based on our current expectations and projections about future events and are subject to risks and uncertainties that could cause actual results to differ materially from those expressed in the forward-looking statements. Many of these risks and uncertainties relate to factors that are beyond Avantium's ability to control or estimate precisely, such as future market conditions, the behavior of other market participants and the actions of governmental regulators. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this press release and are subject to change without notice. Other than as required by applicable law or the applicable rules of any exchange on which our securities may be traded, we have no intention or obligation to update forward-looking statements.

This press release by Avantium N.V. contains information that qualified or may have qualified as inside information for the purposes of Article 7 of the Market Abuse Regulation (EU) 596/2014 (MAR).

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